PRODUCT

2020 2021

CATALOGUE

1

VALVE
AIR UNIT
TUBE
FITTING



Mindman

MINDMAN. SMART AUTOMATION

QUALITY POLICY
Quality advancement & Exceeding customers' demands

No.1
Quantity supplied of pneumatic components in Taiwan.

SALES NETWORK
97 Countries

Core Business : Manufacture and sale for varieties of high quality automation components.

1979
FOUNDED

MANUFACTURE BASE IN
TAINAN
CITY, TAIWAN

HEADQUARTERS IN
TAIPEI
CITY, TAIWAN

PRESIDENT
CHING-CHENG HUANG

CAPITAL
USD 12,558,000

EMPLOYEES
750 People

PLANT SIZE
90,000 m^2

Mindman Industrial Co., Ltd. was established in 1979 with a destination to provide high quality automation components for a wide variety of industries.

During the past 40 years, Mindman has devoted to the expansion of our product range. Thanks to our R&D department, we are proud to possess the diversified product lineup includes solenoid valves, air treatment units, pneumatic cylinders, electric actuators and all different types of fluid power accessories.

We always believe that fast delivery of automation components is the key of success in the market. Through the complete vertical integration of all manufacturing processes and automated warehouse, we are confident to achieve on time delivery.

To keep quality high during the whole production process, we implement the strict quality control standard. We thoroughly control the process via standard operation procedure (SOP), statistical process control system (SPC) and total productive management (TPM). Most important of all, Mindman commits to providing the products with 100% inspection after assembly.

Currently, Mindman products are exported to more than 90 countries around the world. We devoted ourselves to building the relationship with customers worldwide and provide them with the strong support, such as online 3D drawing, inventory check and promotional program… etc. In the vast automation market, Mindman will spare no effort in establishing a brand – a world-class premium automation components supplier.

OUR STANDARD YOUR GUARANTEE
ISO 9001 Quality
ISO 14001 Environmental protection
OHSAS 18001 Health and safety

RoHS COMPLIANT
CE
MIT Made in Taiwan

DEVELOPMENT OF MINDMAN

Vol.1

1979 — Mindman was founded.

1987 — Techniacal cooperation with NISCON Japan.

1989 — Syuejia plant established (10,000m^2).



1992 — Joint venture with PISCO Japan in Taiwan.

1999 — ISO-9001 approval.



2000 — Jiali plant 1 established. (6,600m^2).

2005 — Jiali plant 2 established. (8,250m^2).



2007 — Jiali plant 3 established (10,890m^2).

2008 — Introduction of full R&D facility (360m^2).





2009 — Automated warehouse and Jiali plant 4 established. (6,600 m^2).

2013 — Joint venture with ATAM Italy for coil automated production in Taiwan.

2016 — Joint venture with MEDAN GmbH for linear actuators manufacture in Germany.

2018 — ISO-14001 approval.



2019 — Pei-men plant established (32,498 m^2).

RELATED ENTERPRISE

Vol.1

TA PHONE trading co., ltd.

- Authorized distributor of NITTO, VESSEL and AIRMAN.
- Founded in 1968
- Capital: USD 1,000,000
- Employees: 8 people



www.taphone.com.tw

WAY FU industrial co., ltd.



- The first time recorder manufacturer in Taiwan.
- Founded in 1980
- Capital: USD 780,000
- Employees: 40 people



www.wayfu.com.tw

ATAM Taiwan

- An Italian world-class manufacturer in the field of electrical coil
- Founded in 2013
- Capital: USD 1,660,000
- Employees:12 people



www.atam.it/en

PISCO Taiwan

- A Japanese world leader of high quality pneumatic components manufacturer.
- Founded in 1992
- Capital: USD 3,000,000
- Employees: 41 people



www.pisco.co.jp

UNIMECH hydro-pneumatic co., ltd.

- A hydraulic - pneumatic actuators manufacturer based in Taiwan Kaohsiung.
- Founded in 1993
- Capital: USD 1,300,000
- Employees: 30 people



www.unimec.com.tw

MEDAN GmbH

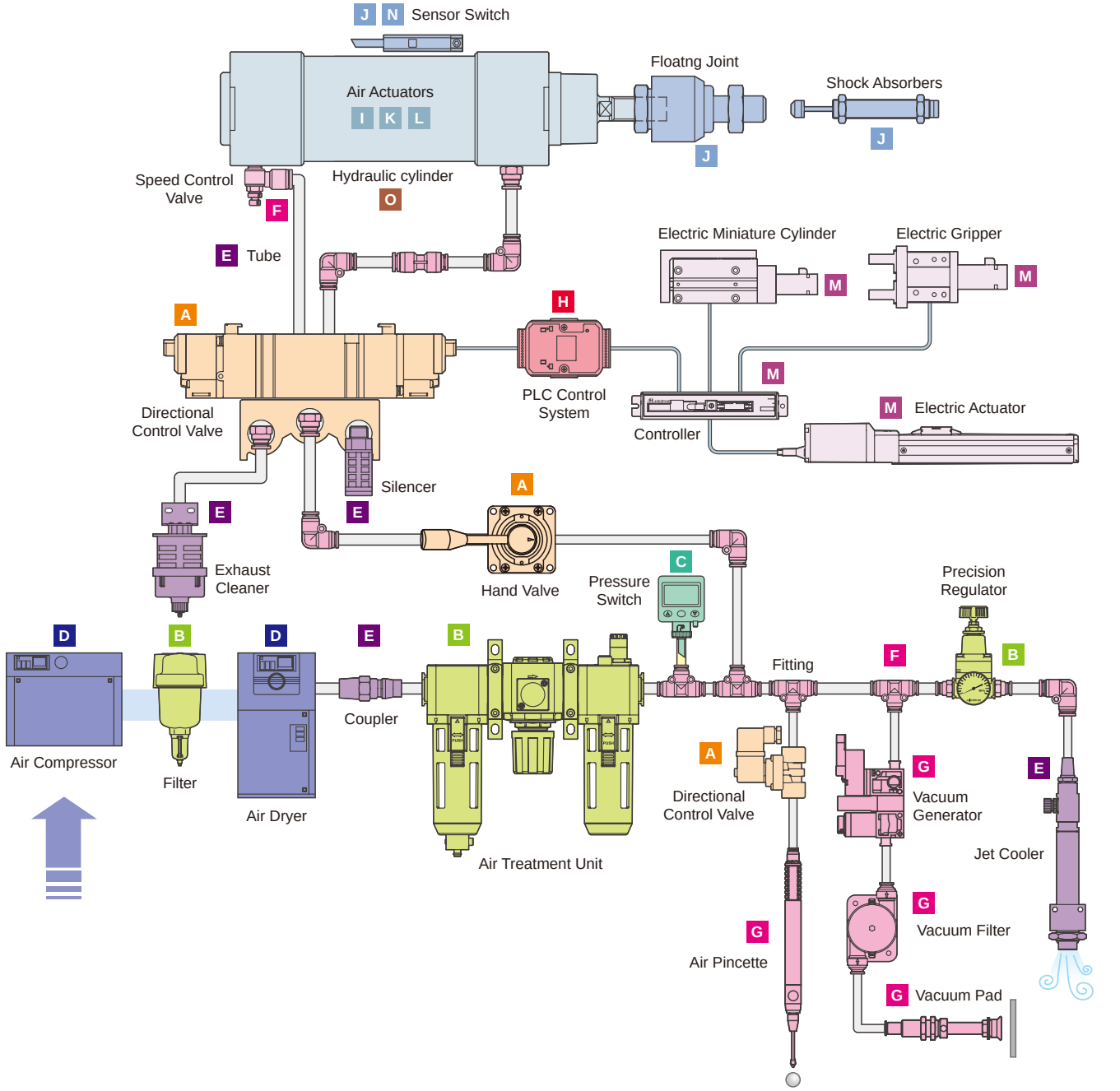
- A German professional manufacturer in the field of pneumatic and electric linear technology.
- Founded in 1990
- Capital: EUR 26,000
- Employees: 12 people



www.medan-gmbh.com

PNEUMATIC CIRCUIT DIAGRAM

Vol.1



Vol. 1

A Valve.....(Page 1-**, 2-**, 3-**)
B Air unit.....(Page 4-**)
C Pressure switch .....(Page 5-**)
D Compressed air dryer.....(Page 6-**)
E Auxiliary equipment.....(Page 7-**)
F PISCO Fitting.....(Page 8-**)
G PISCO products.....(Mindman website)
H PLC.....(Mindman website)

Vol. 2

I Cylinder..... (Page 1~7-**)
J Auxiliary equipment..... (Page 8-**)

Vol. 3

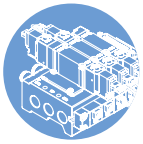
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1 SOLENOID VALVE



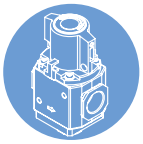
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2 PROCESS VALVE



2 Port / 3 Port	2-5

3 PILOT / MECHANICAL VALVE



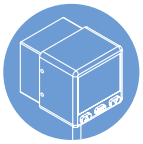
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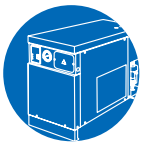


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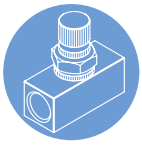
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INNOVATION

Department of R&D

Mindman R&D team develops the product through the concept of mechatronics and IoT with the higher level of precision improvement. We apply PLM system to facilitate the sorting and analysis of complicated 3D drawings and product data. Furthermore, we implement multiple testing to insure the product lifespan, load capacity, flow rate, and response time consist with our product catalog.



Automation

Mindman founded the department to design and provide the solution of automation. Besides, the team designs our own automated machine which enhances our productivity and increases liability of quality.

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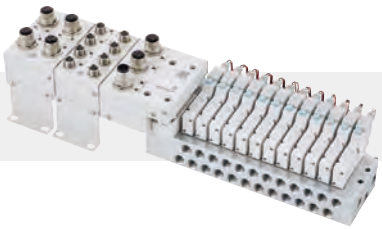




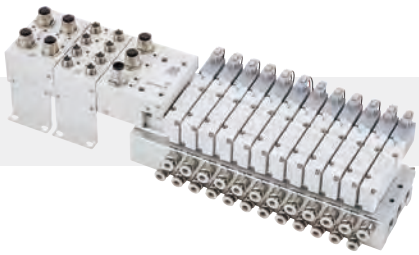
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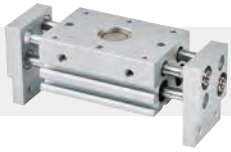
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MCHC series
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P. 3-8



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MCHX series
Add: ø40
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Electric Actuator

▸ Slider Electric Cylinder (Without motor)



METFB-25 series

P. 4-2



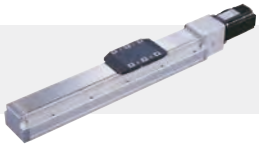
METFB-32 series

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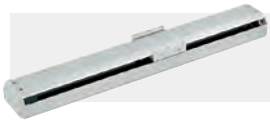
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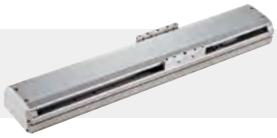
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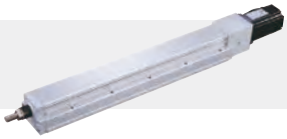
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▸ Rod Type Electric Actuator (Without motor)



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MEQG-8 series

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▸ Mini. Electric Cylinder (Without motor)



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MESS2-25 series

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MESH2-16 series

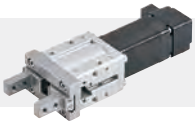
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MESH2-20 series

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▸ Electric Gripper (Without motor)



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▾ Driver



MECP series

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CAD DOWNLOAD Steps

Vol.3

1 Sitio web Mindman

2 Key in model.

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MCJA

Tube I.D. φ 12, 16, 20, 25, 32, 40, 50, 63, 80, 100 (mm), Ultra Compact, light weight and space saving cylinder. Single and double acting available.

Features | Specification | Order Example | CAD Download | Accessory

Please log-in | Anonymous login | Error Report

3

Caution

- Video Guide : 2D / 3D downloading procedure demonstration.
- PDF file : 2D / 3D downloading procedure demonstration.

Sitio Web Mindman

6 Formats → Add formats

Choose desired formats.

Search... | Show 2D formats | Show 3D formats

- DXF AUTOCAD VERSION 2010-2012 (2D)
- DXF AUTOCAD VERSION 2010-2012 (3D)
- DXF AUTOCAD VERSION 2013 (2D)
- DXF AUTOCAD VERSION 2013 (3D)
- STEP AP203 (3D)
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- STL (3D)
- SVG (2D)

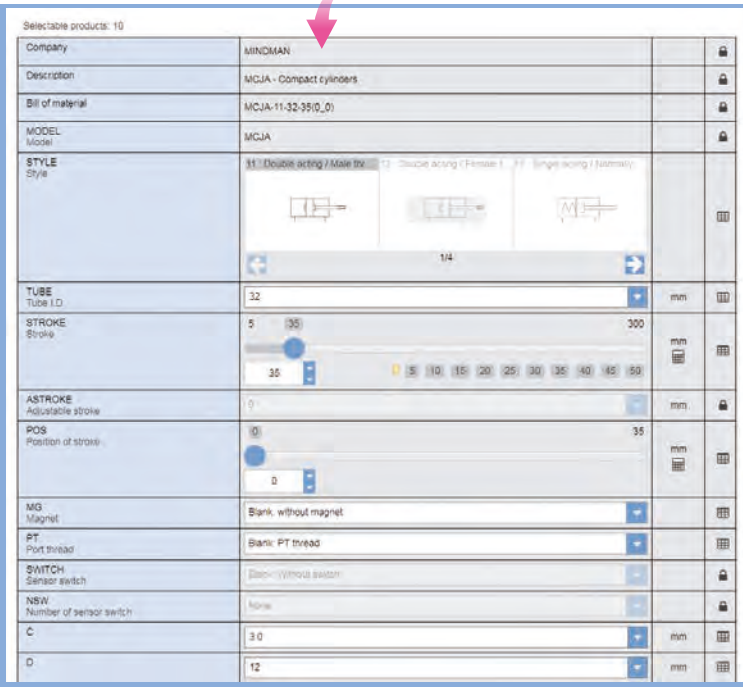
7 Generate CAD

Generate CAD file and download.

MCJA-11-32-35(0_0)...
Download
Information
Delete

Download all files

4 Select the specification.





5 Update preview

Preview the profile.

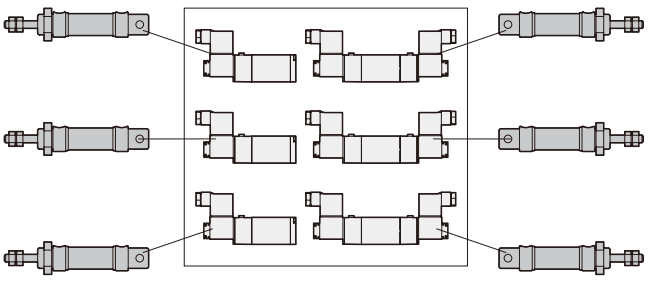
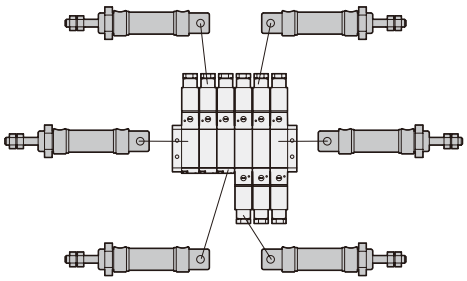
Pressure conversion chart

Pa	kPa	MPa	bar	mbar	kgf/cm^2	cmH^{2}O	mmH^{2}O	mmHg	p.s.i.
1	0.001	0.000001	0.00001	0.01	0.0000102	0.0102	0.10197	0.0075	0.000145
1000	1	0.001	0.01	10	0.0102	10.2	101.97	7.5	0.145
1000000	1000	1	10	10000	10.2	10200	101970	7500	145
100000	100	0.1	1	1000	1.02	1020	10200	750.06	14.5
100	0.1	0.0001	0.001	1	0.00102	1.02	10.2	0.75	0.0145
98066.5	98.07	0.09807	0.98	980.67	1	1000	10000	735.56	14.22
98.0665	0.9807	0.0009807	0.00098	0.98	0.001	1	10	0.74	0.01422
9.80665	0.09807	0.00009807	0.00009807	0.09807	0.0001	0.1	1	0.07356	0.00142
133.32	0.13332	0.00013332	0.00133	1.33	0.00136	1.36	13.6	1	0.01934
6895	6.895	0.006895	0.06895	68.95	0.07031	70.31	703.07	51.71	1

Flow rate conversion chart

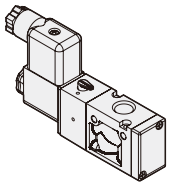
m^3/s	l/s	cm^3/s	m^3/h	m^3/min	l/h	l/min	ft^3/min (scfm)	gallon min UK	gallon min USA
1	1000	1000000	3600000	60	3600000	60000	2120	13200	15850
0.001	1	1000	3.6	0.06	3600	60	2.12	13.2	15.85
0.000001	0.001	1	0.0036	0.00006	3.6	0.06	0.0212	0.0132	0.01585
0.00028	0.28	280	1	0.1667	1000	16.67	0.59	3.67	4.4
0.01667	16.67	16670	60	1	60000	1000	35.31	219.97	264.17
0.00000028	0.00028	0.28	0.001	0.00001667	1	0.01667	0.00059	0.00367	0.0044
0.00001667	0.01667	16.67	0.06	0.001	60	1	0.03531	0.21997	0.264
0.00047	0.47	470	1.699	0.02832	1699	28.32	1	6.23	7.48
0.00007579	0.07577	75.77	0.273	0.00455	273	4.55	0.16	1	1.2
0.00006309	0.06309	63.09	0.227	0.00379	227	3.79	0.13	0.83	1

Intergrated connection system offers improvements on facilities

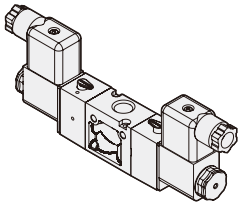
Facilities with traditional connection system	Facilities applied with intergrated connection system
• Longer distance from the controlling valve to the operating unit. • Slower response time. • More air consumption. • Complicated connection arrangements. • Mass electric wiring and connections to controlling valves task. • Higher cost to run the facilities. • Higher prossure drop.	• Shorter distance from the controlling valve to the operating unit. • Quicker response time. • Less air consumption. • Simple connection arrangements. • Moderate electric wiring connections task. • Lower cost to run the facilities. • Lower pressure drop.
	

SOLENOID VALVE

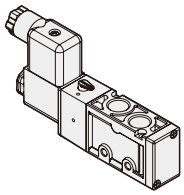
3E1
3 way / Single solenoid



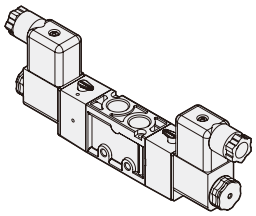
3E2
3 way / Double solenoid



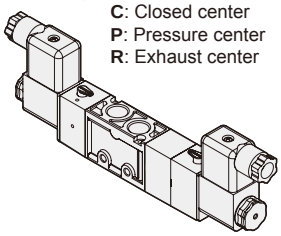
4E1
4 way / Single solenoid



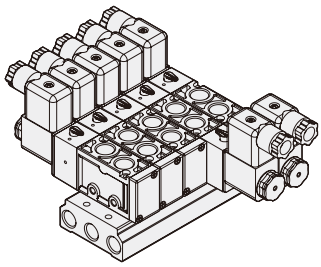
4E2
4 way / Double solenoid



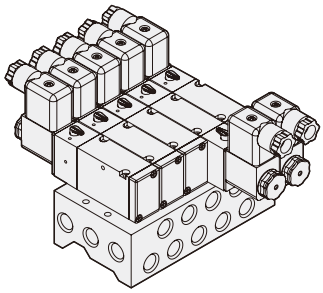
4E2C.P.R
4 way / Double solenoid
C: Closed center
P: Pressure center
R: Exhaust center



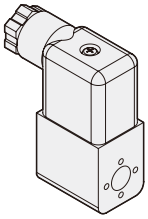
Body ported type



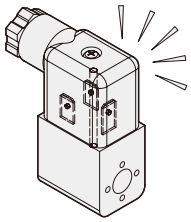
M
Manifold type



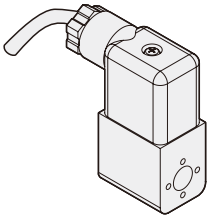
DIN connector



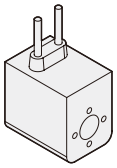
L
LED indicator



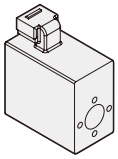
E
Explosion protection



W
Lead wire

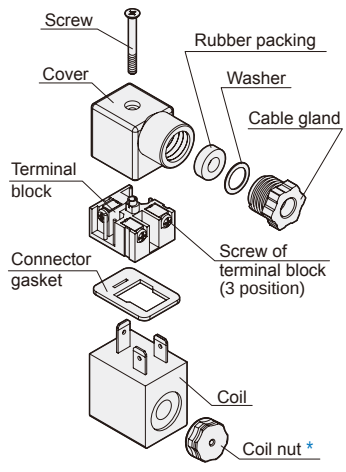


H
Horizontal connector
With LED indicator



DIN connector

1. Suitables cables: ø6~ø9
   Max. conductor eize: 1.5 mm^2
2. Recommended tightening torque
   Screw: 0.5 Nm
   Screw of terminal block: 0.5 Nm



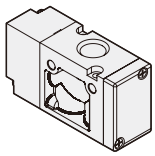
3. Max. tightening torque of coil nut (*)
   tas shown in the table below.

Model	Spec.	Max. tightening torque (Nm)
MVSC-220	M8	0.5
MVSC-260	M8	0.5
MVSC-300	M8	0.5
MVSC-460	M8	0.5
MVSD1-180	M7	0.5
MVSD-180	M7	0.5
MVSE-260	M8	0.5
MVSE-300	M8	0.5
MVSE-500	M8	0.5
MVSE-510	G1/4	0.6

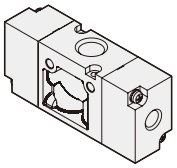
Model	Spec.	Max. tightening torque (Nm)
MVSE-600	G1/4	0.6
MVSI-260	M8	0.5
MVSI-450	M8	0.5
MVSI-510	G1/4	0.6
MVSN-220	M8	0.5
MVSN-300	M8	0.5
MVDC-220	M8	0.5

PILOT **VALVE**

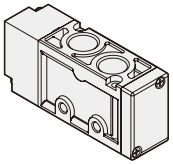
3A1
3/2 Single pilot



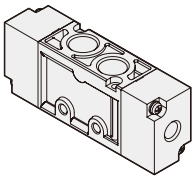
3A2
3/2 Double pilot



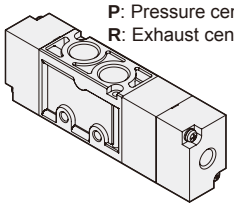
4A1
5/2 Single pilot



4A2
5/2 Double pilot



4A2(C.P.R)
5/3 Double pilot
C: Closed center
P: Pressure center
R: Exhaust center

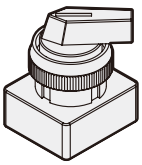


MECHANICAL **VALVE**

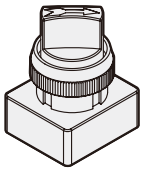
EB
Latching palm button



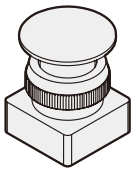
LB
Extended twist button



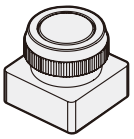
TB
Twist button



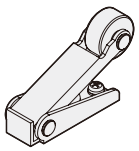
PB
Mushroom palm button



PP
Push button



R1
Roller lever



Order example

Order example of valve

* Please refer to the product page for complete model number.

MVSC — 150 M — 4 E2 C — NC — 25A (Continued)

Model
MVSC
MVSC1
MVSE
MVSI
MVSN
MVSP
MVSY
MVDA
MVDC
MVDY

Body width
80
100
120
150
156
180
188
220
260
300
450
460
500
510
600

Ported type	
—	Body ported type
C4	Body ported with tube fitting
C6	Body ported with tube fitting
C8	Body ported with tube fitting
M	Manifold type

* Quick connector attached, for dimension ø4, ø6, ø8mm.

Way	
2	2 way (2 port)
3	3 way (3 port)
4	4 way (5 port)

Coil	
E1	Single solenoid
E2	Double solenoid

Exhaust position	
C	Closed center
P	Pressure center
R	Exhaust center
D	Differential

* Only for **4E2** type.

Type	
NC	Normally closed
NO	Normally open

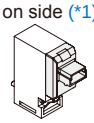
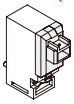
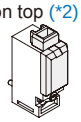
* Only for **3E1** type.

Bore size	
—	Rc1/4
6A	Rc1/8, G1/8
8A	Rc1/4, G1/4
20A	Rc3/4
25A	Rc1

— AC110 — L — LP — A — M2 — G

Voltage
AC220 V(50/60)Hz
AC110 V(50/60)Hz
DC24 V
DC12 V
DC6 V
KK DC24V/DC5V
DC24 V

Connector type	
—	DIN connector
L	DIN connector with LED indicator
E	Explosion protection
W	Lead wire
H	Horizontal connector with LED indicator

Plug type	
LJ	Plug on side (*1) 
LR	Plug on side (*2) 
SR	Plug on top (*2) 

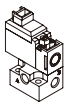
Pilot	
LP	External pilot

Wire length	
—	500mm
1	1000mm
2	2000mm
3	3000mm

Wire	
C	Without driver board
S	With driver board

Flow capacity	
—	Large flow capacity
A	Standard flow capacity

* **DC24**V only for standard flow capacity.

Symbol of assembly	
B1	Assembly (Base+Valve) 
M□	2,3...manifold number assembly (Manifold+Valve) 

Port thread	
—	Rc thread
G	G thread
NPT	NPT thread

* Code 1) **M**: Mindman
  Code 2) **V**: Valve
  Code 3) **S**: Solenoid valve
  Code 3) **D**: Direct acting
  Code 4) **C**: Series
* 180 standard body width = 18 mm

*1. Connector with flying leads **JPC** type.
*2. Connector with flying leads **RMH** type. (Original)

Order example of manifold

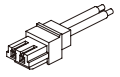
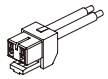
* Please refer to the product page for complete model number.

MVSC — 220 M — 5M 3 — G

Model	Body width	Ported type		Manifold		Manifold number	Port thread	
MVSC	100	—	Body ported type	3B	3 port (for body ported type)	1,2,3 ~	—	Rc thread
MVSC1	150	M	Manifold type	3M	3 port (for manifold type)		G	G thread
MVSE	156			5B	5 port (for body ported type)		NPT	NPT thread
MVSP	180			5M	5 port (for manifold type)			
MVSY	188							
MVDY	220							
	260							
	300							
	460							
	500							

Order example of wire

MVDY — 100 — W A2 J 2

Model	Voltage		Wire		Wire length	
	A2	AC220 V(50/60)Hz	J	JPC type 	—	500mm
	A1	AC110 V(50/60)Hz			1	1000mm
	D	DC24/12/6 V	R	RMH type 	2	2000mm
					3	3000mm

Order example

Order example of process valve

* Please refer to the product page for complete model number.

MBS – 03 – 2 – N – 2 – D – F – M – AC110

Model	Code	Fig.	Seal mat'l	Coil	Plug	Conn.	Manual	Voltage
MBS	03 1/8	1, 2, 3, 4, 5, 6, 7, 8, 9	N NBR	2 #2	– DIN	– Screwed	– Without	AC220 V(50/60)Hz
MCS	06 1/4		J EPDM	3 Bigger	O None	F Flanged	M With	AC110 V(50/60)Hz
MGD	08 1/4		V VITON	4 #4	D LED	* Only for **MGD**	* Only for **MGD**	DC24 V
MUSC	10 3/8		T TEFLON	5 Bigger	G 1/2" NPT			
MUST	15 1/2		R RUBY	2E Explosion-proof	Y 2 wires			
MUT	20 3/4		Z FFKM	3E				
	25 1							
	32 1 1/4							
	40 1 1/2							
	45 1 1/2							
	50 2							

Order example of pilot valve

* Please refer to the product page for complete model number.

MVAA – 150 M – 4 A2 C – NC – G

Model	Body width	Ported type	Way	Pilot	Exhaust position	Type	Port thread
MVAA	150	– Body ported type	3 3 way (3 port)	A1 Single pilot	C Closed center	NC Normally closed	– Rc thread
	180	M Manifold type	4 4 way (5 port)	A2 Double pilot	P Pressure center	NO Normally open	G G thread
	220				R Exhaust center		NPT NPT thread
	260				* Only for **4E2** type.	* Only for **3E1** type.	
	300						
	460						

* Code 1) **M**: Mindman
  Code 2) **V**: Valve
  Code 3) **A**: Pneumatic
  Code 4) **A**: Series
* 150 standard body width = 15 mm

Order example of manual / mech. operator

* Please refer to the product page for complete model number.

MVHA – 34T

Model	Operator type	
MVHA	34T	Fingertip operator
	34C	Cam operator
	34CW	One-way cam operator
	34B	Ball operator
	34A	Air pilot operator

Order example

Order example of mechanical valve

* Please refer to the product page for complete model number.

MVMA — 300 — 6A — 4 EB — 25 R — G

Model	Body width	Bore size	Way	Button type	Button size	Button color	Port thread
MVMA	210	6A Rc1/8	3 3 way (3 port)	B1 Body (without button)	22 ø22	— B1	— Rc thread
MVMB	220	8A Rc1/4	4 4 way (5 port)	EB Latching palm button	25 ø25	R: Red, G: Green — EB	G G thread
MVMC	250			LB Extended twist button	30 ø30	B: Black — LB, TB	NPT NPT thread
	260			TB Twist button		R: Red, G: Green, B: Black — PB, PP	
	300			PB Mushroom palm button			
				PP Push button			
				R1 Roller lever			

* Code 1) **M**: Mindman
Code 2) **V**: Valve
Code 3) **M**: Mechanical
Code 4) **A**: Series
* 300 standard body width = 30 mm

Order example of hand / shutoff / Foot pedal valve

* Please refer to the product page for complete model number.

MVHB — 220 V — 4 TV C — SP — M — * — G

Model	Body width	Piping	Way	Valve type	Spring return	Mounting	Port thread
MVHA	200	— Standard type	2 2 way (2 port)	— 5/2	Bore size	— Standard type	— Rc thread
MVHB	220	V Vertical type	3 3 way (3 port)	C Close center (5/3)	6A Rc1/8	M Panel mounting	G G thread
MVHC	260		4 4 way (5 port)	P Pressure center (5/3)	8A Rc1/4		NPT NPT thread
MVHD	300	Contol model		R Exhaust center (5/3)	10A Rc3/8	M Mounting nut	
MVHS	302	— Manual type	2H 2 way (2 port)	Button type	15A Rc1/2		
MVHT	400	S Solenoid type	3H 3 way (3 port)	V V toggle	20A Rc3/4	Color	
MVHR	500			P Single push button	8A R1/4	1 Silver	
				PP Double push button	10A R3/8	3 Cool gray	
				Actuator type	15A R1/2		
				P Push-pull	20A R3/4		

* Code 1) **M**: Mindman
Code 2) **V**: Valve
Code 3) **H**: Hand
Code 4) **A**: Series
* 220 standard body width = 22 mm

Order example of hand valve

Model	
MVHF-2P-NC	Hand valve
MVHF-3P-NC	
MVHF-3P-NO	
MVHF-3V	
MVHF-5V	
MVHF-5P	
MVHF-AP3	Miniature pilot actuator
MVHF-AP6A	
MVHF-LB	Mounting bracket
MVHF-PB2	Valve actuators manual push button
MVHF-PB5	

* **DC24 — L — B**

Voltage	Coil	Bracket
AC220 V(50/60)Hz	— DIN connector	— Without
AC110 V(50/60)Hz	L DIN connector with LED indicator	B With bracekt
DC24 V	E Explosion protection	

* Only for MVHR.

Order example of air unit

* Please refer to the product page for complete model number.

MACP 220 A — 6A — □ — 2K — D (Continued)

Model

MACP	F.R.L. unit
MACT	F.R.L. unit
MAFR	F.R. unit
MAF	Filter
MAD	Auto drainer
MAR	Pressure reducing valve
MAHR	
MAER	Electro Pneumatic Regulator
MAIR	Precision regulator
MAL	Lubricator
MAFF	Air, mist, micromist filter
MAFRF	
MATFR	
MAM*	
MAVS	Soft start-up valve

Series

100
200
200L
201
300
302
401
403
500
501
900
901
25
35
45
55

Filter element

A	5 um
D	0.3 um
M	0.01 um
AD	5 um + 0.3 um
DM	0.3 um + 0.01 um

* Only for air/ mist/ micro mist filter.

Port size

M5	M5
6A	1/8"
8A	1/4"
10A	3/8"
15A	1/2"
20A	3/4"
25A	1"
40A	1 1/2"
50A	2"

Exterior color

—	Black & silver
W	Gray & white

Pressure range

—	0.05~1 MPa
1K	0.05~0.1 MPa
2K	0.05~0.2 MPa
3K	0.05~0.3 MPa
4K	0.05~0.4 MPa
8K	0.05~0.8 MPa

1K	0.1 MPa
5K	0.5 MPa
9K	0.9 MPa

Option

—	Standard type
C	External pressure gauge
D	Auto drain valve
H	High pressure type
P	Pressure switch
N	Nylon bowl

Auto drain valve

—	MADV400-WB (Male thread)
D3	MADV400-WA (Female thread)

— E1 — 5u — T8 S1 — G

Pressure switch

E1	MP41P-022
E2	MP41P-022-QD
E5	MP41P-042
E6	MP41P-042-QD

Filter element

5u	5 um
20u	20 um
40u	40 um

By-pass bore size

—	Standard type
B	C or T type bracket
T8	T type bracket (1/4)
T10	T type bracket (3/8)
T15	T type bracket (1/2)
K8	Check valve (1/4)
K10	Check valve (3/8)

Shutoff valve

HT	MVHT-*-3H

Material of filter element

—	Plastic
S	Sintered bronze

Filter bowl mat'l

—	Poly carbonate (PC)
M	Aluminum alloy
H	Aluminum alloy

Bracket

—	Without
B1	L type
B2	Flat type

Port thread

—	Rc thread
G	G thread
NPT	NPT thread

Cable connector

—	Without
S1	Straight 1m
S3	Straight 3m
L1	Right angle 1m
L3	Right angle 3m

* Only for MAER series.

Signal input

1	Current DC4~20mA
2	Voltage DC0~10V
3	Voltage DC0~5V
40	Preset input

Signal output

1	Analog output DC1~5V
2	Switch output NPN
3	Switch output PNP
4	Analog output DC4~20mA (Source type)

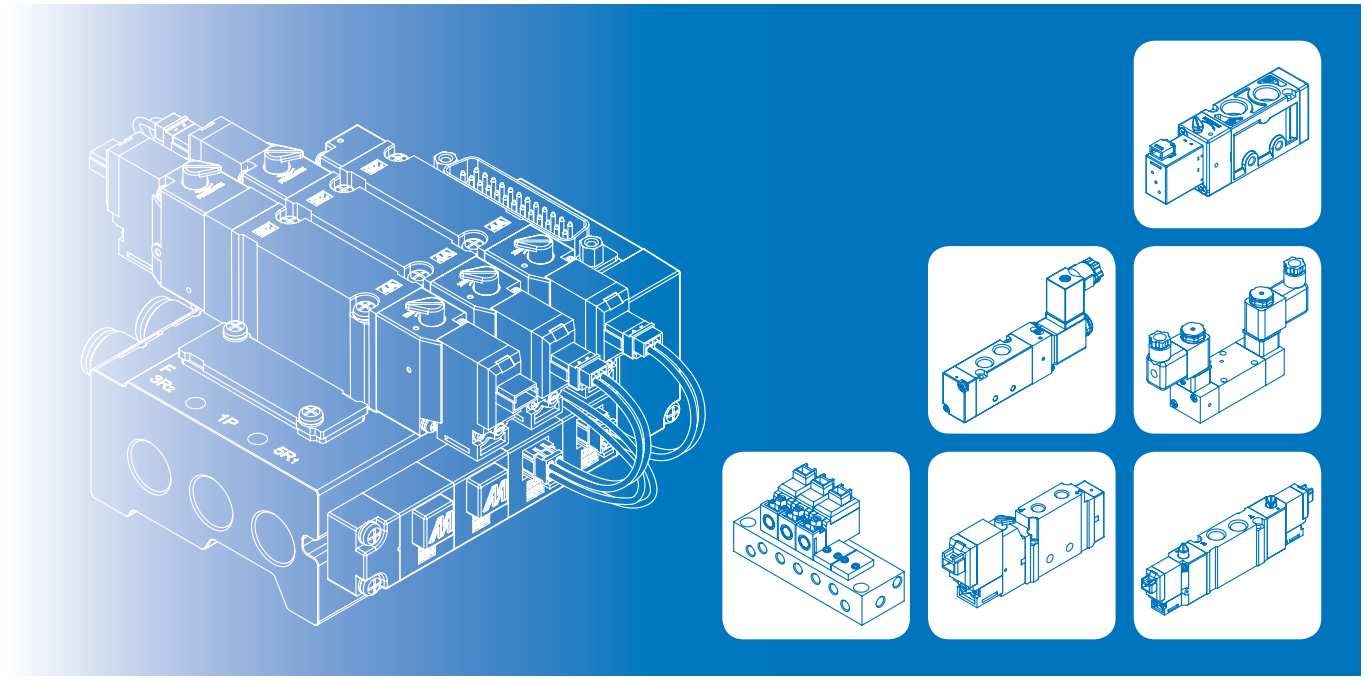
* Only for MAER series.

Pressure display unit

1	1MPa
2	kgf/cm^2
3	bar
4	psi
5	kPa

* Code 1) **M**: Mindman
  Code 2) **A**: Air unit
  Code 3) **C**: F.R.L. unit
  Code 3) **F**: F.R. unit
  Code 3) **D**: Drainer
  Code 3) **R**: Pressure reducing
  Code 3) **L**: Lubricator
  Code 3, 4) **IR**: Precision regulator

SOLENOID VALVE



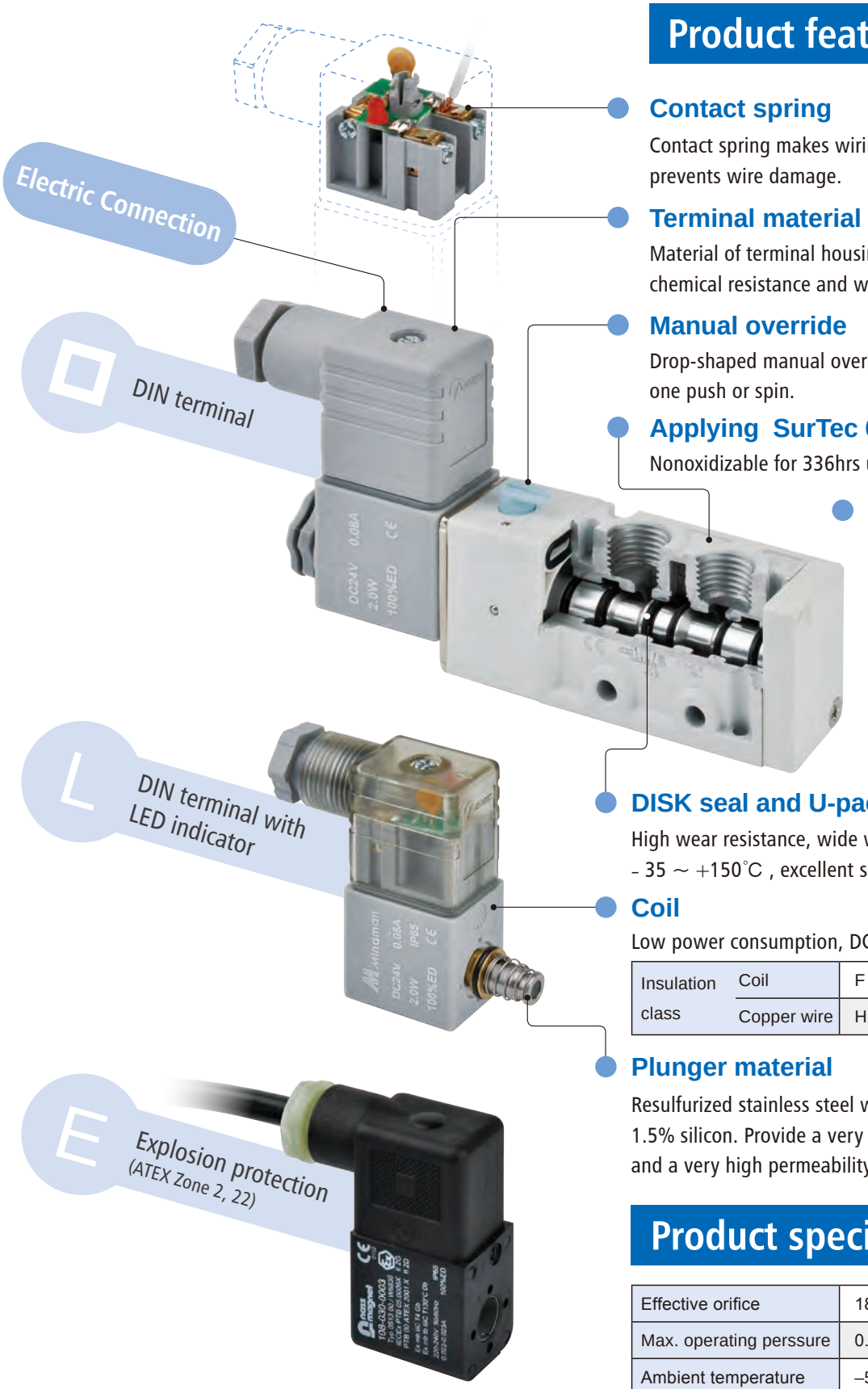
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Model	Valve type							Body type		
	3/2		5/2		5/3			Body ported type	Manifold type	
	Normally closed (NC)	Normally open (NO)	Single acting	Double acting	Closed center	Pressure center	Exhaust cneter			
MVSC-220	●	●	●		●	●	●	●	●	
MVSC-260			●		●	●	●	●		
MVSC-300	●	●	●		●	●	●	●		
MVSC-460	●	●	●		●	●	●	●		
MVSC1-150			●					●	●	
MVSC1-180	●	●	●		●	●	●	●		
MVSC1-220	●	●	●		●	●	●	●	●	
MVSD1-180			●		●	●	●	●		
MVSE-260			●		●	●	●	●		
MVSE-300			●		●	●	●	●		
MVSE-500			●					●		
MVSE-510			●					●		
MVSE-600			●					●		
MVSF-100	●	●	●					●	●	
MVSG-180			●		●	●	●	●		
MVSI-260			●		●	●	●		●	
MVSI-450			●						●	
MVSI-510			●						●	
MVSN-220			●					●		
MVSN-300			●		●	●	●	●		
MVSP-156			●		●	●	●	●	●	
MVSP-188			●		●	●	●	●	●	
MVSY-100			●		●	●	●	●	●	
MVSY-156			●		●	●	●	●	●	
MVSY-188			●		●	●	●	●	●	
MVSZ-100			●					●		
MVDA-80	●								●	
MVDA-120	●							●		
MVDC-220	●							●		
MVDY-100	●								●	

● 2/2, 3/2 way N.C.

*A, B port size & effective oriufice mm² (Cv factor)								Body width (mm)	Power consumption W (DC)	Working pressure range MPa (*)	Page
M3	M5	1/8"	1/4"	3/8"	1/2"	3/4"	1"				
		18 (1.00)	18 (1.00)					22	2	0.2~0.8	1-5
			18 (1.00)					26	2	0.2~0.8	1-10
				35 (1.94)				30	2	0.2~0.8	1-13
					50 (2.78)			30	2	0.2~0.8	1-17
	38 (0.21)							15	0.95	0.15~0.8	1-22
		12 (0.67)						18	0.95	0.15~0.8	1-24
		18 (1.00)	18 (1.00)					22	0.95	0.2~0.8	1-28
		12 (0.67)						18	2.9	0.15~0.8	1-33
			18 (1.00)					26	2	0.2~1.2	1-37
				35 (1.94)				30	2	0.2~1.2	1-40
					41 (2.28)			30	2	0.2~1.2	1-43
					65 (3.61)			68	10	0.2~0.7	1-45
						115 (6.39)	135 (7.5)	68	10	0.2~0.7	1-47
1.0 (0.06)								10	0.55	0.15~0.7	1-49
		10 (0.56)						18	1.6	0.15~0.7	1-53
			22 (1.22)					35	2	0.2~0.7	1-56
			27 (1.5)					45	2	0.2~0.7	1-58
					65 (3.61)			68	10	0.2~0.7	1-63
			18 (1.00)					22	2	0.2~0.7	1-65
			35 (1.94)					30	2	0.2~0.8	1-67
		11 (0.61)						15	0.95	0.15~0.7	1-70
			15 (0.83)					18	0.95	0.15~0.7	1-75
	4.5 (0.25)							10	0.55	0.2~0.8	1-79
		11 (0.61)						15	0.55	0.15~0.7	1-83
			15 (0.83)					18	0.55	0.15~0.7	1-89
	4.7 (0.26)							10	0.55	0.15~0.7	1-94
	0.612 (0.034)							8	0.5	0~0.8	1-96
	2.184 (0.121)							12	0.8	0~0.8	1-98
		0.8 (0.044)						22	2	0~0.7	1-100
	0.28 (0.016)							10	0.55	0~0.9	1-102

* The data is based on 5/2.



Product feature

Contact spring
Contact spring makes wiring quick and easy. Also, it prevents wire damage.

Terminal material
Material of terminal housing is PA6 which has good chemical resistance and weather resistance.

Manual override
Drop-shaped manual override is easy for testing with one push or spin.

Applying SurTec 650
Nonoxidizable for 336hrs under neutral salt spray test.

No leakage
All products go through leakage test according to JIS regulation.

DISK seal and U-packing (HNBR)
High wear resistance, wide working temperature - 35 ~ +150˚C , excellent sealability.

Coil
Low power consumption, DC24V power 2W

Insulation class	Coil	F class/ 155°C
	Copper wire	H class/ 180°C

Plunger material
Resulfurized stainless steel with 17% chromium and 1.5% silicon. Provide a very low coercive magnetic field and a very high permeability.

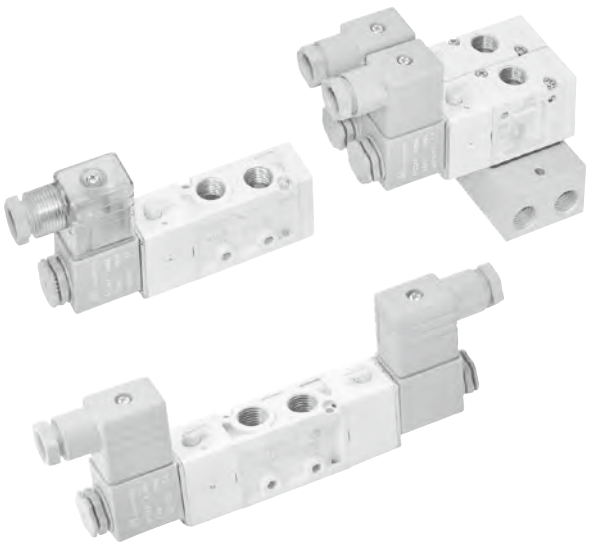
Product specification

Effective orifice	18 mm^2
Max. operating perssure	0.8 MPa (8 kgf/cm^2)
Ambient temperature	–5 ~ +50°C (No freezing)
Lifetime	50 million cycles under normal service condition

MVSC-220 series

SOLENOID **VALVE**

mindman



Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	8A		6A, 8A		
Port size	Rc1/4		Rc1/8, Rc1/4		
No. of port	3		5		
No. of position	2		2		3
Medium	Air				
Operating perssure range	0.2~0.8 MPa				0.3~0.8 MPa
Operating pressue (LP)	0~0.8 MPa				
Pilot pressure range (LP)	(0.34×P*+0.1)~0.5 MPa				
Proof pressure	1 MPa				
Effective orifice	18 mm^2				16 mm^2
Reponse time	30 ms				40 ms
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V, 24V (50/60)Hz, DC24V, 12V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, 6.7/5.4VA, DC=2W, 2.5W				
Available voltage range	±10%				
Insulation class	F class				
Weight	181 g	294 g	198 g	313 g	352 g

* P: Operating pressure

Order example of valve

MVSC — 220M — 4E2C — NC — □ — AC110 — L — LP — G

- MODEL
- BODY WIDTH
  - Blank: Body ported type
  - **M**: Manifold type
- **3**: 3 way (3 port)
  4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3E1** type)
- PORT SIZE
  Blank: Rc1/4
  6A: Rc1/8
  (Only for **4E*** & body ported type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  AC24V(50/60)Hz
  DC24V
  DC12V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- **LP**: External pilot
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
  (Only for body ported type)

Table 1

Property for explosion-proof type

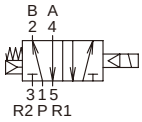
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

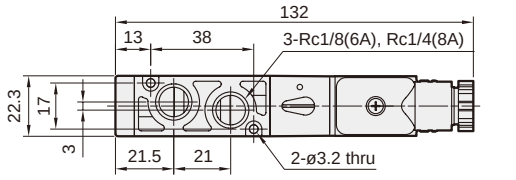
Order example of manifold

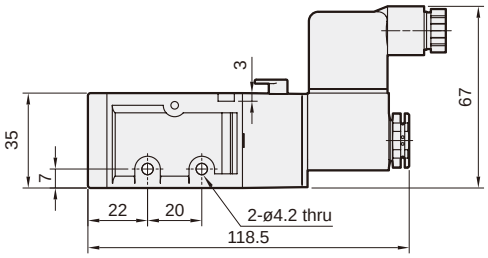
MVSC — 220M — 5M3 — G

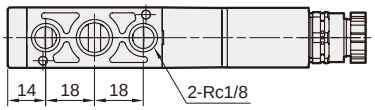
- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  3B: 3 port (for body ported type)
  3M: 3 port (for manifold type)
  5B: 5 port (for body ported type)
  5M: 5 port (for manifold type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

MVSC-220-4E1



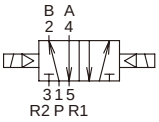


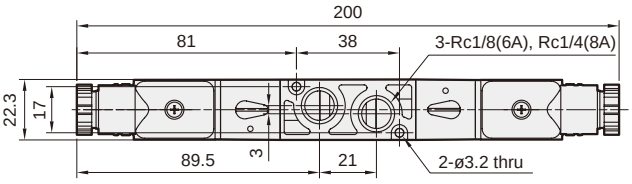


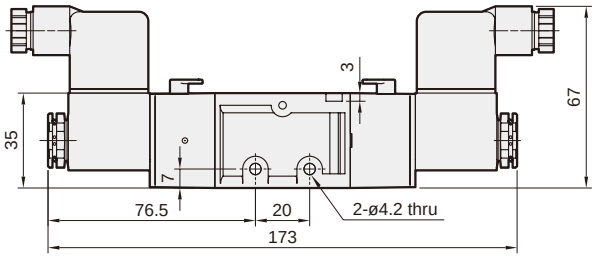


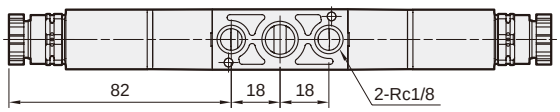
MVSC-220-4E2

MVSC-220-4E2



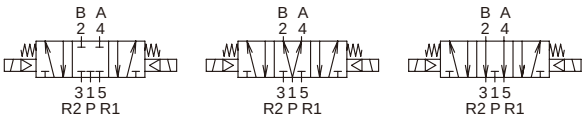


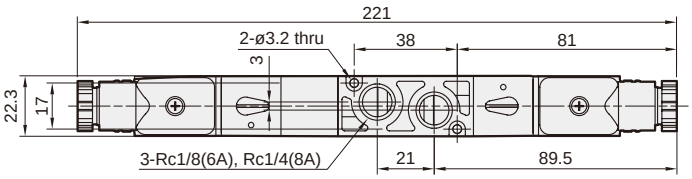


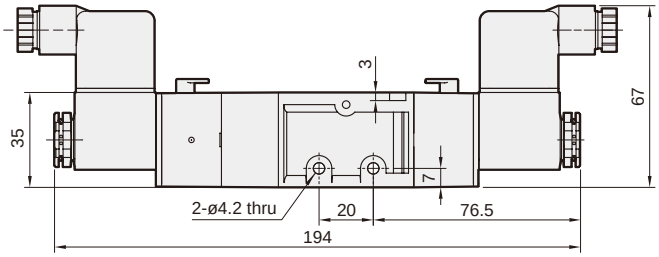


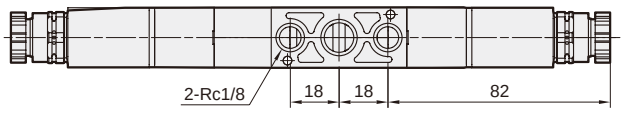
MVSC-220-4E2C.P.R

MVSC-220-4E2C MVSC-220-4E2P MVSC-220-4E2R

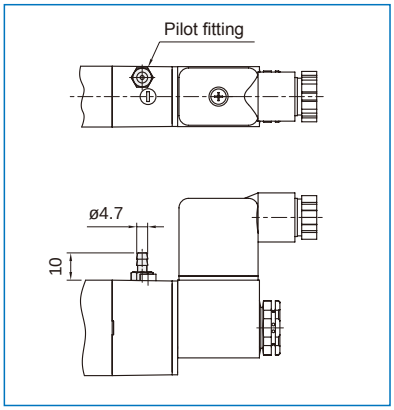






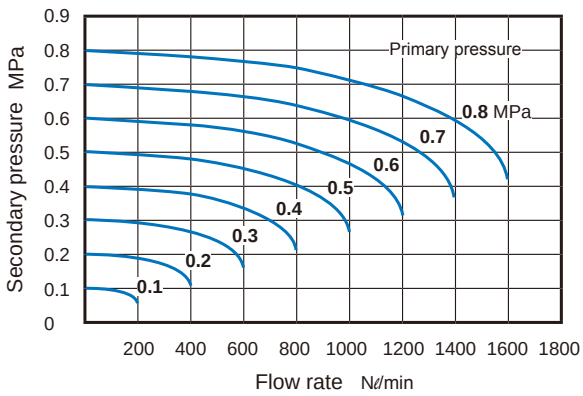


LP

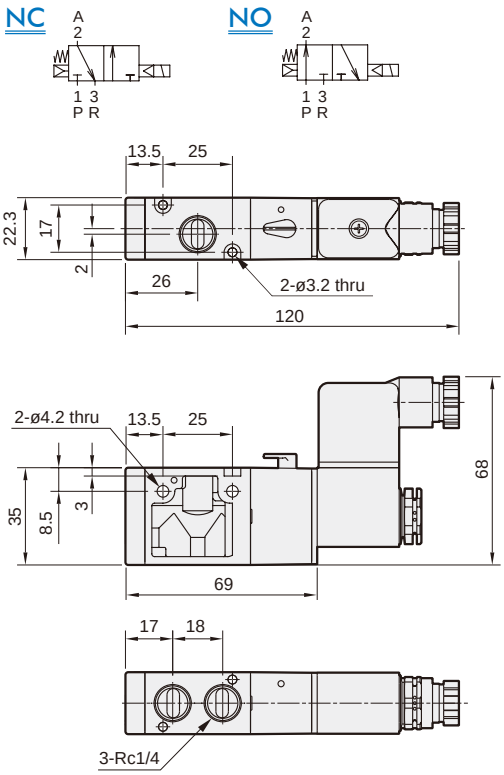


Flow features

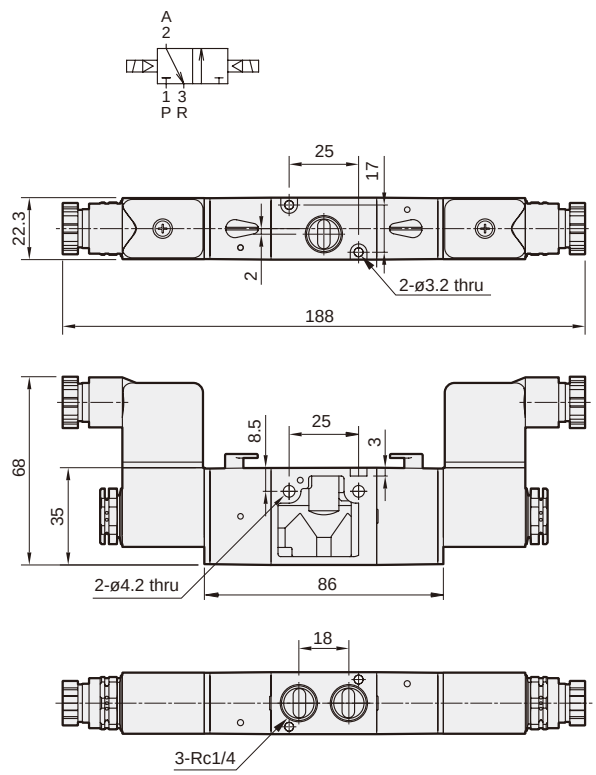
MVSC-220-3E1/3E2/4E1/4E2



MVSC-220-3E1-NC/NO



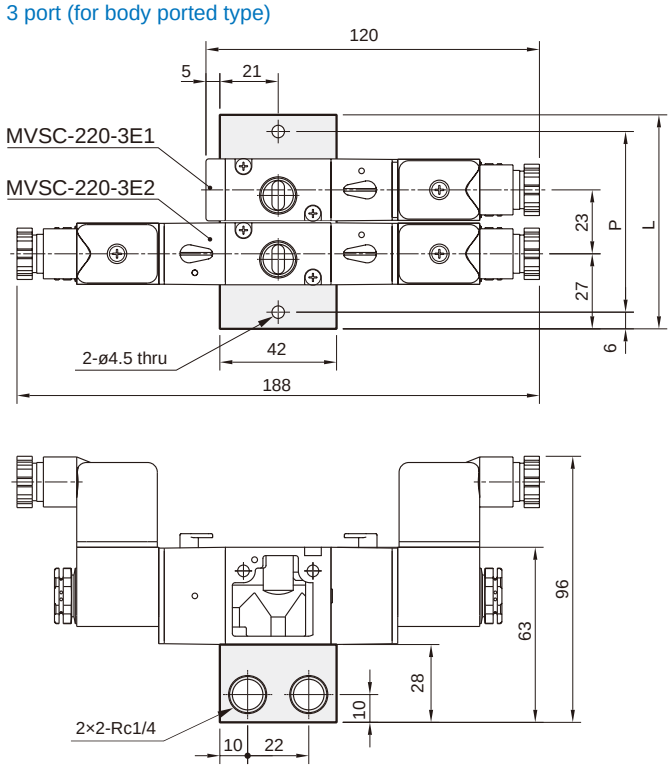
MVSC-220-3E2



Manifold of solenoid valve

MVSC-220-3B*

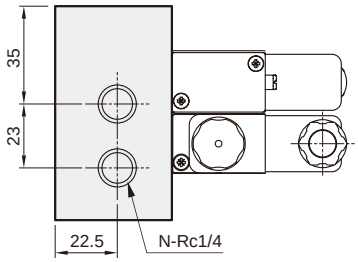
3 port (for body ported type)

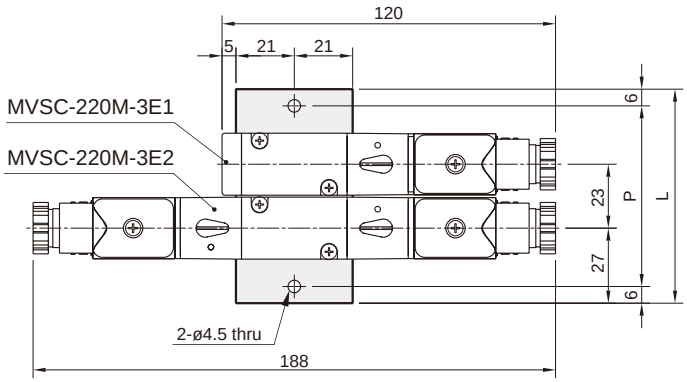


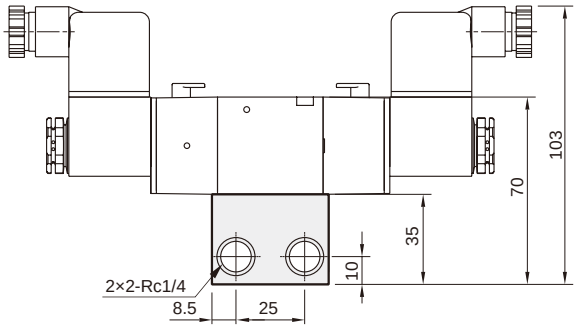
No. of stations	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC-220M-3M*

3 port (for manifold type)



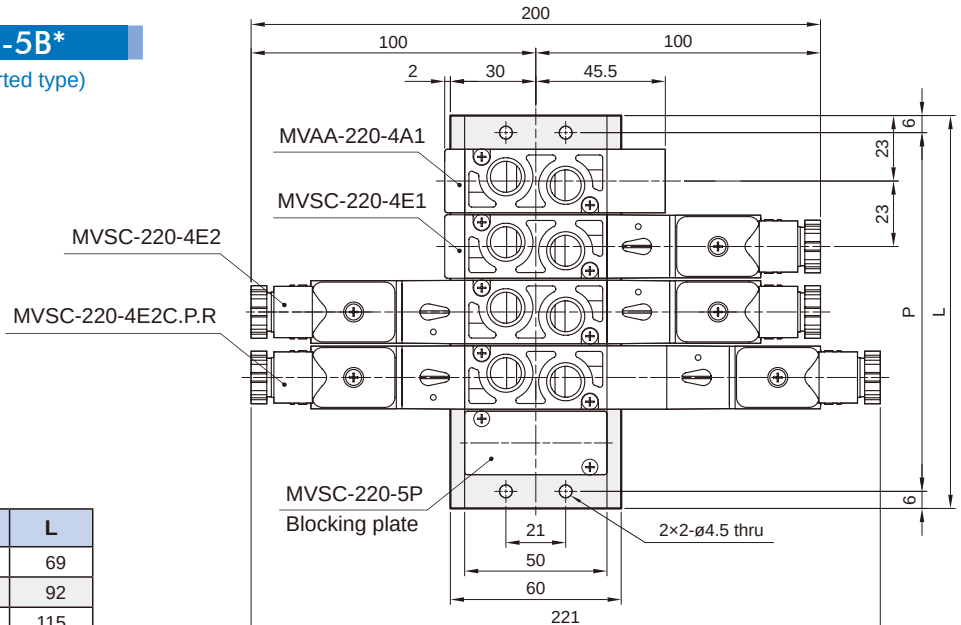


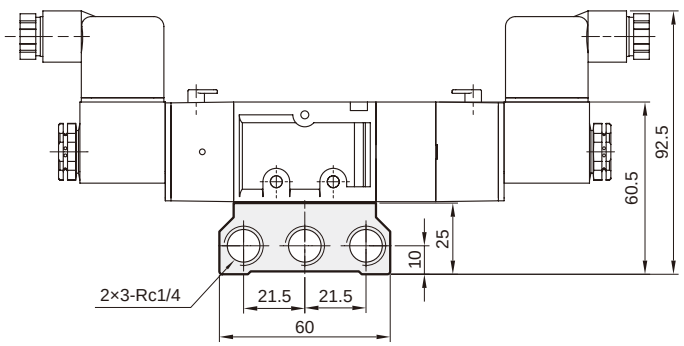


No. of stations (N)	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC-220-5B*

5 port (for body ported type)

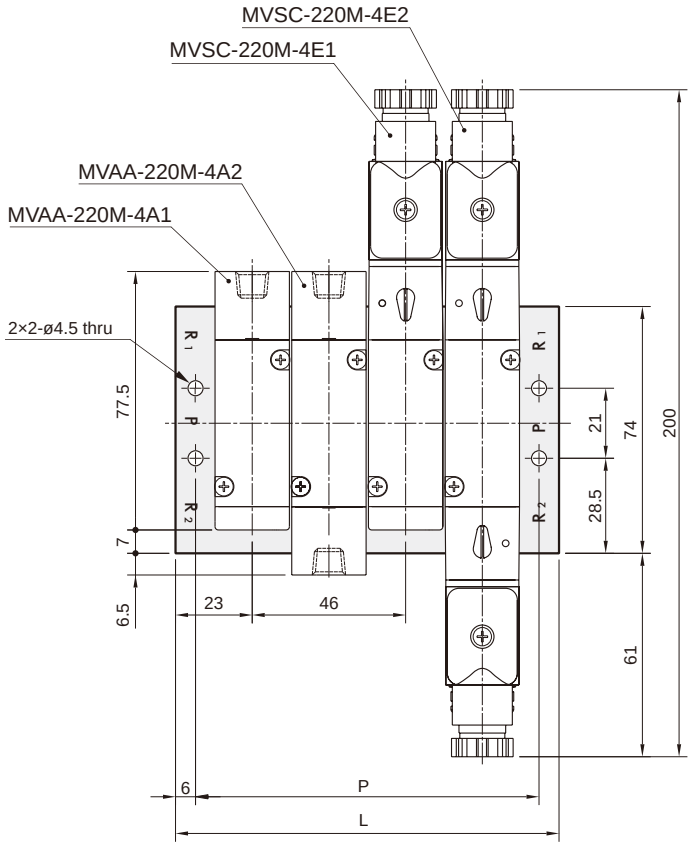


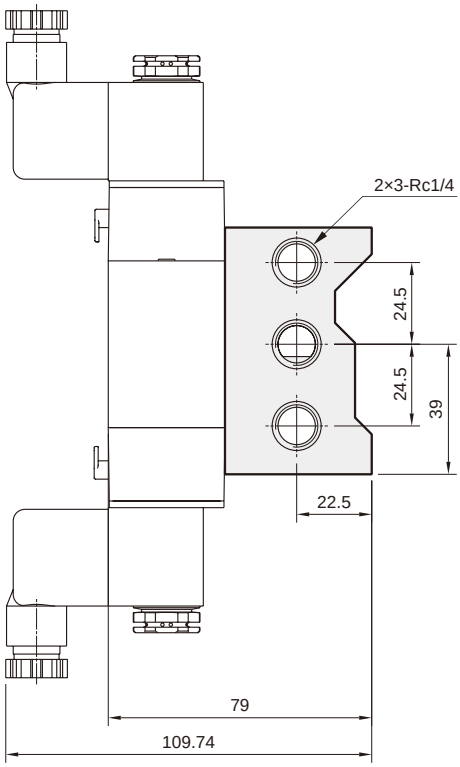


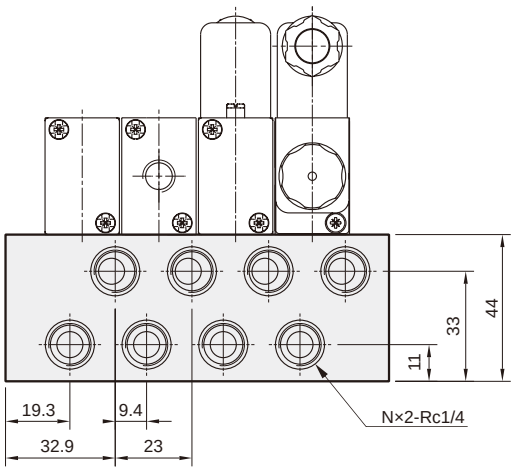
No. of stations	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSC-220M-5M*

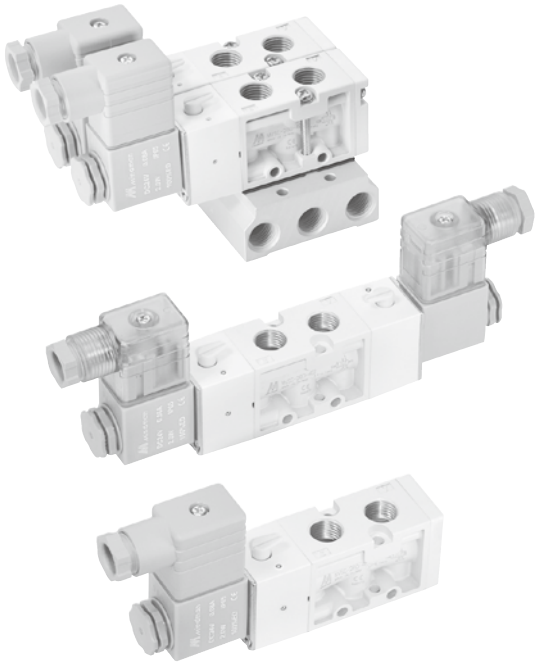
5 port (for manifold type)







No. of stations (N)	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~0.8 MPa		0.3~0.8 MPa
Operating pressue (LP)	0~0.8 MPa		
Pilot pressure range (LP)	(0.34×P*+0.1)~0.5 MPa		
Proof pressure	1 MPa		
Effective orifice	18 mm^2		16 mm^2
Reponse time	40 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V, 24V (50/60)Hz, DC24V, 12V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, 6.7/5.4VA, DC=2W, 2.5W		
Available voltage range	±10%		
Insulation class	F class		
Weight	203 g	322 g	327 g

* P: Operating pressure

Order example of valve

MVSC — 260 — 4E2C — AC110 — L — LP — G

- MODEL
- BODY WIDTH
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **AC24**V(50/60)Hz
  - **DC24**V
  - **DC12**V
- **LP**: External pilot
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- ELECTRIC CONNECTION
  - Blank: DIN terminal
  - **L**: DIN terminal with LED indicator
  - **E**: Explosion protection (Table 1)
  - (**E** type use black coil)

Order example of manifold

MVSC — 260 — 5B3 — G

- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Table 1

Property for explosion-proof type

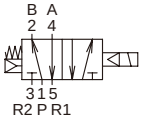
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

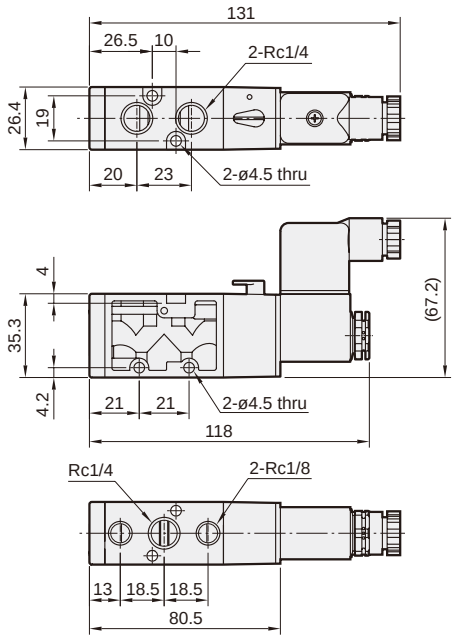
MVSC-260 Dimensions

SOLENOID **VALVE**

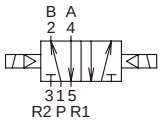
mindman

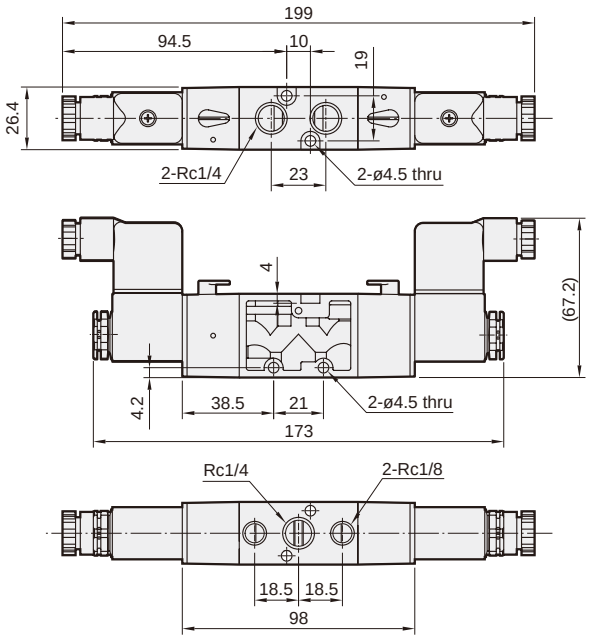
MVSC-260-4E1





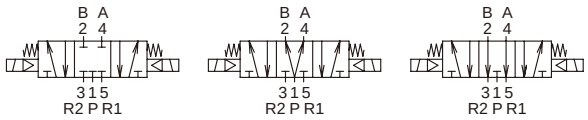
MVSC-260-4E2

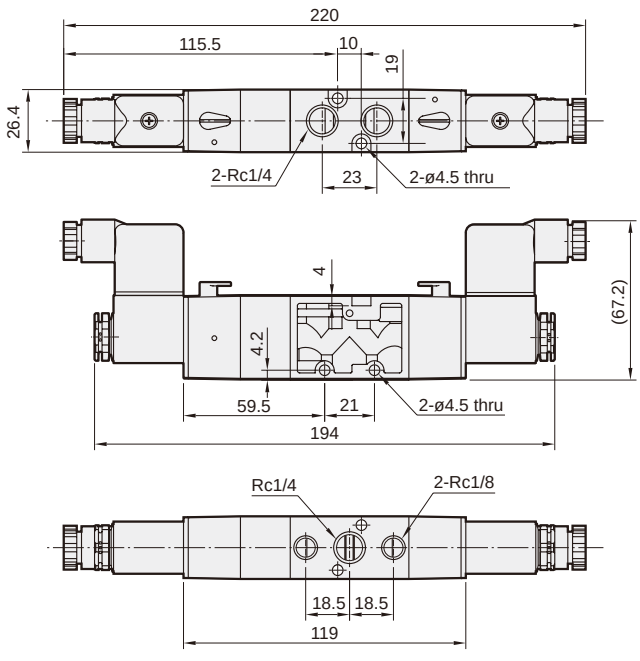




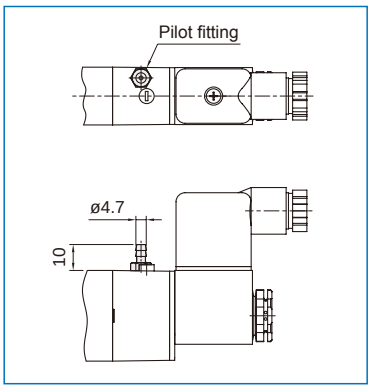
MVSC-260-4E2C.P.R

MVSC-260-4E2C **MVSC-260-4E2P** **MVSC-260-4E2R**



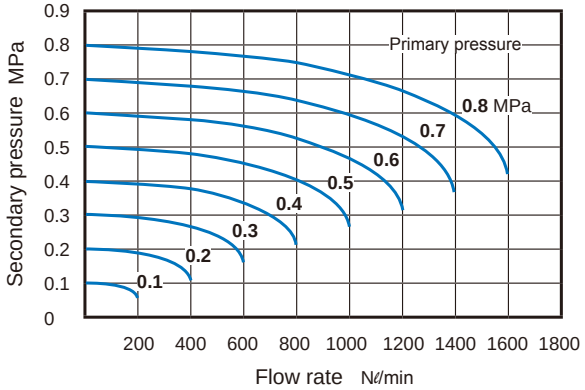


LP



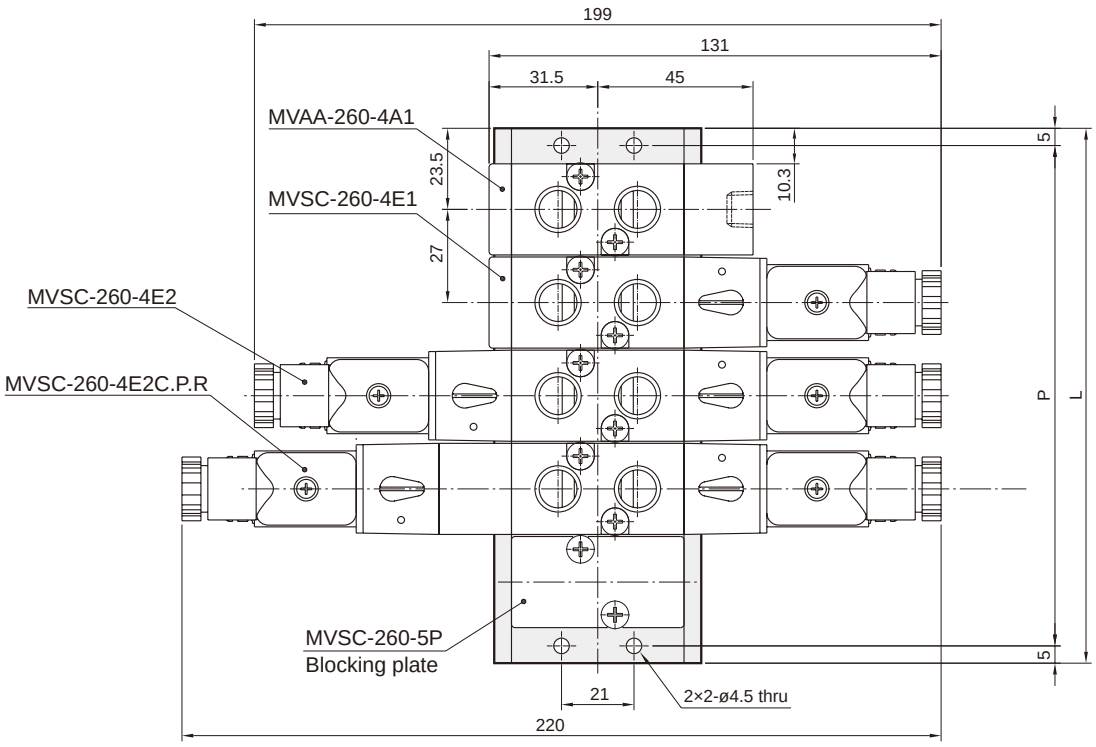
Flow features

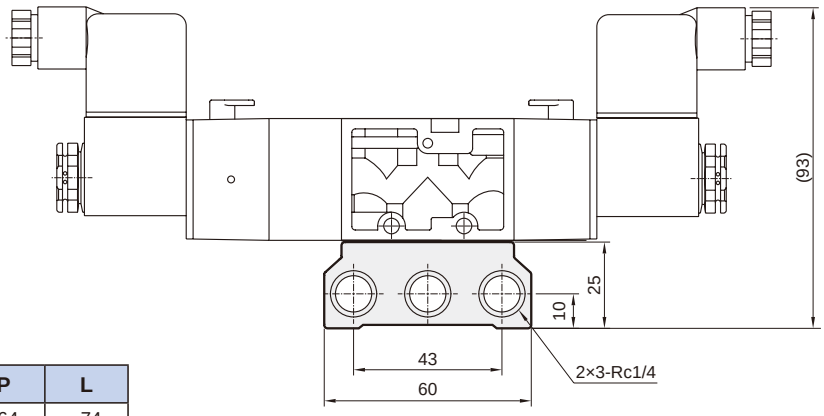
MVSC-260-4E1/4E2



MVSC-260-5B*

5 port (for body ported type)



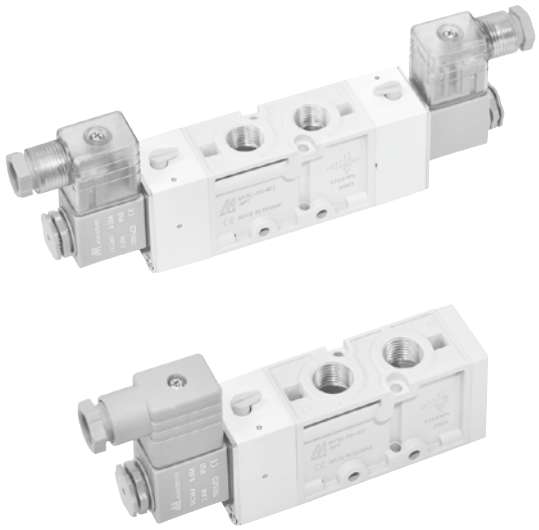


No. of stations	P	L
2	64	74
3	91	101
4	118	128
5	145	155
6	172	182
7	199	209
8	226	236
9	253	263
10	280	290

MVSC-300 series

SOLENOID **VALVE**

mindman



Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	10A				
Port size	Rc3/8				
No. of port	3		5		
No. of position	2				3
Medium	Air				
Operating perssure range	0.2~0.8 MPa				0.3~0.8 MPa
Operating pressue (LP)	0~0.8 MPa				
Pilot pressure range (LP)	(0.34×P*+0.1)~0.5 MPa				
Proof pressure	1 MPa				
Effective orifice	30 mm^2		35 mm^2		25 mm^2
Reponse time	50ms				
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V, 24V (50/60)Hz, DC24V, 12V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, 6.7/5.4VA, DC=2W, 2.5W				
Available voltage range	±10%				
Insulation class	F class				
Weight	325 g	453 g	320 g	444 g	505 g

* P: Operating pressure

Order example of valve

MVSC — 300 — 4E2C — NC — AC110 — L — LP — G

- MODEL
- BODY WIDTH
- **3**: 3 way (3 port)
  4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3E1** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  AC24V(50/60)Hz
  DC24V
  DC12V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- **LP**: External pilot
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Table 1

Property for explosion-proof type

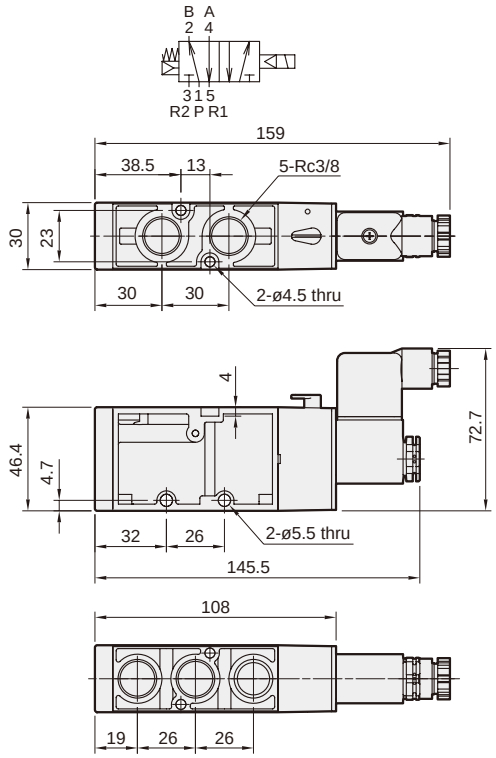
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of manifold

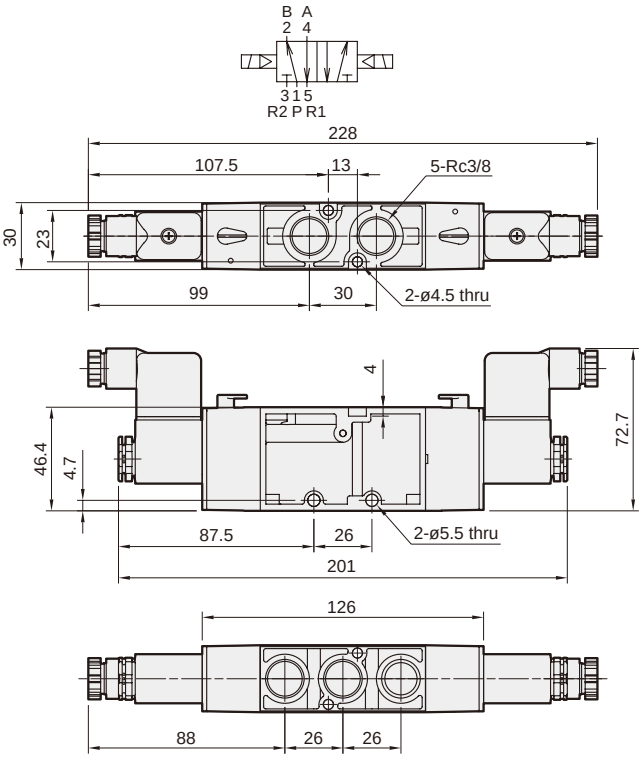
MVSC — 300 — 3B3 — G

- MODEL
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

MVSC-300-4E1

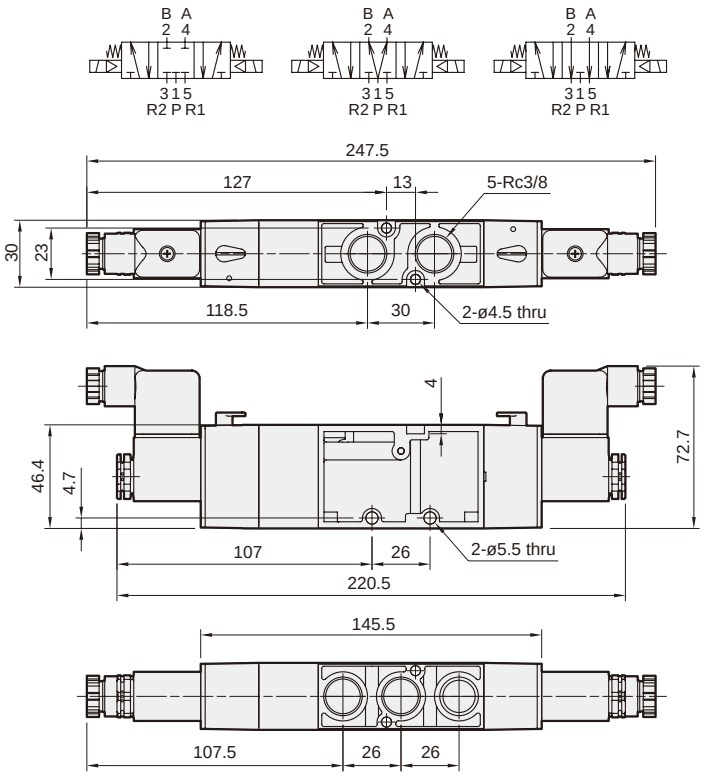


MVSC-300-4E2

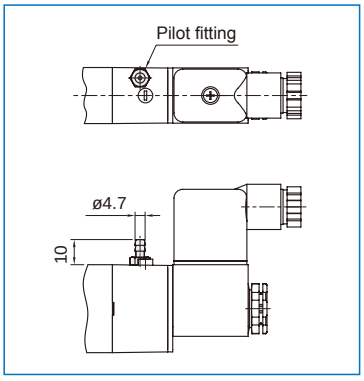


MVSC-300-4E2C.P.R

MVSC-300-4E2C **MVSC-300-4E2P** **MVSC-300-4E2R**

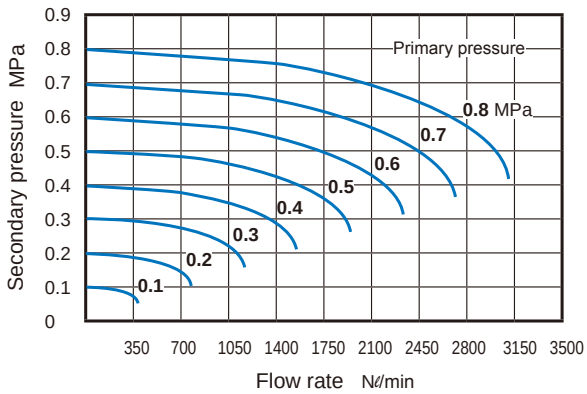


LP



Flow features

MVSC-300-4E1/4E2

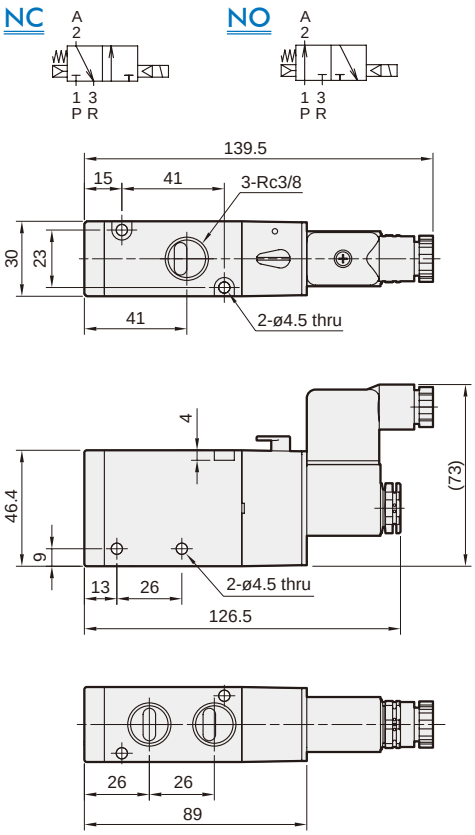


MVSC-300 Dimensions

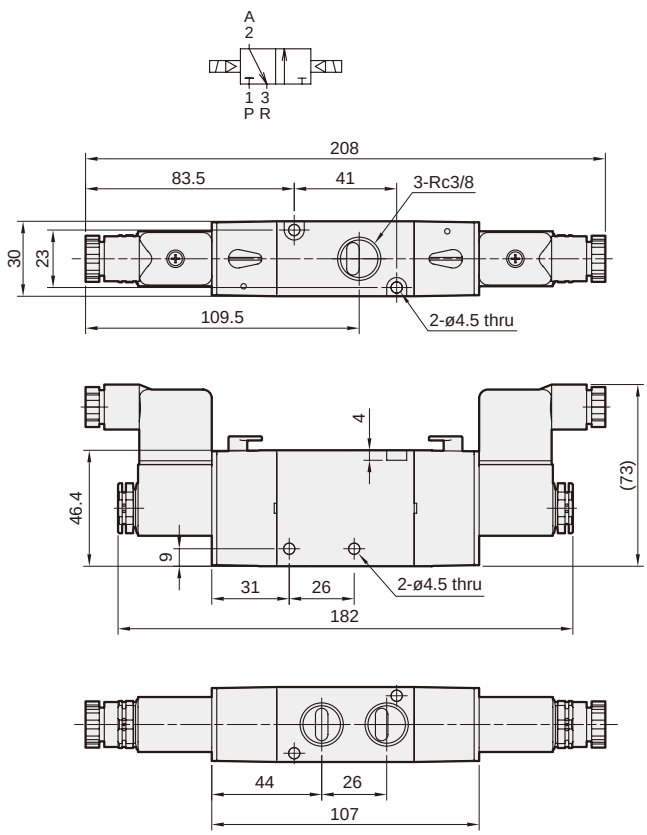
SOLENOID **VALVE**

mindman

MVSC-300-3E1-NC/NO



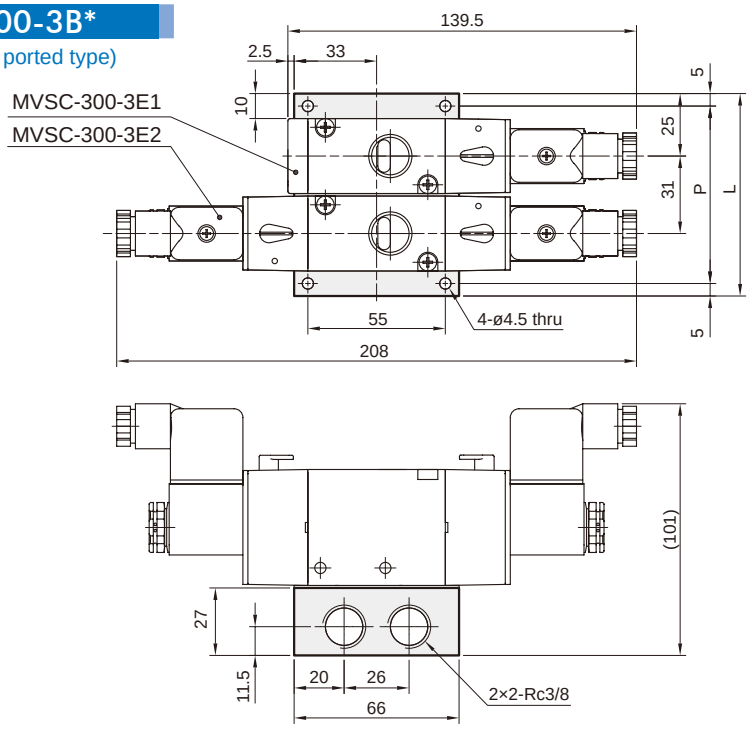
MVSC-300-3E2



Manifold of solenoid valve

MVSC-300-3B*

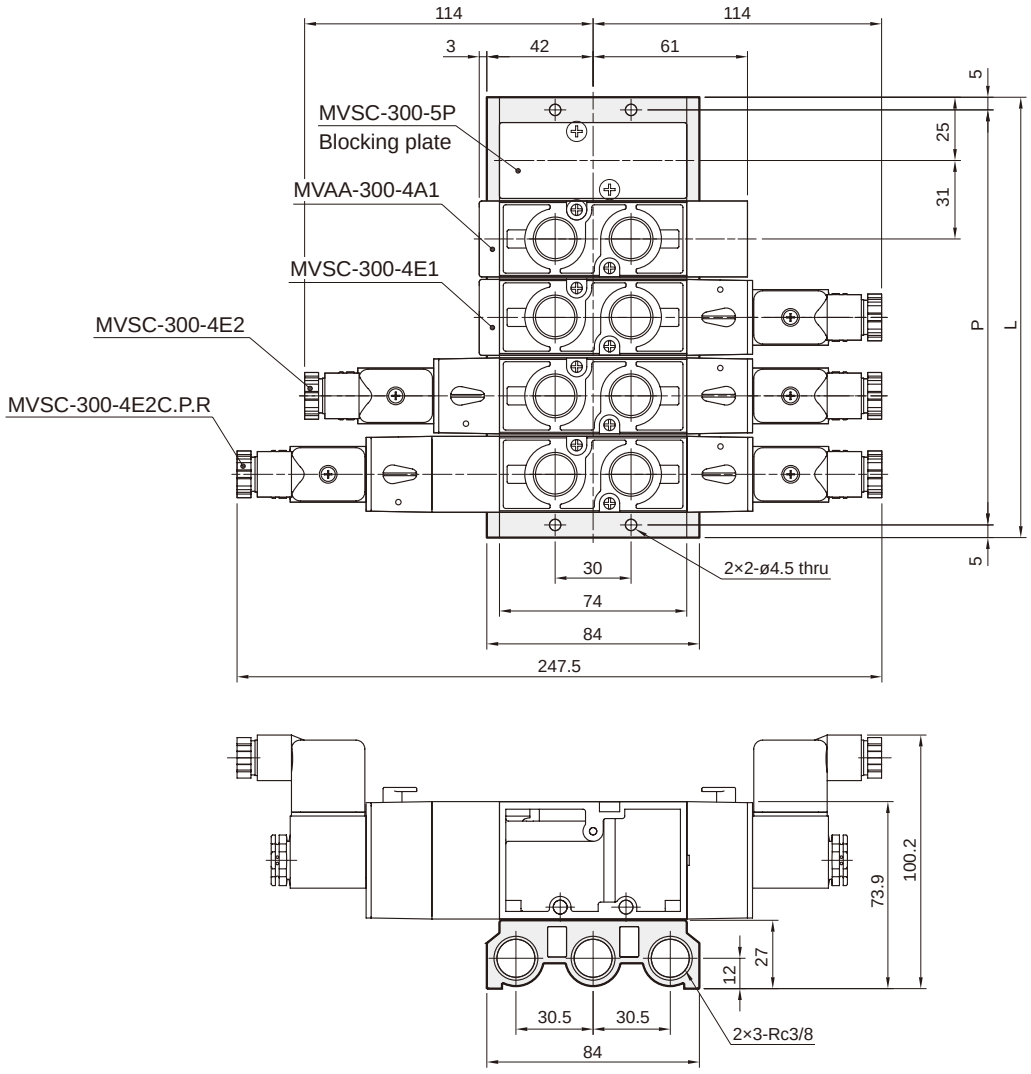
3 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC-300-5B*

5 port (for body ported type)

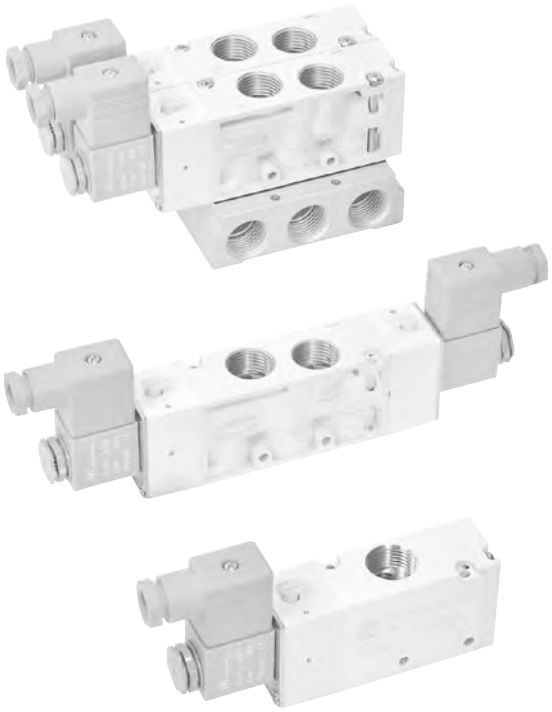


No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC-460 series

SOLENOID **VALVE**

mindman



Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.	15A				
Port size	G1/2				
No. of port	3		5		
No. of position	2				3
Medium	Air				
Operating perssure range	0.2~0.8 MPa				0.3~0.8 MPa
Operating pressue (LP)	0~0.8 MPa				
Pilot pressure range (LP)	(0.34×P*+0.1)~0.5 MPa				
Proof pressure	1 MPa				
Effective orifice	60 mm^2		50 mm^2		30 mm^2
Reponse time	50 ms				
Ambient temperature	-5~+50°C (No freezing)				
Voltage	AC110V, 220V, 24V (50/60)Hz, DC24V, 12V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, 6.7/5.4VA, DC=2W, 2.5W				
Available voltage range	±10%				
Insulation class	F class				
Weight	325 g	455 g	339 g	464 g	525 g

* P: Operating pressure

Order example of valve

MVSC — 460 — 4E2C — NC — AC110 — L — LP — NPT

- MODEL
- BODY WIDTH
- **3**: 3 way (3 port)
  4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3E1** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  AC24V(50/60)Hz
  DC24V
  DC12V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- **LP**: External pilot
- PORT THREAD
  Blank: G thread
  RC: Rc thread
  NPT: NPT thread

Order example of manifold

MVSC — 460 — 5B3 — NPT

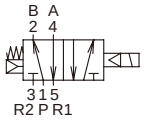
- MODEL
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: G thread
  RC: Rc thread
  NPT: NPT thread

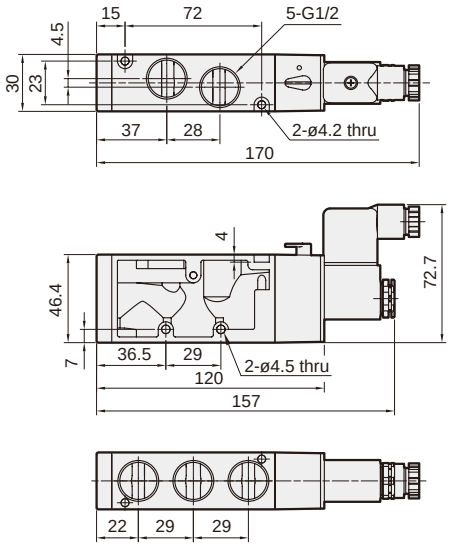
Table 1

Property for explosion-proof type

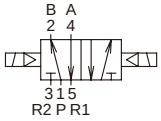
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

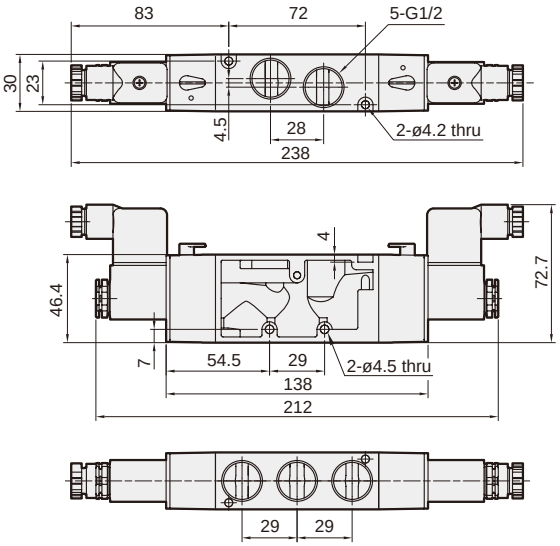
MVSC-460-4E1





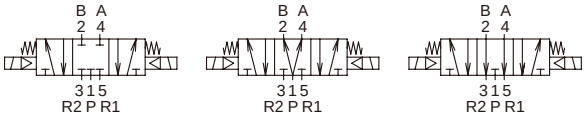
MVSC-460-4E2

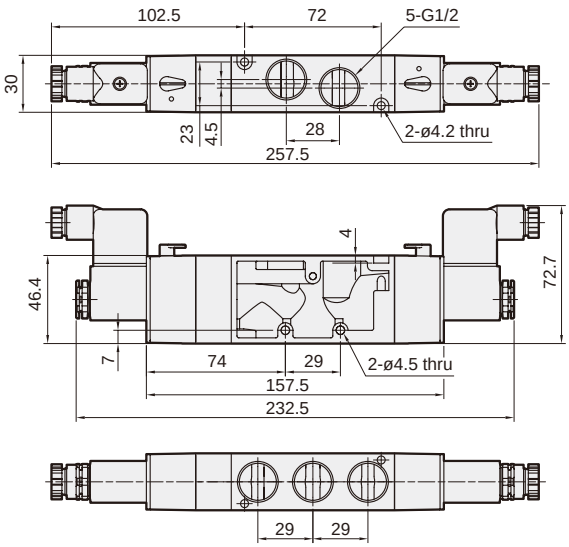




MVSC-460-4E2C.P.R

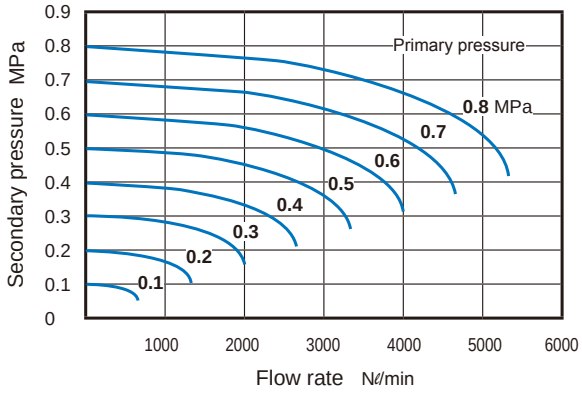
MVSC-460-4E2C **MVSC-460-4E2P** **MVSC-460-4E2R**



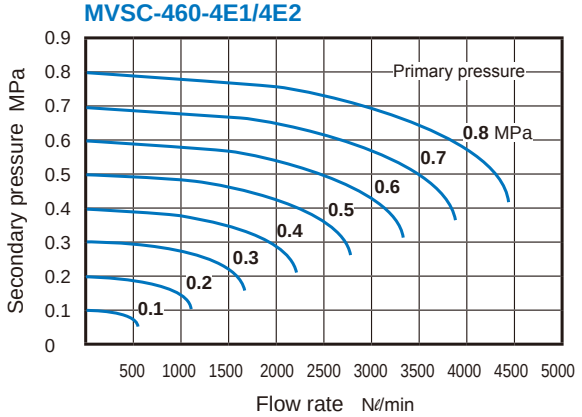


Flow features

MVSC-460-3E1/3E2



MVSC-460-4E1/4E2

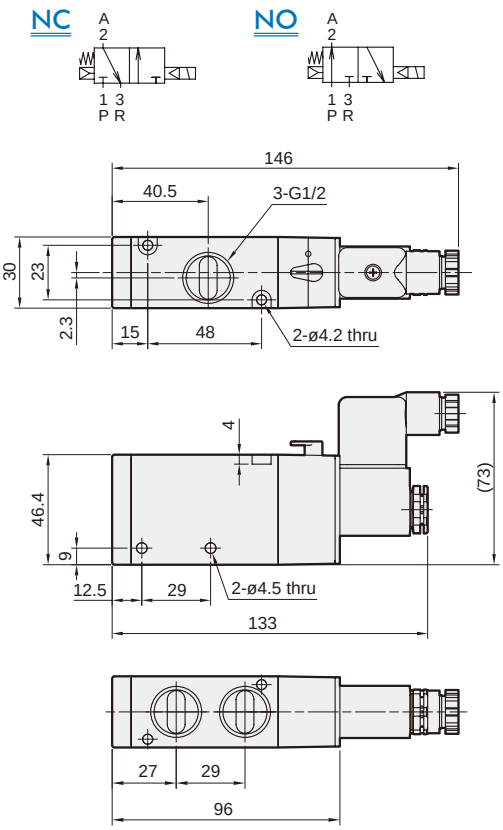


MVSC-460 Dimensions

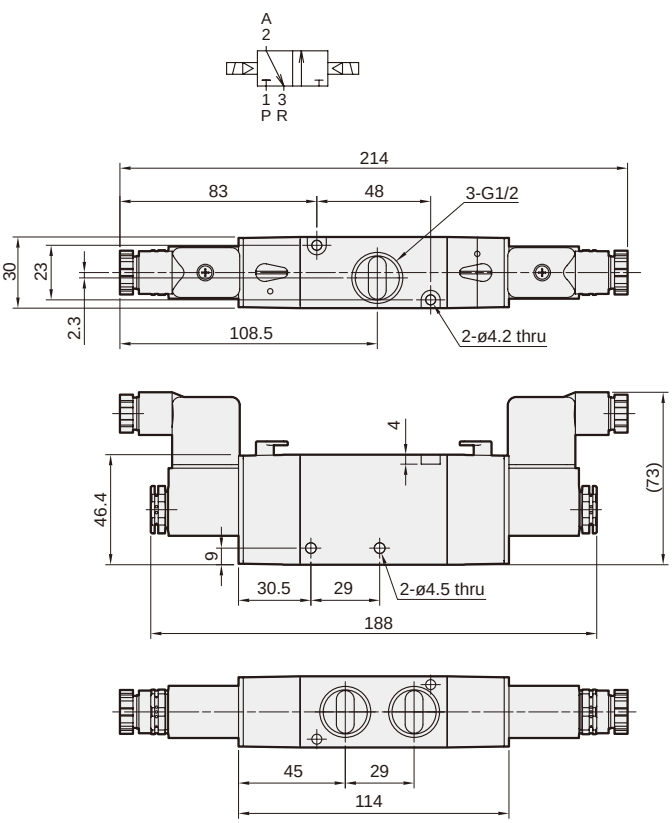
SOLENOID **VALVE**

mindman

MVSC-460-3E1-NC/NO



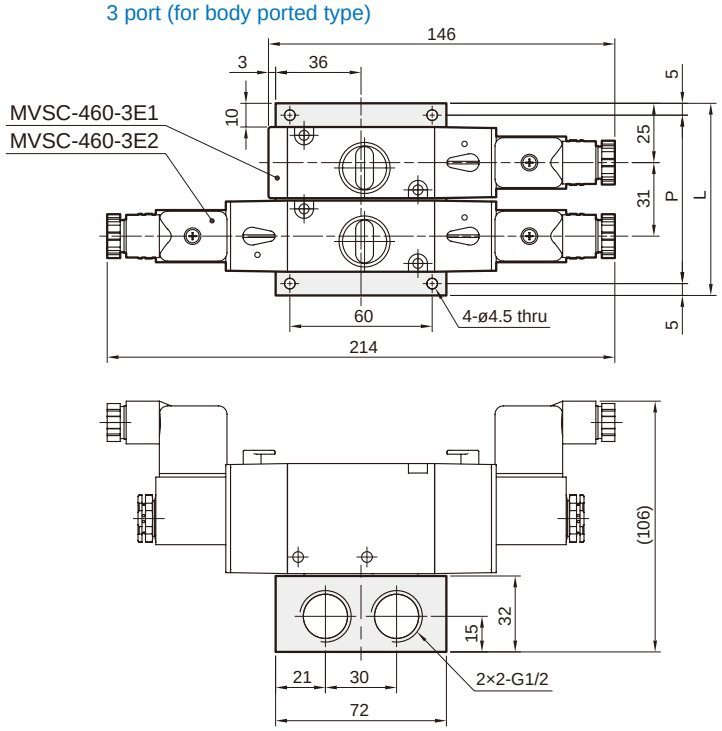
MVSC-460-3E2



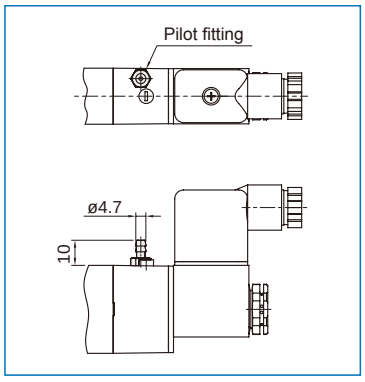
Manifold of solenoid valve

MVSC-460-3B*

3 port (for body ported type)



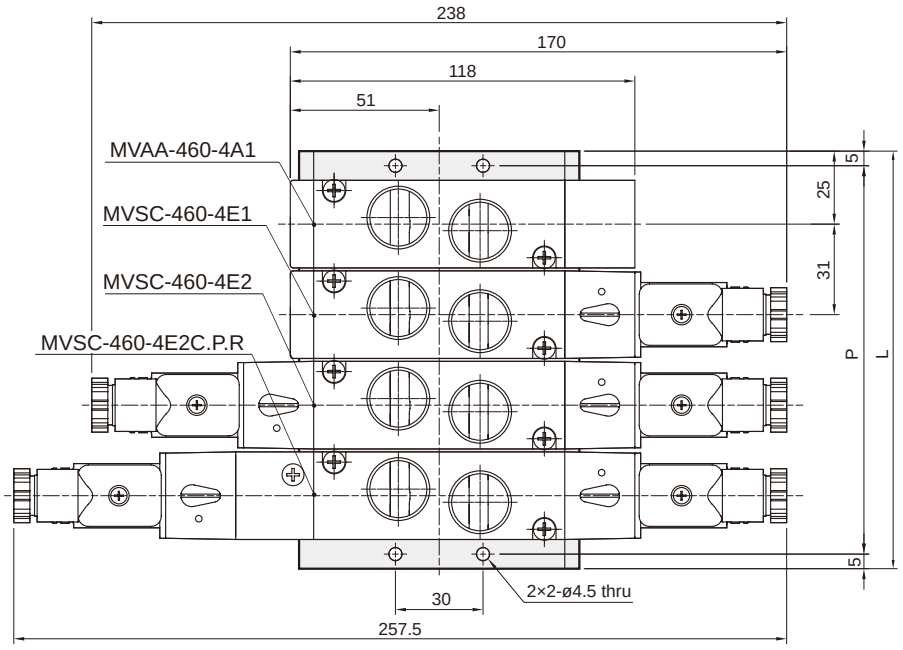
LP

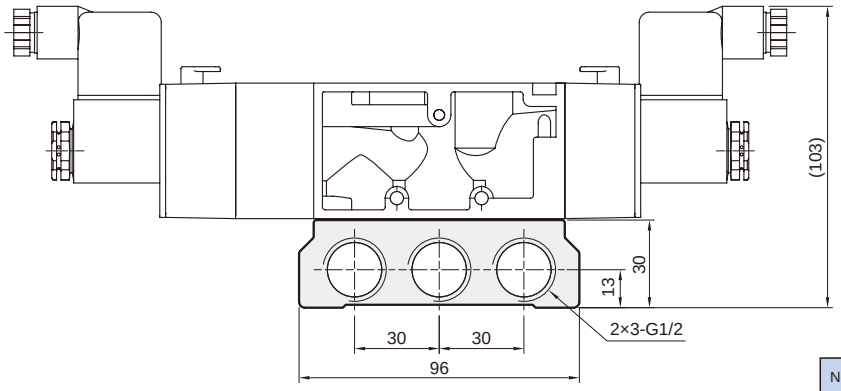


No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC-460-5B*

5 port (for body ported type)





No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC1 / MVSP series Features

SOLENOID **VALVE**

- Manual override design, easier to test.
- Quick plug design, easier to wiring by socket.
- **Terminal Material**
  Material of terminal housing is PA6 which has good chemical resistance and weather resistance.
- **DISK seal and U-packing (HNBR)**
  High wear resistance, wide working temperature - 35 ～ +150°C, excenllent sealability, lifetime 50 million cycles.
- Quick response time (25～30ms).
- [Low power output PLC] can drive solenoid valve directly.
- **Applying SurTec 650**
  Nonoxidizable for 336hrs under neutral salt spray test.

Electric Connection



(L) DIN terminal with LED indicator



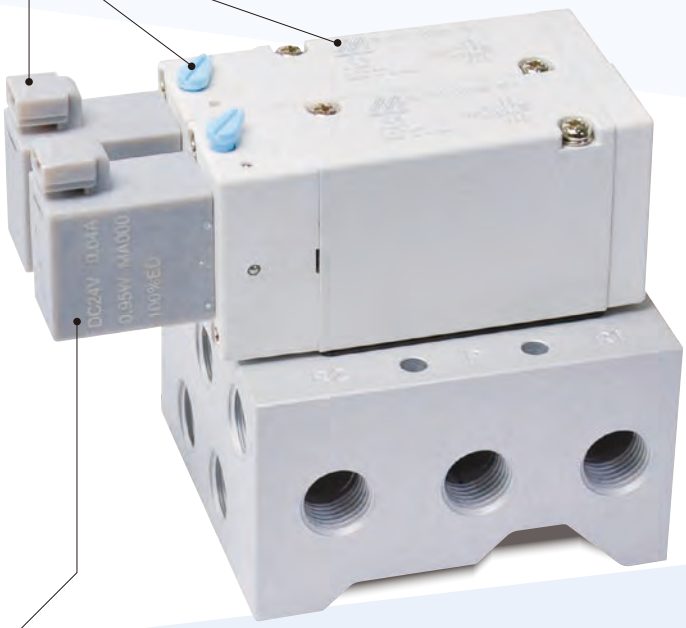
(D) DIN terminal



(W) Lead wire



(H) Horizontal plug with LED indicator

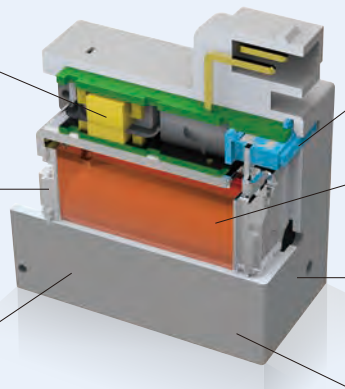


Coil Features

Bridge rectifier design
Converting AC voltage to DC, it can eliminate operating noise.

Low power consumption
DC power 0.95W, it can save over 70% power consumption compared with other brand (3W).

Low current consumption
It can extend lifetime of driver (PLC, Relay...).



Indicator (LED)
Indicating coil operating condition.

Cooper wire insulation class
H class/180°C.

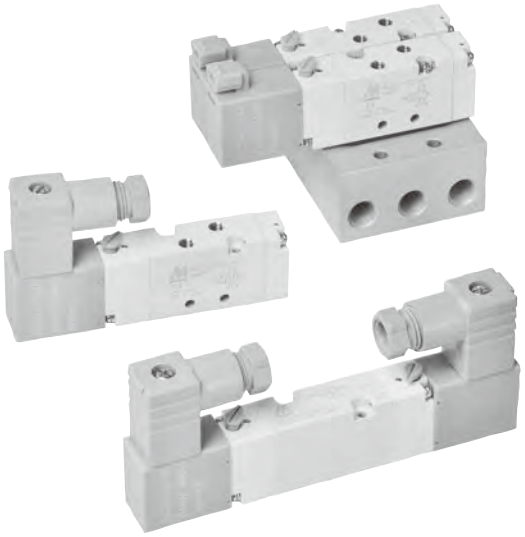
Coil insulation class
F class/155°C.

Low ambient temperature as operating.

MVSC1-150 series

SOLENOID VALVE

mindman



Specification

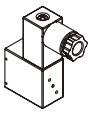
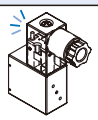
Model		4E1	4E2
Port size		M5×0.8	
No. of port		5	
No. of position		2	
Medium		Air	
Operating perssure range		0.15~0.8 MPa	
Proof pressure		1 MPa	
Effective orifice		3.8 mm^2	
Response time	Standard	AC < 35 ms, DC < 23 ms	
	Quick response*	AC < 30 ms, DC < 18 ms	
Power consumption	Standard	AC=1.12VA, DC=0.95W	
	Quick response*	AC=2.5VA, DC=2.5W	
Ambient temperature		-5~+50°C (No freezing)	
Voltage		AC110V, 220V (50/60)Hz, DC24V/12V	
Available voltage range		±10%	
Insulation class		F class	
Weight		73 g	108 g

* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

MVSC1 — 150M — 4E2 — □ — AC110 — H1

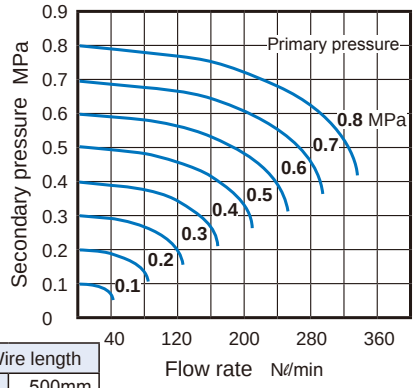
- MODEL: MVSC1
- BODY WIDTH: 150M
- **4**: 4 way (5 port)
- Blank: Body ported type; **M**: Manifold type
- **E1**: Single Solenoid; **E2**: Double Solenoid
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V, **DC12**V
- RESPONSE TIME: Blank: Standard type; **Q**: Quick response (Power consumption please refer to spec.)
- ELECTRIC CONNECTION:

D: DIN terminal	L: DIN terminal
	 with LED indicator
W: Lead wire	H: Horizontal plug
 wire length: 500mm	 with LED indicator

Wire length	
–	500mm
1	1000mm
2	2000mm
3	3000mm

* Wire length only for "**H**: Horizontal plug".

Flow features



Order example of manifold

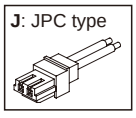
MVSC1 — 150M — 5B3 — G

- MODEL: MVSC1
- Blank: Body ported type; **M**: Manifold type: 150M
- MANIFOLD: **5B**: 5 port (for body ported type); **5M**: 5 port (for manifold type): 5B3
- MANIFOLD NUMBER: **1, 2, 3...**
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread: G

Order example of wire

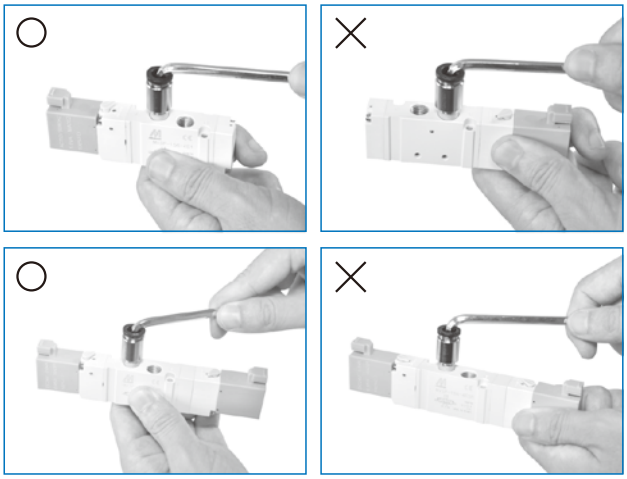
* Use the same wire with MVDY.
* Only for "**H**: Horizontal plug".

MVDY — 100 — WA2J2

- MODEL: MVDY
- VOLTAGE: **A2**: AC220V(50/60)Hz; **A1**: AC110V(50/60)Hz; **D**: DC24V/12V/6V: 100
- WIRE: **J**: JPC type : WA2J2
- WIRE LENGTH: Blank: 500mm; **1**: 1000mm; **2**: 2000mm; **3**: 3000mm

Caution

Prohibit apply force to coil when tighten the tube fitting.

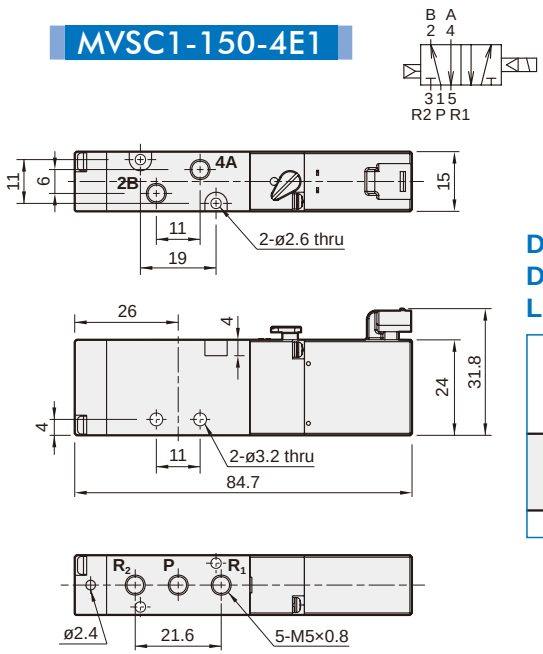


MVSC1-150 Dimensions

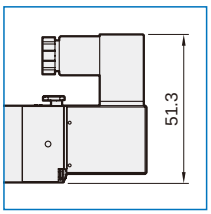
SOLENOID **VALVE**

mindman

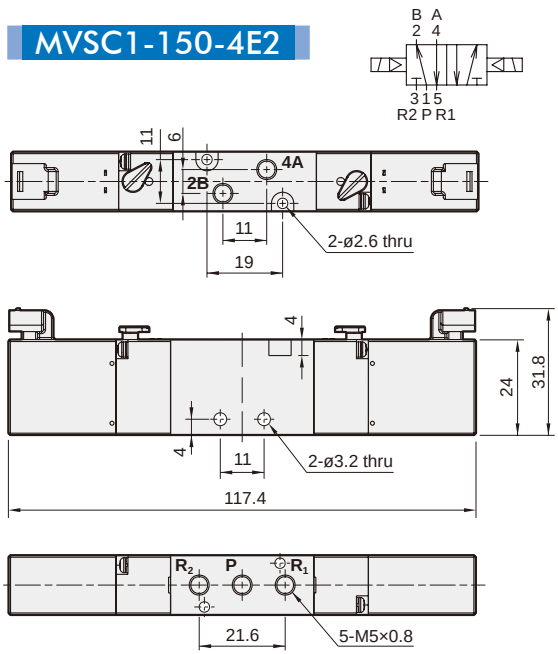
MVSC1-150-4E1



DIN terminal /
DIN terminal with
LED indicator

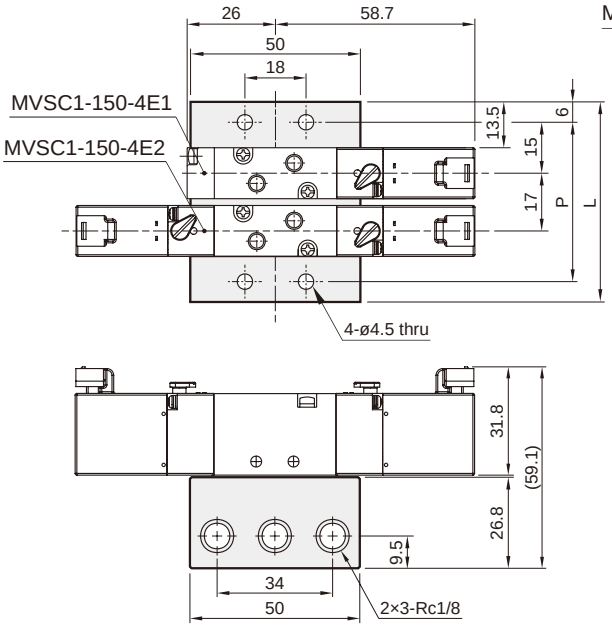


MVSC1-150-4E2



MVSC1-150-5B*

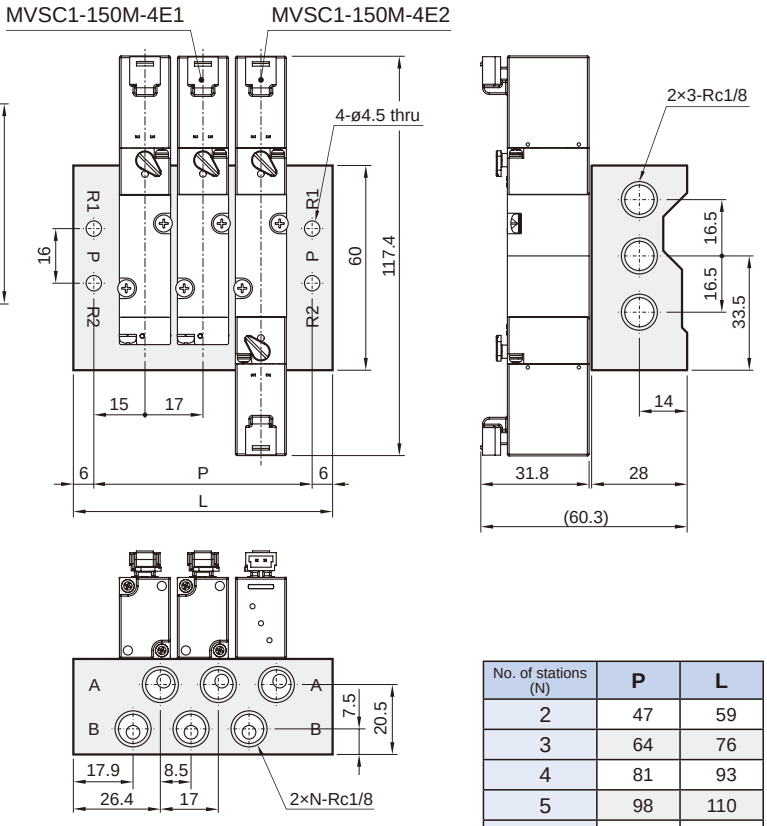
5 port (for body ported type)



No. of stations	P	L
2	47	59
3	64	76
4	81	93
5	98	110
6	115	127
7	132	144
8	149	161
9	166	178
10	183	195

MVSC1-150M-5M*

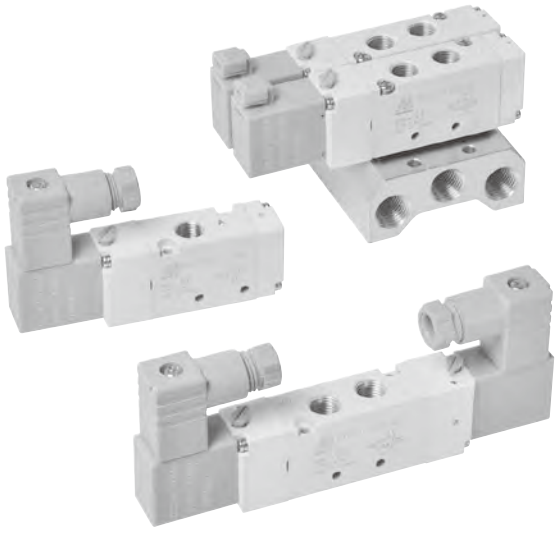
5 port (for manifold type)



No. of stations (N)	P	L
2	47	59
3	64	76
4	81	93
5	98	110
6	115	127
7	132	144
8	149	161
9	166	178
10	183	195

MVSC1-180 series

SOLENOID **VALVE**



Specification

Model		3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.		6A				
Port size		Rc1/8				
No. of port / position		3 / 2		5 / 2		5 / 3
Medium		Air				
Operating perssure range		0.15~0.8 MPa				0.2~0.7 MPa
Proof pressure		1 MPa				
Effective orifice		15 mm^2		12 mm^2		9 mm^2
Response time	Standard	AC<35 ms, DC<25 ms				AC<45ms, DC<30ms
	Quick response*	AC<31 ms, DC<20 ms				AC<41ms, DC<25ms
Power consumption	Standard	AC=1.12VA, DC=0.95W				
	Quick response*	AC=2.5VA, DC=2.5W				
Ambient temperature		-5~+50°C (No freezing)				
Voltage		AC110V, 220V (50/60)Hz, DC24/12V				
Available voltage range		±10%				
Insulation class		F class				
Weight		90 g	125 g	94 g	129 g	143 g

* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

MVSC1 — 180 — 4E2C — NC — □ — AC110 — H1 — G

- MODEL
- BODY WIDTH
- **3**: 3 way (3 port)
  4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3E1** type)
- RESPONSE TIME
  Blank: Standard type
  Q: Quick response
  (Power consumption please refer to spec.)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
  DC12V
- ELECTRIC CONNECTION

D: DIN terminal	L: DIN terminal
	with LED indicator
W: Lead wire	H: Horizontal plug
wire length: 500mm	with LED indicator

- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Wire length	
—	500mm
1	1000mm
2	2000mm
3	3000mm

* Wire length only for "**H**: Horizontal plug".

Order example of manifold

MVSC1 — 180 — 3B3 — G

- MODEL
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of wire

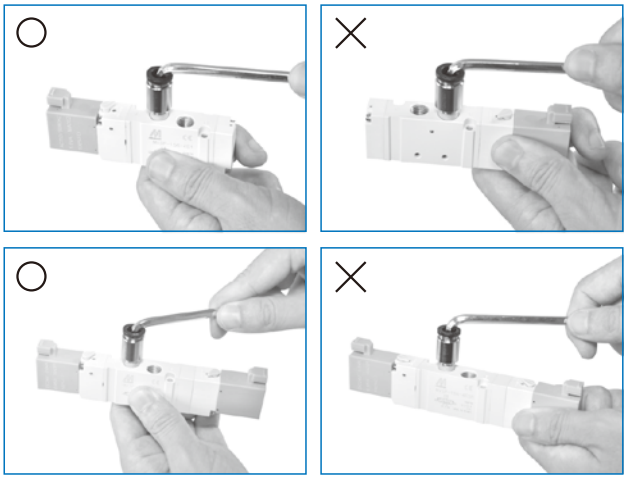
* Use the same wire with MVDY.
* Only for "**H**: Horizontal plug".

MVDY — 100 — WA2J2

- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  J: JPC type
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

Caution

Prohibit apply force to coil when tighten the tube fitting.

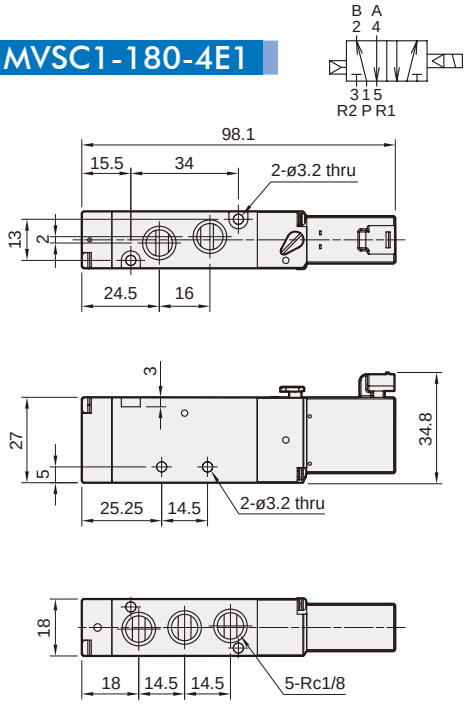


MVSC1-180 Dimensions

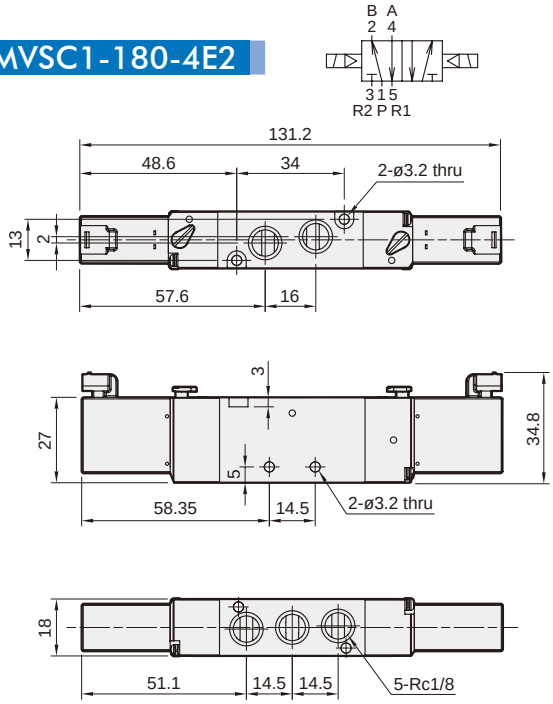
SOLENOID **VALVE**

mindman

MVSC1-180-4E1

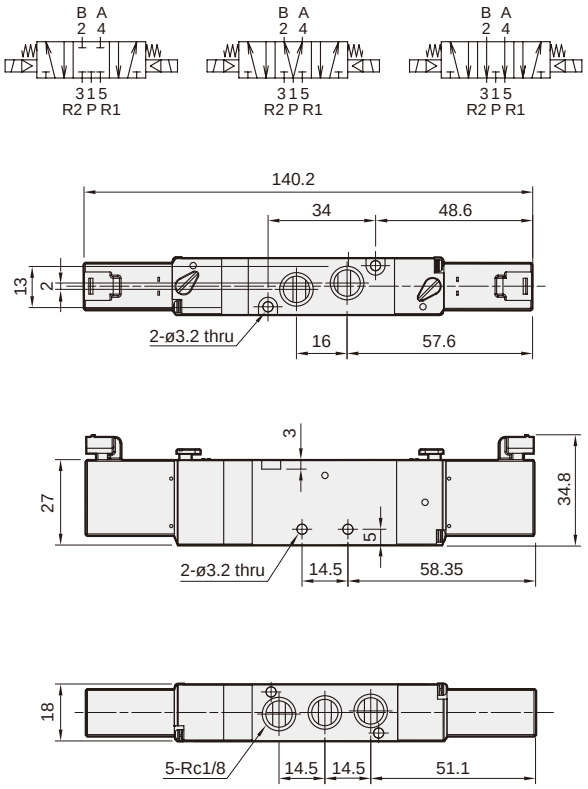


MVSC1-180-4E2

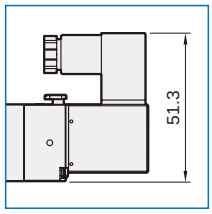


MVSC1-180-4E2C.P.R

MVSC1-180-4E2C **MVSC1-180-4E2P** **MVSC1-180-4E2R**

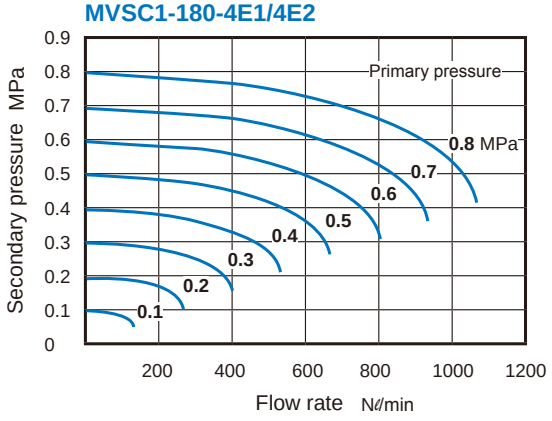


DIN terminal / DIN terminal with LED indicator

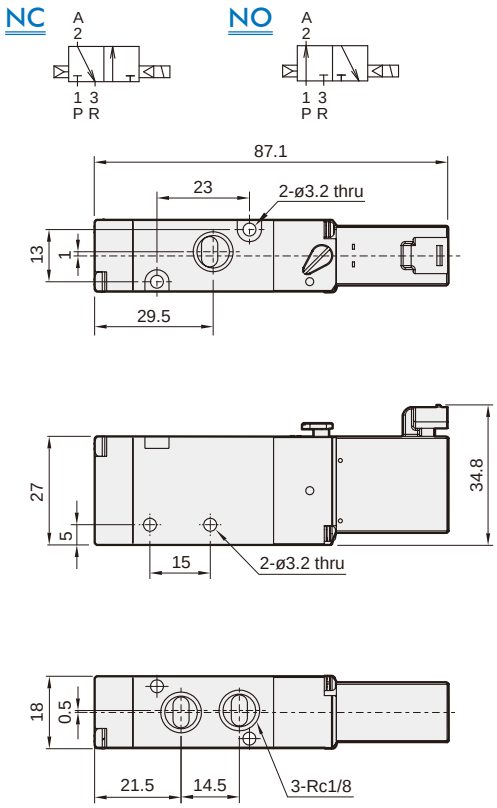


Flow features

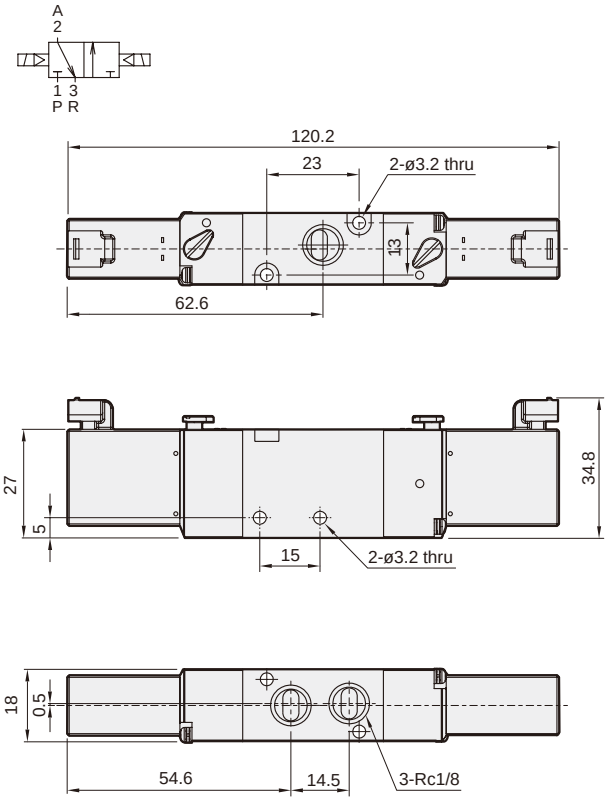
MVSC1-180-4E1/4E2



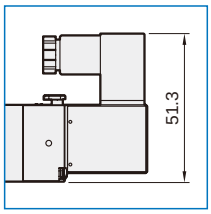
MVSC1-180-3E1-NC/NO



MVSC1-180-3E2

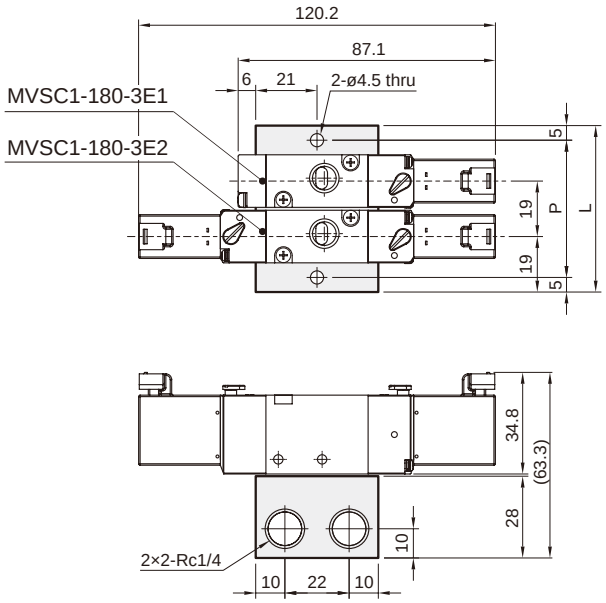


DIN terminal /
DIN terminal with LED indicator



MVSC1-180-3B*

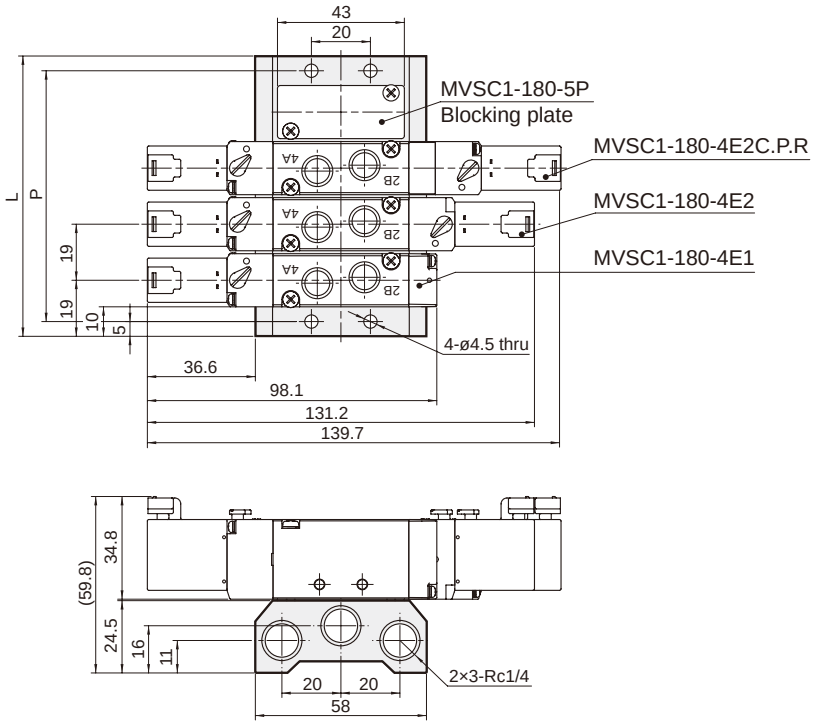
3 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

MVSC1-180-5B*

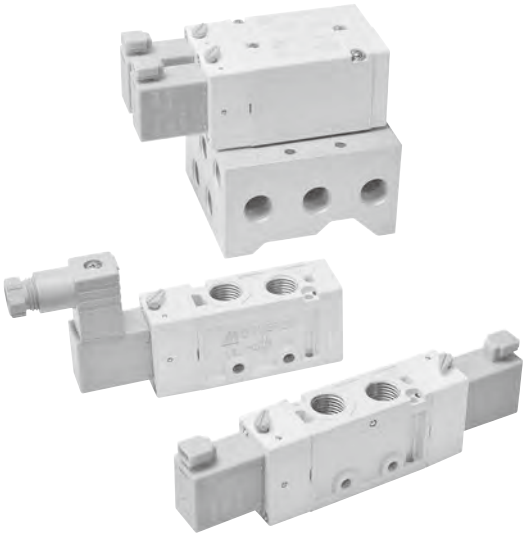
5 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

MVSC1-220 series

SOLENOID **VALVE**



Specification

Model		3E1	3E2	4E1	4E2	4E2 C.P.R
Bore No.		8A		6A, 8A		
Port size		Rc1/4		Rc1/8, Rc1/4		
No. of port / position		3 / 2		5 / 2		5 / 3
Medium		Air				
Operating perssure range		0.2~0.8 MPa				0.3~0.8 MPa
Proof pressure		1 MPa				
Effective orifice		18 mm^2				16 mm^2
Response time	Standard	AC < 40ms, DC < 30ms				AC<50ms, DC<40ms
	Quick response*	AC < 37ms, DC < 26ms				–
Power consumption	Standard	AC=1.12VA, DC=0.95W				
	Quick response*	AC=2.5VA, DC=2.5W				
Ambient temperature		-5~+50°C (No freezing)				
Voltage		AC110V, 220V (50/60)Hz, DC24/12V				
Available voltage range		±10%				
Insulation class		F class				
Weight		86 g	130 g	108 g	152 g	198 g

* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

MVSC1 — 220M — 4E2C — NC — □ — □ — AC110 — H1 — G

- MODEL
- BODY WIDTH
  - Blank: Body ported type
  - ***M**: Manifold type (*Only for **4E***)
- **3**: 3 way (3 port)
  4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3E1** type)
- BORE SIZE
  Blank: Rc1/4
  6A: Rc1/8
  (Only for **4E*** & body ported type)
- RESPONSE TIME
  Blank: Standard type
  Q: Quick response
  (Not suit for 4E2 C.P.R)
  (Power consumption please refer to spec.)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
  DC12V
- ELECTRIC CONNECTION

D: DIN terminal	L: DIN terminal
	with LED indicator
W: Lead wire	H: Horizontal plug
wire length: 500mm	with LED indicator

- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
  (Only for body ported type)

Wire length	
–	500mm
1	1000mm
2	2000mm
3	3000mm

* Wire length only for "**H**: Horizontal plug".

Order example of manifold

* Use the same manifold with MVSC.

MVSC — 220M — 5B3 — G

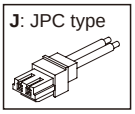
- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  3B: 3 port (for body ported type)
  3M: 3 port (for manifold type)
  5B: 5 port (for body ported type)
  5M: 5 port (for manifold type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of wire

* Use the same wire with MVDY.
* Only for "**H**: Horizontal plug".

MVDY — 100 — WA2J2

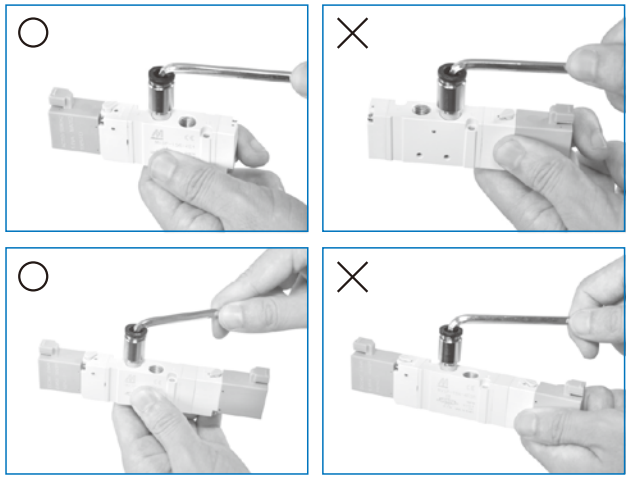
- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  J: JPC type



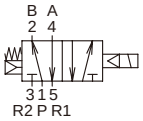
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

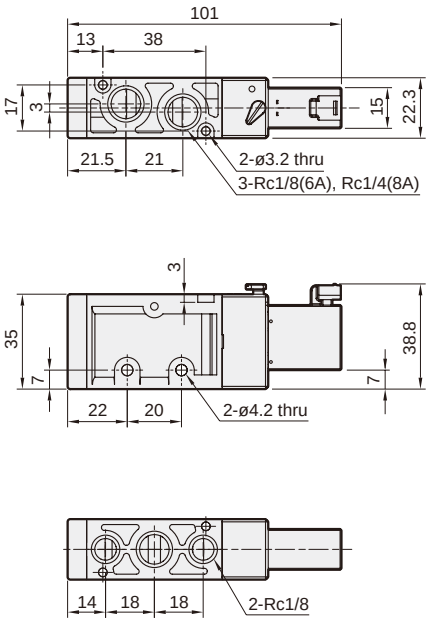
Caution

Prohibit apply force to coil when tighten the tube fitting.

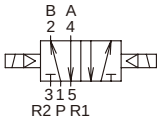


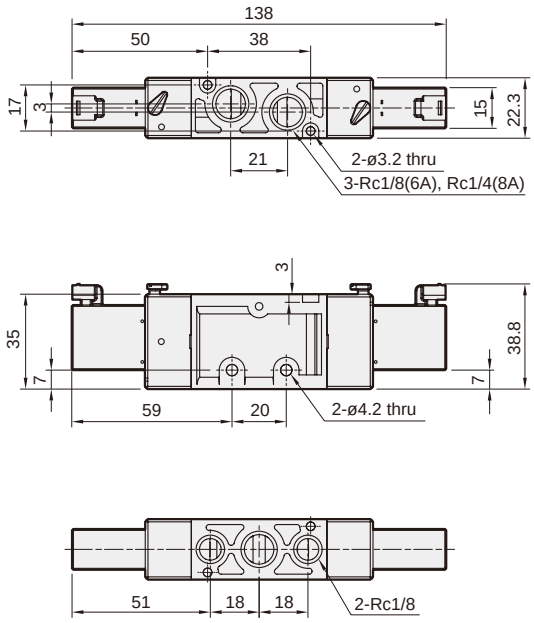
MVSC1-220-4E1





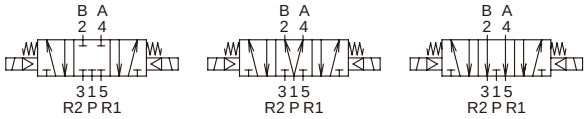
MVSC1-220-4E2

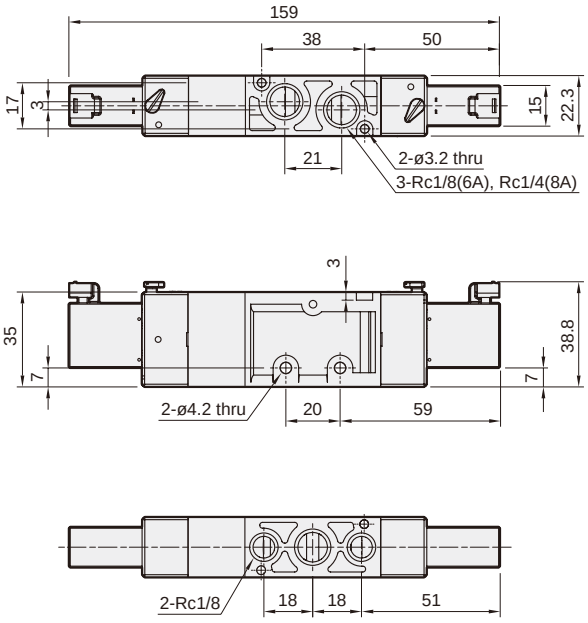




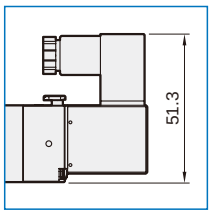
MVSC1-220-4E2C.P.R

MVSC1-220-4E2C **MVSC1-220-4E2P** **MVSC1-220-4E2R**



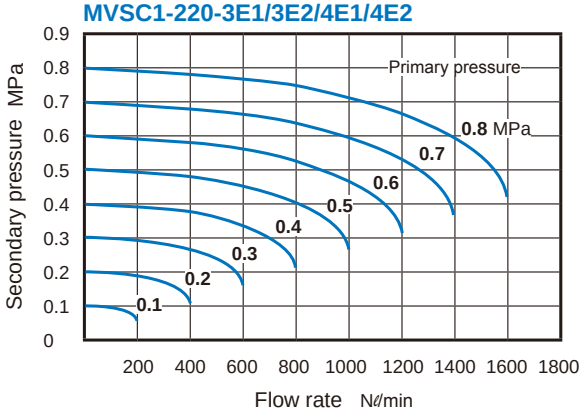


DIN terminal / DIN terminal with LED indicator

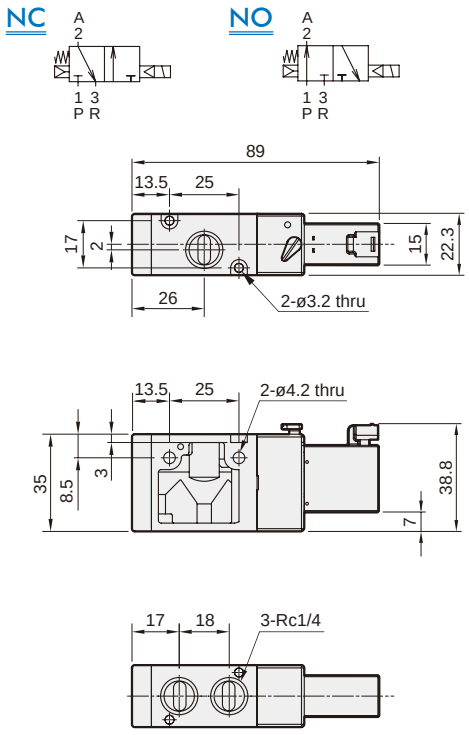


Flow features

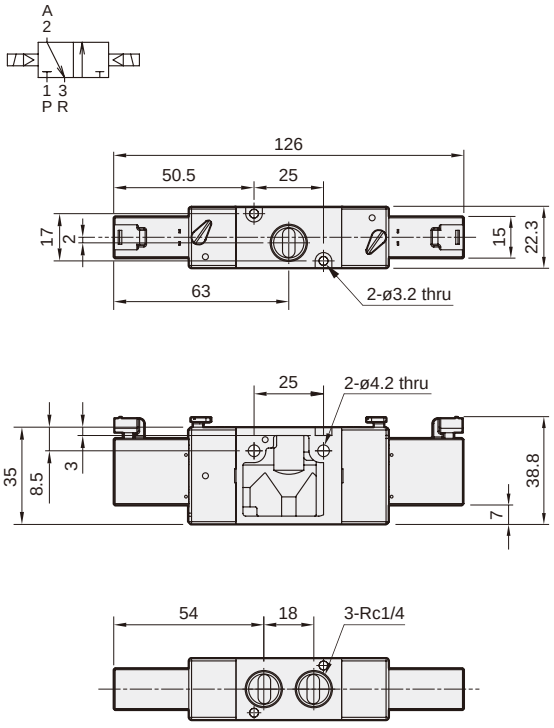
MVSC1-220-3E1/3E2/4E1/4E2



MVSC1-220-3E1-NC/NO



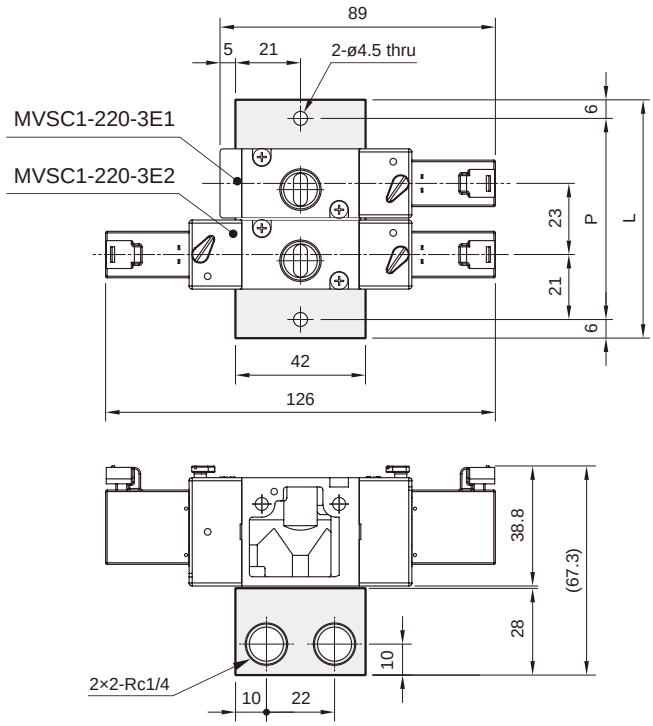
MVSC1-220-3E2



MVSC-220-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)

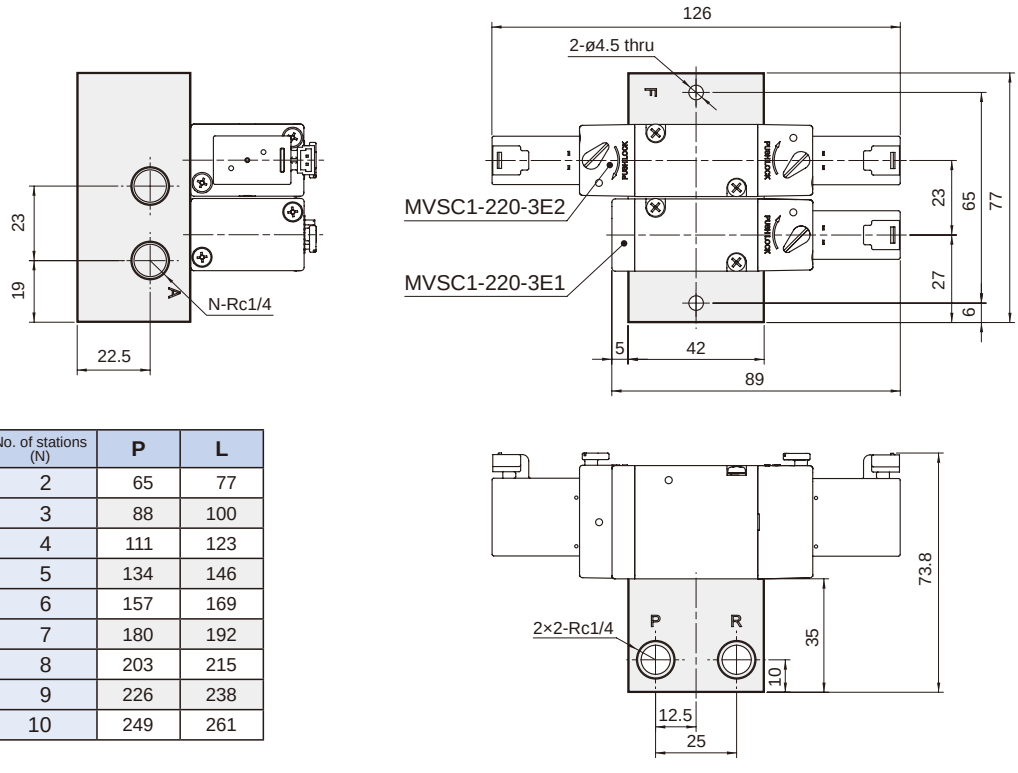


No. of stations	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC-220M-3M*

* Use the same manifold with MVSC.

3 port (for manifold type)

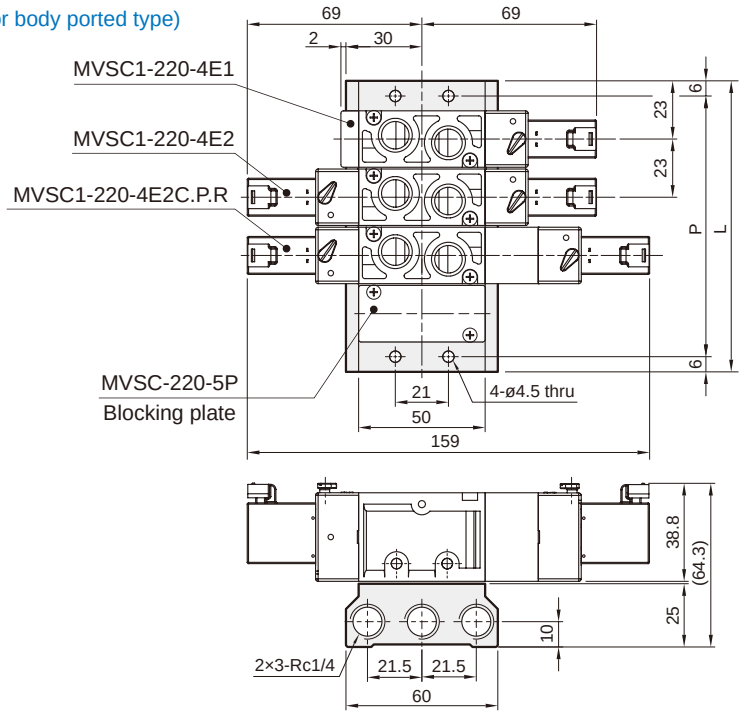


No. of stations (N)	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

MVSC-220-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)

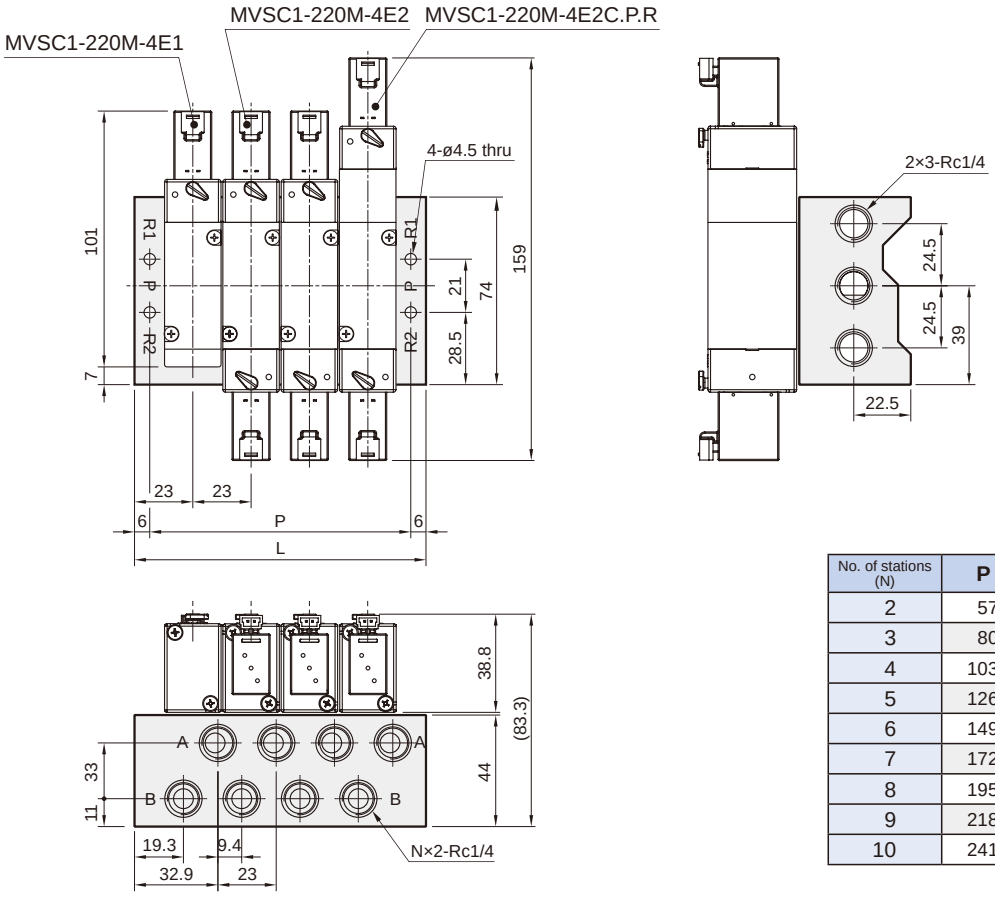


No. of stations	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSC-220M-5M*

* Use the same manifold with MVSC.

5 port (for manifold type)

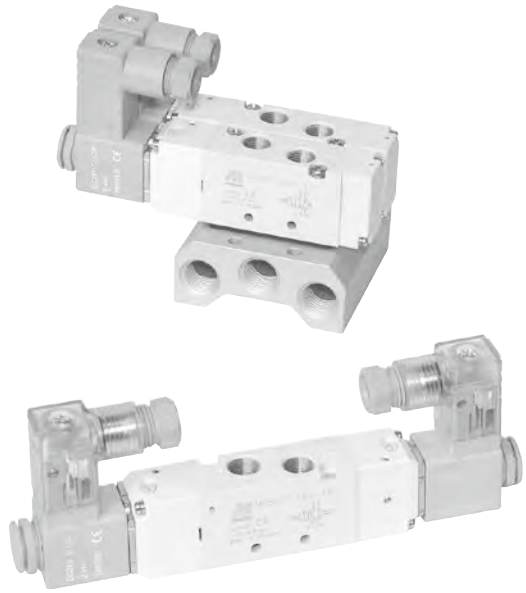


No. of stations (N)	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSD1-180 series

SOLENOID VALVE

mindman



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	6A		
Port size	Rc1/8		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.15~0.8 MPa		0.2~0.7 MPa
Operating pressue (LP)	0~0.8 MPa		0~0.7 MPa
External pilot pressure (LP)	0.15~0.8 MPa		0.2~0.7 MPa
Proof pressure	1 MPa		
Effective orifice	12 mm^2		9 mm^2
Reponse time	30 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=3.7/3.1VA, DC=2.9W		
Available voltage range	±10%		
Insulation class	F class		
Weight	124 g	176 g	190 g

Order example of valve

MVSD1 — 180 — 4E2C — AC110 — L — LP — G

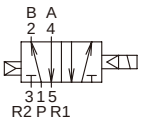
- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  W: Lead wire
- **LP**: External pilot
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

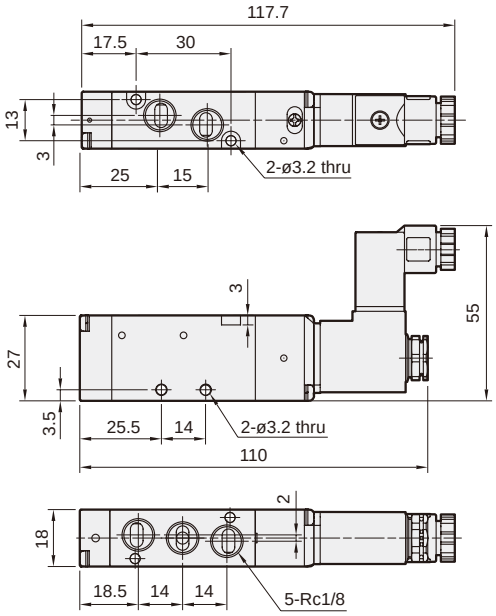
Order example of manifold

MVSD1 — 180 — 5B3 — G

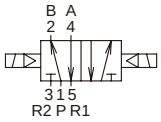
- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

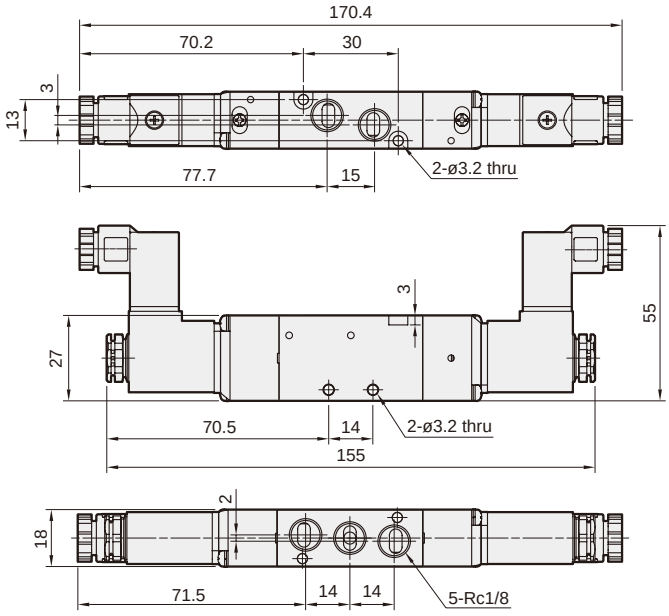
MVSD1-180-4E1





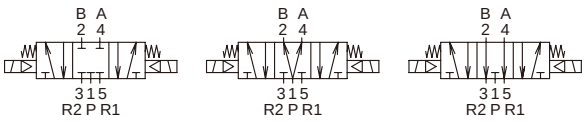
MVSD1-180-4E2

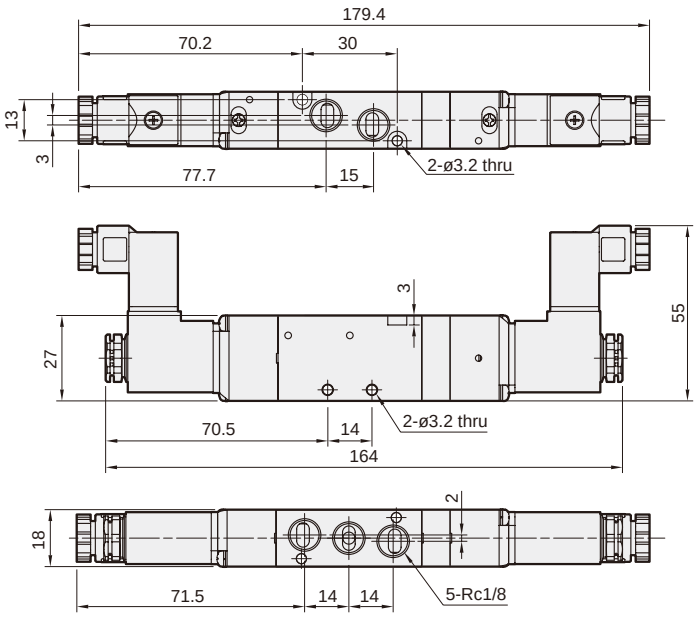




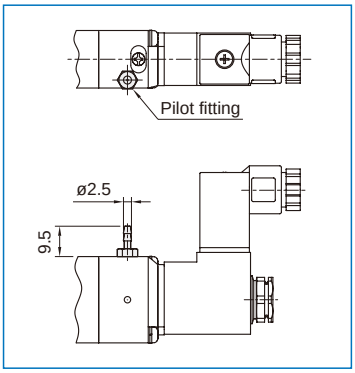
MVSD1-180-4E2C.P.R

MVSD1-180-4E2C **MVSD1-180-4E2P** **MVSD1-180-4E2R**



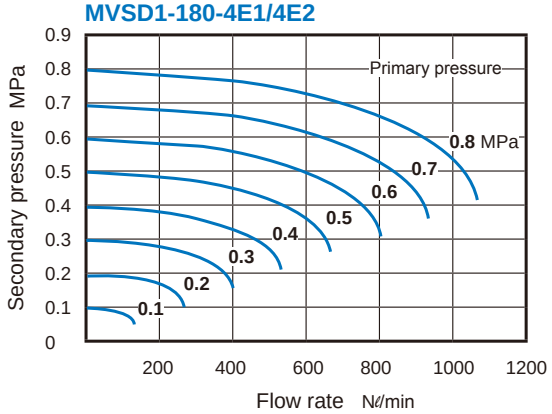


LP



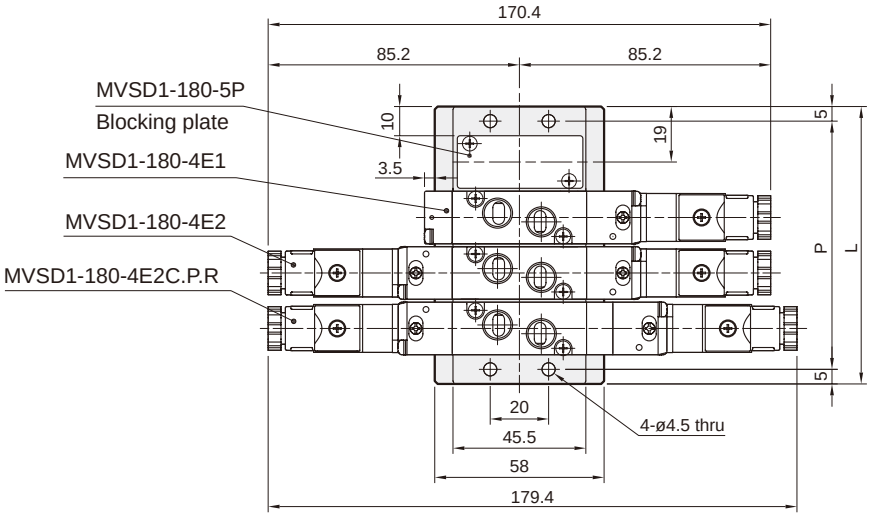
Flow features

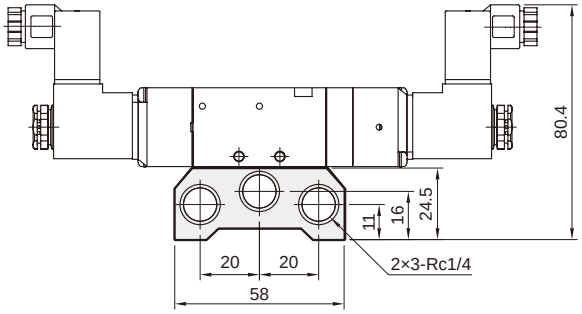
MVSD1-180-4E1/4E2



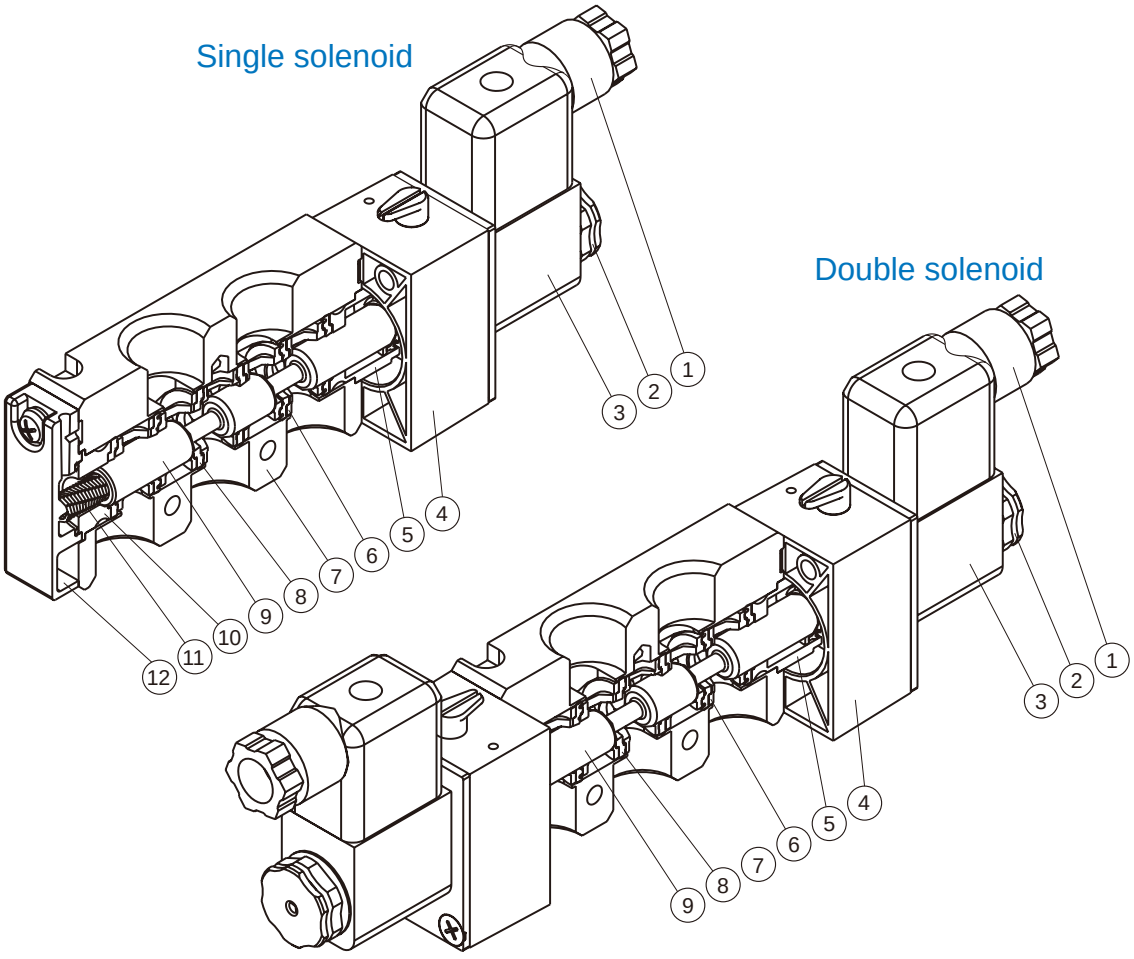
MVSD1-180-5B*

5 port (for body ported type)





No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209



Material

No.	Part name	Material
1	Terminal assy.	–
2	Coil nut	POM
3	Coil assy.	–
4	Pilot body	POM
5	Piston guide seat	Brass
6	Packing seat	Plastic
7	Body	Aluminum alloy
8	Spool valve packing	NBR
9	Spool valve	Aluminum alloy
10	Location ring	Brass
11	Spool valve spring	Stainless steel
12	End cover	Zine

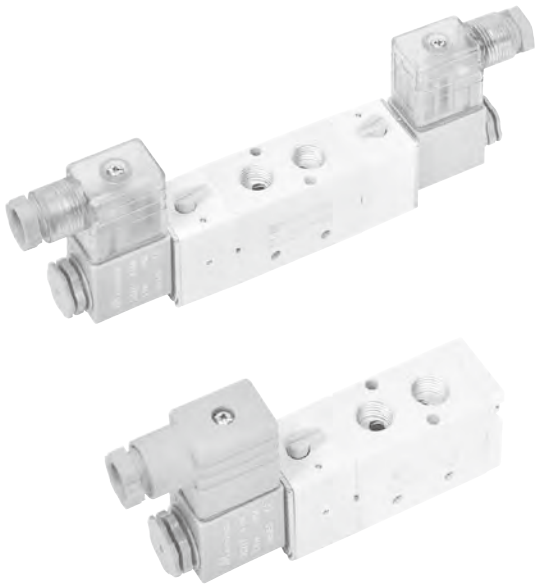
Features

- Max. operating pressure 1.2 MPa.

MVSE-260 series

SOLENOID **VALVE**

mindman



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~1.2 MPa		0.3~1.2 MPa
Proof pressure	1.5 MPa		
Effective orifice	18 mm^2		16 mm^2
Reponse time	40 ms		35 ms
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	255 g	350 g	405 g

Order example of valve

MVSE — 260 — 4E2C — AC110 — L — G

- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

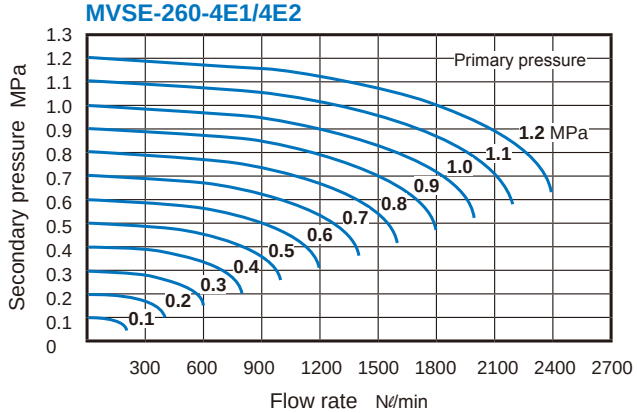
Order example of manifold

MVSE — 260 — 5B3 — G

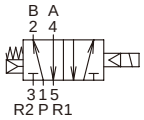
- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

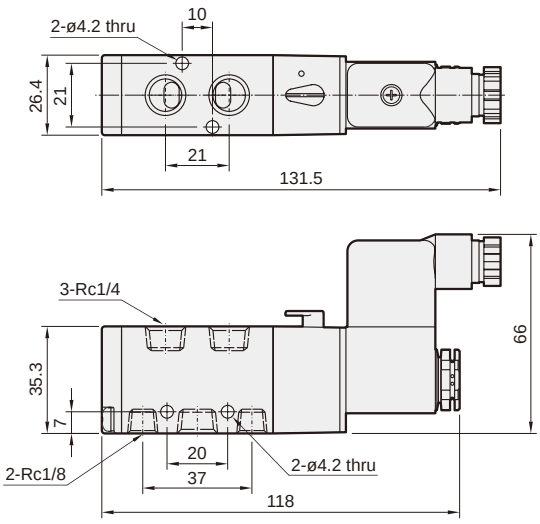
Flow features

MVSE-260-4E1/4E2

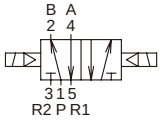


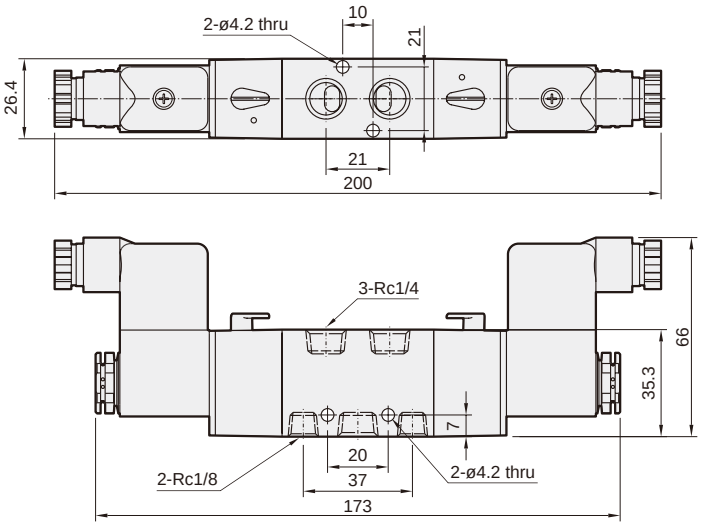
MVSE-260-4E1





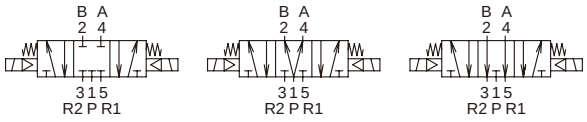
MVSE-260-4E2

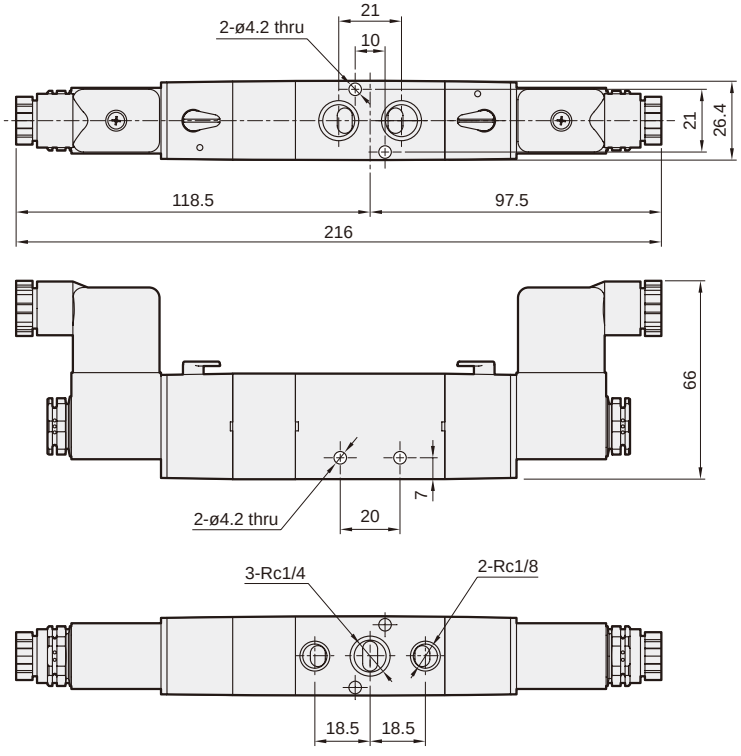




MVSE-260-4E2C.P.R

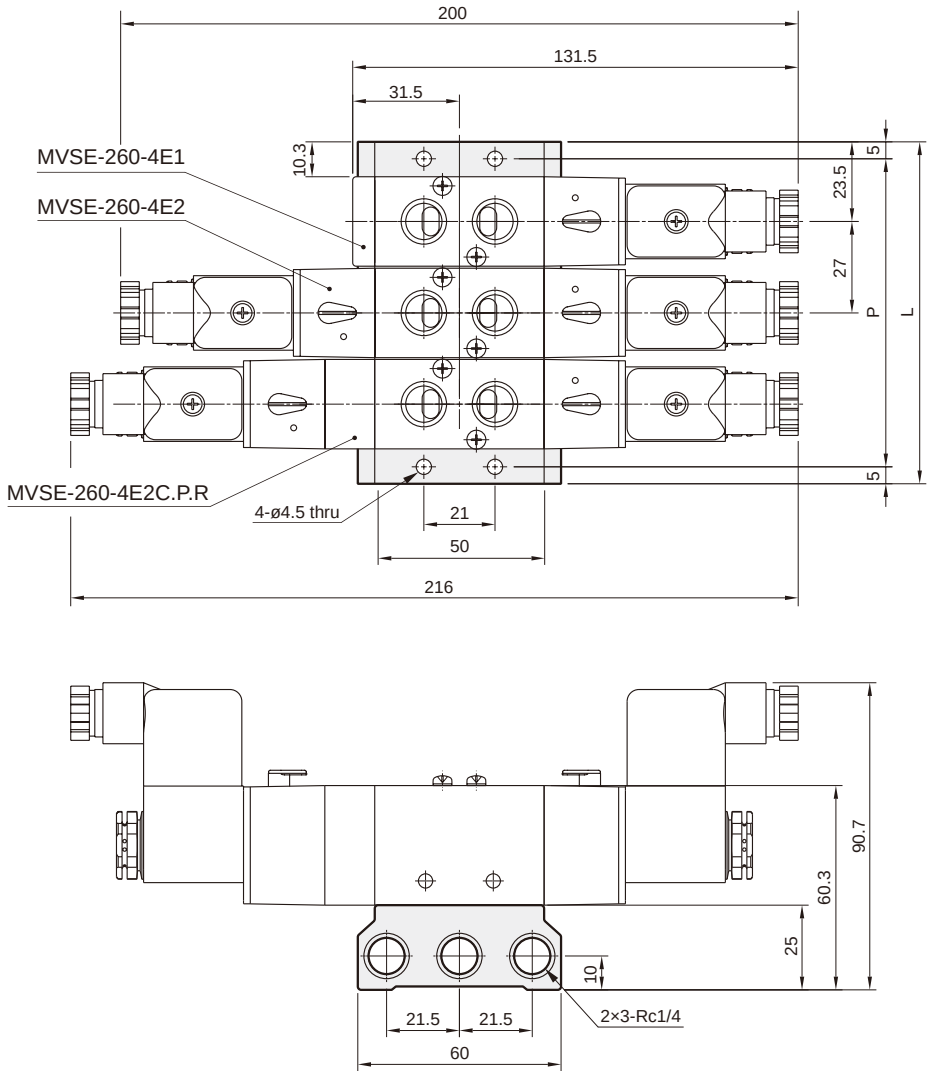
MVSE-260-4E2C **MVSE-260-4E2P** **MVSE-260-4E2R**



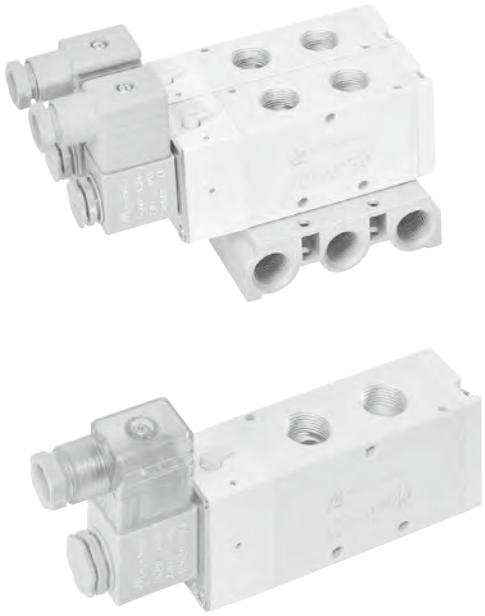


MVSE-260-5B*

5 port (for body ported type)



No. of stations	P	L
2	64	74
3	91	101
4	118	128
5	145	155
6	172	182
7	199	209
8	226	236
9	253	263
10	280	290



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	10A		
Port size	Rc3/8		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~1.2 MPa		0.3~1.2 MPa
Proof pressure	1.5 MPa		
Effective orifice	35 mm^2		34.5 mm^2
Reponse time	50 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	406 g	508 g	577 g

Order example of valve

MVSE — 300 — 4E2C — AC110 — L — G

- MODEL
- BODY WIDTH
- 4: 4 way (5 port)
- E1: Single Solenoid
  E2: Double Solenoid
- C: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Table 1

Property for explosion-proof type

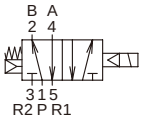
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

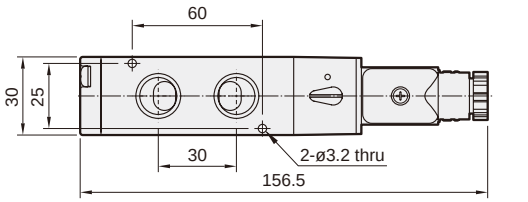
Order example of manifold

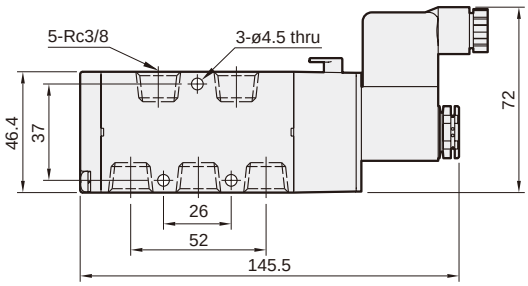
MVSE — 300 — 5B3 — G

- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

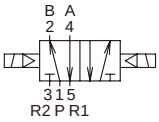
MVSE-300-4E1

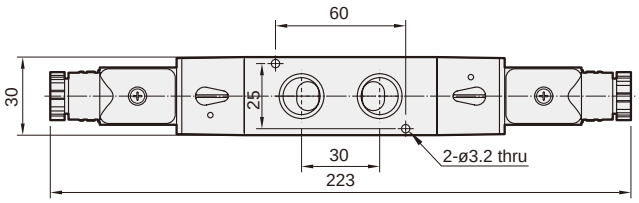


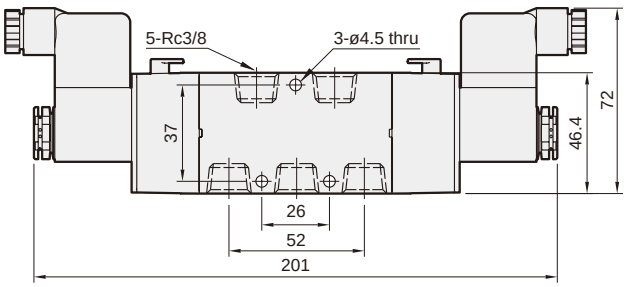




MVSE-300-4E2

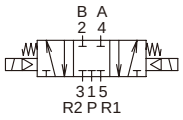




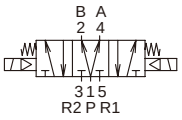


MVSE-300-4E2C.P.R

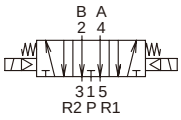
MVSE-300-4E2C

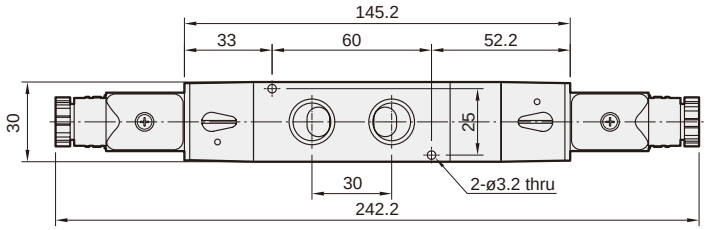


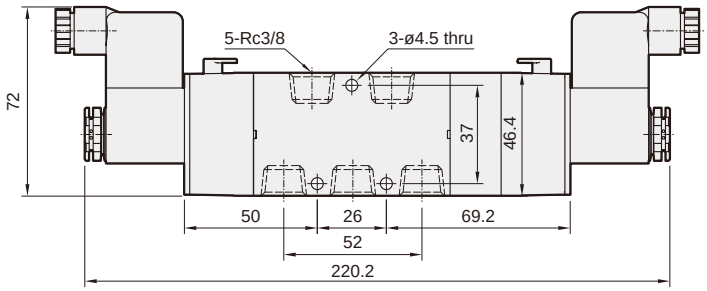
MVSE-300-4E2P



MVSE-300-4E2R

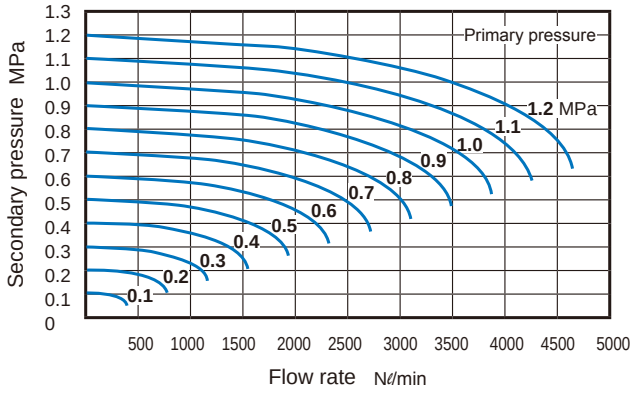






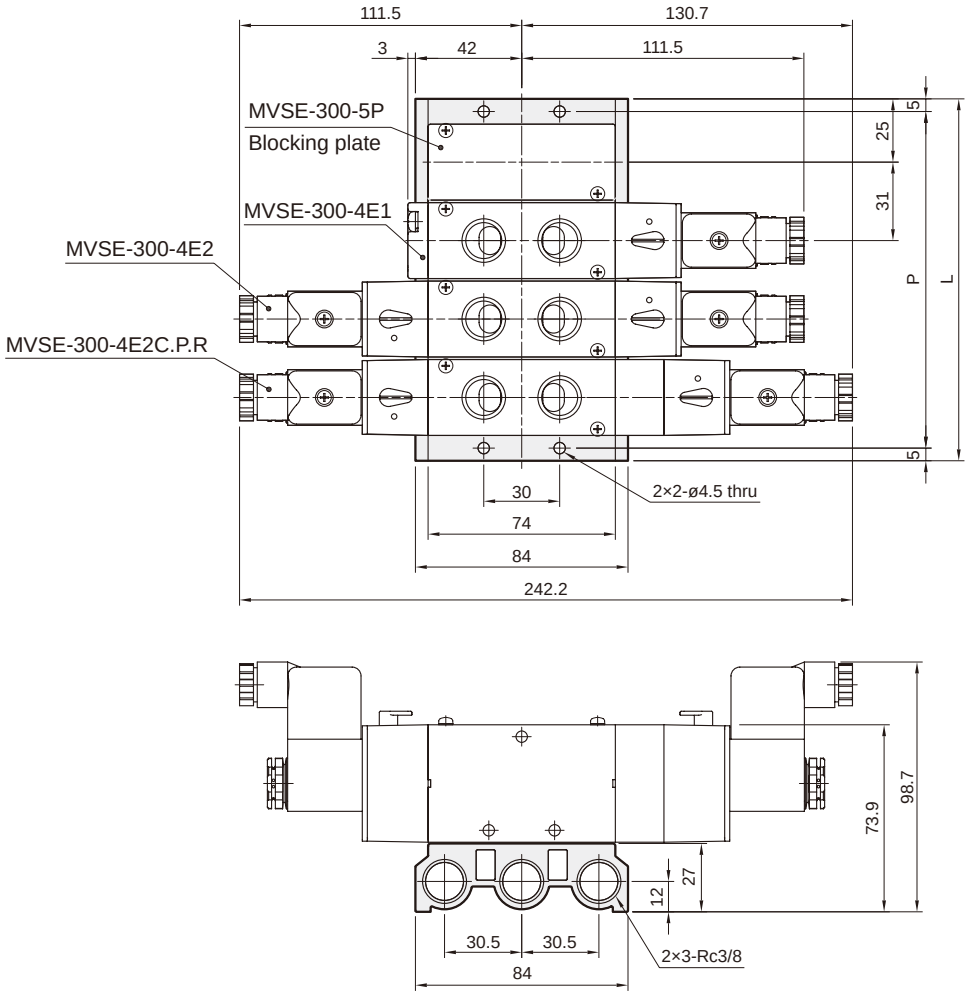
Flow features

MVSE-300-4E1/4E2



MVSE-300-5B*

5 port (for body ported type)

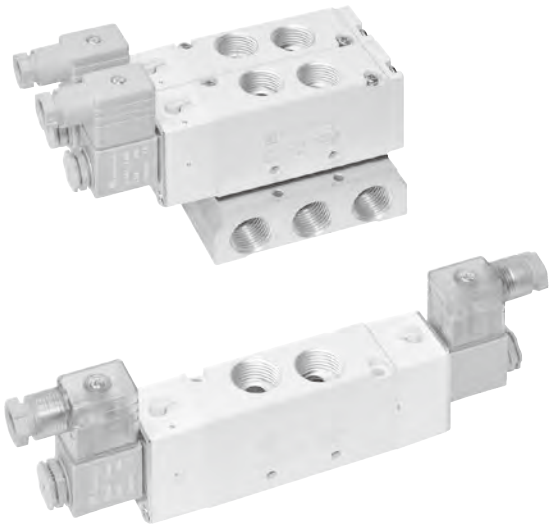


No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSE-500 series

SOLENOID **VALVE**

mindman



Specification

Model	4E1	4E2
Bore No.	15A	
Port size	Rc1/2	
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~1.2 MPa	
Proof pressure	1.5 MPa	
Effective orifice	41 mm^2	
Reponse time	50 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight	453 g	554 g

Order example of valve

MVSE — 500 — 4E2 — AC110 — L — G

- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Table 1

Property for explosion-proof type

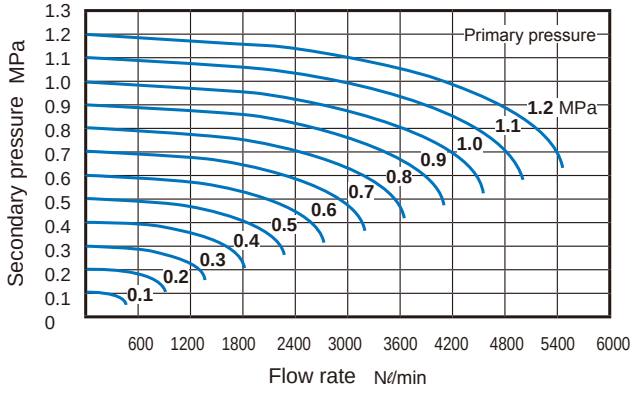
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of manifold

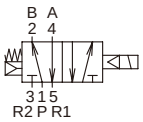
MVSE — 500 — 5B3 — G

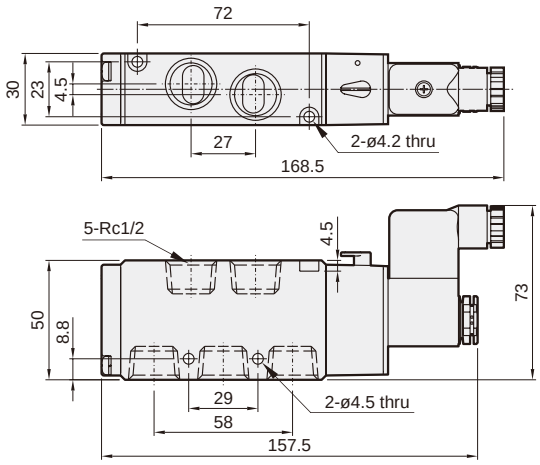
- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Flow features

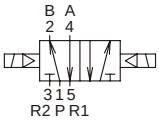


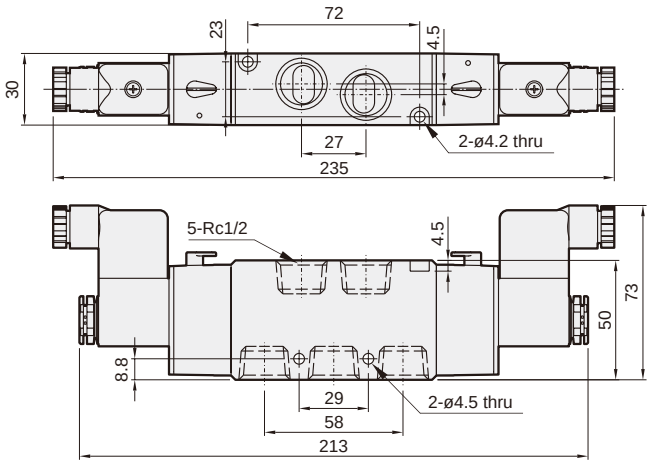
MVSE-500-4E1





MVSE-500-4E2

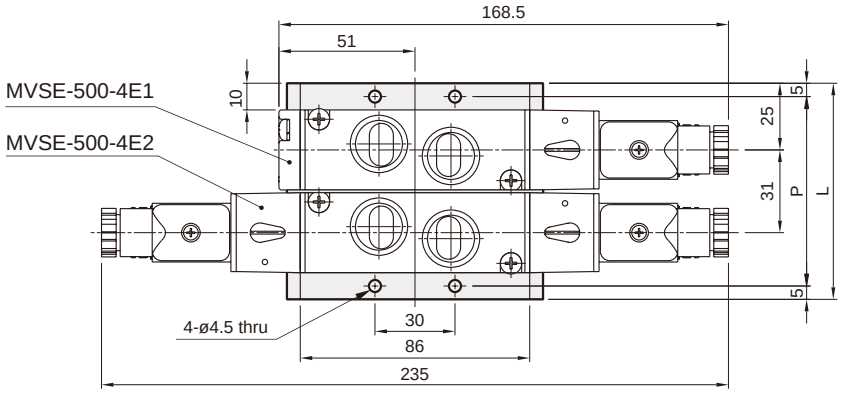


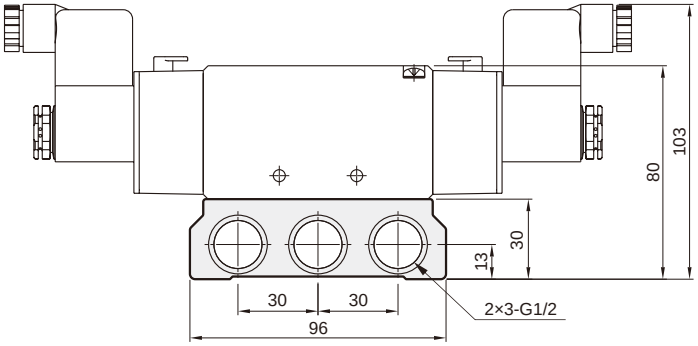


Manifold of solenoid valve

MVSE-500-5B*

5 port (for body ported type)



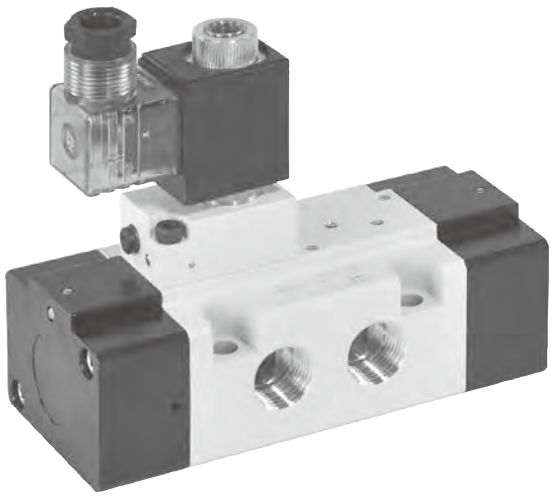


No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSE-510 series

SOLENOID **VALVE**

mindman



Specification

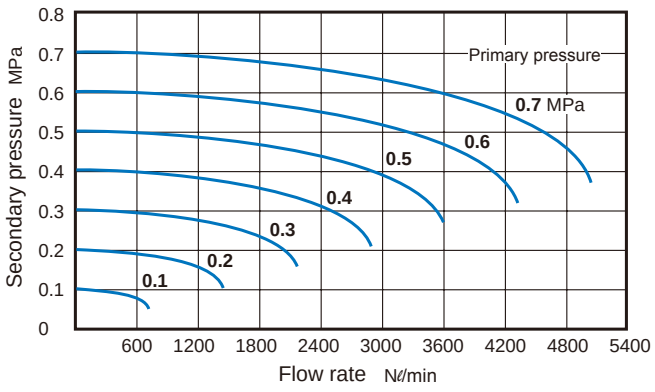
Model	4E1	4E2
Bore No.	15A	
Port size	Rc1/2	
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	65 mm^2	
Reponse time	60 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=13/11VA, DC=10W	
Available voltage range	±10%	
Insulation class	H class	
Weight	1523 g	1808 g

Order example of valve

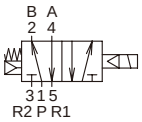
MVSE — 510 — 4E2 — AC110 — L — G

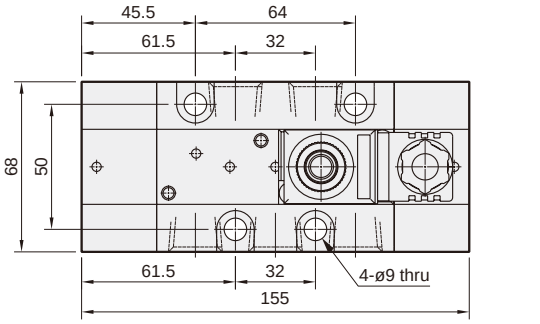
- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

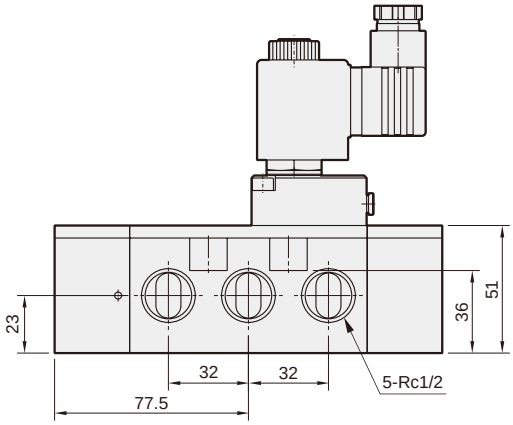
Flow features

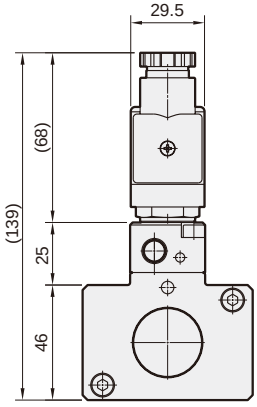


MVSE-510-4E1

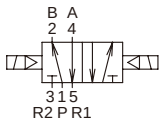


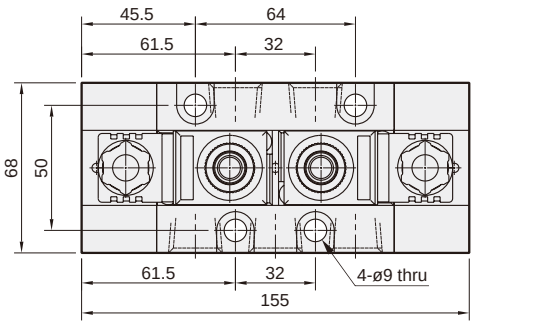


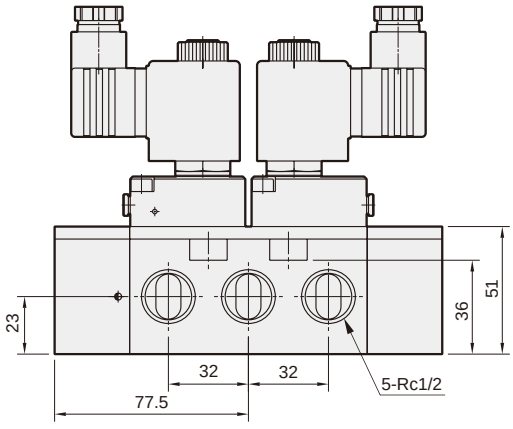


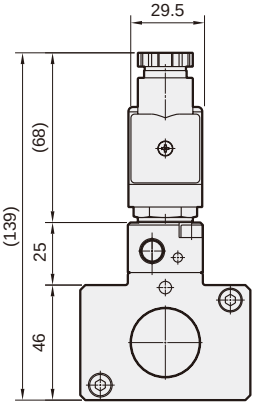


MVSE-510-4E2





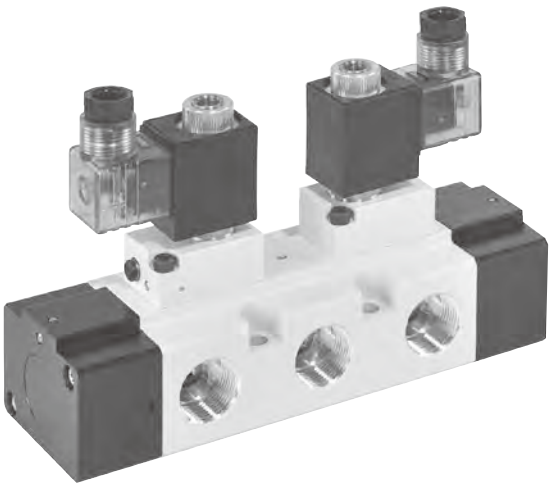




MVSE-600 series

SOLENOID **VALVE**

mindman



Specification

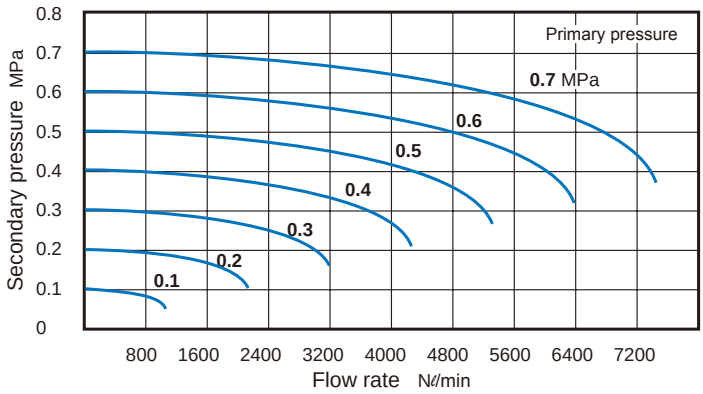
Model	4E1	4E2
Bore No.	20A, 25A	
Port size	Rc3/4, Rc1	
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	20A: 96 mm^2, 25A: 100 mm^2	
Reponse time	80 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=13/11VA, DC=10W	
Available voltage range	±10%	
Insulation class	H class	
Weight	1817 g	2102 g

Order example of valve

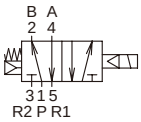
MVSE — 600 — 4E2 — 25A — AC110 — L — G

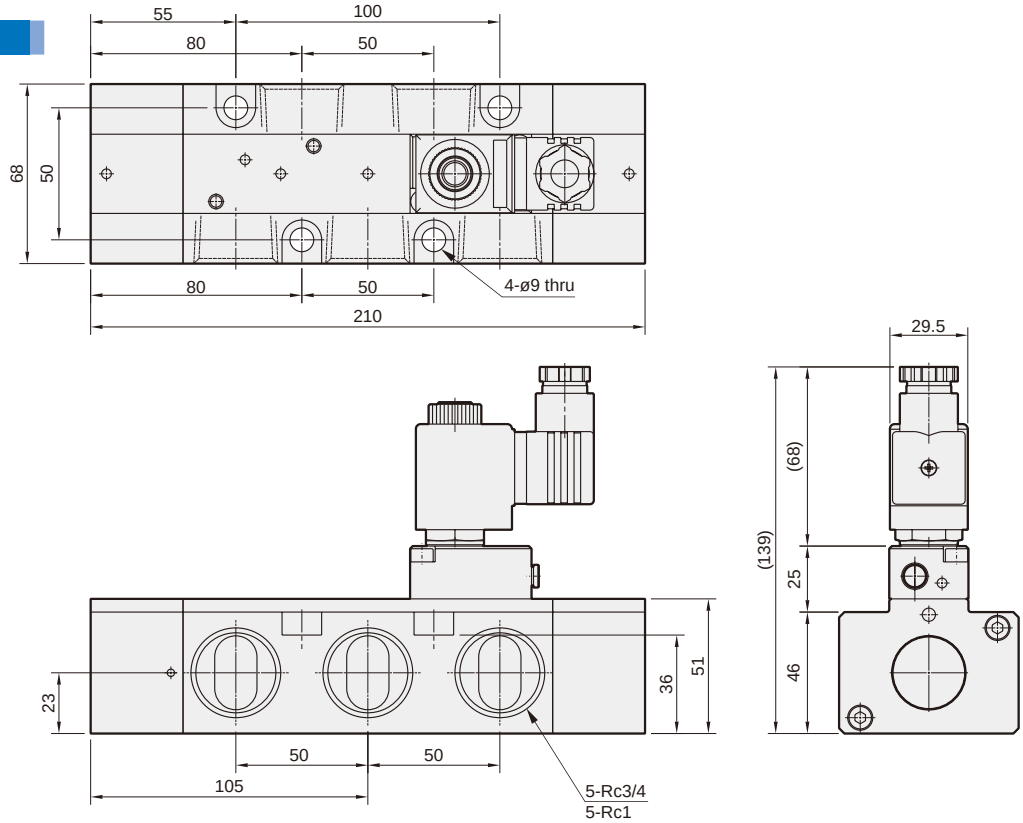
- MODEL: MVSE
- BODY WIDTH: 600
- 4: 4 way (5 port)
- E1: Single Solenoid; E2: Double Solenoid
- BORE SIZE: 20A: Rc3/4; 25A: Rc1
- VOLTAGE: AC220V(50/60)Hz; AC110V(50/60)Hz; DC24V
- ELECTRIC CONNECTION: Blank: DIN terminal; L: DIN terminal with LED indicator
- PORT THREAD: Blank: Rc thread; G: G thread; NPT: NPT thread

Flow features

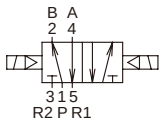


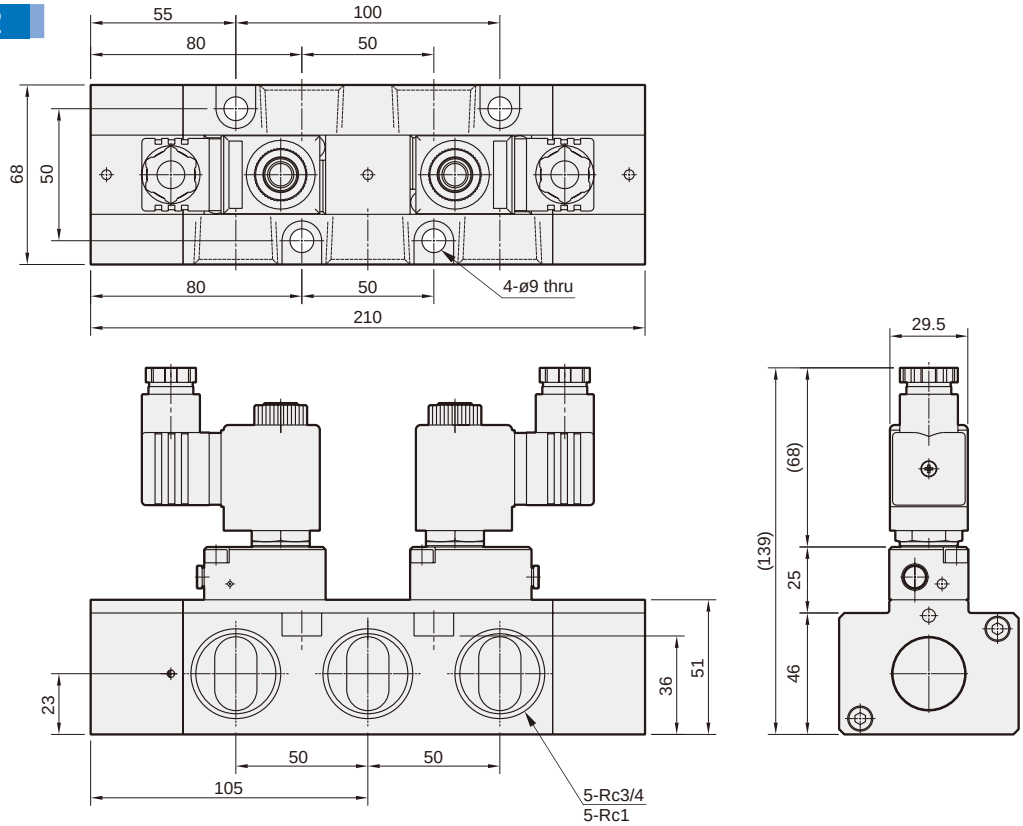
MVSE-600-4E1





MVSE-600-4E2

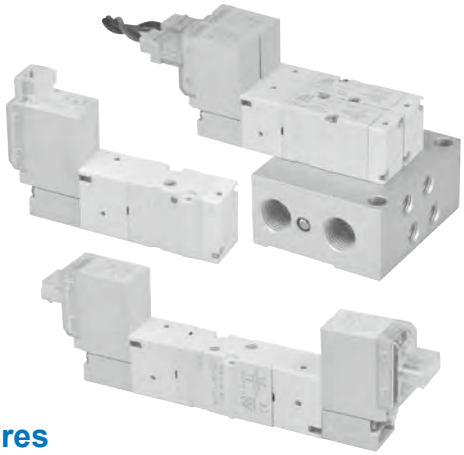




MVSF-100 series

SOLENOID **VALVE**

mindman



Features

- **Low power consumption: 1.2W**
- **Compact design, Large flow capacity**
  Cv factor for this series is 1.25 times large than conventional valve with the same body width.
- **Quick response time: 12ms**

Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Specification

Model	3E1	3E2	4E1	4E2
Bore No.	M3			
Port size	M3×0.5			
No. of port	3		5	
No. of position	2			
Medium	Air			
Operating perssure range	0.15~0.7 MPa			
Effective orifice mm^2 (Cv)	P→A/B: 1.0 (0.06)			
Reponse time	12 ms			
Max. operating frequency	5 Hz			
Ambient temperature	+5~+50°C			
Lubrication	Not necessary			
Voltage	AC110V, 220V (50/60)Hz, DC6/12/24V			
Power consumption	AC=1.6/2.5VA, DC=0.55W (LED indicator)			
Surge voltage suppressor	Diode			
Available voltage range	±10%			
Insulation class	B class			
Weight	25 g	41 g	28 g	44 g

Order example of valve

MVSF — 100M — 4E2 — NC — DC12 — LJ1

- MODEL
- BODY WIDTH
  - Blank: Body ported type
  - **M**: Manifold type *
  - *(Only for **4E*** type)
- **3**: 3 way (3 port)
  4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **NC**: Normally closed
  NO: Normally open
  (Only for **3E1** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
  DC12V
  DC6V
- ELECTRIC CONNECTION
  - **LJ**: Plug on side (*1)
  - **LR**: Plug on side (*2)
  - **SR**: Plug on Top (*2)
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

Order example of manifold

MVSF — 100M — 5M3

- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
  5M: 5 port (for manifold type)
- MANIFOLD NUMBER
  1, 2, 3...

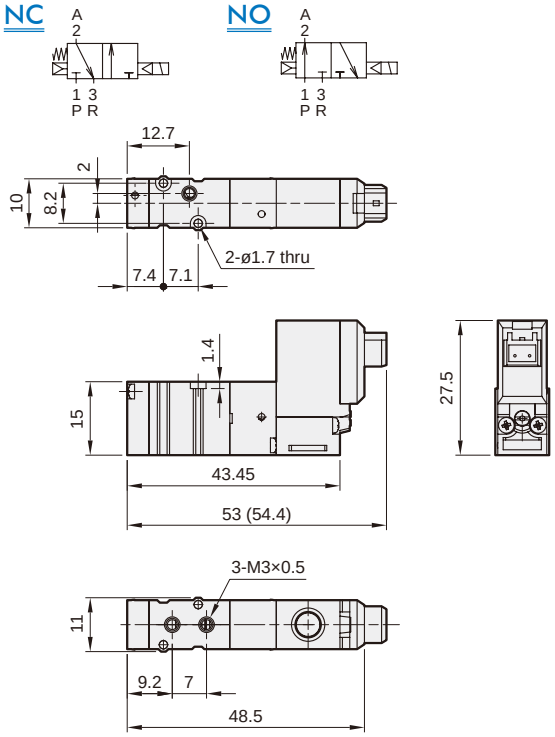
Order example of wire

* Use the same wire with MVDY.

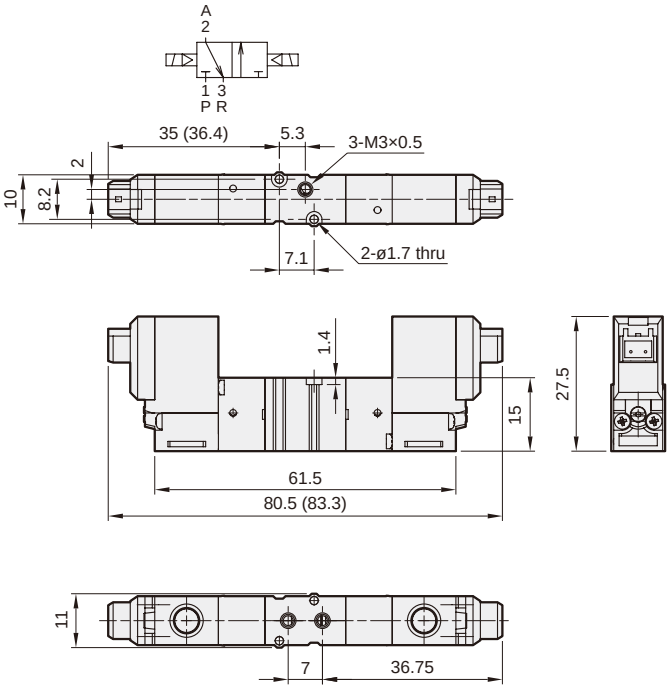
MVDY — 100 — WA2J2

- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  - **J**: JPC type
  - **R**: RMH type
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

MVSF-100-3E1-NC/NO



MVSF-100-3E2

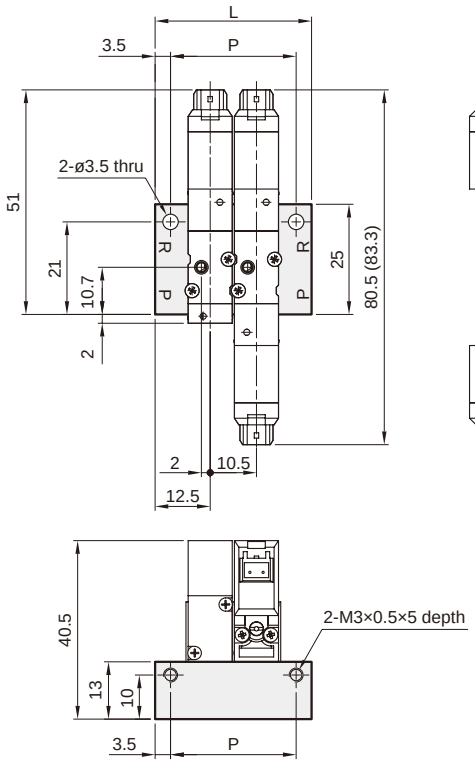


Manifold of solenoid valve

MVSF-100-3B*

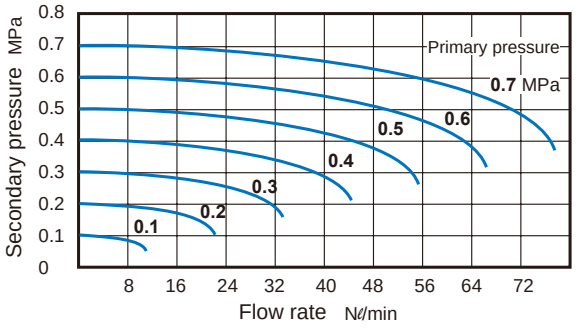
( ): Dimension for **LJ** plug type.

3 port (for body ported type)

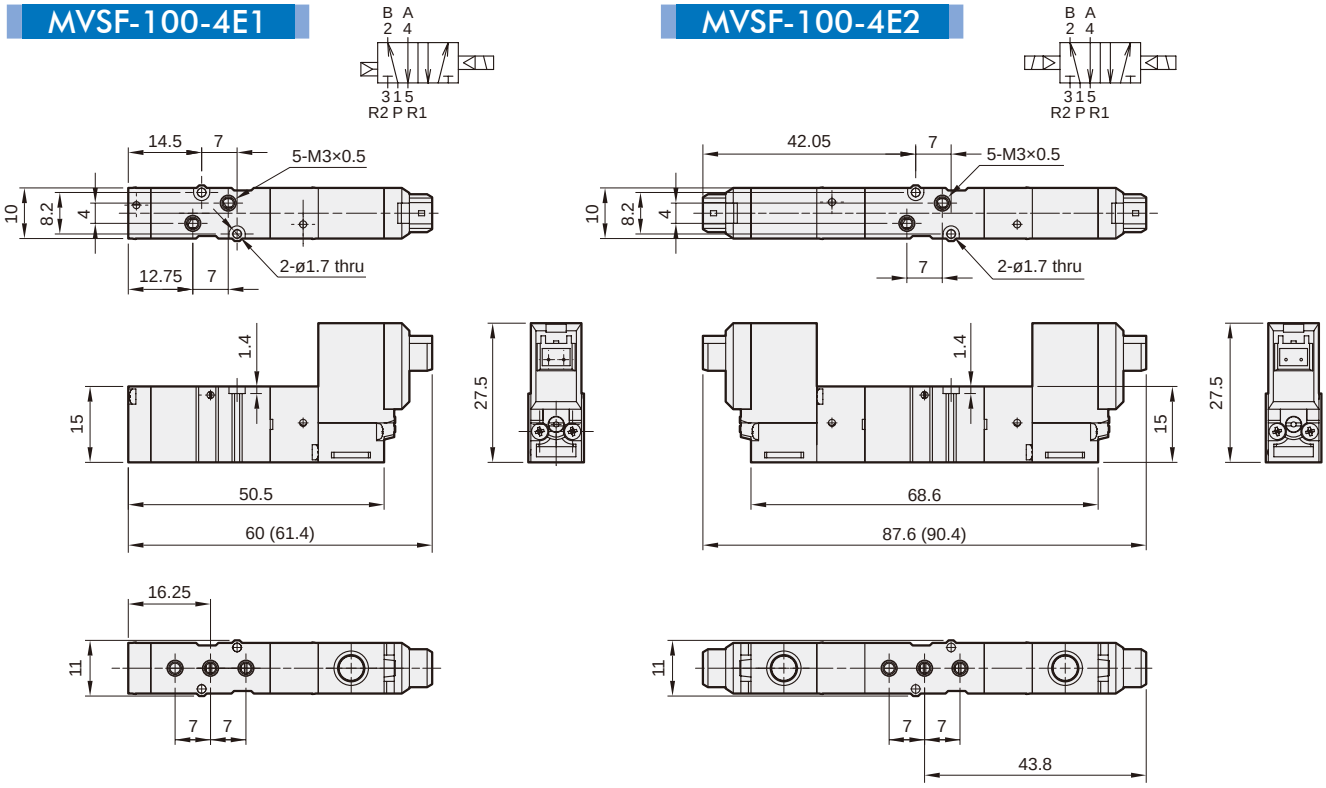


No. of stations	P	L
2	28.5	35.5
3	39	46
4	49.5	56.5
5	60	67
6	70.5	77.5
7	81	88
8	91.5	98.5
9	102	109
10	112.5	119.5

Flow features



MVSF-100-4E1



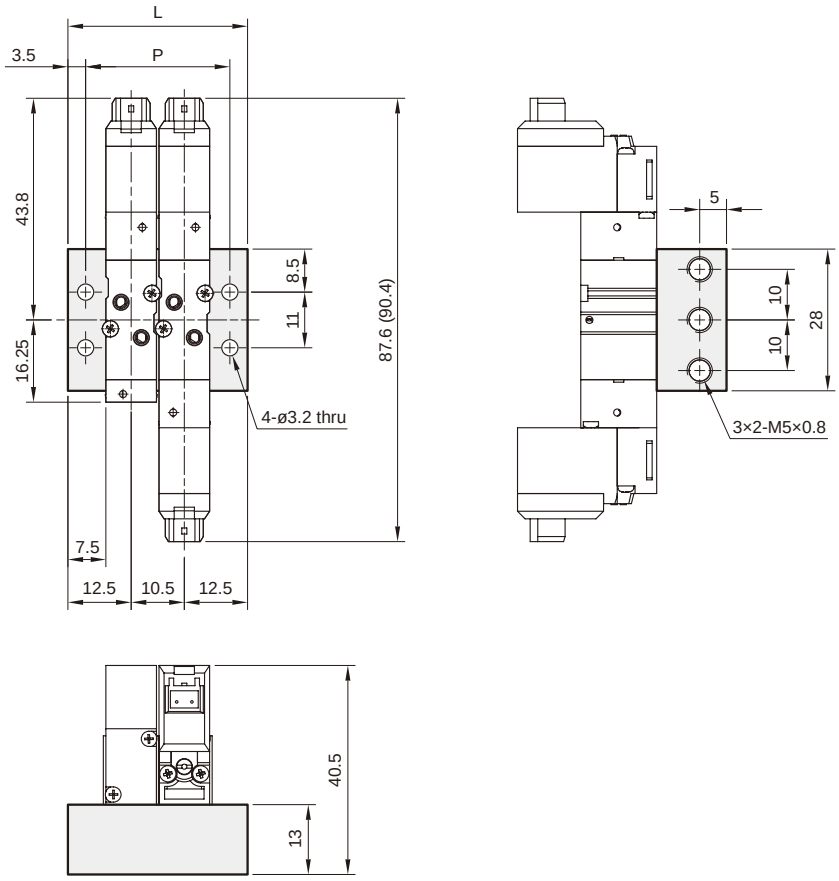
MVSF-100-4E2

Manifold of solenoid valve

MVSF-100-5B*

5 port (for body ported type)

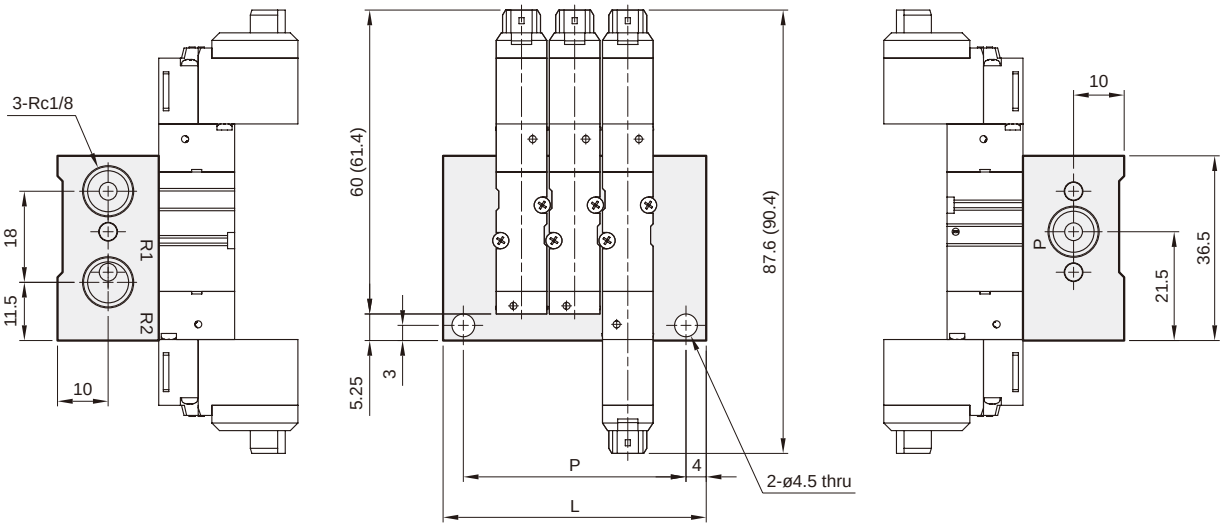
No. of stations	P	L
2	28.5	35.5
3	39	46
4	49.5	56.5
5	60	67
6	70.5	77.5
7	81	88
8	91.5	98.5
9	102	109
10	112.5	119.5



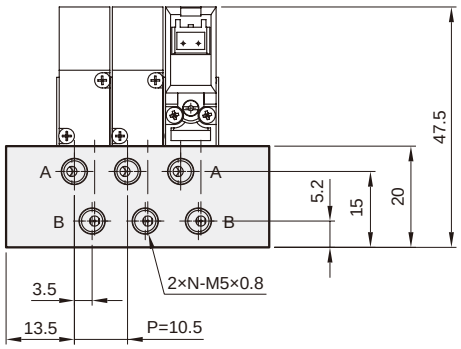
( ): Dimension for **LJ** plug type.

MVSF-100-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	33.5	41.5
3	44	52
4	54.5	62.5
5	65	73
6	75.5	83.5
7	86	94
8	96.5	104.5
9	107	115
10	117.5	125.5

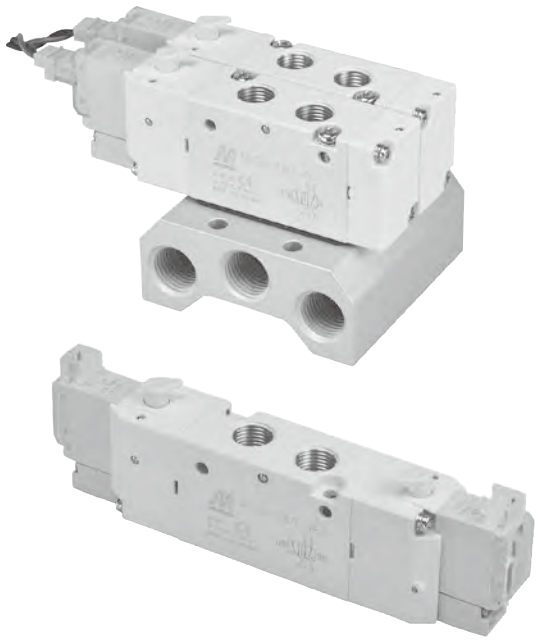


( ): Dimension for **LJ** plug type.

MVSG-180 series

SOLENOID **VALVE**

mindman



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	6A		
Port size	Rc1/8		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.15~0.7 MPa		0.3~0.7 MPa
Proof pressure	1 MPa		
Effective orifice	10 mm^2		
Reponse time	15 ms		30 ms
Ambient temperature	+5~+50°C		
Voltage	AC110V (50/60)Hz, DC24/12/6V		
Power consumption	AC=1.6VA, DC=0.55W		
Available voltage range	±10%		
Insulation class	B class		
Weight	74 g	94 g	132 g

Order example of valve

MVSG — 180 — 4E2C — AC110 — LJ1 — G

- MODEL
- BODY WIDTH
  - **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC110V(50/60)Hz
  DC24V
  DC12V
  DC6V
- ELECTRIC CONNECTION
  - **LJ**: Plug on side (*1)
  - **LR**: Plug on side (*2)
  - **SR**: Plug on Top (*2)
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

Order example of manifold

MVSG — 180 — 5B3 — G

- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

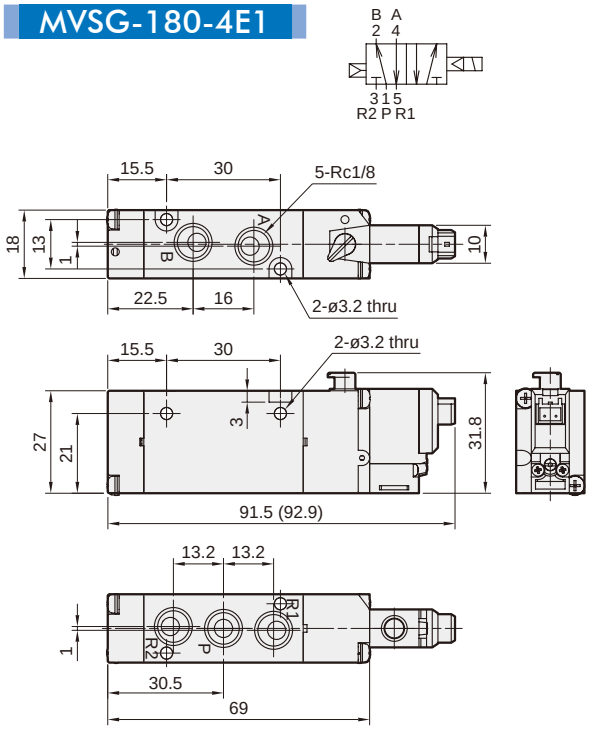
Order example of wire

* Use the same wire with MVDY.

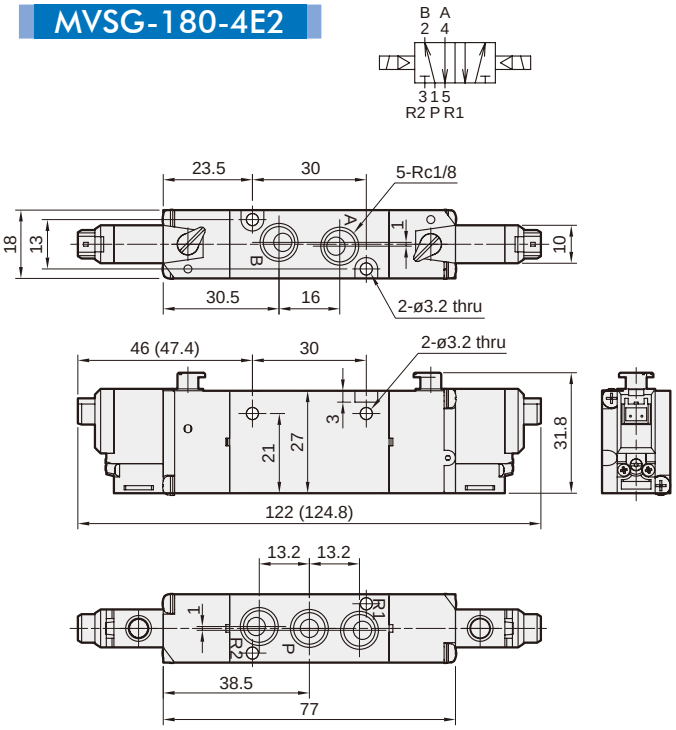
MVDY — 100 — WA2J2

- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  - **J**: JPC type
  - **R**: RMH type
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

MVSG-180-4E1

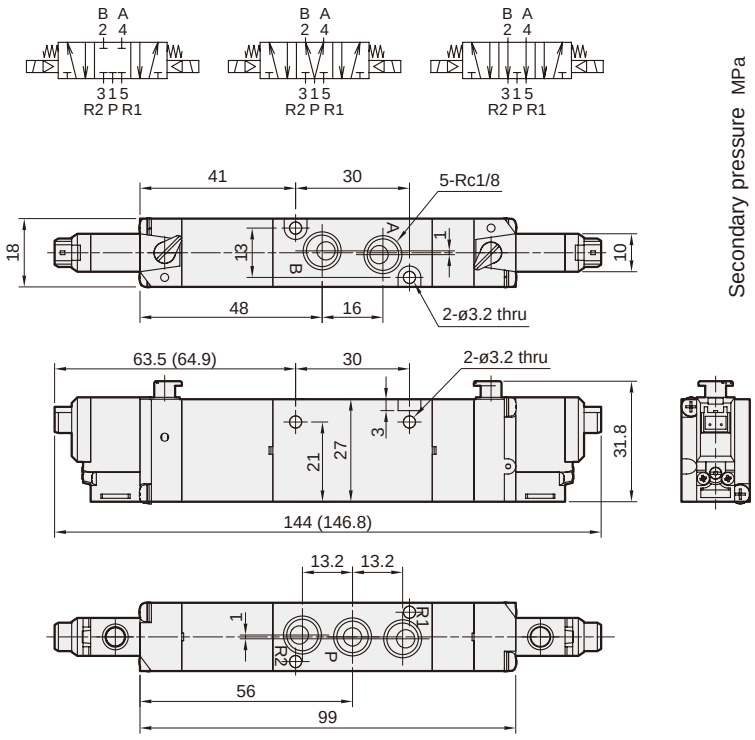


MVSG-180-4E2



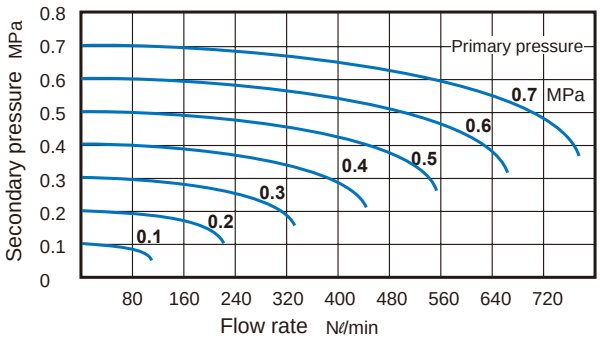
MVSG-180-4E2C.P.R

MVSG-180-4E2C **MVSG-180-4E2P** **MVSG-180-4E2R**



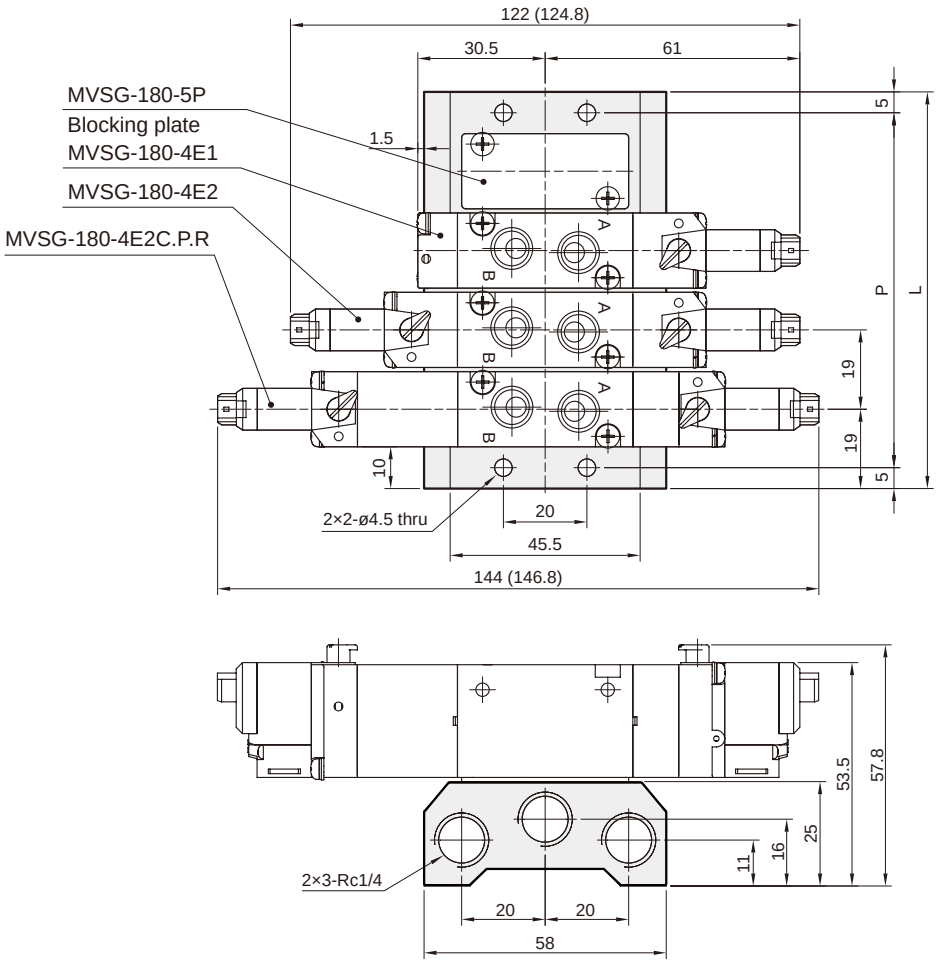
( ): Dimension for **LJ** plug type.

Flow features



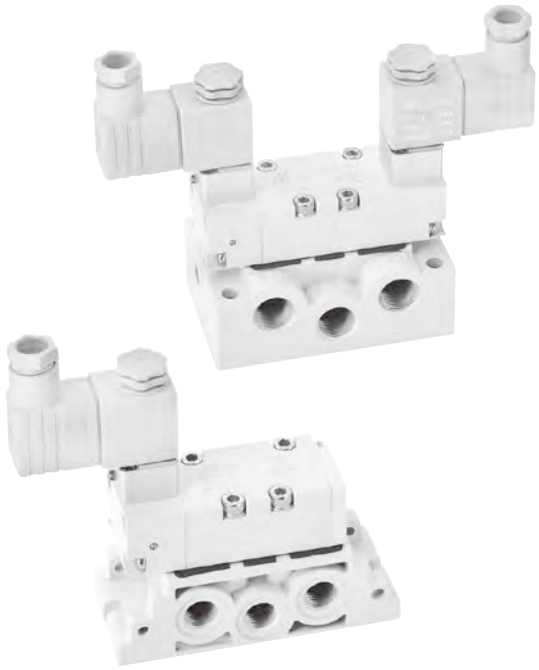
MVSG-180-5B*

5 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

( ): Dimension for **LJ** plug type.



Specification

Model	4E1	4E2	4E2 C.P.R
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~0.7 MPa		0.3~0.7 MPa
Proof pressure	1 MPa		
Effective orifice	22 mm^2		20 mm^2
Reponse time	40 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	312 g	422 g	572 g

Order example of valve

MVSI — 260 — 4E2C — AC110 — L

- MODEL
- BODY WIDTH
  - **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)

Table 1

Property for explosion-proof type

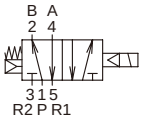
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

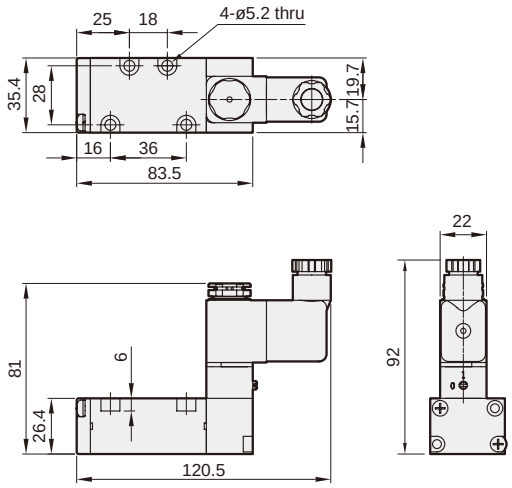
MVSI-260 Dimensions

ISO-1 SOLENOID **VALVE**

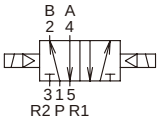
mindman

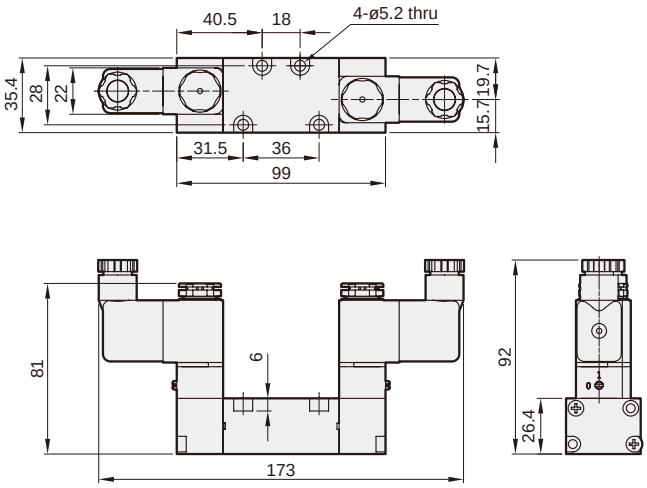
MVSI-260-4E1





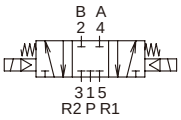
MVSI-260-4E2



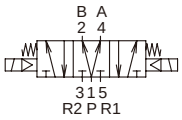


MVSI-260-4E2C.P.R

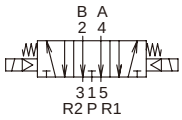
MVSI-260-4E2C

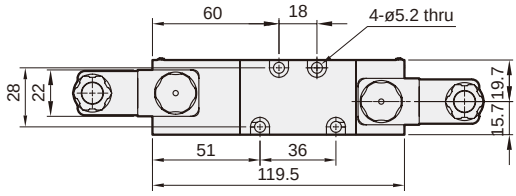


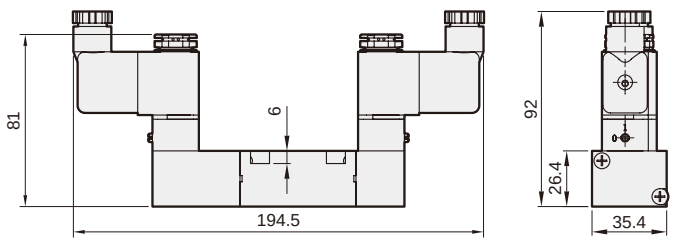
MVSI-260-4E2P



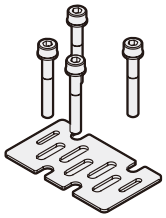
MVSI-260-4E2R







Accessories

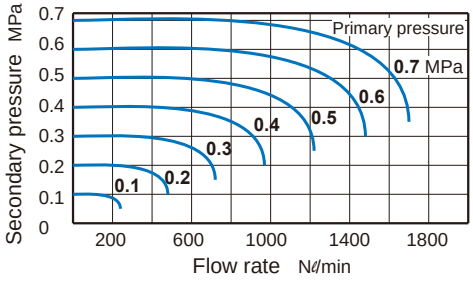


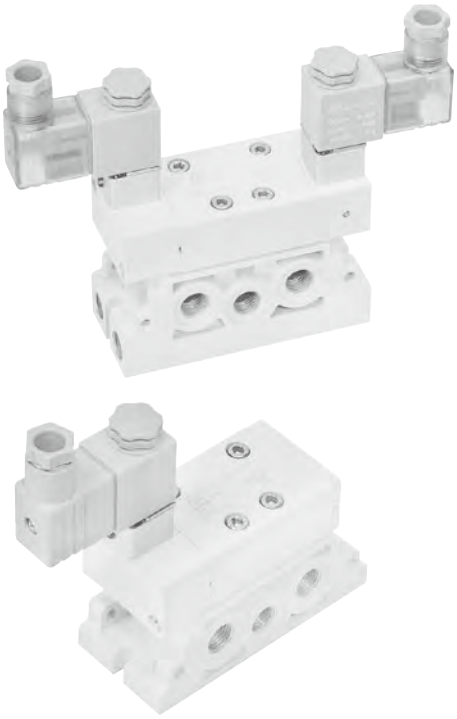
Hex screw × 4

Base gasket × 1

Flow features

MVSI-260-4E1/4E2





Specification

Model	4E1	4E2
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	27 mm^2	
Reponse time	40 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight	380 g	540 g

Order example of valve

MVSI — 450 — 4E2 — AC110 — L

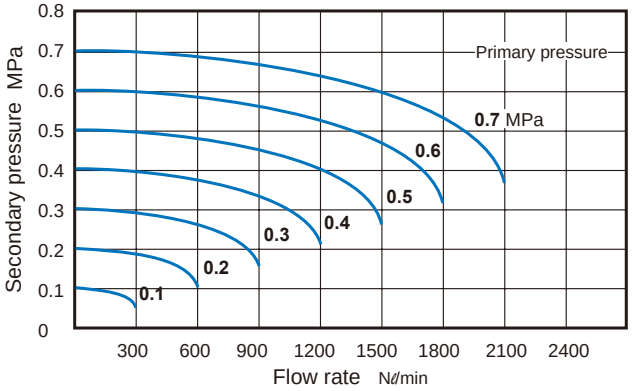
- MODEL
- BODY WIDTH
  - **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)

Table 1

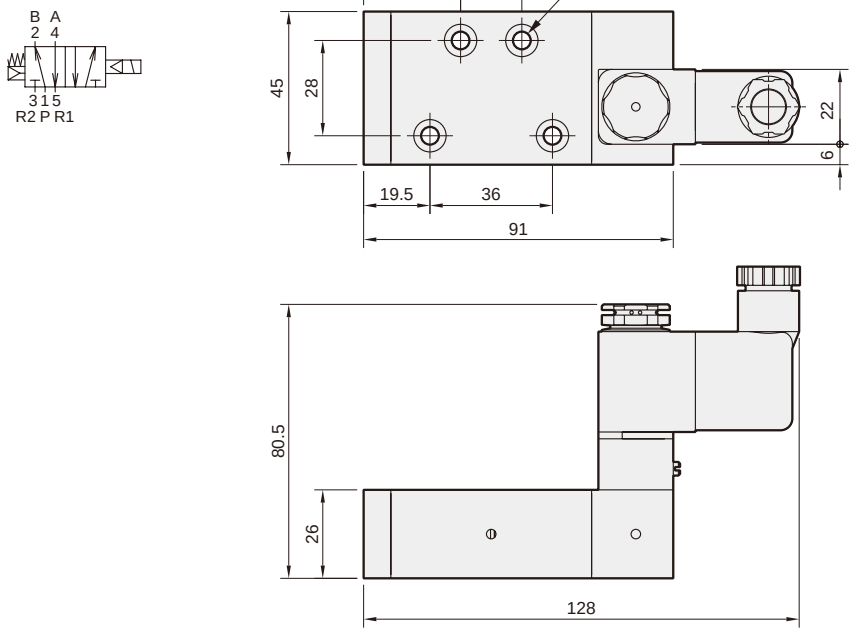
Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

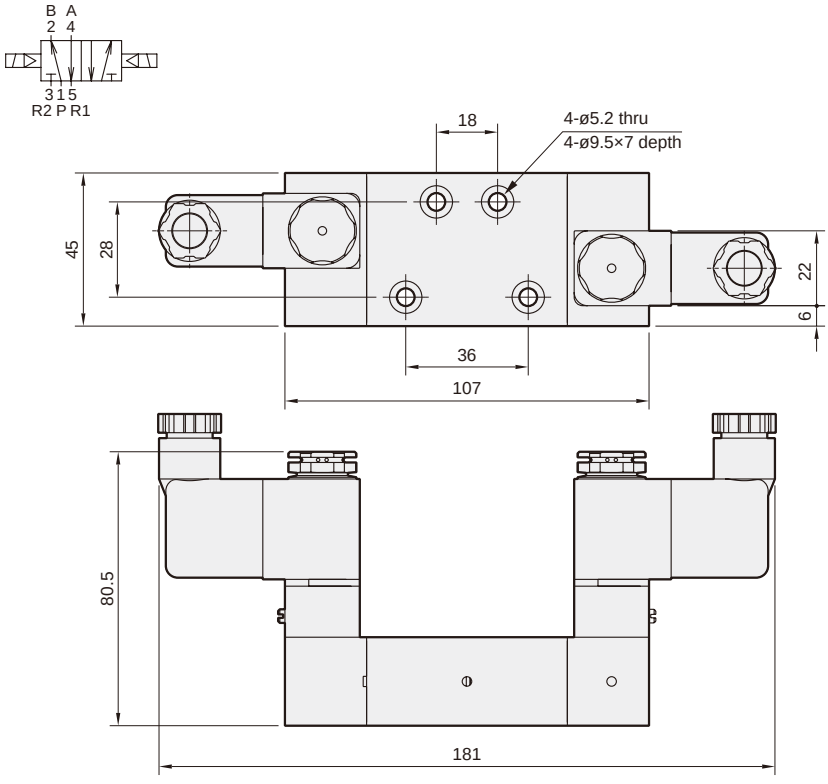
Flow features



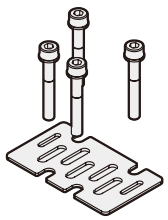
MVSI-450-4E1



MVSI-450-4E2



Accessories

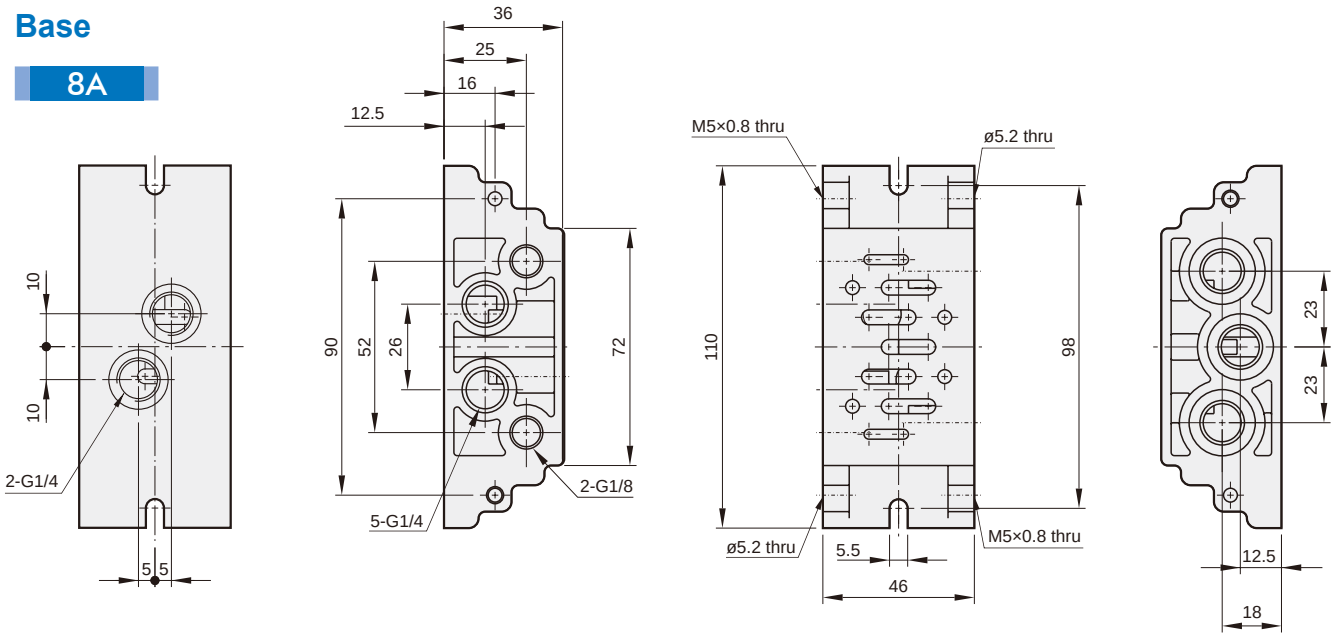


Hex screw × 4

Base gasket × 1

Base

8A



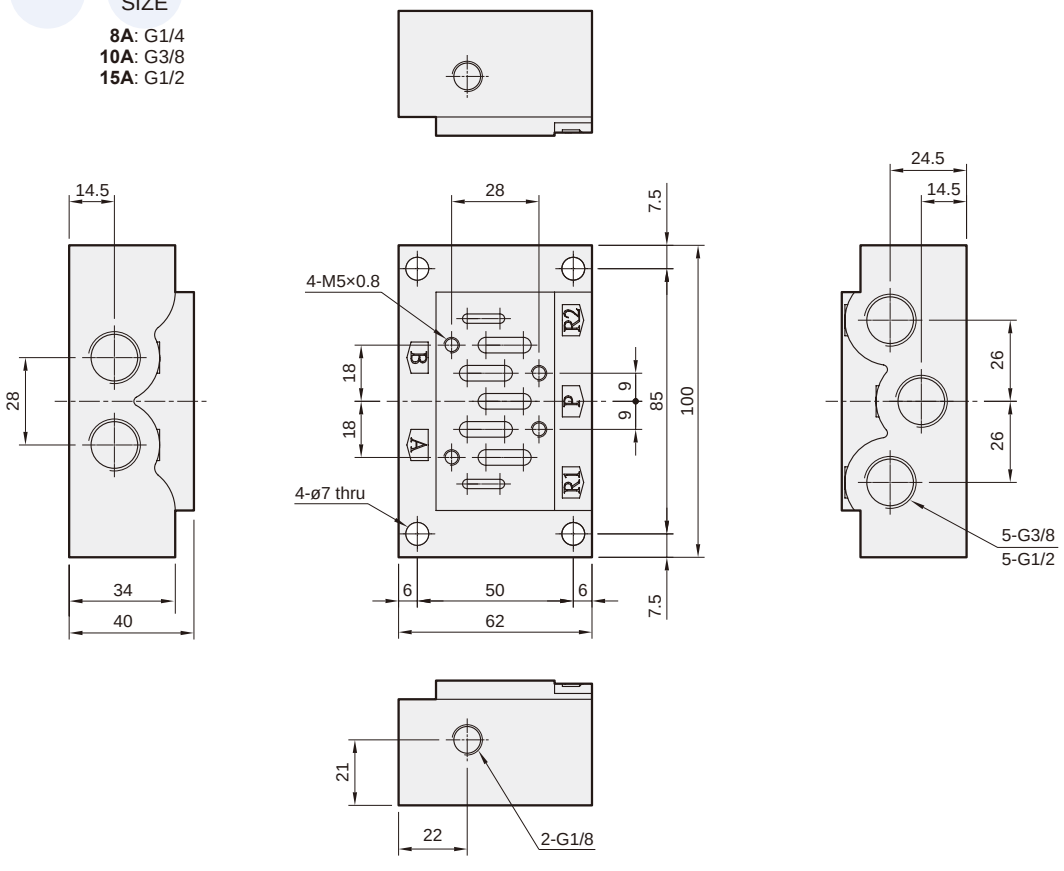
Order example

MVSI — 1 — B — 8A

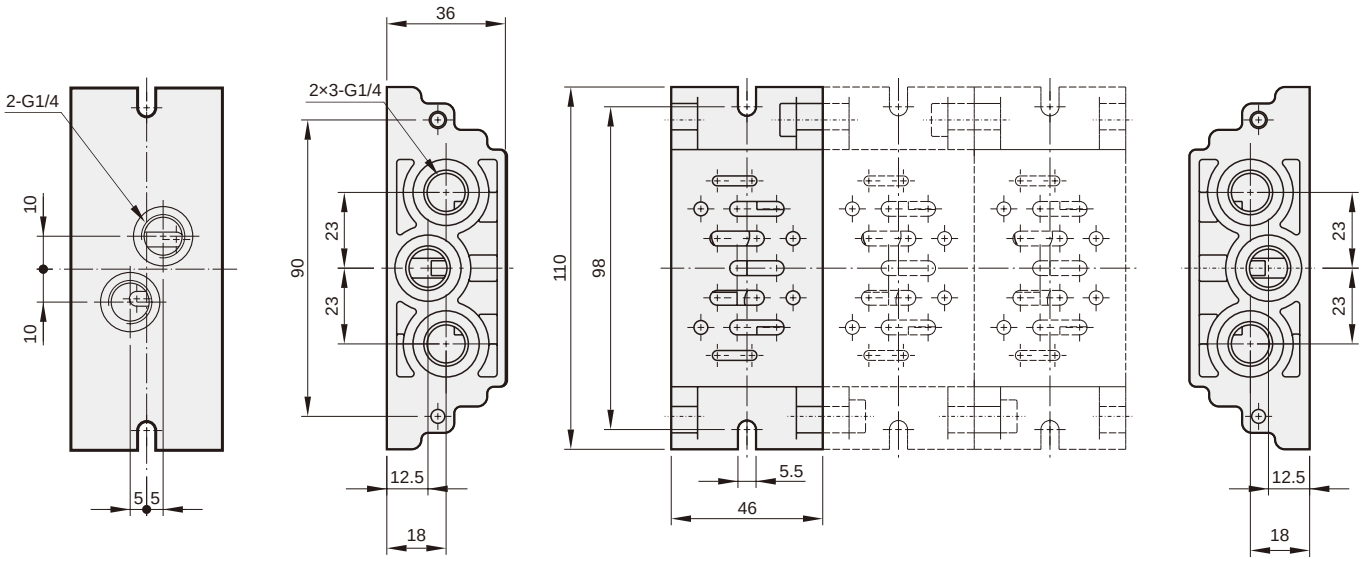
- MODEL
- BASE
- BORE SIZE
  - **8A**: G1/4
  - **10A**: G3/8
  - **15A**: G1/2

10A

15A



Manifold

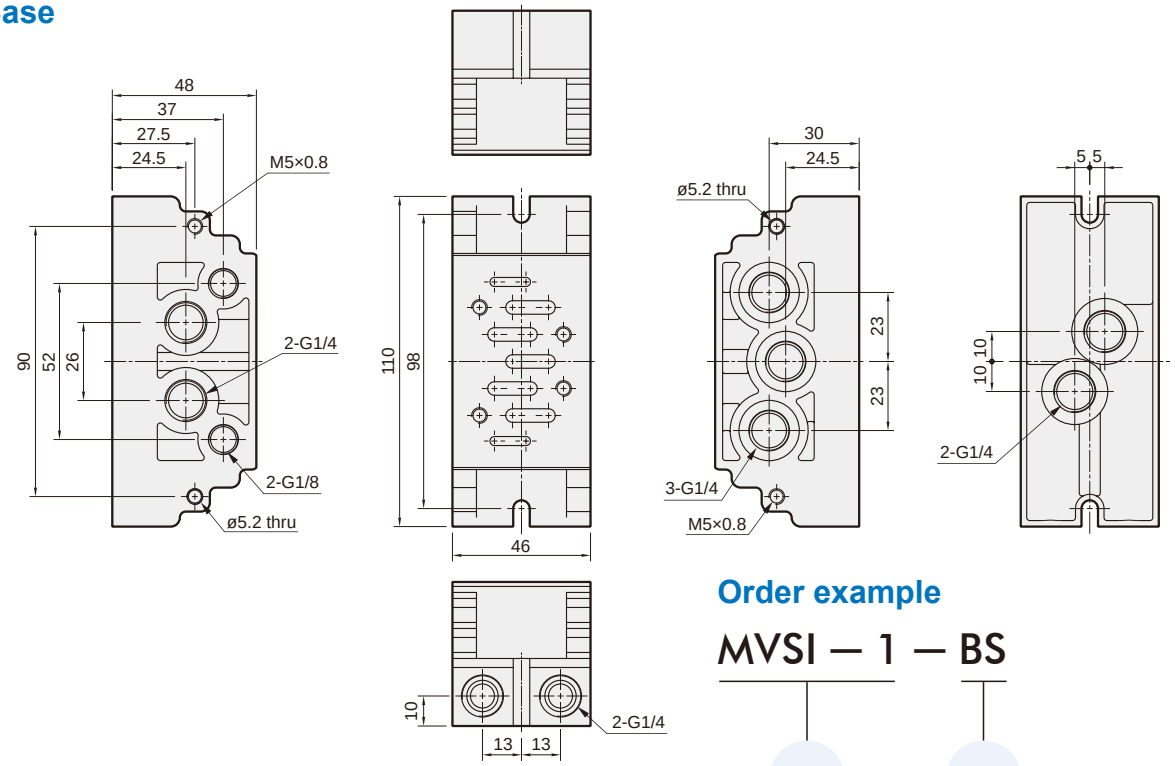


Order example

MVSI — 1 — M2

- MVSI — MODEL
- 1 — MANIFOLD
- M2 — NO. OF STATIONS **1, 2, 3...**

Base

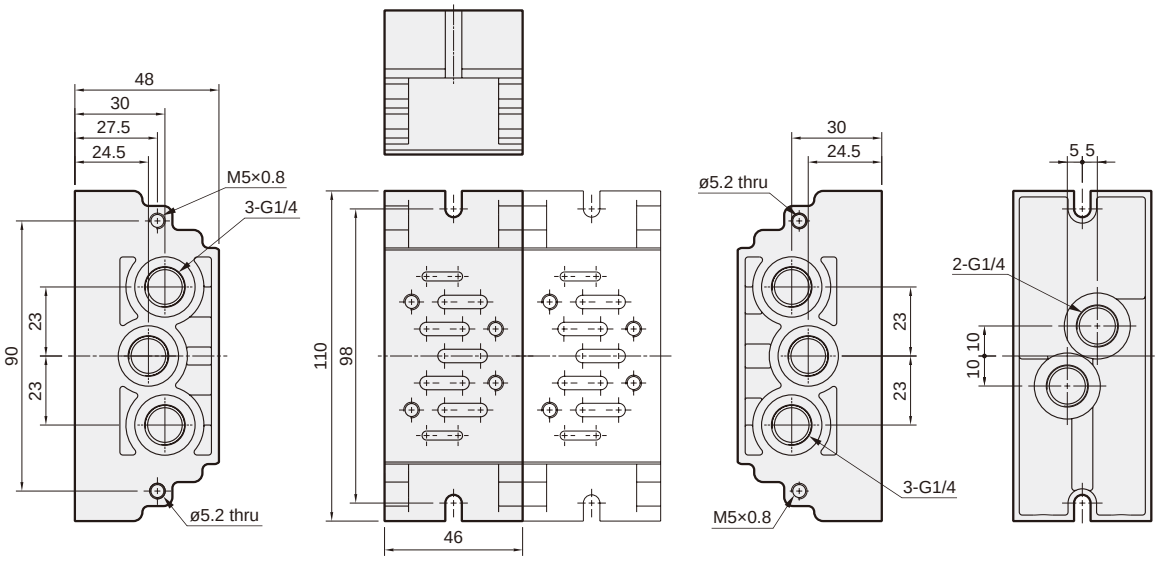


Order example

MVSI — 1 — BS

MODEL — BASE

Manifold



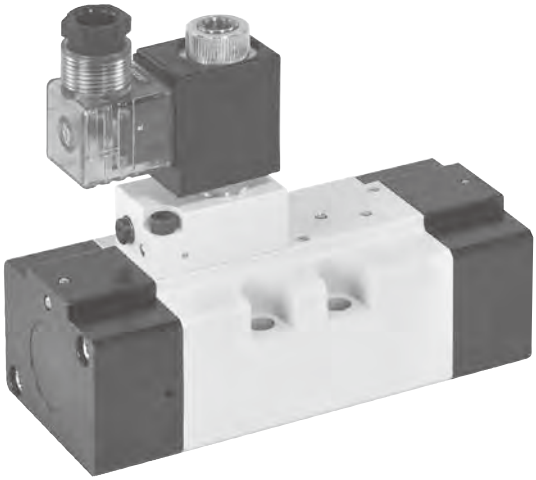
Order example

MVSI — 1 — MS2

MODEL — MANIFOLD — NO. OF STATIONS **2, 3...**

MVSI-510 series

ISO-3 SOLENOID **VALVE**



Specification

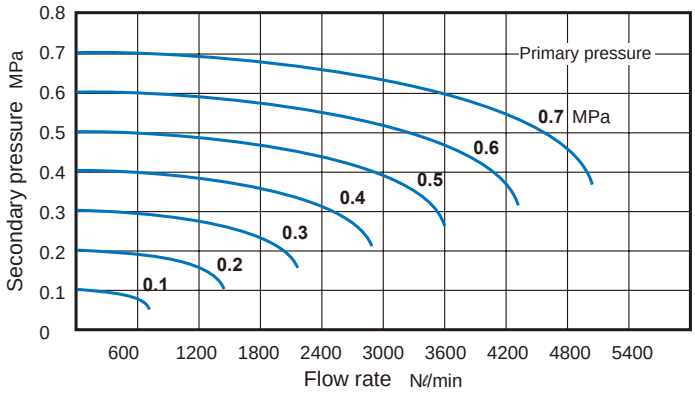
Model	4E1	4E2
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	65 mm^2	
Reponse time	60 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=13/11VA, DC=10W	
Available voltage range	±10%	
Insulation class	H class	
Weight	1493 g	1778 g

Order example of valve

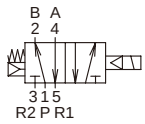
MVSI — 510 — 4E2 — AC110 — L

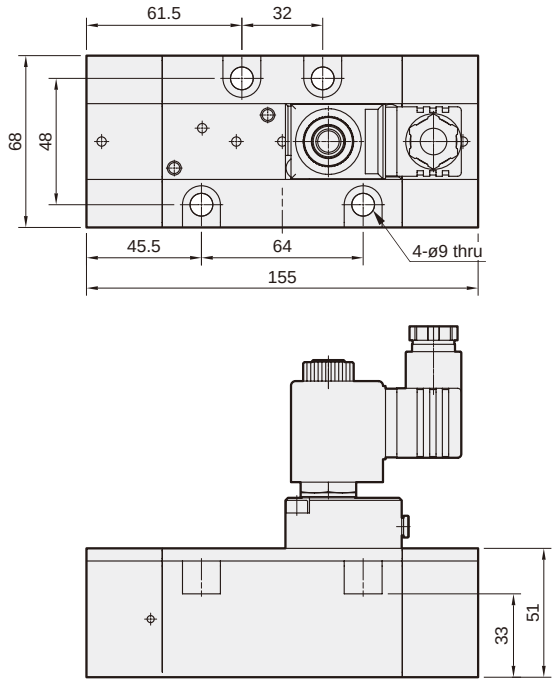
- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator

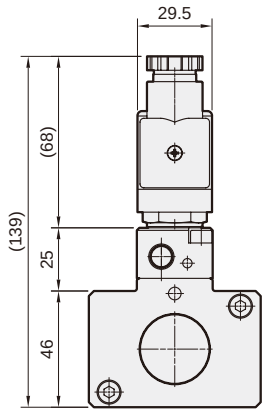
Flow features



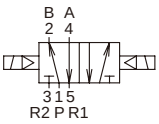
MVSI-510-4E1

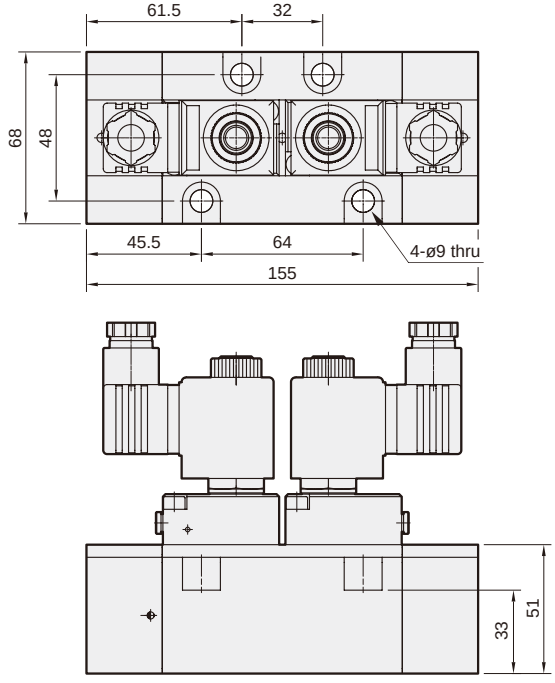


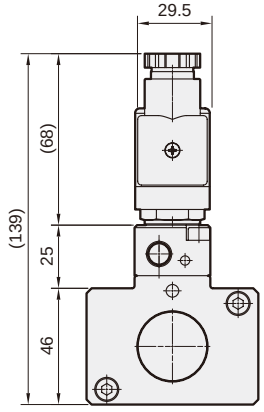




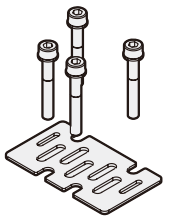
MVSI-510-4E2







Accessories



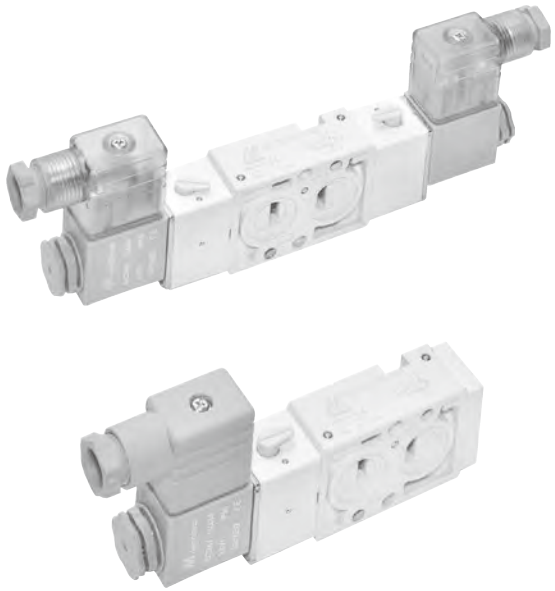
Hex screw × 4

Base gasket × 1

MVSN-220 series

NAMUR SOLENOID **VALVE**

mindman



Specification

Model	4E1	4E2
Bore No.	6A, 8A	
Port size	G1/8, G1/4	
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.2~0.8 MPa	
Proof pressure	1 MPa	
Effective orifice	18 mm^2	
Reponse time	38 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, AC/DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight (Explosion-proof)	233 g (441 g)	343 g (761 g)

Order example of valve

MVSN — 220 — 4E2 — 8A — AC110 — L

- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- BORE SIZE
  6A: G1/8
  8A: G1/4
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Order example of adapter

MVSN — 300 — A

- MODEL
- ADAPTER

* Use the same adapter with MVSN-300.

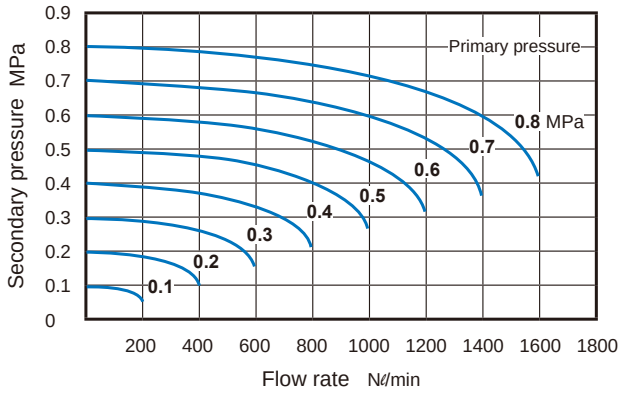
Order example of cylinder link seats

MVSN — 300 — C

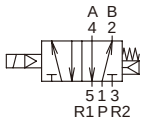
- MODEL
- CYLINDER LINK SEATS

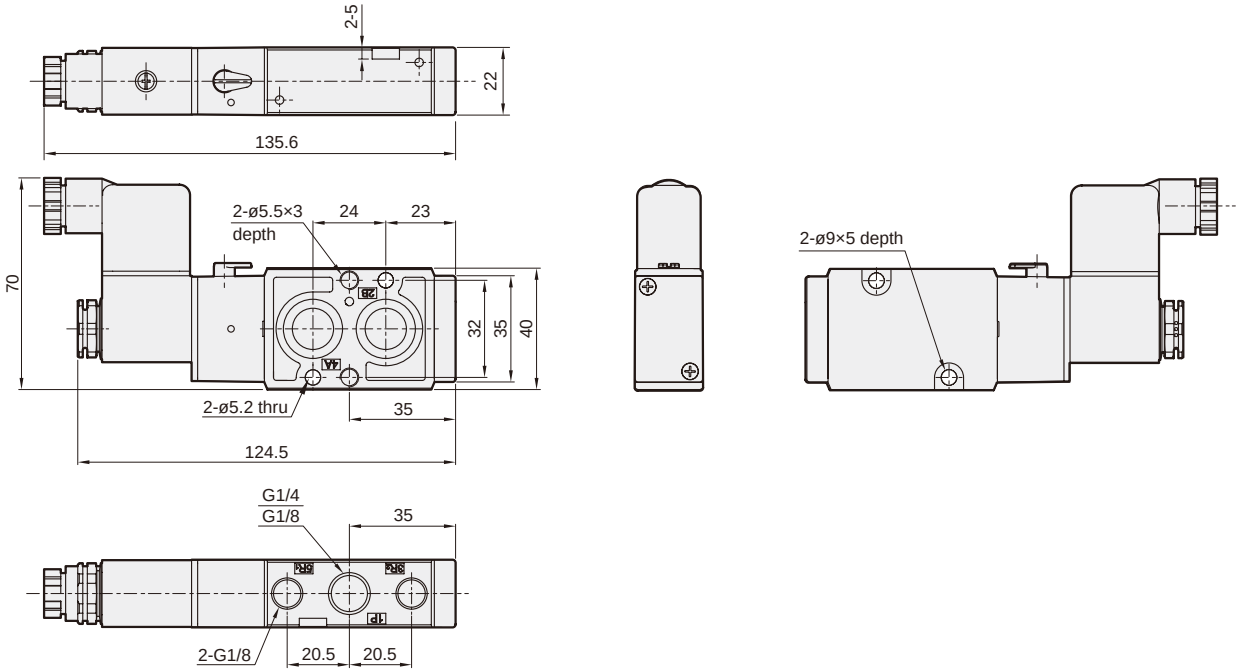
* Use the same link seats with MVSN-300.

Flow features

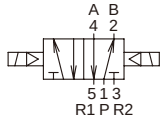


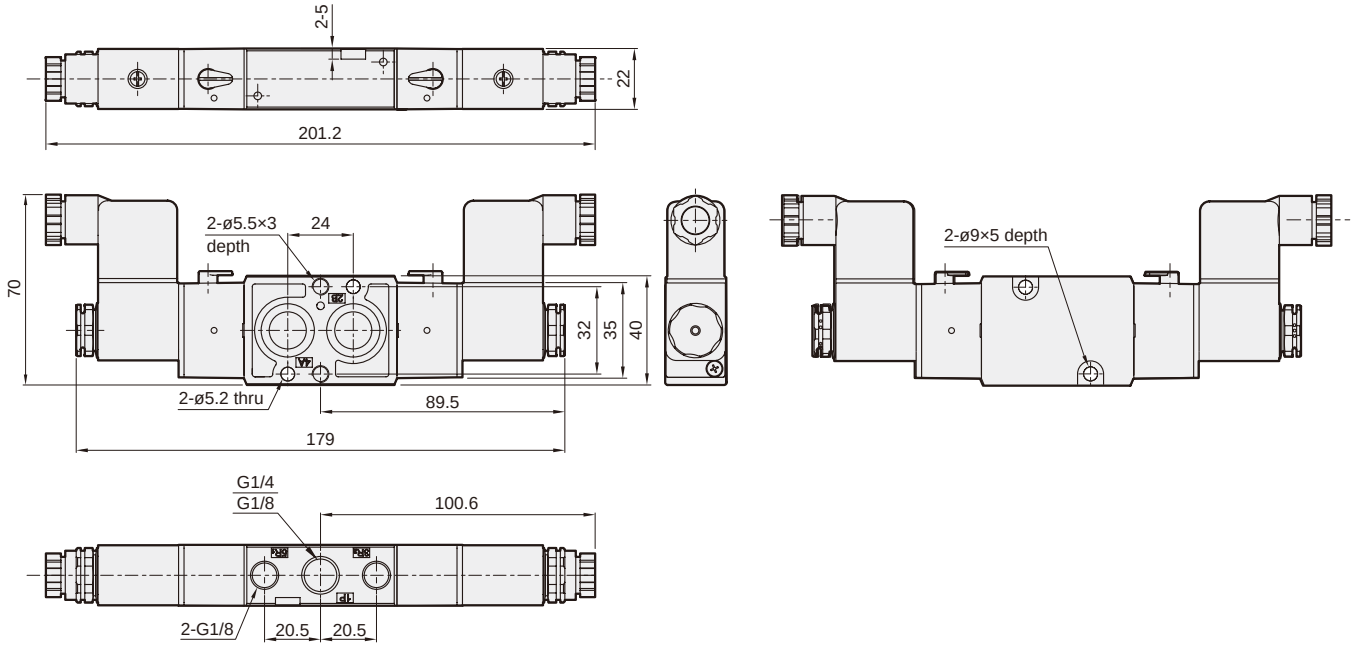
MVSN-220-4E1





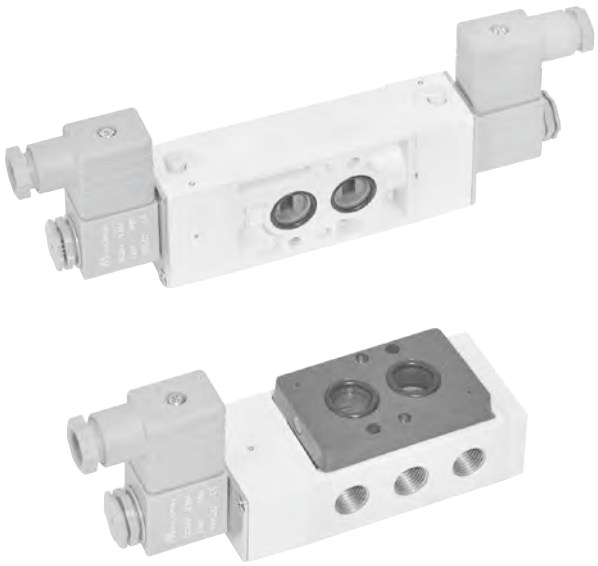
MVSN-220-4E2





MVSN-300 series

NAMUR SOLENOID **VALVE**



(with adapter)

Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	8A		
Port size	G1/4		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~0.8 MPa		0.3~0.8 MPa
Proof pressure	1 MPa		
Effective orifice	35 mm^2		30 mm^2
Reponse time	50 ms		
Ambient temperature	-5~+50°C (No freezing)		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Weight	422 g	507 g	764 g

* Port thread Rc. NPT. are also available.

Order example of valve

MVSN — 300 — 4E2C — AC110 — L

- MODEL
- BODY WIDTH
- 4: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)

Order example of adapter

MVSN — 300 — A

- MODEL
- ADAPTER

Order example of cylinder link seats

MVSN — 300 — C

- MODEL
- CYLINDER LINK SEATS

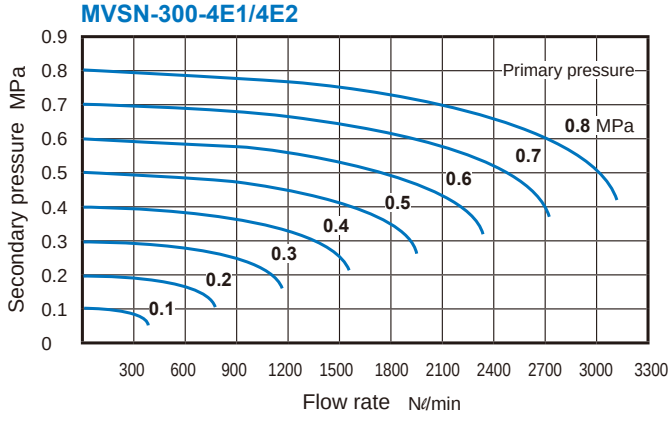
Table 1

Property for explosion-proof type

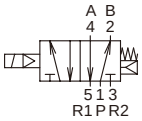
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

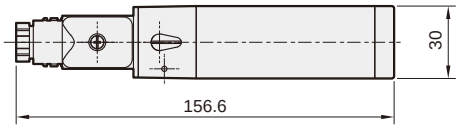
Flow features

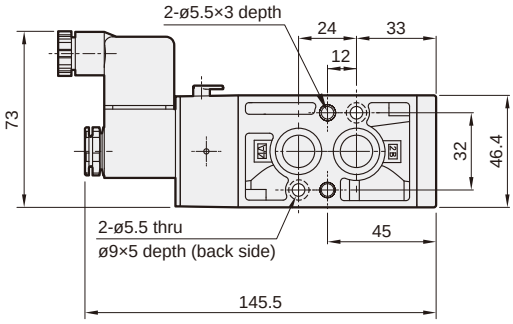
MVSN-300-4E1/4E2

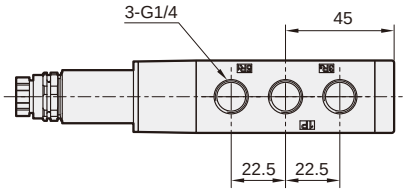


MVSN-300-4E1

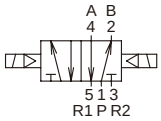


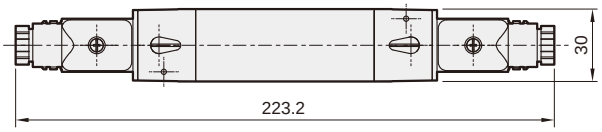


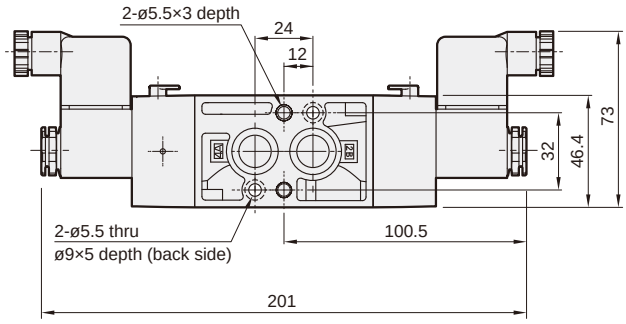


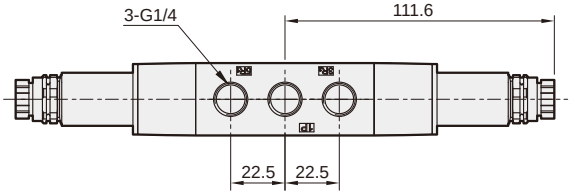


MVSN-300-4E2



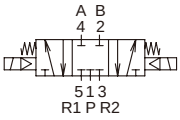




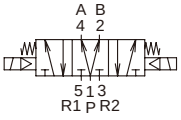


MVSN-300-4E2C.P.R

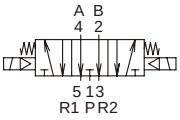
MVSN-300-4E2C

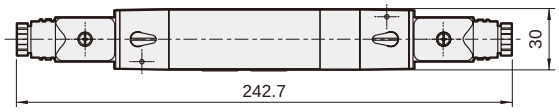


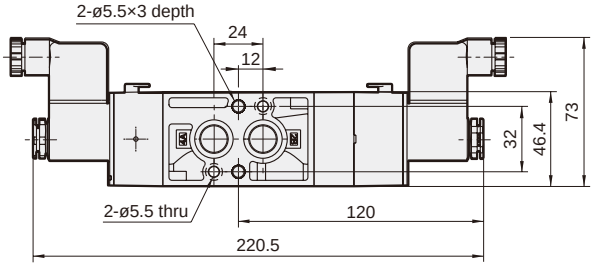
MVSN-300-4E2P

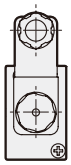


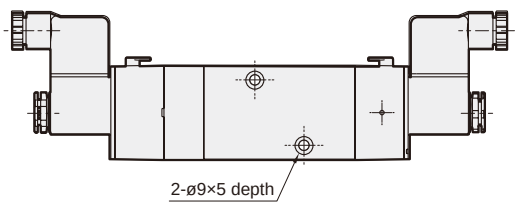
MVSN-300-4E2R

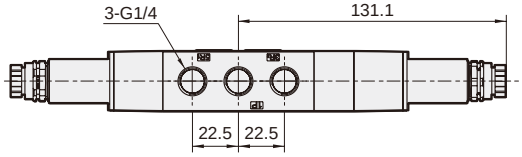




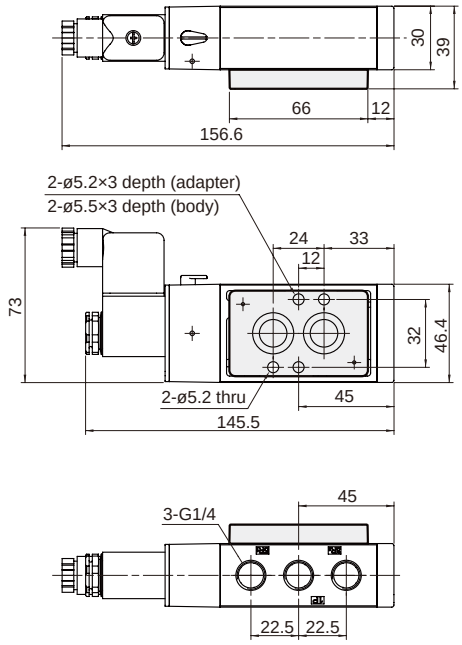


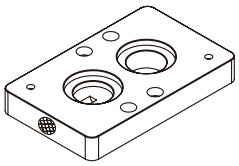


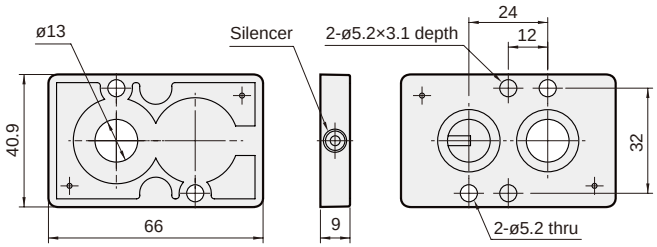




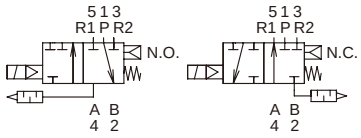
MVSN-300-A Adapter



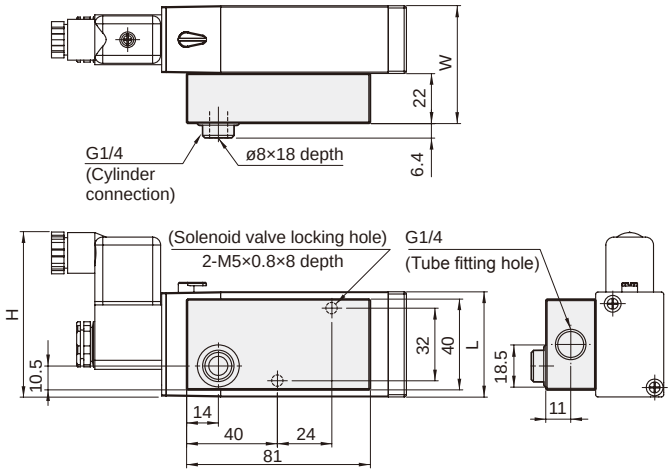




- Solenoid valve without plate: 5/2 single acting
- Solenoid valve with plate: 3/2 single acting
- Silencer on the OPPOSITE side of the solenoid: NC
- Silencer on the SAME side of the solenoid: NO

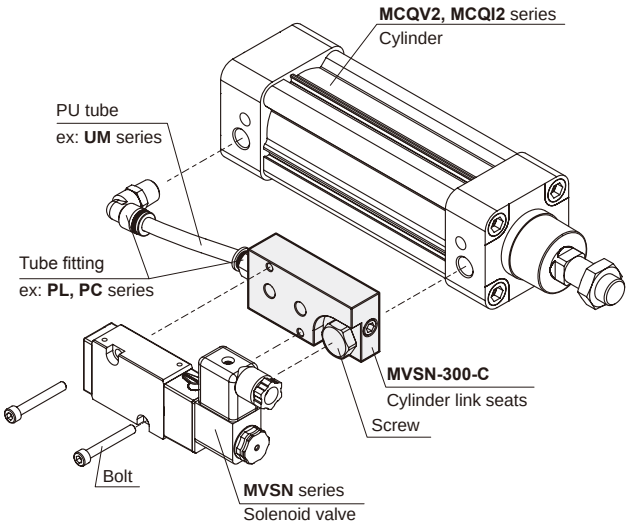


MVSN-300-C Cylinder link seats



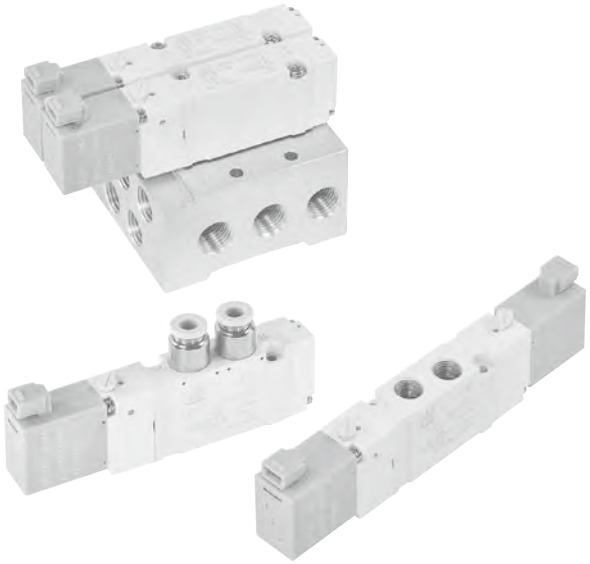
Code / Model	H	W	L	Cylinder type
MVSN-220	70	44.3	40	MCQV2 ø40, ø50 MCQI2 ø40, ø50
MVSN-300	73	52	46.4	

Mounting of cylinder link seats



MVSP-156 series

SOLENOID **VALVE**



Specification

* Refer to page 1-21 for feature.

Model		4E1	4E2	4E2 C.P.R
Port size		Rc1/8		
No. of port / position		5 / 2		5 / 3
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	11 mm^2		9.5 / 14.6 / 9.5 mm^2
	Manifold	10 mm^2		7.5 /13 / 8 mm^2
Response time	Standard	AC<36ms, DC<23ms		AC<46ms, DC<25ms
	Quick response*	AC<32ms, DC<20ms		AC<40ms, DC<22ms
Power consumption	Standard	AC=1.12VA, DC=0.95W		
	Quick response*	AC=2.5VA, DC=2.5W		
Ambient temperature		-5~+50°C (No freezing)		
Voltage		AC110V, 220V (50/60)Hz, DC24/12V		
Available voltage range		±10%		
Insulation class		F class		
Weight		83 g	118 g	127 g

* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

MVSP — 156M — 4E2C — □ — AC110 — H1 — G

- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- **E1**: Single Solenoid, **E2**: Double Solenoid
- RESPONSE TIME
  Blank: Standard type
  Q: Quick response
  (Power consumption please refer to spec.)
- **C**: Closed center, **P**: Pressure center, **R**: Exhaust center
  (Only for **4E2** type)
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
  DC12V
- ELECTRIC CONNECTION

D: DIN terminal	L: DIN terminal
	 with LED indicator
W: Lead wire	H: Horizontal plug
wire length: 500mm	with LED indicator

- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
  (Only for body ported type)

Wire length	
—	500mm
1	1000mm
2	2000mm
3	3000mm

* Wire length only for "**H**: Horizontal plug".

- Blank: Body ported type
  C4: Body ported with tube fitting (dia. ø4mm)
  C6: Body ported with tube fitting (dia. ø6mm)
  C8: Body ported with tube fitting (dia. ø8mm)
  M: Manifold type

Order example of manifold

* Use the same manifold with MVSY.

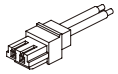
MVSY — 156M — 5B3 — G

- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  5B: 5 port (for body ported type)
  5M: 5 port (for manifold type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of wire

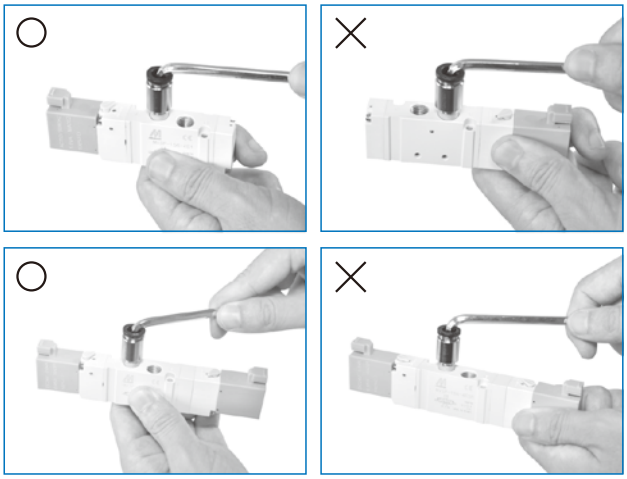
* Use the same wire with MVDY.
* Only for "**H**: Horizontal plug".

MVDY — 100 — WA2J2

- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  J: JPC type
  
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

Caution

Prohibit apply force to coil when tighten the tube fitting.

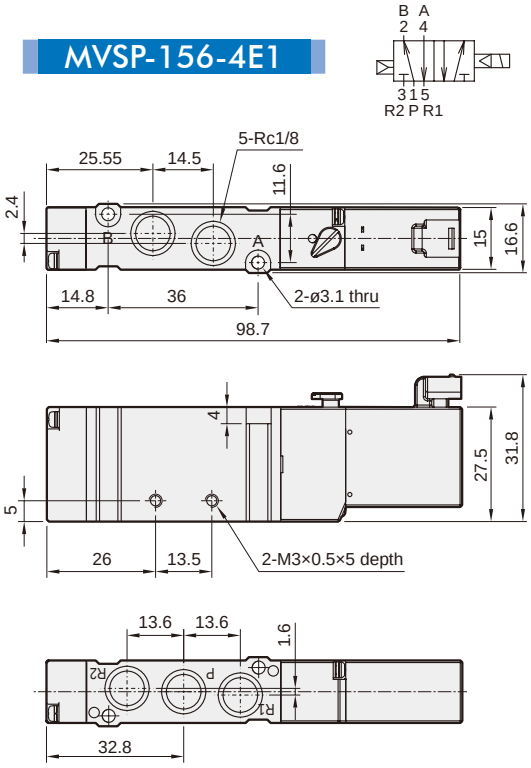


MVSP-156 Dimensions

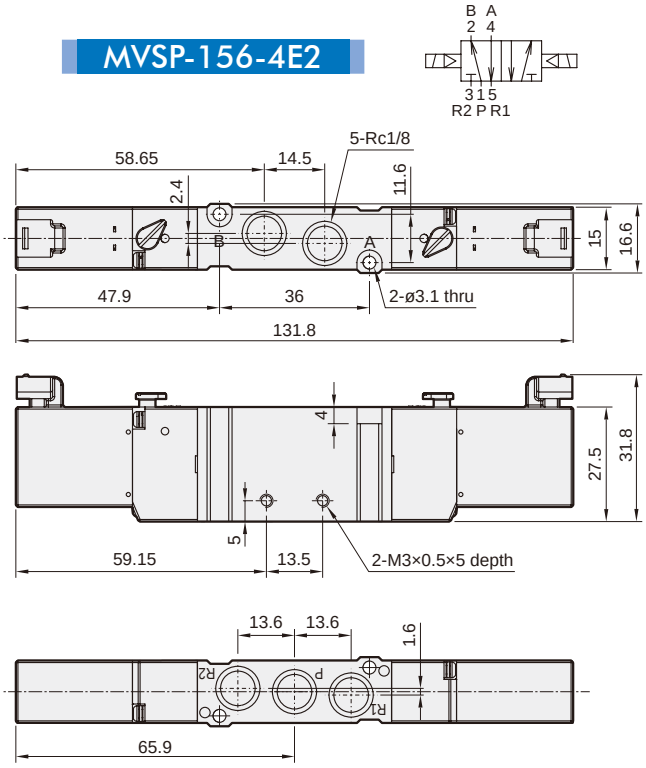
SOLENOID **VALVE**

mindman

MVSP-156-4E1

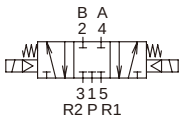


MVSP-156-4E2

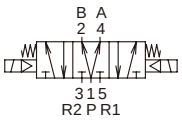


MVSP-156-4E2C.P.R

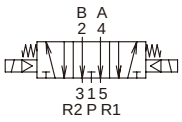
MVSP-156-4E2C

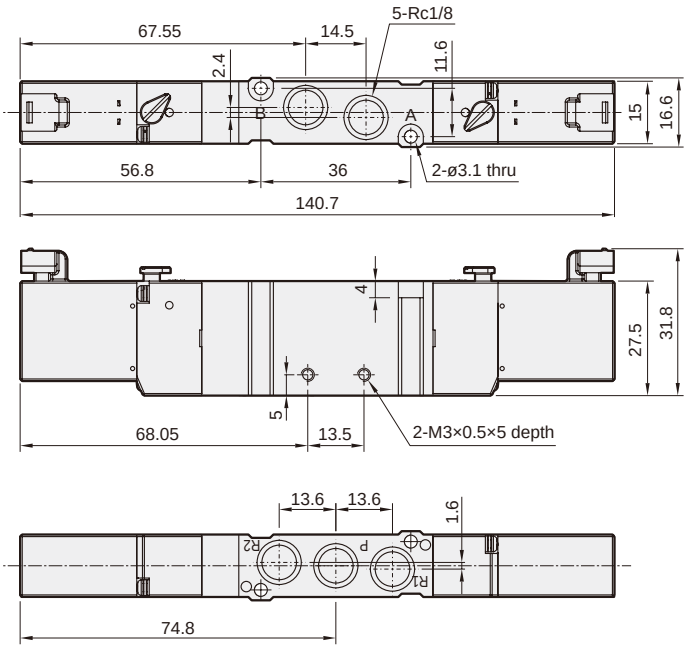


MVSP-156-4E2P



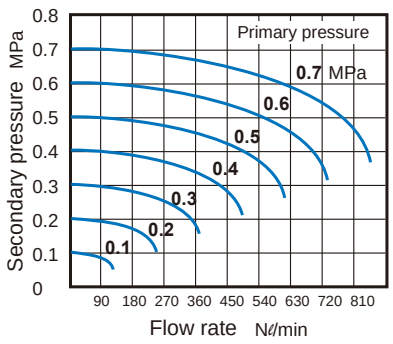
MVSP-156-4E2R



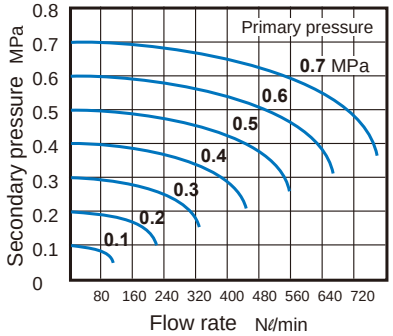


Flow features

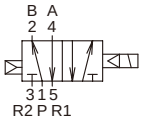
MVSP-156-4E1/4E2

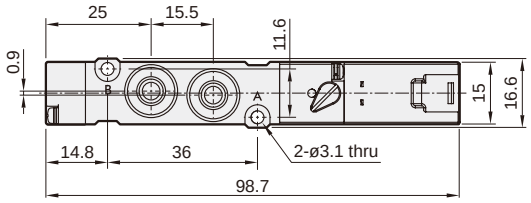


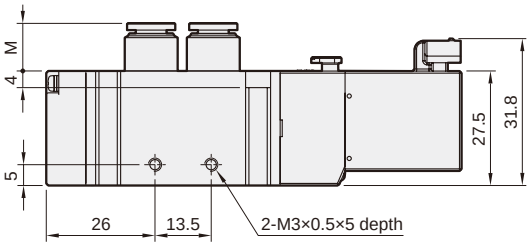
MVSP-156M-4E1/4E2

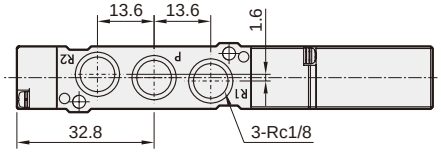


MVSP-156C*-4E1

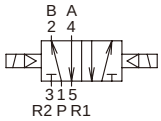


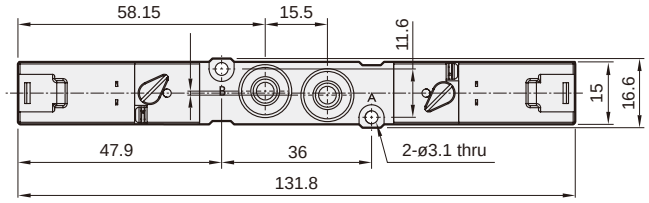


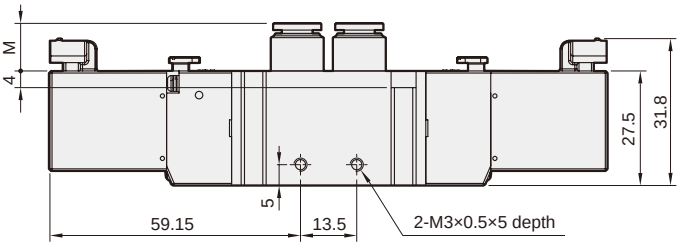


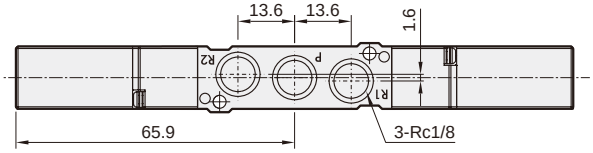


MVSP-156C*-4E2



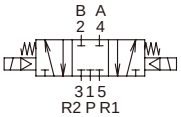






MVSP-156C*-4E2C.P.R

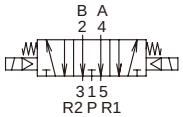
MVSP-156-4E2C

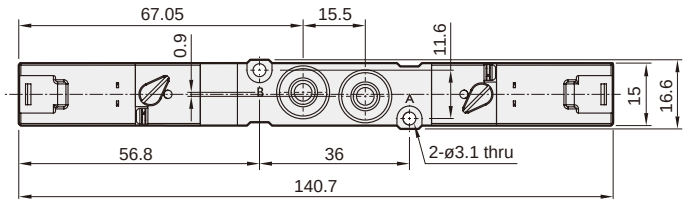


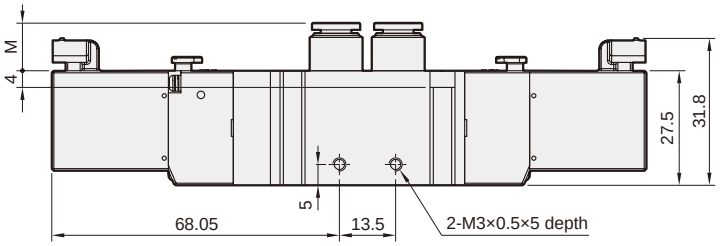
MVSP-156-4E2P

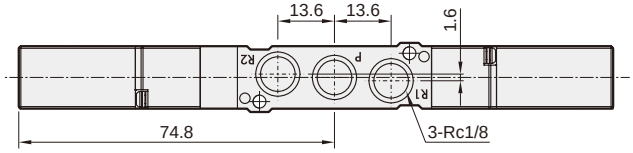


MVSP-156-4E2R

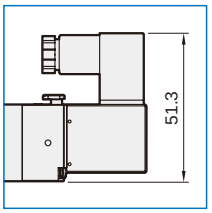








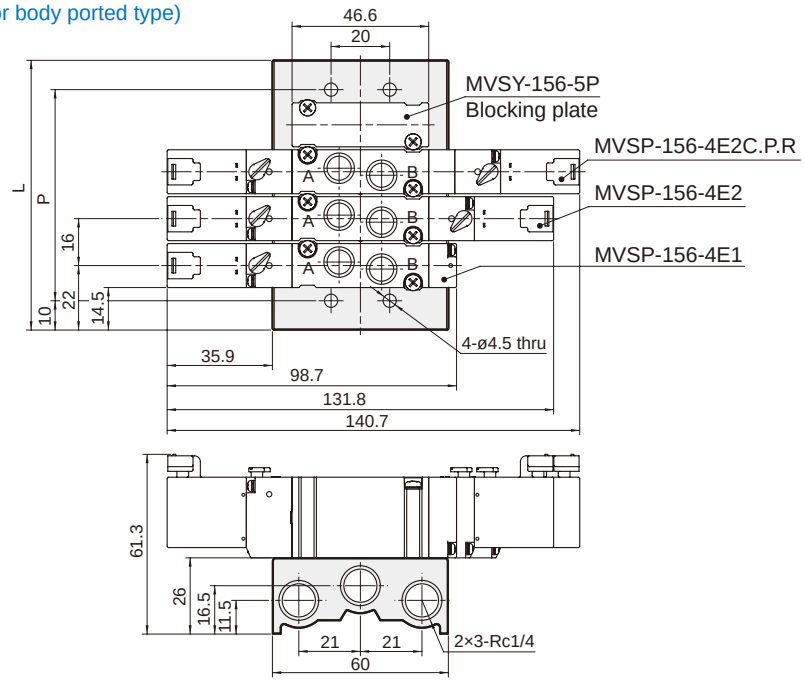
DIN terminal / DIN terminal with LED indicator



Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVSY-156-5B*

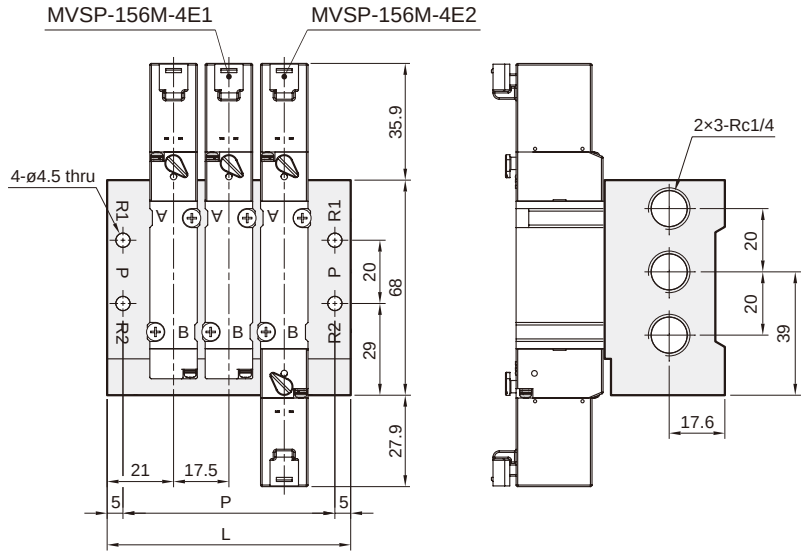
5 port (for body ported type)

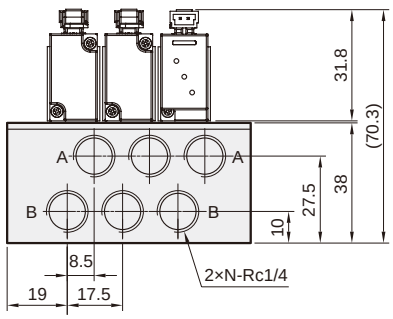


No. of stations	P	L
2	40	60
3	56	76
4	72	92
5	88	108
6	104	124
7	120	140
8	136	156
9	152	172
10	168	188

MVSY-156M-5M*

5 port (for manifold type)





No. of stations (N)	P	L
2	49.5	59.5
3	67	77
4	84.5	94.5
5	102	112
6	119.5	129.5
7	137	147
8	154.5	164.5
9	172	182
10	189.5	199.5

Order example of bracket

* Use the same bracket with MVSY.

MVSY — 156 — 1A

- MODEL
- MOUNTING BRACKET
  - **1A**
  - **2A**

Order example of spacer assembly

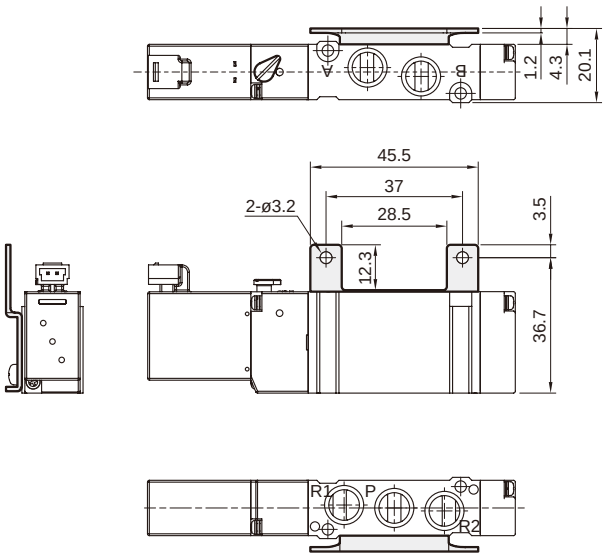
* Use the same spacer assembly with MVSY.

MVSY — 156M — 5BP

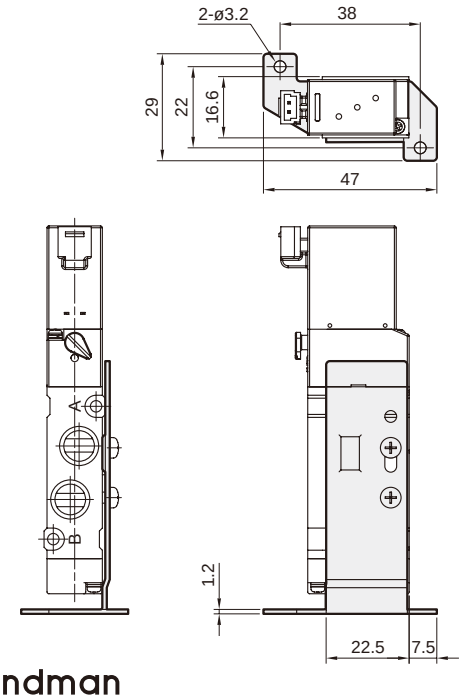
- MODEL
- **5B**: 5 Port (for body ported type)
  5M: 5 Port (for Manifold type)
- SPACER ASSEMBLY
  - **P**: Individual SUP spacer assembly
  - **R**: Individual EXH spacer assembly
  - **PR**: Individual SUP spacer assembly+ Individual EXH spacer assembly

Blank: Body ported type
M: Manifold type

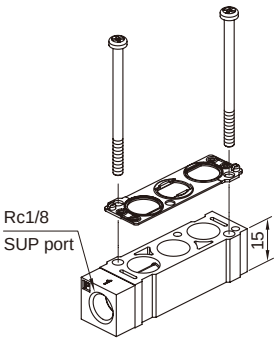
MVSY-156-1A



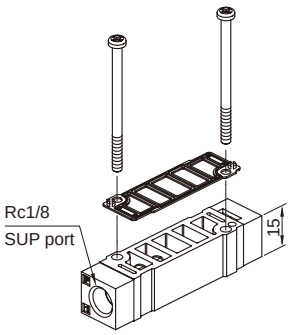
MVSY-156-2A



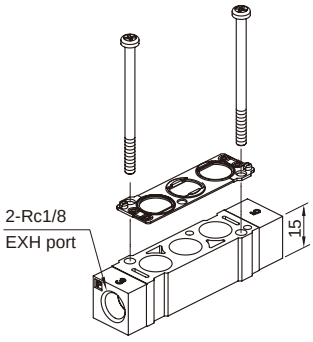
MVSY-156-5BP



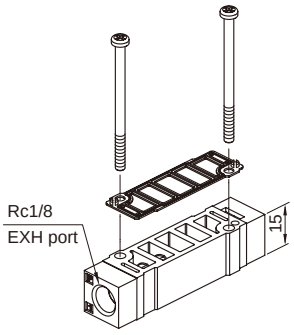
MVSY-156M-5MP



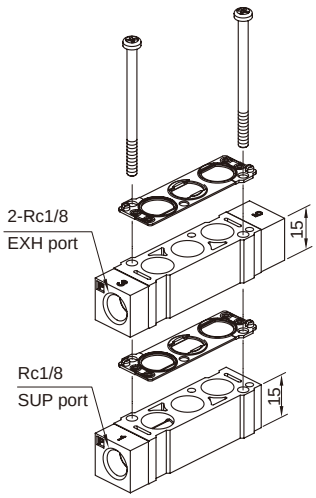
MVSY-156-5BR



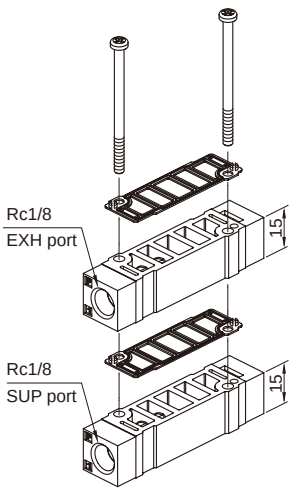
MVSY-156M-5MR



MVSY-156-5BPR



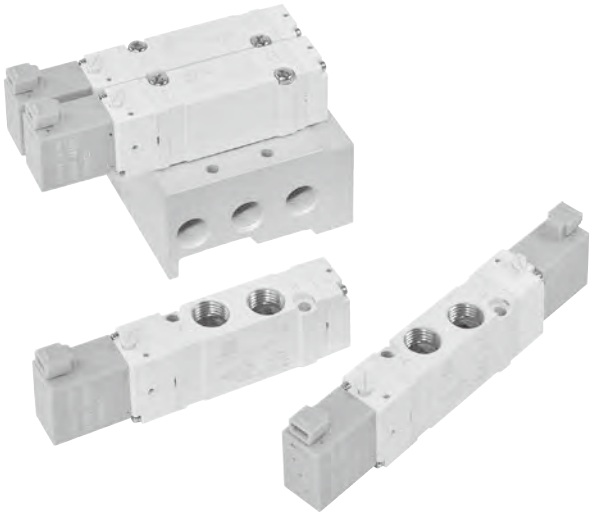
MVSY-156M-5MPR



MVSP-188 series

SOLENOID **VALVE**

mindman



Specification

* Refer to page 1-21 for feature.

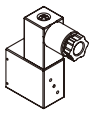
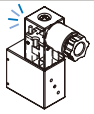
Model		4E1	4E2	4E2 C.P.R
Port size		Rc1/4		
No. of port / position		5 / 2		5 / 3
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	15 mm^2		16.3 / 27 / 12.4 mm^2
	Manifold	13 mm^2		13.5 /18.4 / 11 mm^2
Response time	Standard	AC<35 ms, DC<23 ms		AC<45 ms, DC<33 ms
	Quick response*	AC<32 ms, DC<20 ms		AC<42 ms, DC<30 ms
Power consumption	Standard	AC=1.12VA, DC=0.95W		
	Quick response*	AC=2.5VA, DC=2.5W		
Ambient temperature		-5~+50°C (No freezing)		
Voltage		AC110V, 220V (50/60)Hz, DC24/12V		
Available voltage range		±10%		
Insulation class		F class		
Weight		96 g	132 g	142 g

* For quick response type, it cannot be energized for more than 30 minutes.

Order example of valve

MVSP — 188M — 4E2C — □ — AC110 — H1 — G

- MODEL: MVSP
- BODY WIDTH: 188M
- **4**: 4 way (5 port)
- Blank: Body ported type; **M**: Manifold type
- **E1**: Single Solenoid; **E2**: Double Solenoid
- **C**: Closed center; **P**: Pressure center; **R**: Exhaust center (Only for **4E2** type)
- RESPONSE TIME: Blank: Standard type; **Q**: Quick response (Power consumption please refer to spec.)
- VOLTAGE: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz; **DC24**V; **DC12**V
- ELECTRIC CONNECTION

D: DIN terminal	L: DIN terminal
	 with LED indicator
W: Lead wire	H: Horizontal plug
 wire length: 500mm	 with LED indicator

- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread (Only for body ported type)

Wire length	
—	500mm
1	1000mm
2	2000mm
3	3000mm

* Wire length only for "**H**: Horizontal plug".

Order example of manifold

* Use the same manifold with MVSY.

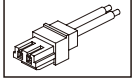
MVSY — 188M — 5B3 — G

- MODEL: MVSY
- Blank: Body ported type; **M**: Manifold type: 188M
- MANIFOLD: **5B**: 5 port (for body ported type); **5M**: 5 port (for manifold type): 5B3
- MANIFOLD NUMBER: **1, 2, 3...**
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread: G

Order example of wire

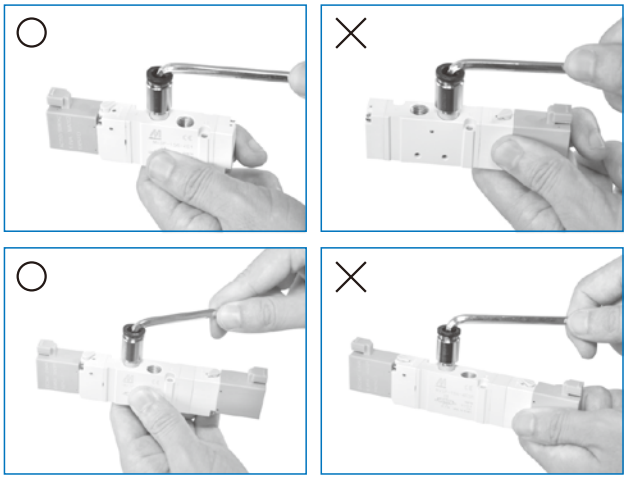
* Use the same wire with MVDY.
* Only for "**H**: Horizontal plug".

MVDY — 100 — WA2J2

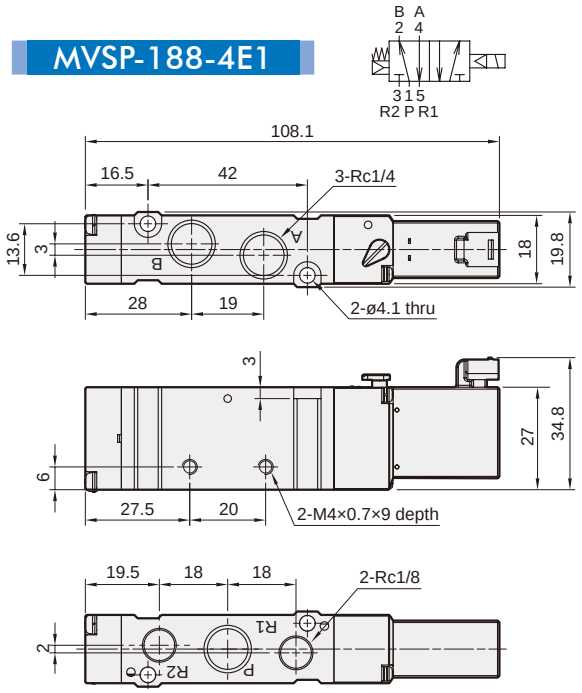
- MODEL: MVDY
- VOLTAGE: **A2**: AC220V(50/60)Hz; **A1**: AC110V(50/60)Hz; **D**: DC24V/12V/6V: 100
- WIRE: **J**: JPC type : WA2J2
- WIRE LENGTH: Blank: 500mm; **1**: 1000mm; **2**: 2000mm; **3**: 3000mm

Caution

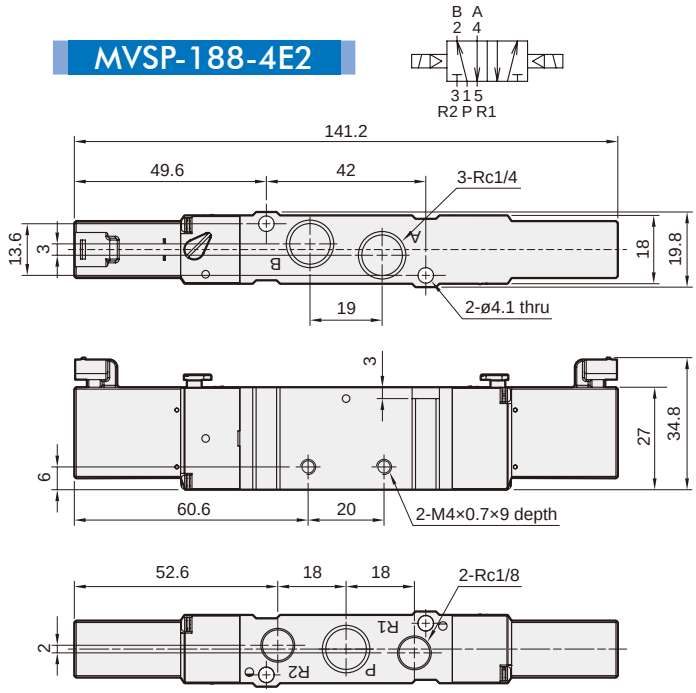
Prohibit apply force to coil when tighten the tube fitting.



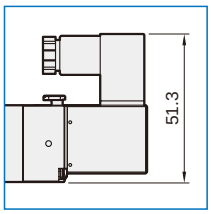
MVSP-188-4E1



MVSP-188-4E2

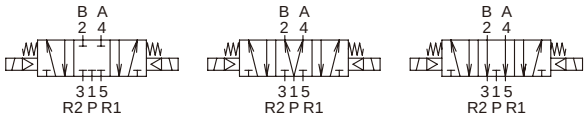


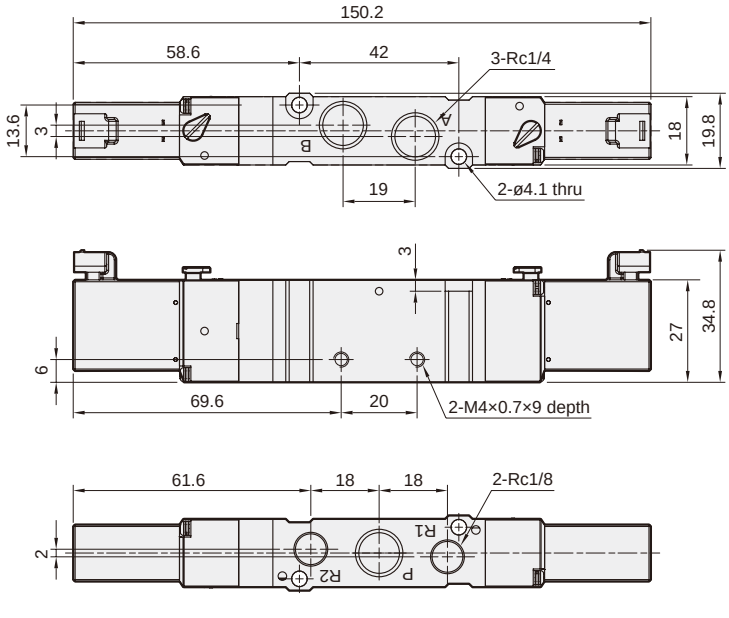
DIN terminal /
DIN terminal with
LED indicator



MVSP-188-4E2C.P.R

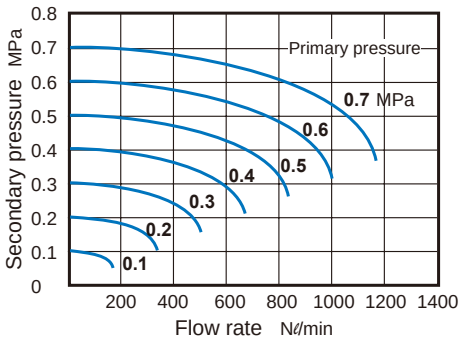
MVSP-188-4E2C **MVSP-188-4E2P** **MVSP-188-4E2R**



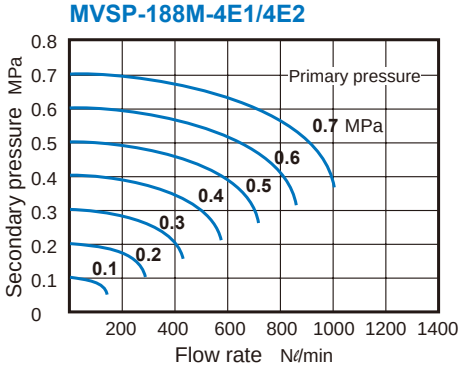


Flow features

MVSP-188-4E1/4E2

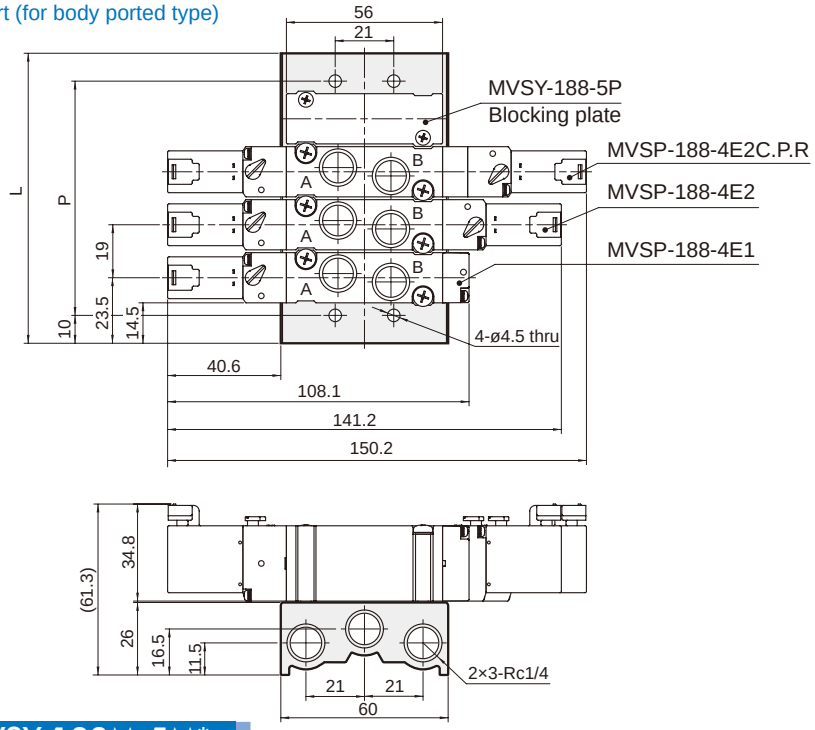


MVSP-188M-4E1/4E2



MVSY-188-5B*

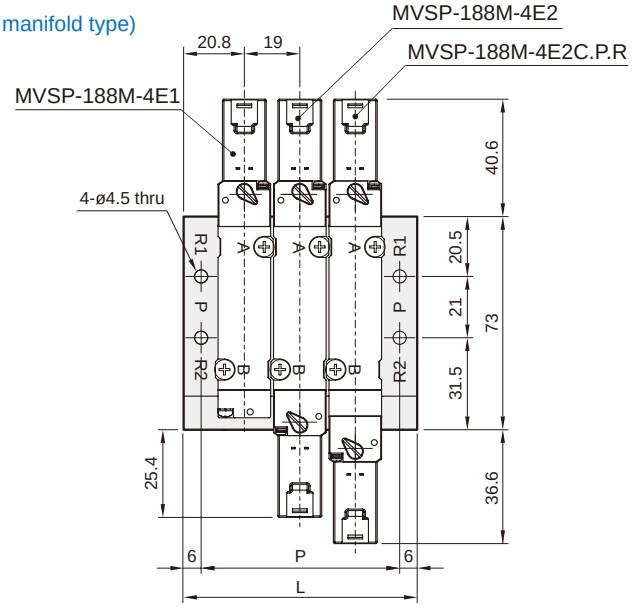
5 port (for body ported type)

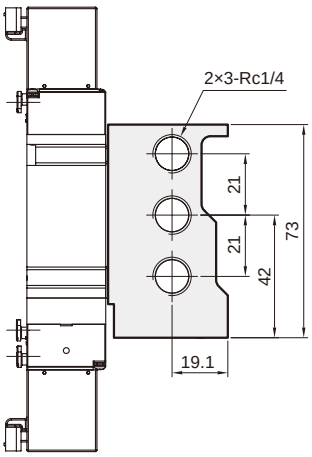


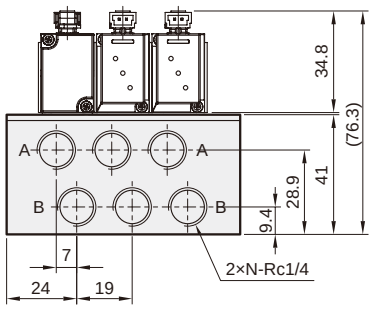
No. of stations	P	L
2	46	66
3	65	85
4	84	104
5	103	123
6	122	142
7	141	161
8	160	180
9	179	199
10	198	218

MVSY-188M-5M*

5 port (for manifold type)







No. of stations (N)	P	L
2	49	61
3	68	80
4	87	99
5	106	118
6	125	137
7	144	156
8	163	175
9	182	194
10	201	213

Order example of bracket

* Use the same bracket with MVSY.

MVSY — 188 — 1A

- MODEL
- MOUNTING BRACKET
  - **1A**
  - **2A**

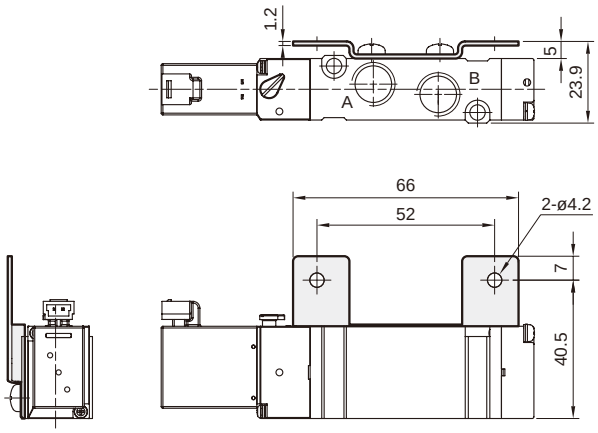
Order example of spacer assembly

* Use the same spacer assembly with MVSY.

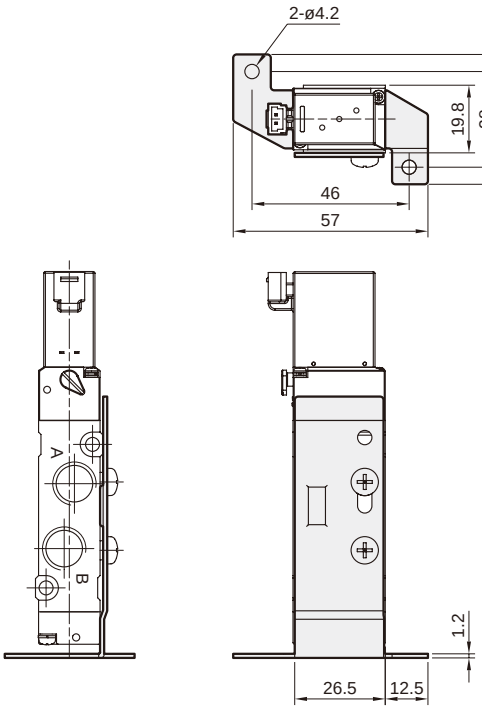
MVSY — 188M — 5BP

- MODEL
- **5B**: 5 Port (for body ported type)
  5M: 5 Port (for Manifold type)
  - Blank: Body ported type
    M: Manifold type
- SPACER ASSEMBLY
  - **P**: Individual SUP spacer assembly
  - **R**: Individual EXH spacer assembly
  - **PR**: Individual SUP spacer assembly+ Individual EXH spacer assembly

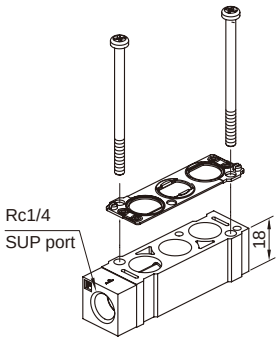
MVSY-188-1A



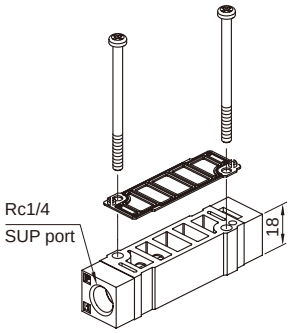
MVSY-188-2A



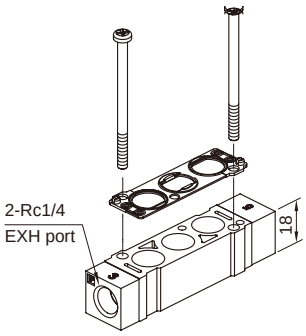
MVSY-188-5BP



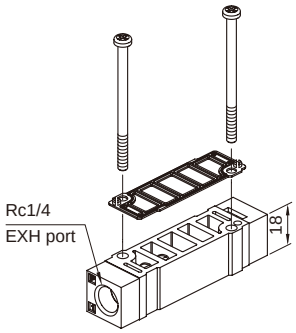
MVSY-188M-5MP



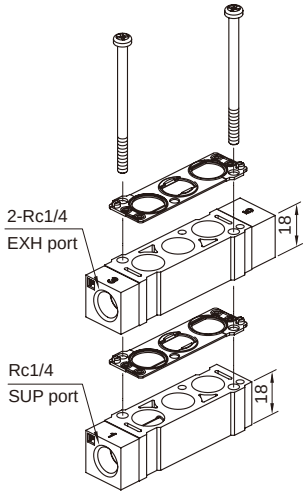
MVSY-188-5BR



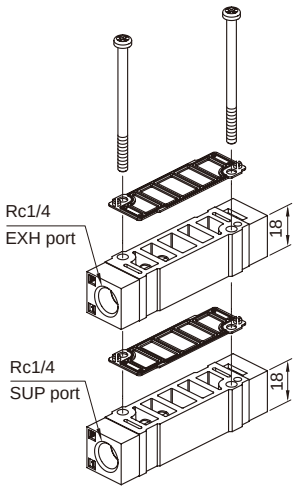
MVSY-188M-5MR



MVSY-188-5BPR

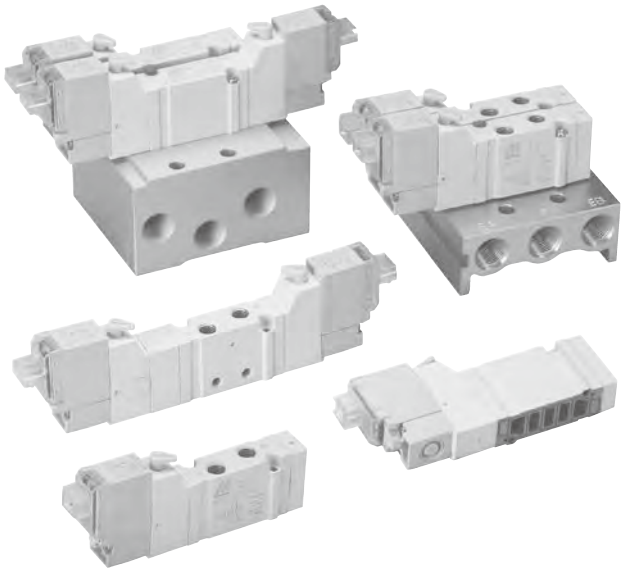


MVSY-188M-5MPR



MVSY-100 series

SOLENOID VALVE



Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	M5		
Port size	M5×0.8		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~0.7 MPa		
Operating perssure (LP)	0.0~0.7 MPa		
Pilot pressure range (LP)	0.25~0.7 MPa		
Proof pressure	1 MPa		
Effective orifice — Body ported	4.5 mm^2		
Effective orifice — Manifold	4.5 mm^2		4.5 / 5 / 4.5 mm^2
Reponse time	15 ms		
Ambient temperature	+5~+50°C		
Max. operating frequency	5 Hz		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption	AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range	±10%		
Insulation class	B class		
Weight	30 g	44 g	59 g

Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Order example of valve

MVSY — 100M — 4E2C — AC110 — LJ1 — LP

- MODEL
- BODY WIDTH
  - Blank: Body ported type
  - **M**: Manifold type
- **4**: 4 way (5 port)
  - **E1**: Single Solenoid
  - **E2**: Double Solenoid
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
  - **DC12**V
  - **DC6**V
- **C**: Closed center
- **P**: Pressure center
- **R**: Exhaust center
  - (Only for **4E2** type)
- ELECTRIC CONNECTION
  - **LJ**: Plug on side (*1)
  - **LR**: Plug on side (*2)
  - **SR**: Plug on Top (*2)
- WIRE LENGTH
  - Blank: 500mm
  - **1**: 1000mm
  - **2**: 2000mm
  - **3**: 3000mm
- **LP**: External pilot (*3)
  - (Only for manifold type)

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

Order example of manifold

MVSY — 100M — 5B3 — G — LP

- MODEL
- Blank: Body ported type
  - **M**: Manifold type
- MANIFOLD
  - **5B**: 5 port (for body ported type)
  - **5M**: 5 port (for manifold type)
- MANIFOLD NUMBER
  - **1, 2, 3...**
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- **LP**: External pilot (*3)
  - (Only for manifold type)

*3. **LP** type valve needs to match **LP** type manifold.

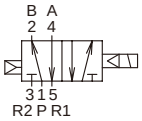
Order example of wire

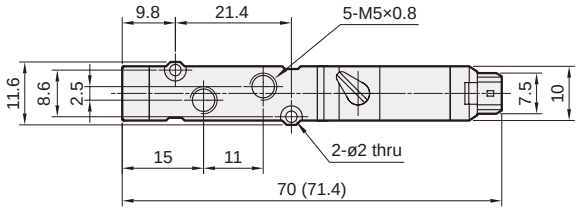
* Use the same wire with MVDY.

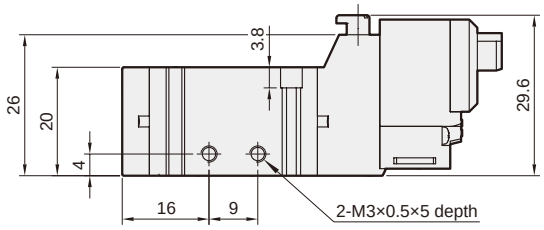
MVDY — 100 — WA2J2

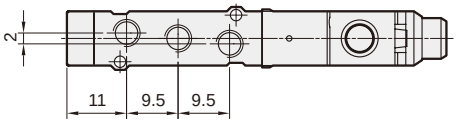
- MODEL
- VOLTAGE
  - **A2**: AC220V(50/60)Hz
  - **A1**: AC110V(50/60)Hz
  - **D**: DC24V/12V/6V
- WIRE
  - **J**: JPC type
  - **R**: RMH type
- WIRE LENGTH
  - Blank: 500mm
  - **1**: 1000mm
  - **2**: 2000mm
  - **3**: 3000mm

MVSY-100-4E1

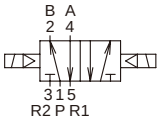


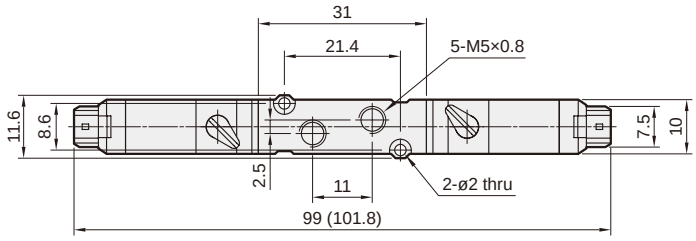


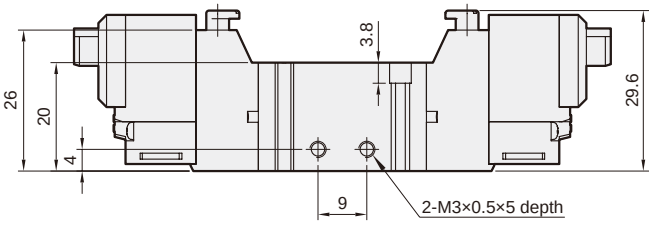


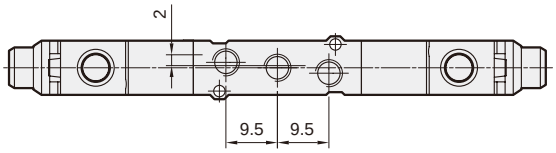


MVSY-100-4E2



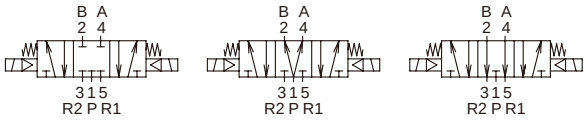


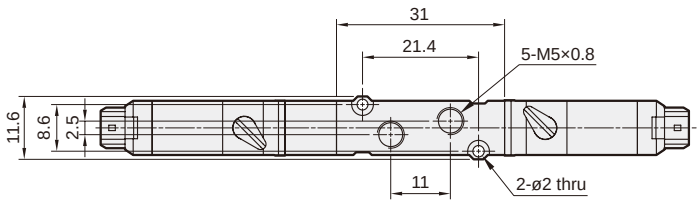


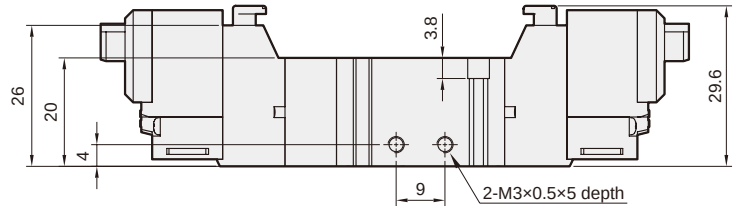


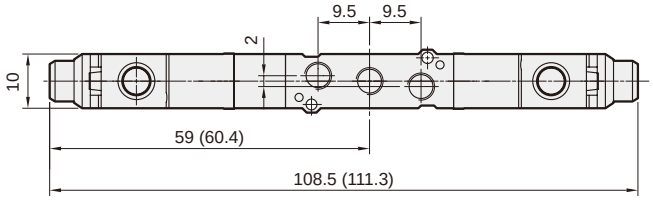
MVSY-100-4E2C.P.R

MVSY-100-4E2C **MVSY-100-4E2P** **MVSY-100-4E2R**



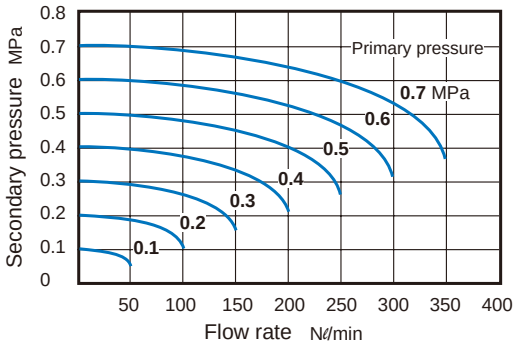






Flow features

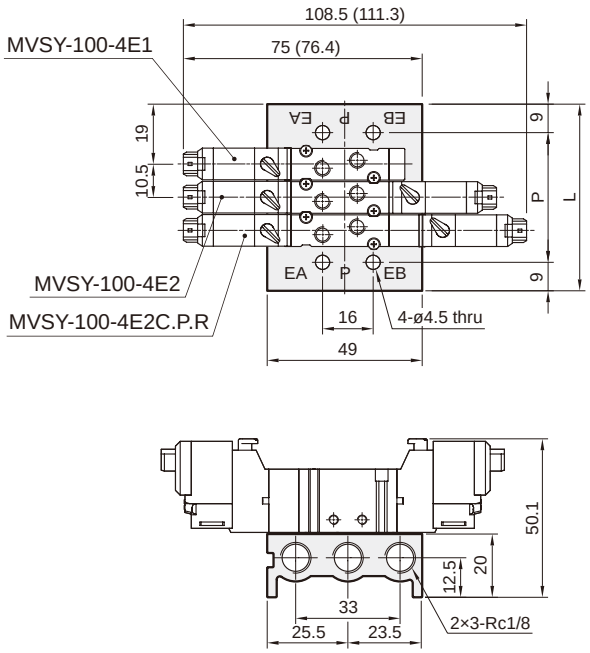
MVSY-100-4E1/4E2



( ): Dimension for **LJ** plug type.

MVSY-100-5B*

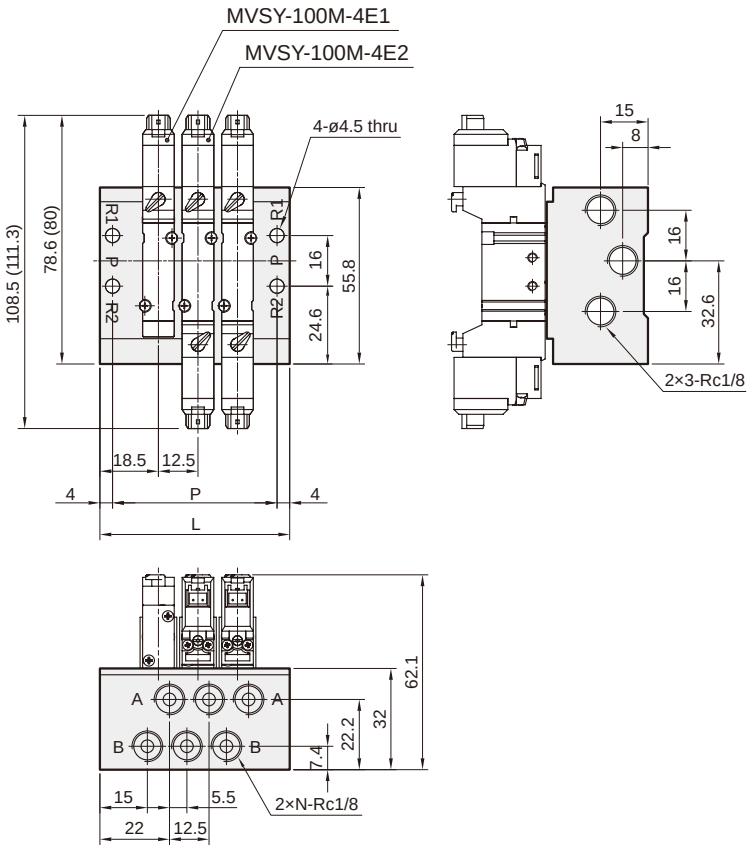
5 port (for body ported type)



No. of stations	P	L
2	30.5	48.5
3	41	59
4	51.5	69.5
5	62	80
6	72.5	90.5
7	83	101
8	93.5	111.5
9	104	122
10	114.5	132.5

MVSY-100M-5M*

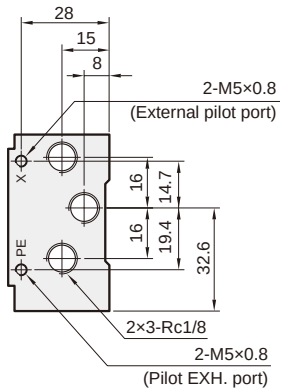
5 port (for manifold type)



( ): Dimension for **LJ** plug type.

LP

External pilot



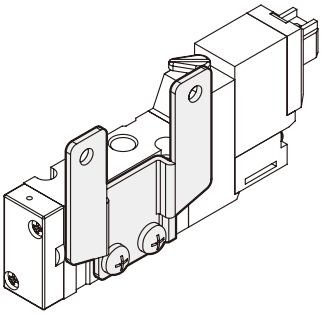
No. of stations (N)	P	L
2	39.5	47.5
3	52	60
4	64.5	72.5
5	77	85
6	89.5	97.5
7	102	110
8	114.5	122.5
9	127	135
10	139.5	147.5

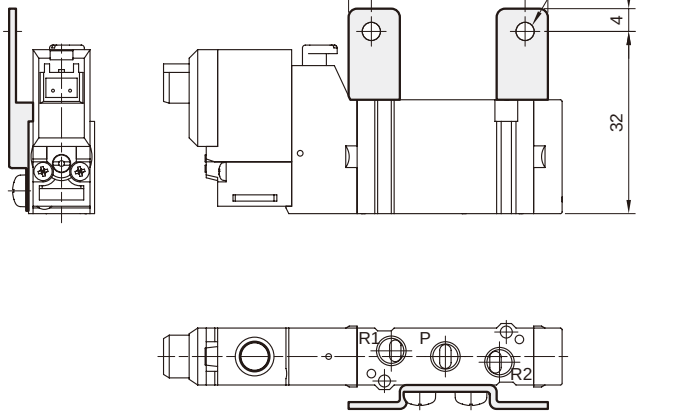
Order example of bracket

MVSY – 100 – 1A

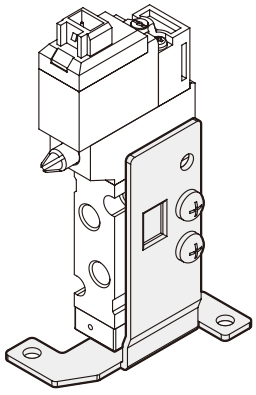
- MODEL
- MOUNTING BRACKET
  - 1A
  - 2A

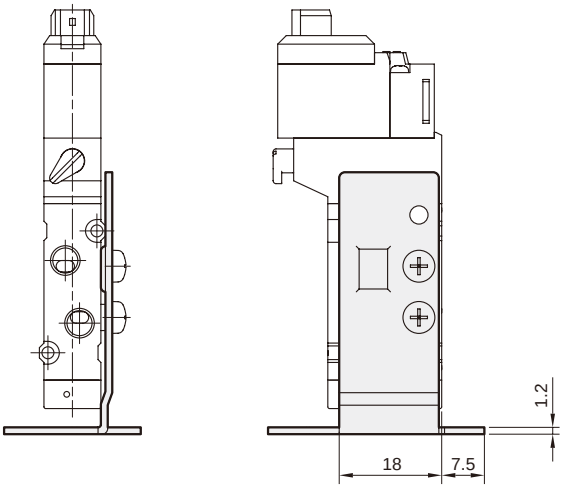
MVSY-100-1A





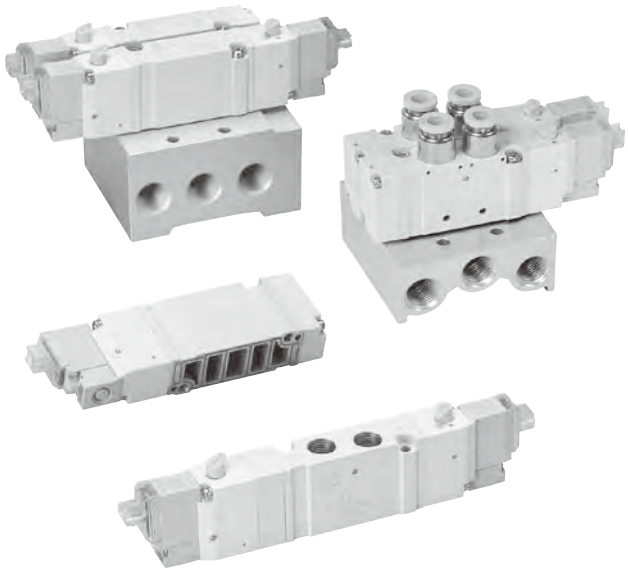
MVSY-100-2A





MVSY-156 series

SOLENOID VALVE



Specification

Model		4E1	4E2	4E2 C.P.R
Bore No.		6A		
Port size		Rc1/8		
No. of port		5		
No. of position		2		3
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	11 mm^2		9.5 / 14.6 / 9.5 mm^2
	Manifold	10 mm^2		7.5 / 13 / 8 mm^2
Reponse time		19 ms		20 ms
Ambient temperature		+5~+50°C		
Max. operating frequency		5 Hz		
Voltage		AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption		AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range		±10%		
Insulation class		B class		
Weight		63 g	82 g	102 g

Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Order example of valve

MVSY — 156M — 4E2C — AC110 — LJ1 — G

MODEL

BODY WIDTH

Blank: Body ported type
C4: Body ported with tube fitting (dia. ø4mm)
C6: Body ported with tube fitting (dia. ø6mm)
C8: Body ported with tube fitting (dia. ø8mm)
M: Manifold type

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

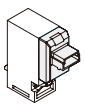
C: Closed center
P: Pressure center
R: Exhaust center
(Only for **4E2** type)

VOLTAGE

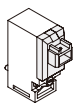
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V
DC12V
DC6V

ELECTRIC CONNECTION

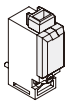
LJ: Plug on side (*1)



LR: Plug on side (*2)



SR: Plug on Top (*2)



*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

WIRE LENGTH

Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread
(Only for body ported type)

Order example of manifold

MVSY — 156M — 5B3 — G

MODEL

Blank: Body ported type
M: Manifold type

MANIFOLD
5B: 5 port (for body ported type)
5M: 5 port (for manifold type)

MANIFOLD NUMBER
1, 2, 3...

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Order example of wire

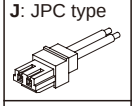
* Use the same wire with MVDY.

MVDY — 100 — WA2J2

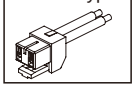
MODEL

VOLTAGE
A2: AC220V(50/60)Hz
A1: AC110V(50/60)Hz
D: DC24V/12V/6V

WIRE
J: JPC type

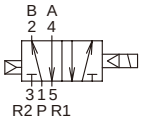


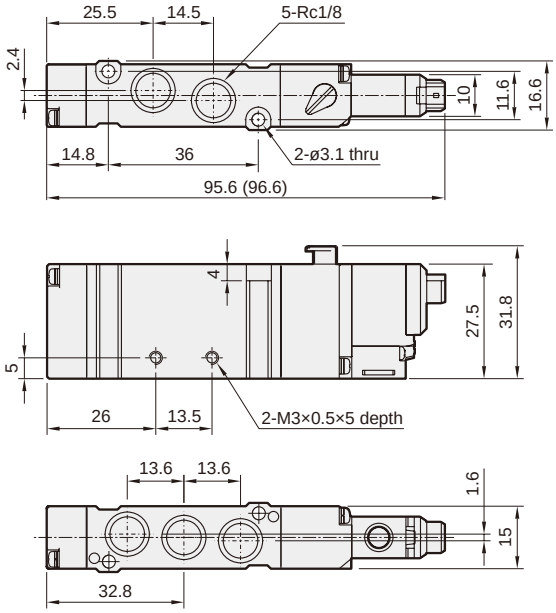
R: RMH type



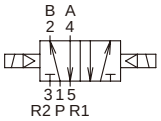
WIRE LENGTH
Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

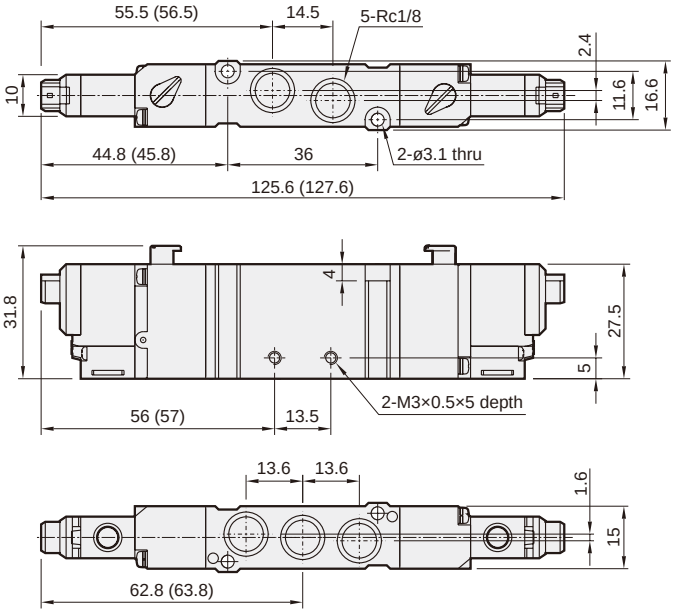
MVSY-156-4E1





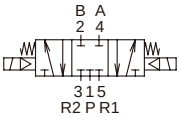
MVSY-156-4E2



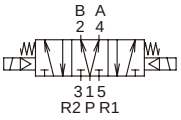


MVSY-156-4E2C.P.R

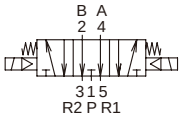
MVSY-156-4E2C

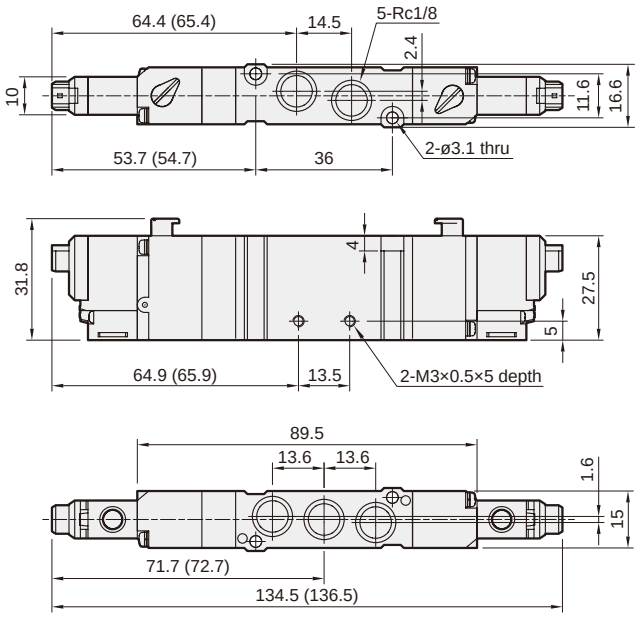


MVSY-156-4E2P



MVSY-156-4E2R

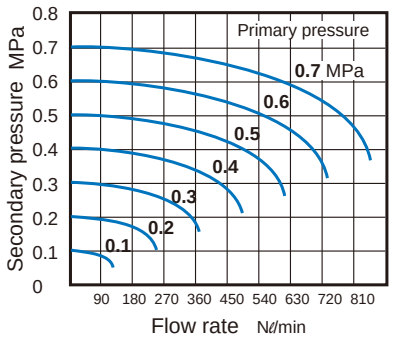




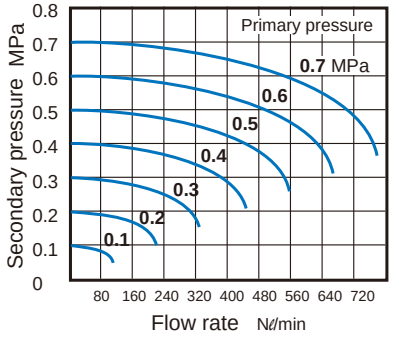
( ): Dimension for **LJ** plug type.

Flow features

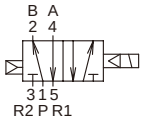
MVSY-156-4E1/4E2

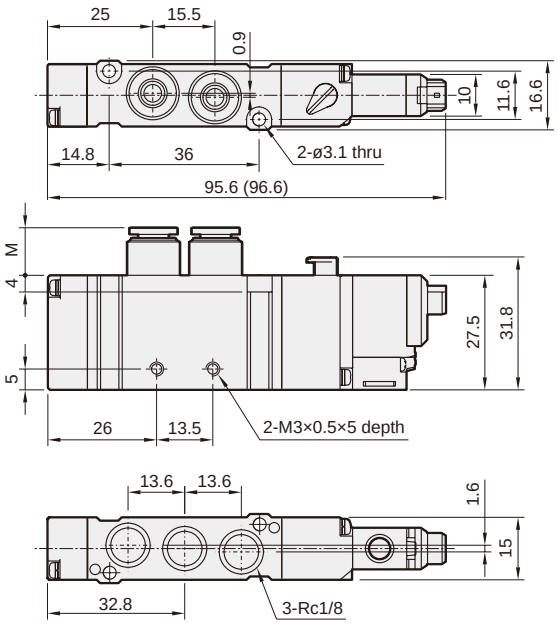


MVSY-156M-4E1/4E2

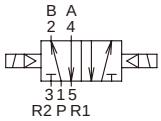


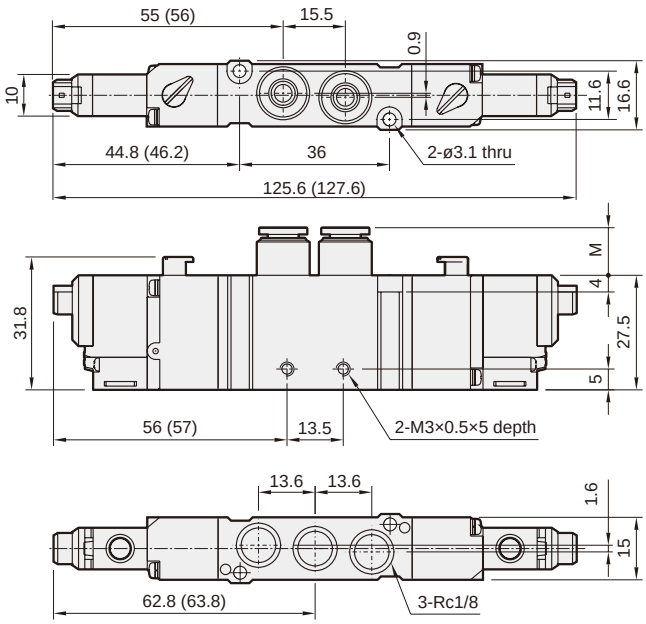
MVSY-156C*-4E1





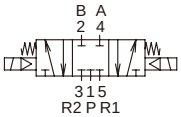
MVSY-156C*-4E2



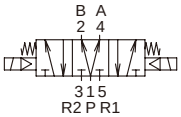


MVSY-156C*-4E2C.P.R

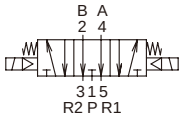
MVSY-156-4E2C

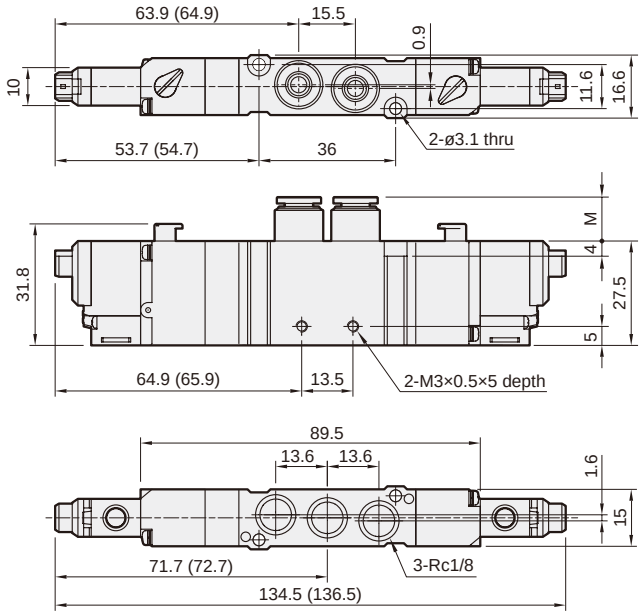


MVSY-156-4E2P



MVSY-156-4E2R



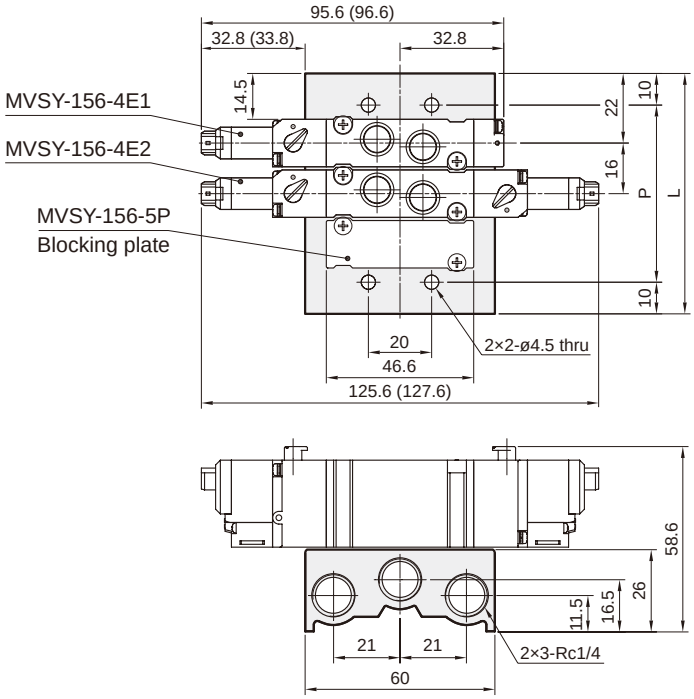


Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

( ): Dimension for **LJ** plug type.

MVSY-156-5B*

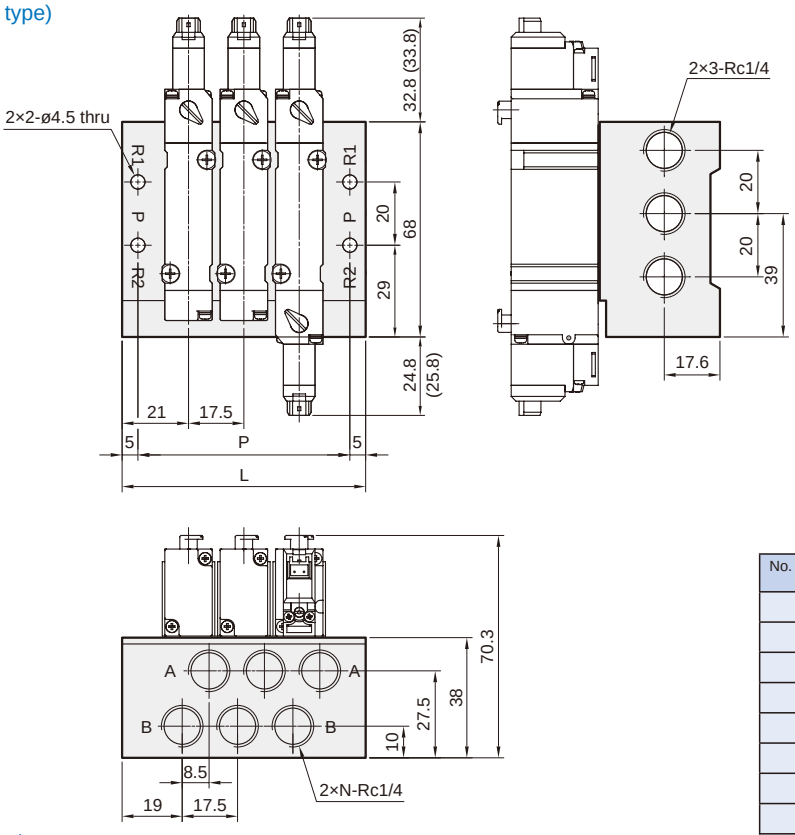
5 port (for body ported type)



No. of stations	P	L
2	40	60
3	56	76
4	72	92
5	88	108
6	104	124
7	120	140
8	136	156
9	152	172
10	168	188

MVSY-156M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
2	49.5	59.5
3	67	77
4	84.5	94.5
5	102	112
6	119.5	129.5
7	137	147
8	154.5	164.5
9	172	182
10	189.5	199.5

( ): Dimension for **LJ** plug type.

Order example of bracket

MVSY — 156 — 1A

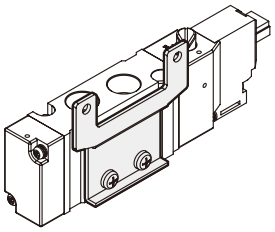
- MODEL
- MOUNTING BRACKET
  - **1A**
  - **2A**

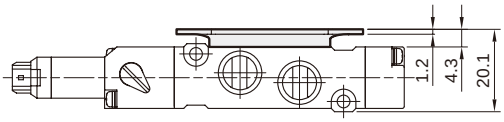
Order example of spacer assembly

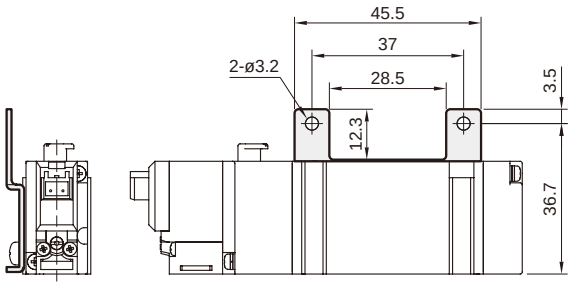
MVSY — 156M — 5BP

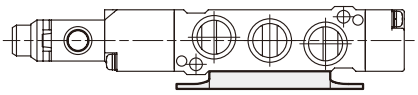
- MODEL
- **5B**: 5 Port (for body ported type)
  5M: 5 Port (for Manifold type)
  - Blank: Body ported type
    M: Manifold type
- SPACER ASSEMBLY
  - **P**: Individual SUP spacer assembly
    R: Individual EXH spacer assembly
    PR: Individual SUP spacer assembly+ Individual EXH spacer assembly

MVSY-156-1A

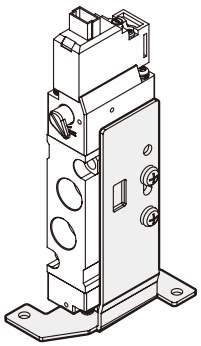


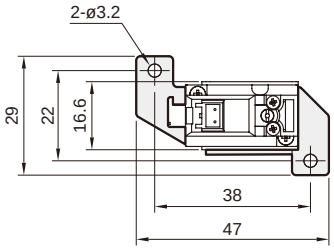


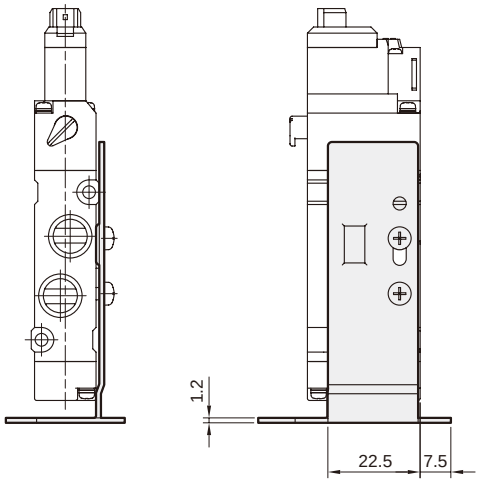




MVSY-156-2A

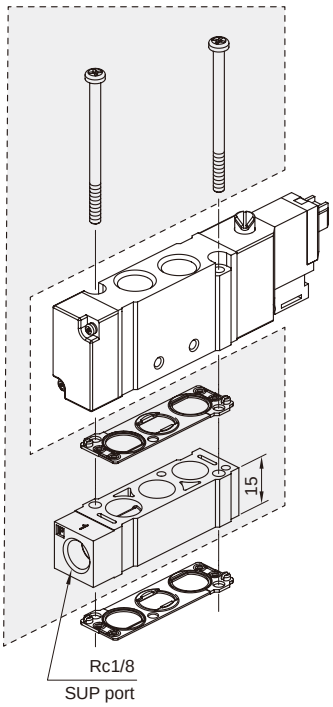




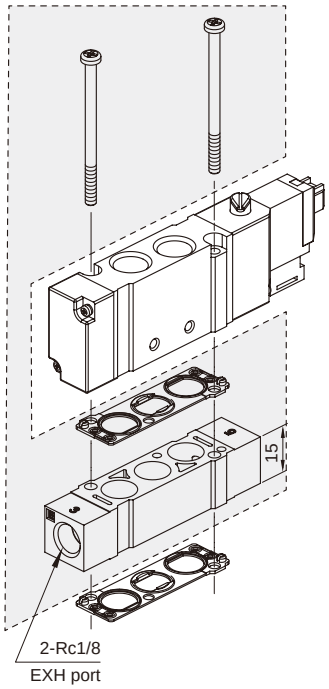


for body ported type

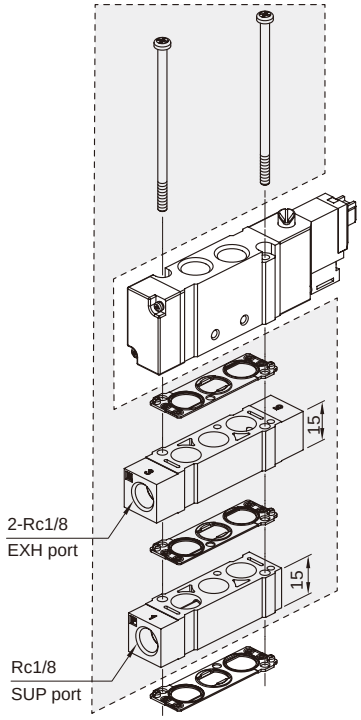
MVSY-156-5BP
Individual SUP spacer assembly



MVSY-156-5BR
Individual EXH spacer assembly

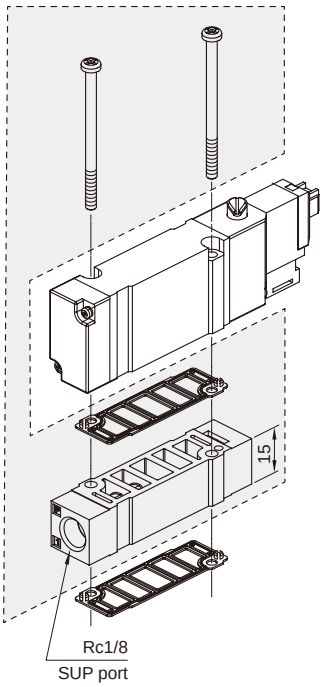


MVSY-156-5BPR
Individual SUP spacer assembly+
Individual EXH spacer assembly

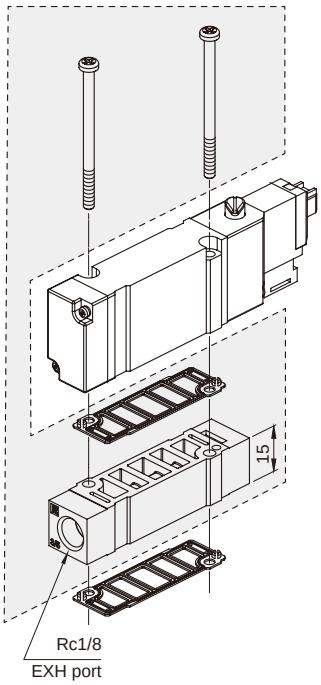


for manifold type

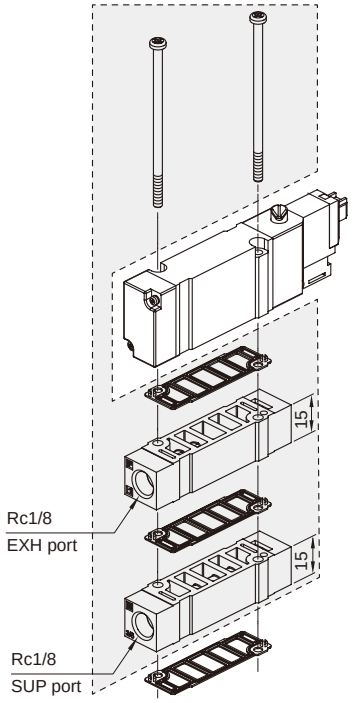
MVSY-156M-5MP
Individual SUP spacer assembly



MVSY-156M-5MR
Individual EXH spacer assembly



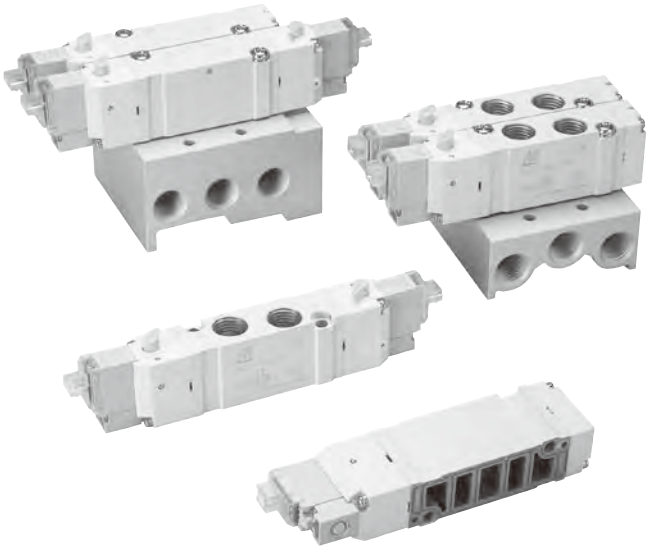
MVSY-156M-5MPR
Individual SUP spacer assembly+
Individual EXH spacer assembly



MVSY-188 series

SOLENOID **VALVE**

mindman



Specification

Model		4E1	4E2	4E2 C.P.R
Bore No.		8A		
Port size		Rc1/4		
No. of port		5		
No. of position		2		3
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	15 mm^2		16.3/27/12.4 mm^2
	Manifold	13 mm^2		13.5/18.4/11 mm^2
Reponse time		23 ms		50 ms
Ambient temperature		+5~+50°C		
Max. operating frequency		5 Hz		
Voltage		AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption		AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range		±10%		
Insulation class		B class		
Weight		77 g	102 g	106 g

Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Order example of valve

MVSY — 188M — 4E2C — AC110 — LJ1 — G

- MODEL
- BODY WIDTH
- **4**: 4 way (5 port)
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
  - **DC12**V
  - **DC6**V
- ELECTRIC CONNECTION
  - **LJ**: Plug on side (*1)
  - **LR**: Plug on side (*2)
  - **SR**: Plug on Top (*2)
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
  - (Only for body ported type)
- WIRE LENGTH
  - Blank: 500mm
  - **1**: 1000mm
  - **2**: 2000mm
  - **3**: 3000mm

Blank: Body ported type
M: Manifold type

E1: Single Solenoid
E2: Double Solenoid

C: Closed center
P: Pressure center
R: Exhaust center
(Only for **4E2** type)

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

Order example of manifold

MVSY — 188M — 5B3 — G

- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  5B: 5 port (for body ported type)
  5M: 5 port (for manifold type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

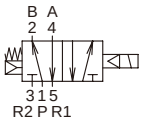
Order example of wire

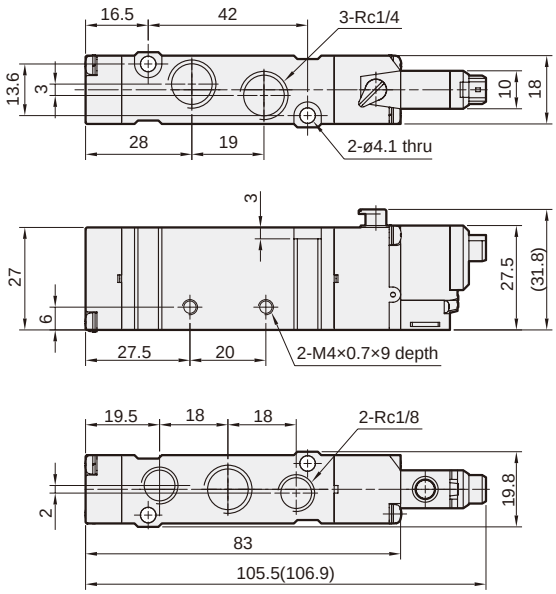
* Use the same wire with MVDY.

MVDY — 100 — WA2J2

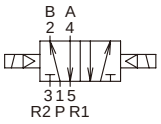
- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  J: JPC type
  R: RMH type
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

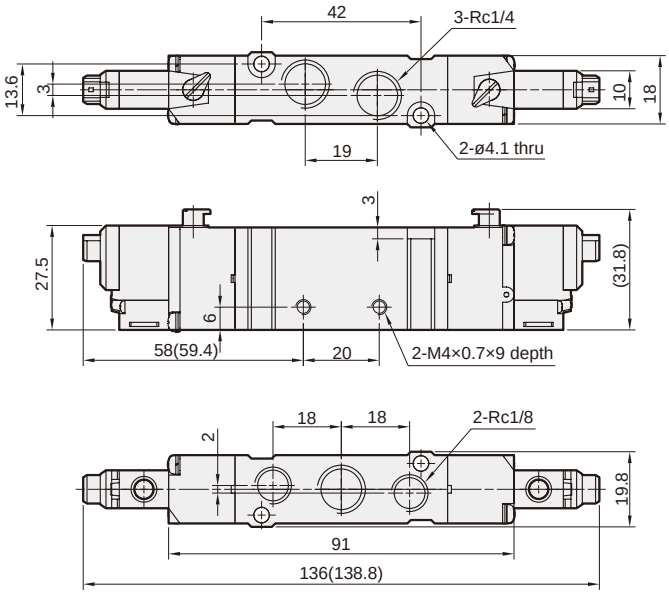
MVSY-188-4E1





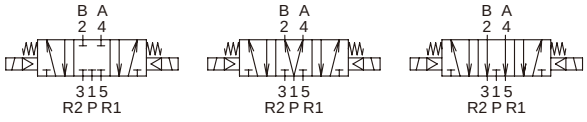
MVSY-188-4E2

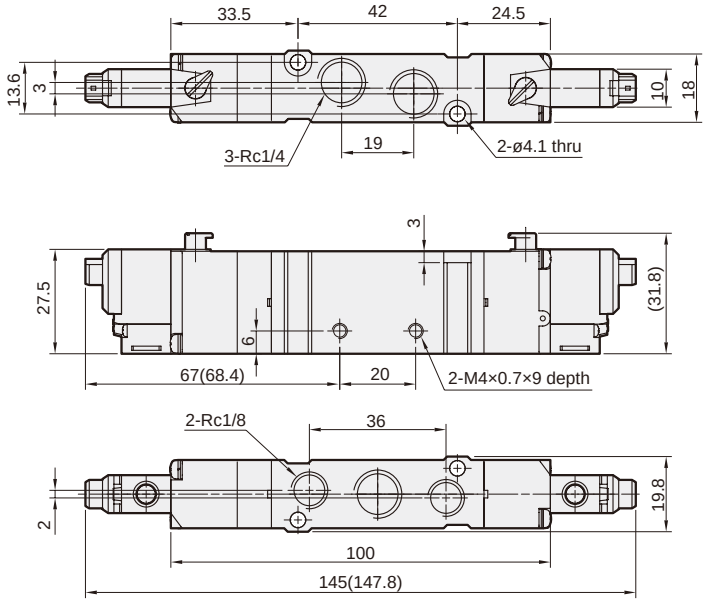




MVSY-188-4E2C.P.R

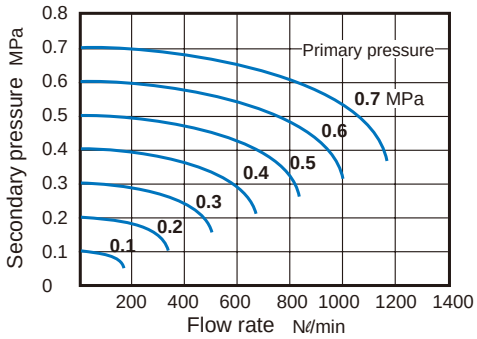
MVSY-188-4E2C **MVSY-188-4E2P** **MVSY-188-4E2R**



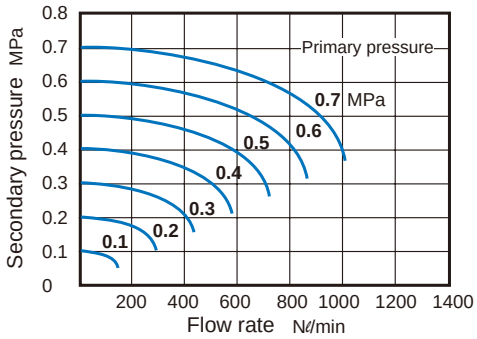


Flow features

MVSY-188-4E1/4E2



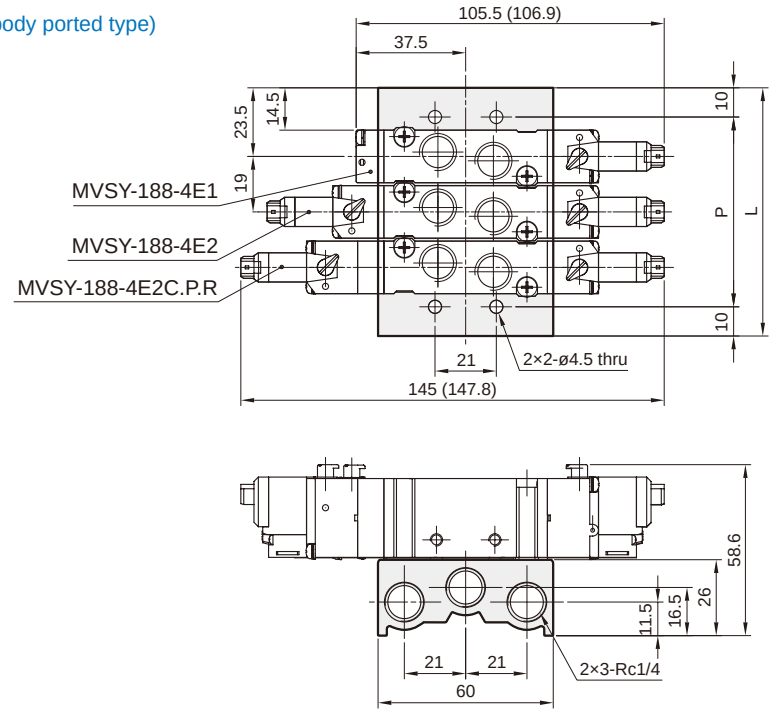
MVSY-188M-4E1/4E2



( ): Dimension for **LJ** plug type.

MVSY-188-5B*

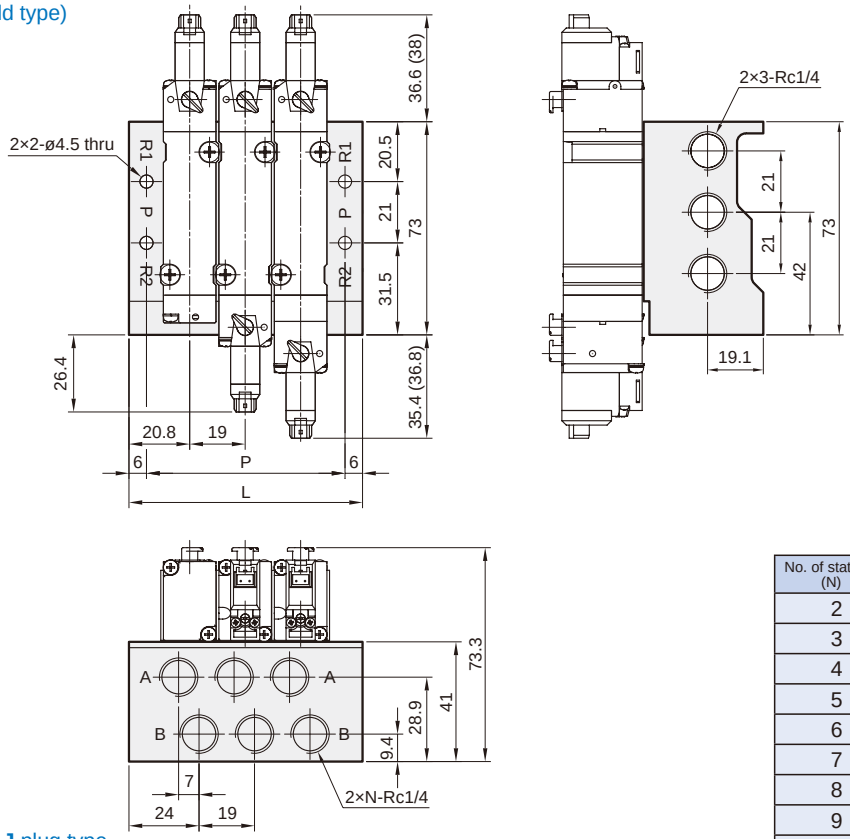
5 port (for body ported type)



No. of stations	P	L
2	46	66
3	65	85
4	84	104
5	103	123
6	122	142
7	141	161
8	160	180
9	179	199
10	198	218

MVSY-188M-5M*

5 port (for manifold type)



( ): Dimension for **LJ** plug type.

No. of stations (N)	P	L
2	49	61
3	68	80
4	87	99
5	106	118
6	125	137
7	144	156
8	163	175
9	182	194
10	201	213

Order example of bracket

MVSY — 188 — 1A

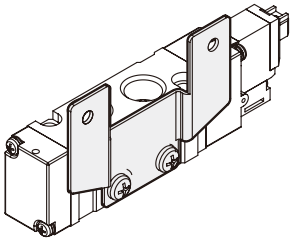
- MODEL
- MOUNTING BRACKET
  - **1A**
  - **2A**

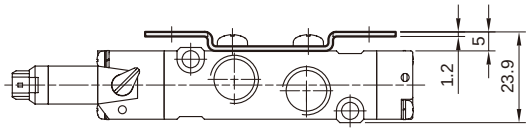
Order example of spacer assembly

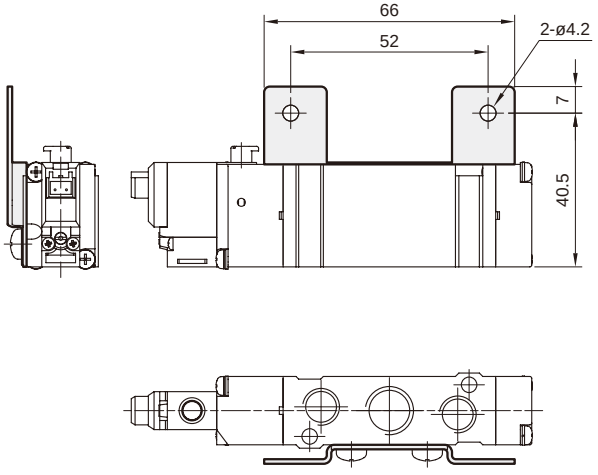
MVSY — 188M — 5BP

- MODEL
- **5B**: 5 Port (for body ported type)
  5M: 5 Port (for manifold type)
- SPACER ASSEMBLY
  - Blank: Body ported type
    M: Manifold type
  - **P**: Individual SUP spacer assembly
    R: Individual EXH spacer assembly
    PR: Individual SUP spacer assembly+ Individual EXH spacer assembly

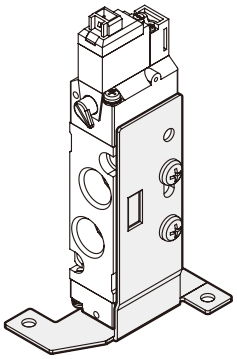
MVSY-188-1A

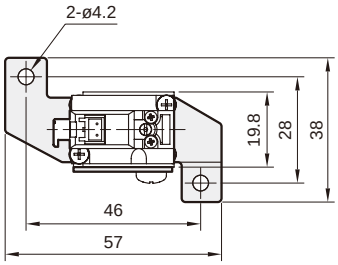


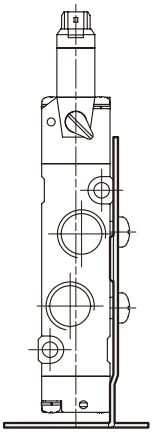


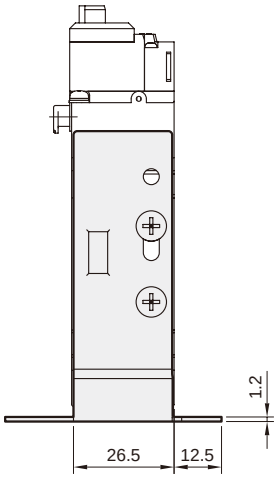


MVSY-188-2A









MVSY-188 Spacer assembly

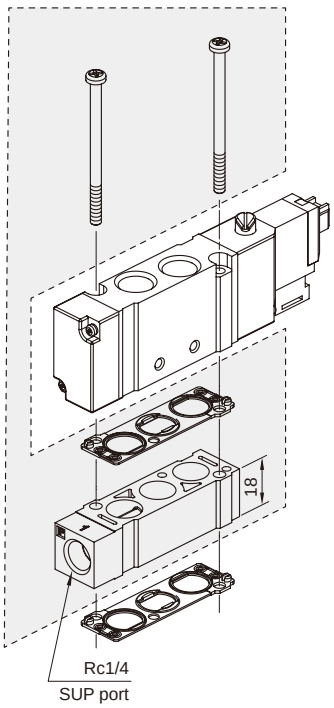
SOLENOID **VALVE**

mindman

for body ported type

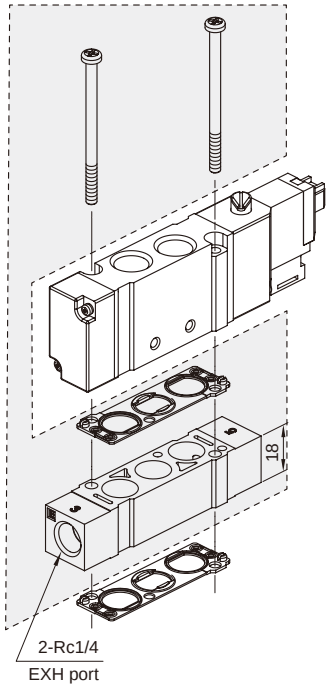
MVSY-188-5BP

Individual SUP spacer assembly



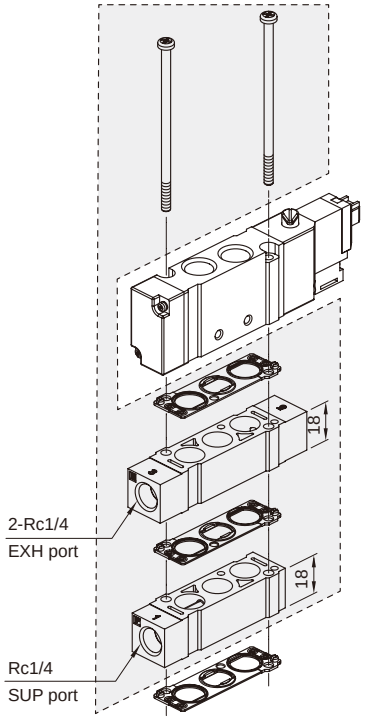
MVSY-188-5BR

Individual EXH spacer assembly



MVSY-188-5BPR

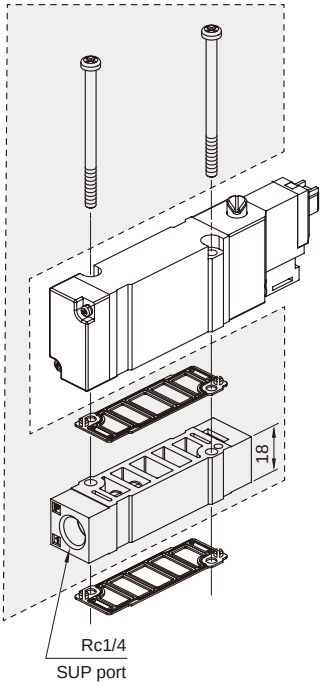
Individual SUP spacer assembly+
Individual EXH spacer assembly



for manifold type

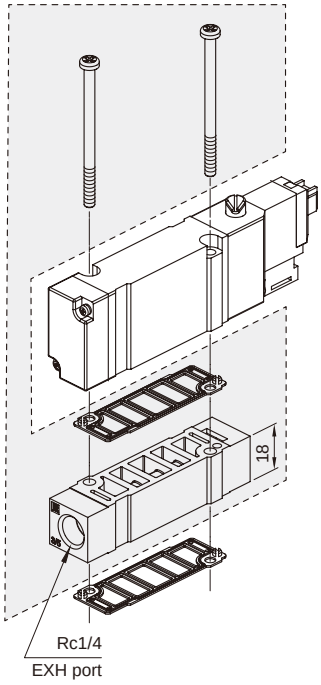
MVSY-188M-5MP

Individual SUP spacer assembly



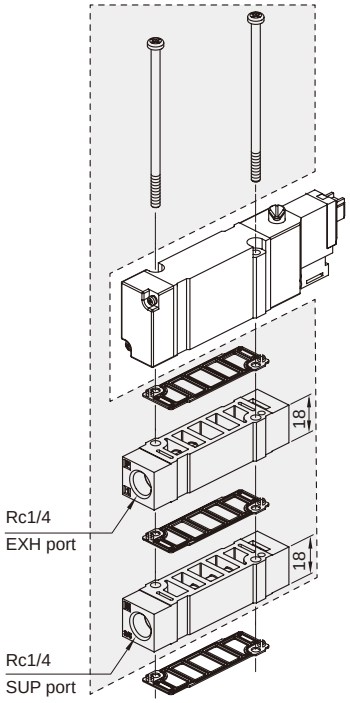
MVSY-188M-5MR

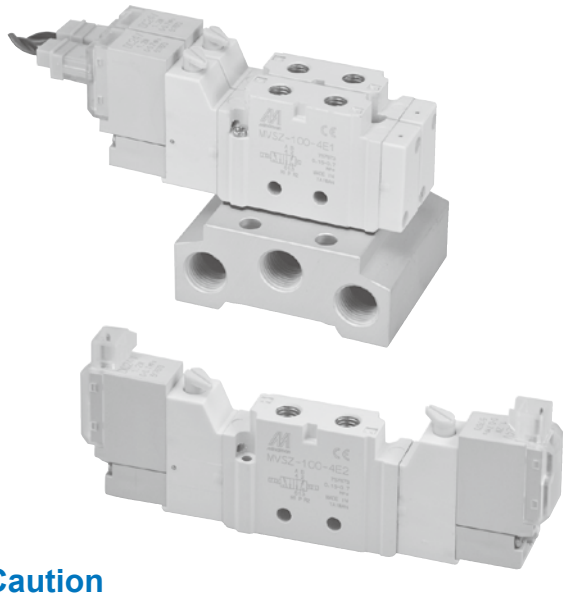
Individual EXH spacer assembly



MVSY-188M-5MPR

Individual SUP spacer assembly+
Individual EXH spacer assembly





Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Specification

Model	4E1	4E2
Bore No.	M5	
Port size	M5×0.8	
No. of port	5	
No. of position	2	
Medium	Air	
Operating perssure range	0.15~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	0.26Cv	
Reponse time	17 ms	
Ambient temperature	+5~+50°C	
Max. operating frequency	5 Hz	
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V	
Power consumption	AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W	
Available voltage range	±10%	
Insulation class	B class	
Weight	40 g	53 g

Order example of valve

MVSZ — 100 — 4E1 — AC110 — LJ1

- MODEL
- BODY WIDTH
  - **4**: 4 way (5 port)
- **E1**: Single Solenoid
  E2: Double Solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
  DC12V
  DC6V
- ELECTRIC CONNECTION
  - **LJ**: Plug on side (*1)
  - **LR**: Plug on side (*2)
  - **SR**: Plug on Top (*2)
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

Order example of manifold

MVSZ — 100 — 5B3 — G

- MODEL
- MANIFOLD
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  2, 3, 4...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of wire

* Use the same wire with MVDY.

MVDY — 100 — WA2J2

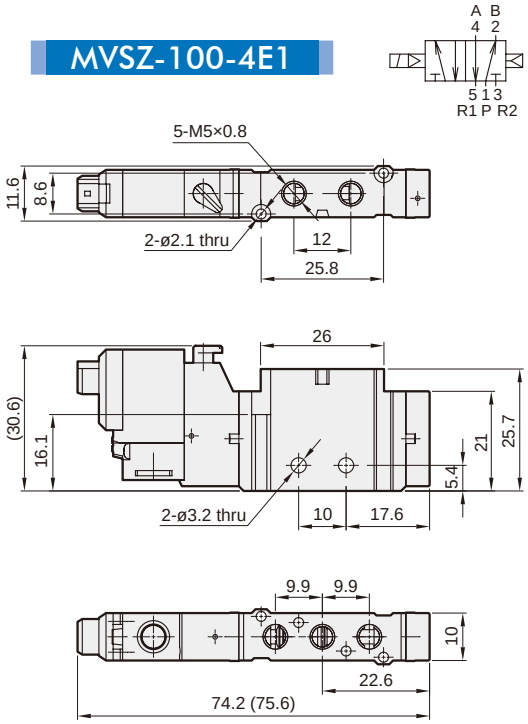
- MODEL
- VOLTAGE
  A2: AC220V(50/60)Hz
  A1: AC110V(50/60)Hz
  D: DC24V/12V/6V
- WIRE
  - **J**: JPC type
  - **R**: RMH type
- WIRE LENGTH
  Blank: 500mm
  1: 1000mm
  2: 2000mm
  3: 3000mm

MVSZ-100 Dimensions

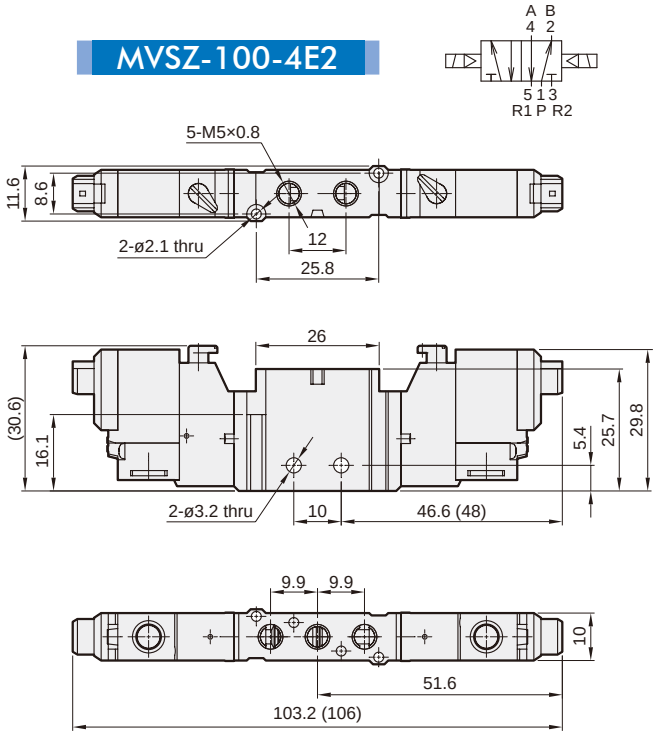
SOLENOID **VALVE**

mindman

MVSZ-100-4E1



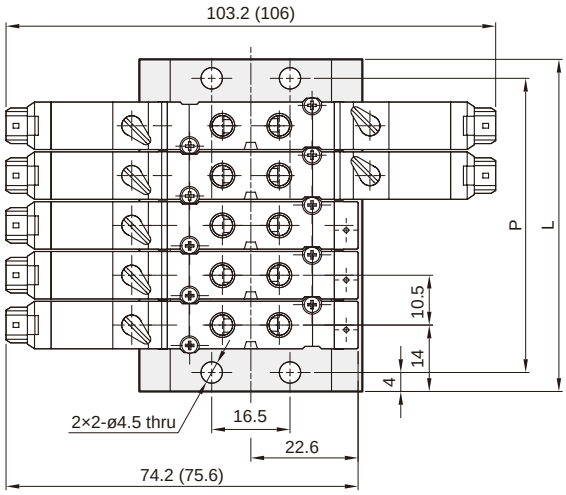
MVSZ-100-4E2

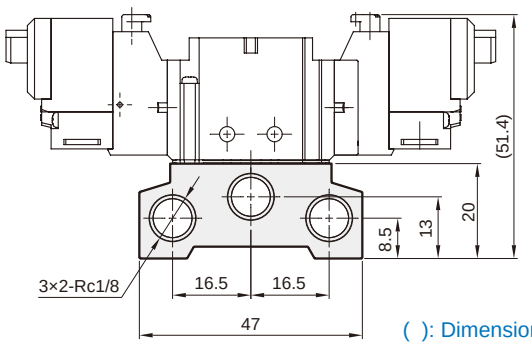


Manifold of solenoid valve

MVSZ-100-5B*

5 port (for body ported type)

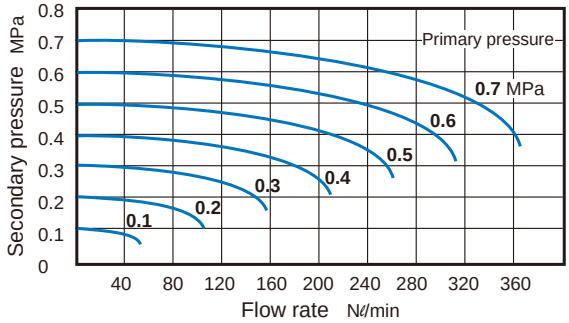




No. of stations	P	L
2	30.5	38.5
3	41	49
4	51.5	59.5
5	62	70
6	72.5	80.5
7	83	91
8	93.5	101.5
9	104	112
10	114.5	122.5

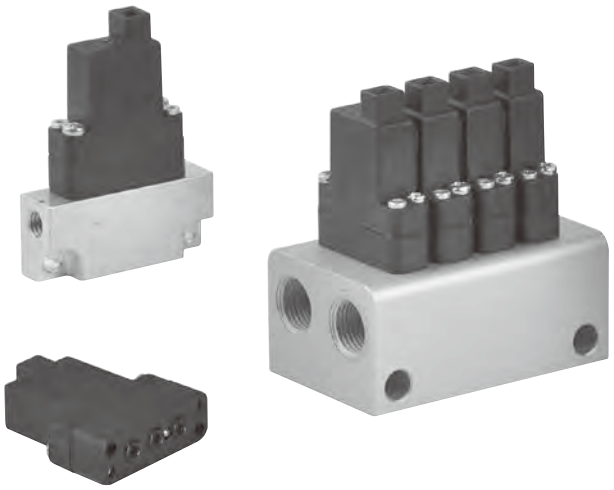
( ): Dimension for **LJ** plug type.

Flow features

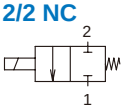


MVDA-80 series

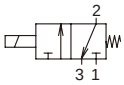
DIRECT ACTING TYPE **COMPACT SOLENOID VALVE**



2/2 NC



3/2 NC



Specification

Model		2E1-KK-A	3E1-KK	3E1-DC24	3E1-DC12
No. of port		2	3		
No. of position		2			
Medium		Dry air, inert gas			
Operating perssure range		0~1.2 MPa	0~0.8 MPa		
Flow rate (N l/min)		25 ± 10%	28 ± 10%		
Response time (ms)	ON	0.7 ± 0.5	0.8 ± 0.2	2.0 ± 0.5	2.0 ± 0.5
	OFF	1 ± 0.2	0.5 ± 0.2	0.6 ± 0.2	0.5 ± 0.2
Operating fluid temp.		-10~+50°C			
Ambient temperature		-10~+50°C			
Storage temperature		-10~+50°C			
Voltage		Speed-up: DC24V, Hold: DC5V		DC24V	DC12V
Power consumption		0.8 W (Hold)	0.5 W (Hold)	1.2 W	1.44 W
Filter element		40 μm			
Lubrication		No required			
Max. operating frequency		500 Hz (at 250Hz with driver board)		200 Hz	280 Hz
IP protection class		IP52			
Weight		8 g			

Features

- Response time < 1ms (KK type).
- Product life: 500 million switching cycles.
- Ultra response frequency: 500Hz.

Order example of valve

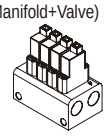
MVDA — 80 — 3E1 — NC — DC24 — C — A — M3

MODEL

BODY WIDTH

Port	Voltage	Wire	Pressure
2E1-NC: 2 way (2 port)	**KK**: DC24V / DC5V (Speed-up in tension) Speed-up: DC24V, hold: DC5V	**C**: Without driver board **S**: With driver board (24/5V Signal converter)	**A**: High pressure (0~1.2 MPa)
3E1-NC: 3 way (3 port)	**DC12**: DC12V **DC24**: DC24V	**C**: Without driver board	Blank: General pressure (0~0.8 MPa)
	KK: DC24V / DC5V (Speed-up in tension) Speed-up: DC24V, hold: DC5V	**C**: Without driver board **S**: With driver board (24/5V Signal converter)	

SYMBOL OF ASSEMBLY

B1: Assembly (Base+Valve)	**M□**: 2,3,4...Manifold number Assembly (Manifold+Valve)
	

Order example of base

MVDA — 80 — 3B1

MODEL

BASE

2B: 2 port base
3B: 3 port base

Order example of manifold

MVDA — 80 — 3M2

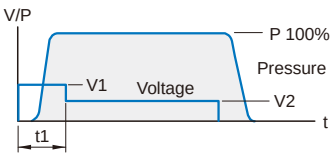
MODEL

MANIFOLD
2M: 2 port
3M: 3 port

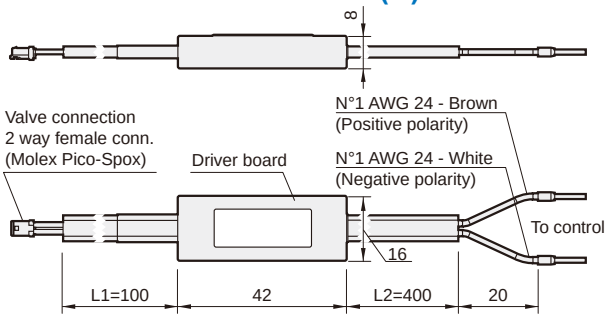
MANIFOLD NUMBER
2, 3, 4...

KK type electrical control

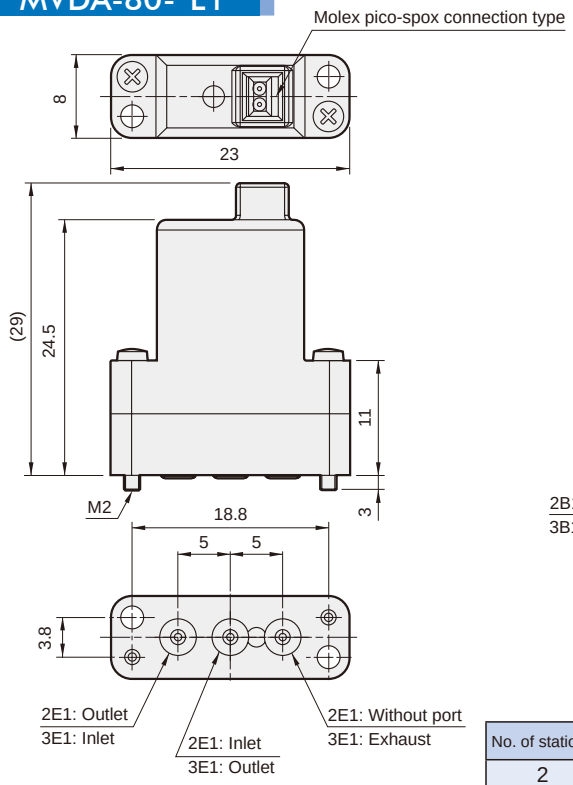
V1=24V DC
t1=2ms
V2=5V DC



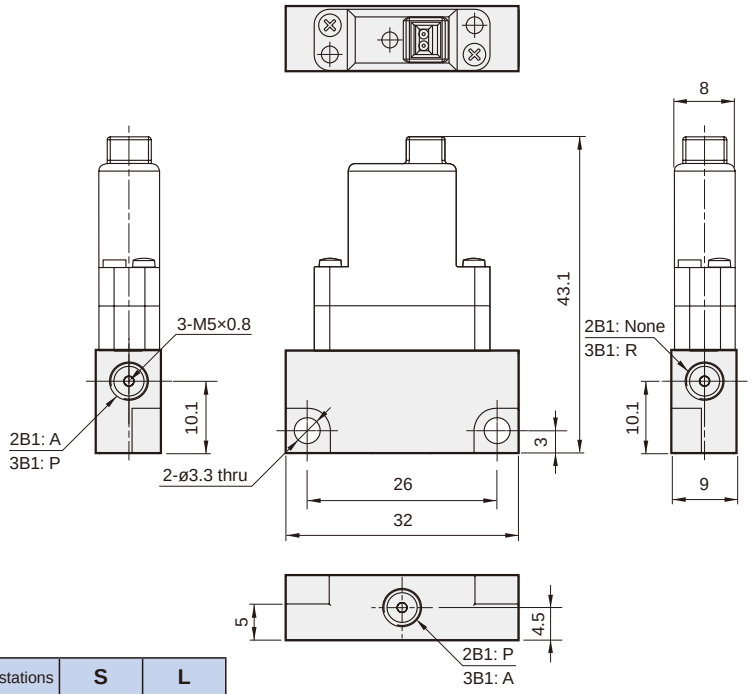
The wire with driver board (S) dimensions



MVDA-80-*E1

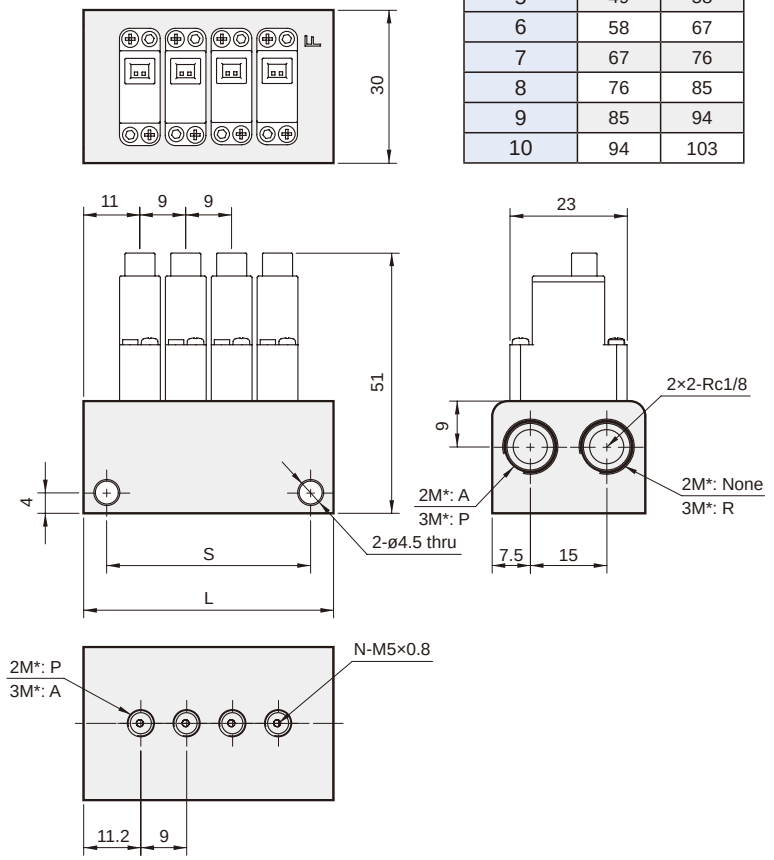


MVDA-80-*B1 Base



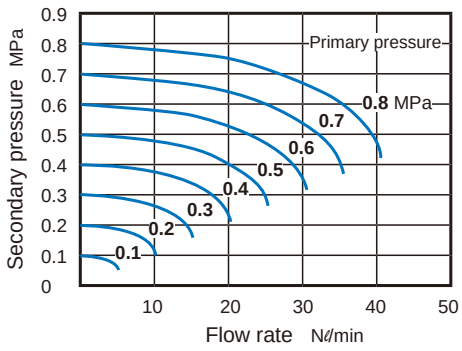
No. of stations	S	L
2	22	31
3	31	40
4	40	49
5	49	58
6	58	67
7	67	76
8	76	85
9	85	94
10	94	103

MVDA-80-*M* Manifold

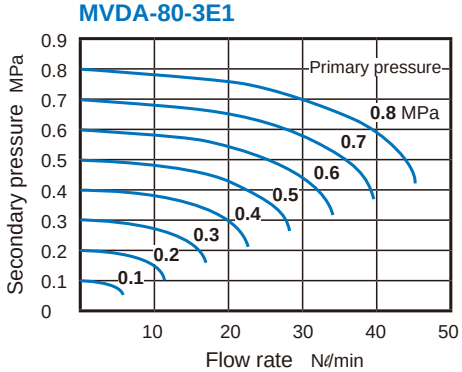


Flow features

MVDA-80-2E1



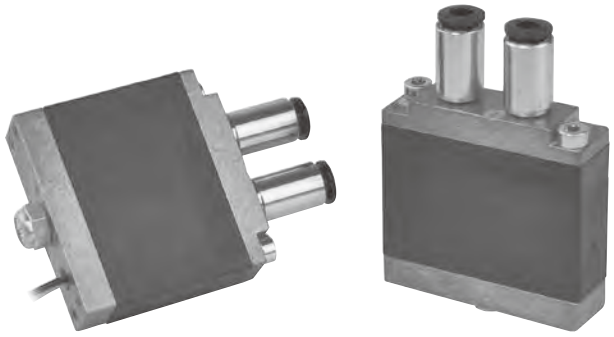
MVDA-80-3E1



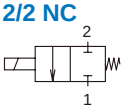
MVDA-120 series

DIRECT ACTING TYPE **COMPACT SOLENOID VALVE**

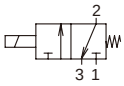
mindman



2/2 NC



3/2 NC



Specification

Model		2E1-KK	3E1-KK	3E1-DC12
No. of port		2	3	
No. of position		2		
Medium		Non-lubrifcated dry air, Neutral gases		
Operating fluid temp.		–10~+50°C		
Operating pressure range		0~0.8 MPa		0.4~0.8 MPa
Flow rate		100 N ℓ/min		80 N ℓ/min
Response time	ON	< 2 ms		< 5 ms
	OFF	< 2 ms		< 1.3 ms
Ambient temperature		–10~+50°C		
Filtration rating		min. 40 µm		
Voltage		Speed-up: DC24V, Hold: DC5V		DC12V
Power consumption		0.8 W (Hold)		1 W
Max. operating frequency		300 Hz (at 250Hz with driver board)		150 Hz
IP protection class		IP62		
Weight		35 g		70 g

Features

- Flow rate 100 Nℓ/min.
- Response time < 2ms.
- Product life: 500 million switching cycles.
- Ultra response frequency: 300Hz.

Order example

MVDA — 120 — 2E1 — NC — KK — S

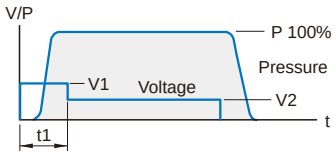
MODEL

BODY WIDTH

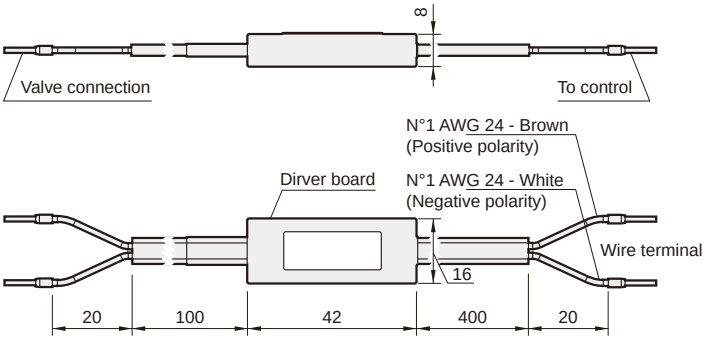
Port	Voltage	Wire
2E1-NC: 2 way (2 port)	**KK**: DC24V / DC5V (Speed-up in tension) Speed-up: DC24V, hold: DC5V	**C**: Without driver board **S**: With driver board (24/5V Signal converter)
3E1-NC: 3 way (3 port)		
3E1-NC: 3 way (3 port)	**DC12**: DC12V	**C**: Without driver board

Electrical control

V1=24V DC
t1=2ms
V2=5V DC

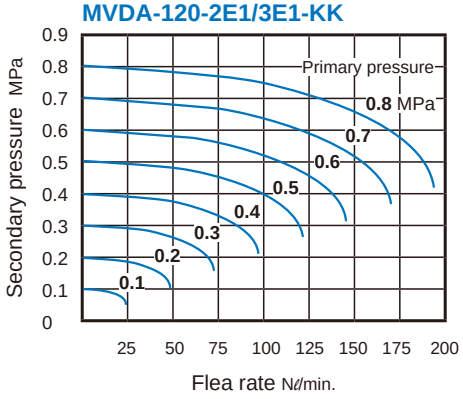


The wire with driver board (S) dimensions

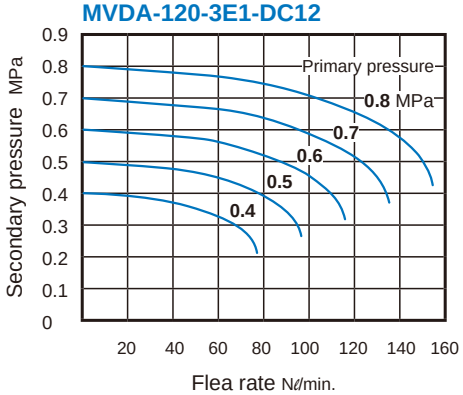


Flow features

MVDA-120-2E1/3E1-KK



MVDA-120-3E1-DC12

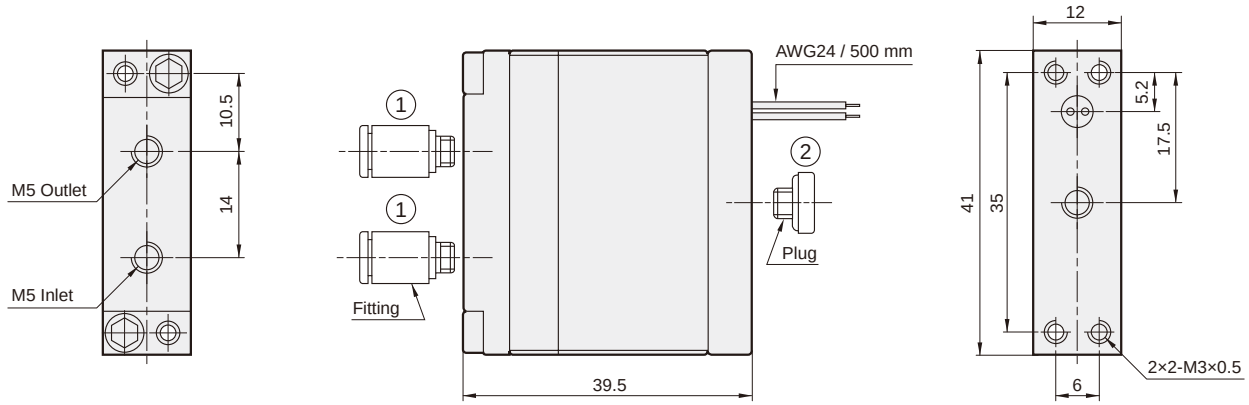


MVDA-120 Dimensions

DIRECT ACTING TYPE **COMPACT SOLENOID VALVE**

mindman

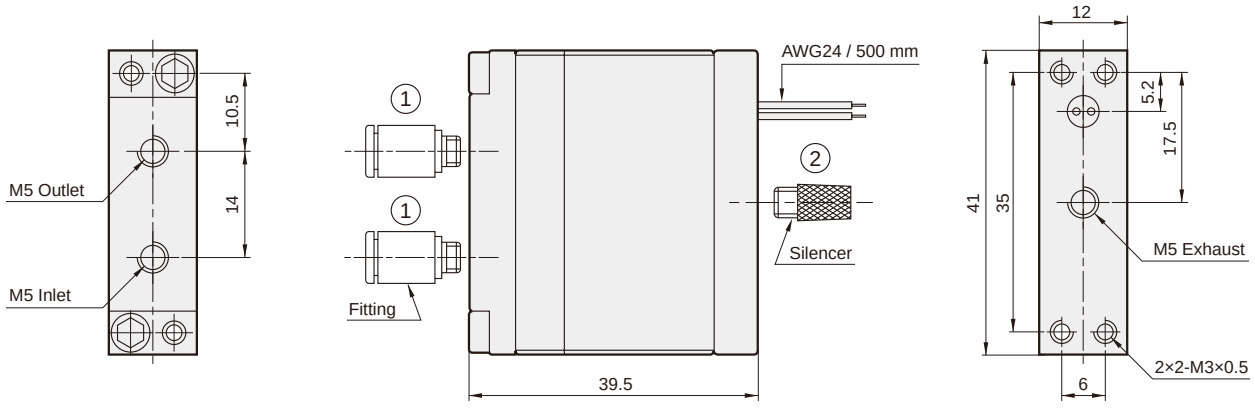
MVDA-120-2E1



Accessories

No.	Quantity	Description
1	2	Fitting ø4
2	1	Plug

MVDA-120-3E1

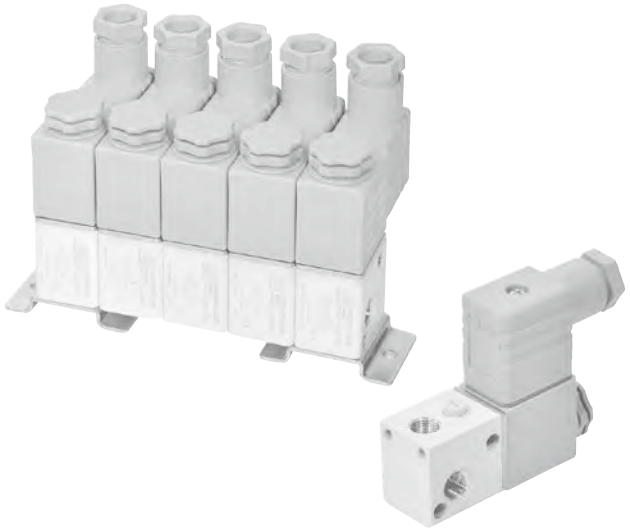


Accessories

No.	Quantity	Description
1	2	Fitting ø4
2	1	Silencer

MVDC-220 series

SOLENOID **VALVE** (DIRECT OPERATED TYPE)



Specification

Model	2E1	3E1
Bore No.	6A	
Port size	Rc1/8	
No. of port	2	3
No. of position	2	
Medium	Air	
Operating perssure range	0~0.7 MPa	
Proof pressure	1 MPa	
Effective orifice	0.8 mm^2	
Reponse time	20 ms	
Ambient temperature	-5~+50°C (No freezing)	
Voltage	AC110V, 220V (50/60)Hz, DC24V	
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W	
Available voltage range	±10%	
Insulation class	F class	
Weight	155 g	

Order example of valve

MVDC — 220 — 3E1 — AC110 — L — G

- MODEL
- BODY WIDTH
- **2**: 2 way (2 port)
  3: 3 way (3 port)
- **E1**: Single Solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- ELECTRIC CONNECTION
  Blank: DIN terminal
  L: DIN terminal with LED indicator
  E: Explosion protection (Table 1)
  (**E** type use black coil)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of manifold screw set

MVDC — 220 — M2

- MODEL
- MANIFOLD SCREW SET
- MANIFOLD NUMBER
  2, 3, 4...

Order example of bracket

MVDC — 220 — B

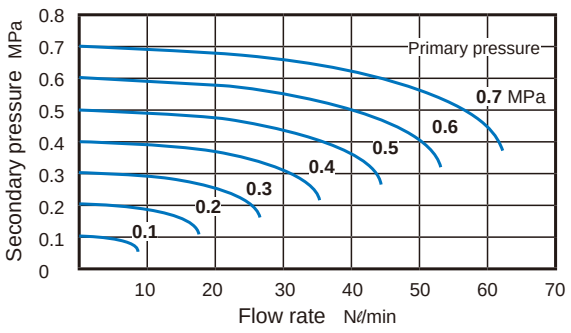
- MODEL
- BRACKET

Table 1

Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

Flow features



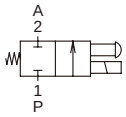
MVDC-220 Dimensions / Mounting accessories

SOLENOID **VALVE** (DIRECT OPERATED TYPE)

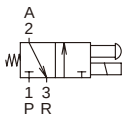
mindman

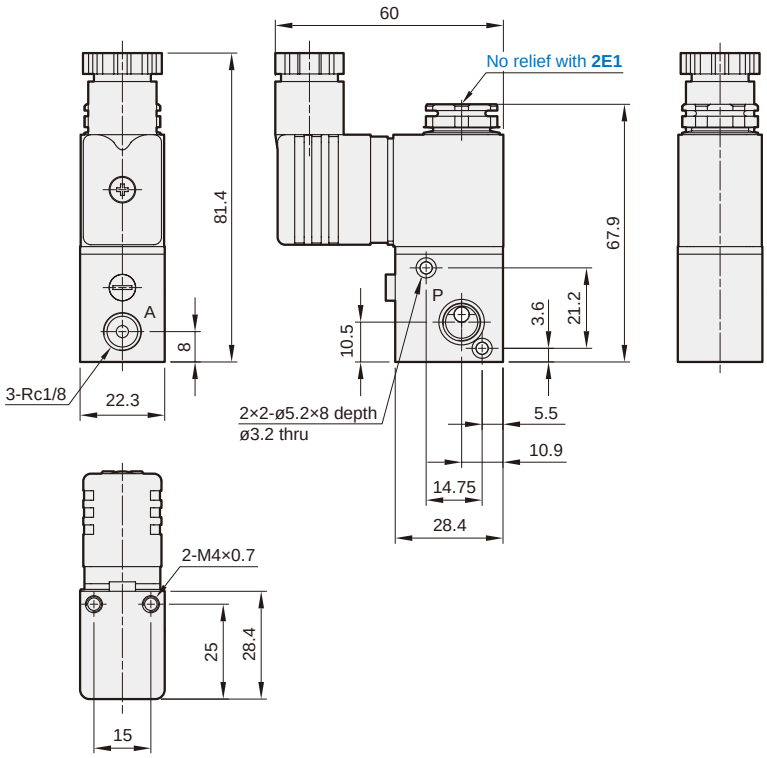
MVDC-220

2E1



3E1

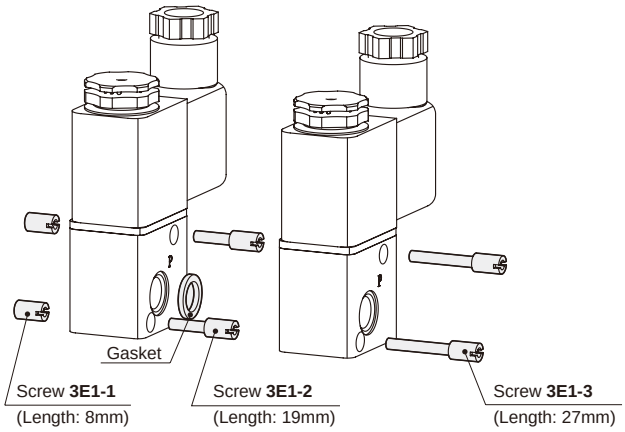




Mounting accessories

MVDC-220-M*

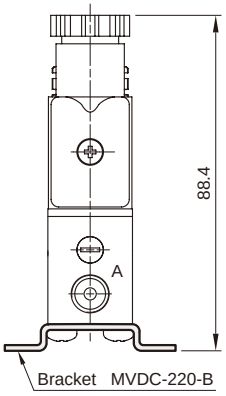
Manifold screw set

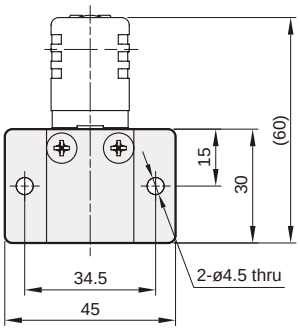


1. Screw 3E1-1 & screw 3E1-2: for the first station.
2. Gasket & Screw 3E1-3: for the second and other station.

MVDC-220-B

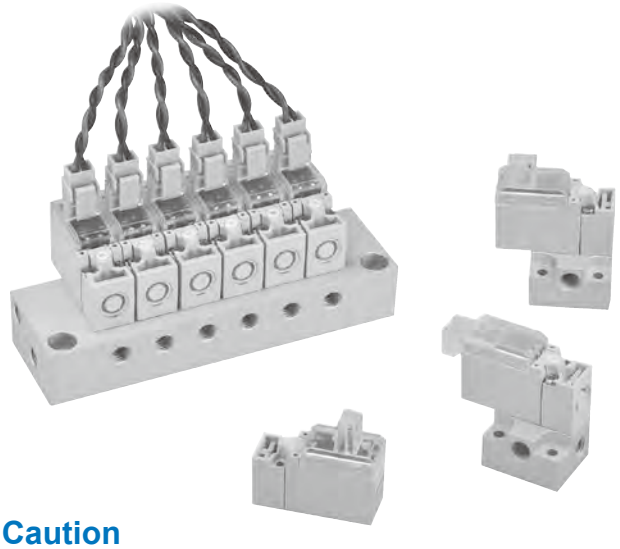
Bracket





MVDY-100 series

SOLENOID **VALVE** (DIRECT OPERATED TYPE)



Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Specification

Model	3E1	3E1-**-A	3E1-DC24L-A
No. of port	3		
No. of position	2		
Medium	Air		
Operating perssure range	0~0.7 MPa	0~0.9 MPa	0~0.85 MPa
Proof pressure	1 MPa		
Effective orifice P→A	0.28 mm^2	0.09 mm^2	
Effective orifice A→R	0.35 mm^2		
Reponse time	DC: 4 ms, AC: 20ms		
Max. operating frequency	5 Hz		
Ambient temperature	+5~+50°C		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		DC24/12V
Power consumption	AC=1.6/2.5VA, DC=1.2W		0.55W
Available voltage range	±10%		
Insulation class	B class		
Weight	12 g		

* Pressure is 0.5 MPa, at rated voltage.
* LED indicator as standard.

Order example of valve

MVDY — 100 — 3E1 — AC110 □ — LJ1 — A — M3

- MODEL
- BODY WIDTH
- **3**: 3way (3 port)
  - **E1**: Single Solenoid
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
  - **DC12**V
  - **DC6**V
- POWER CONSUMPTION (Only for DC12/24V)
  - Blank: 1.2W
  - **L**: 0.55W (*)
- Blank: Large flow capacity
  A: Standard flow capacity (*)
  * Power consumption (L) only for standard flow capacity (A).
- ELECTRIC CONNECTION
  - **LJ**: Plug on side (*1)
  - **LR**: Plug on side (*2)
  - **SR**: Plug on Top (*2)
- WIRE LENGTH
  - Blank: 500mm
  - **1**: 1000mm
  - **2**: 2000mm
  - **3**: 3000mm
- SYMBOL OF ASSEMBLY
  - **B1**: Assembly (Base+Valve)
  - **M**□: 2,3 manifold number Assembly (Manifold+Valve)

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

EX

Valve
MVDY-100-3E1-AC220-LJ1-A × 1 pc.

Assembly (5 valve + 5 manifold)
MVDY-100-3E1-AC220-LR2-M5 × 1 set

Order example of base

MVDY — 100 — 3B1

- MODEL
- BASE
  - **3B**: 3 port base

Order example of manifold

MVDY — 100 — 3M2

- MODEL
- MANIFOLD
  - **3M**: 3 port (for manifold type)
- MANIFOLD NUMBER
  - **2, 3, 4...**

Order example of wire

MVDY — 100 — WA2J2

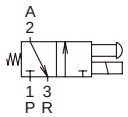
- MODEL
- VOLTAGE
  - **A2**: AC220V(50/60)Hz
  - **A1**: AC110V(50/60)Hz
  - **D**: DC24V/12V/6V
- WIRE
  - **J**: JPC type
  - **R**: RMH type
- WIRE LENGTH
  - Blank: 500mm
  - **1**: 1000mm
  - **2**: 2000mm
  - **3**: 3000mm

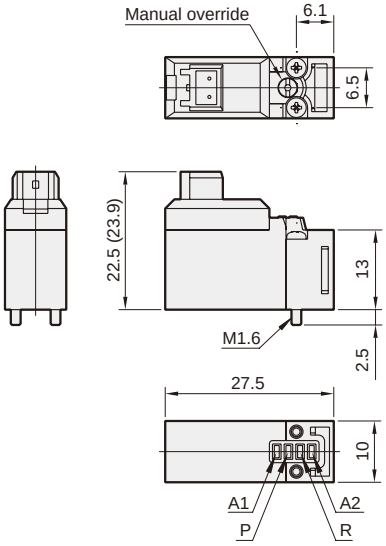
MVDY-100 Dimensions

SOLENOID **VALVE** (DIRECT OPERATED TYPE)

MVDY-100-3E1

( ): Dimension for **LJ** plug type.

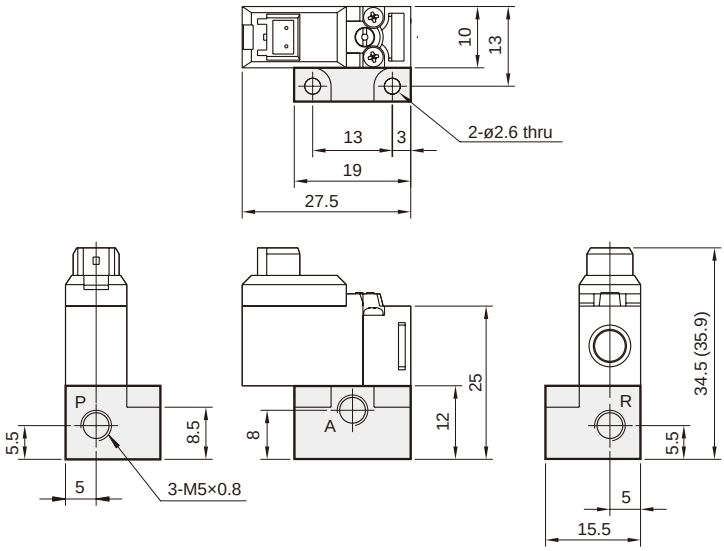




MVDY-100-3B1

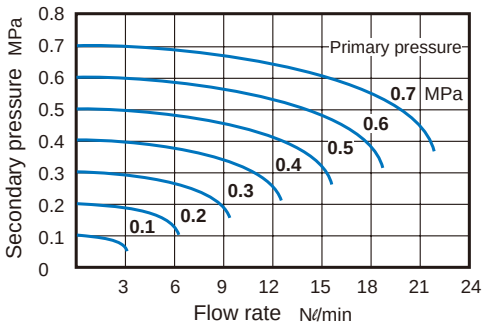
3 port base

( ): Dimension for **LJ** plug type.

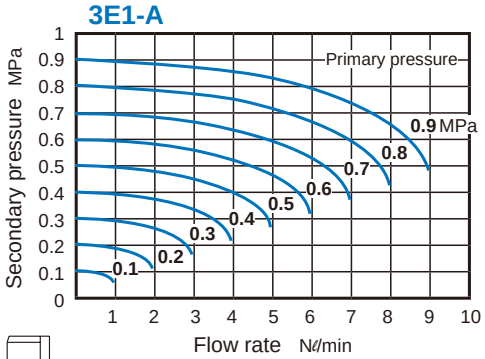


Flow features

3E1



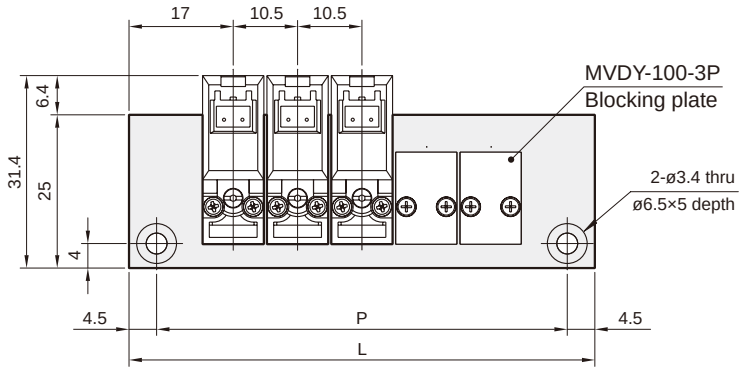
3E1-A

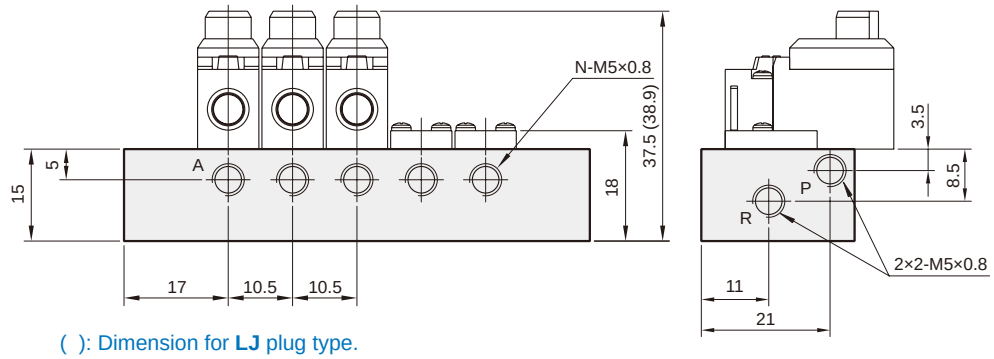


Manifold of solenoid valve

MVDY-100-3M*

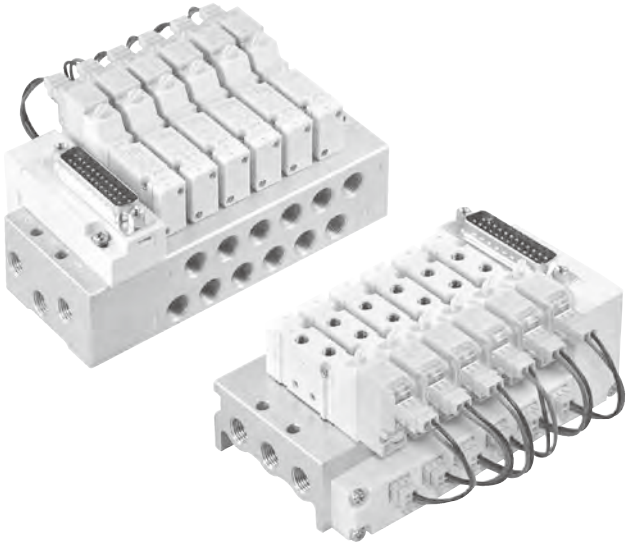
3 port (for manifold type)





( ): Dimension for **LJ** plug type.

No. of stations (N)	P	L
2	35.5	44.5
3	46	55
4	56.5	65.5
5	67	76
6	77.5	86.5
7	88	97
8	98.5	107.5
9	109	118
10	119.5	128.5

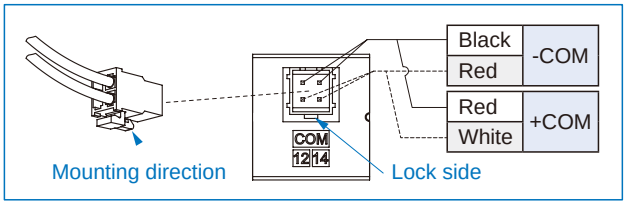


Specification

- 25-Pin D-sub connector.
- Simple electric wire system.
- Max. operating frequency: 5Hz.

Remark

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.
- Maximum stations
  4E1: 12 stations
  4E2 & 4EC.P.R: 11 stations
- For MVSY-100 series solenoid valve only (Only with LJ plug type).



* PLC type (PNP output) is applied to −COM.
* PLC type (NPN output) is applied to +COM

Order example (Multi connector system)

MVB — 100M — 5M4 □ — SSDC — DC24 — D — G

- MODEL
- BODY WIDTH
  - Blank: Body ported type
  - **M**: Manifold type
- MANIFOLD NUMBER
  - **2, 3, 4..., 12**
- MANIFOLD
  - **5B**: 5 port (for body ported type)
  - **5M**: 5 port (for manifold type)
- COM SPEC.
  - Blank: -COM
  - **N**: +COM
- SOLENOID VALVE

S	**4E1**: 5/2 Single solenoid
D	**4E2**: 5/2 Double solenoid
C	**4E2C**: 5/3 Double solenoid
P	**4E2P**: 5/3 Double solenoid
R	**4E2R**: 5/3 Double solenoid
B	Blocking plate

* Valves are assembled from the D-sub side.

- VOLTAGE
  - **DC24**V
  - **DC12**V
  - **DC6**V
- CABLE
  - Blank: Without
  - **D**: With D-sub cable (Cable length 3m)
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

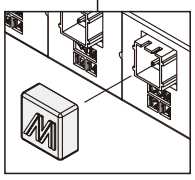
Order example of circuit board and manifold

MVB — 100M — 5B3 — G

- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  - **5B**: 5 port (for body ported type)
  - **5M**: 5 port (for manifold type)
- MANIFOLD NUMBER
  - **2, 3, 4..., 12**
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Order example of protective plate

MVB — 100 — P



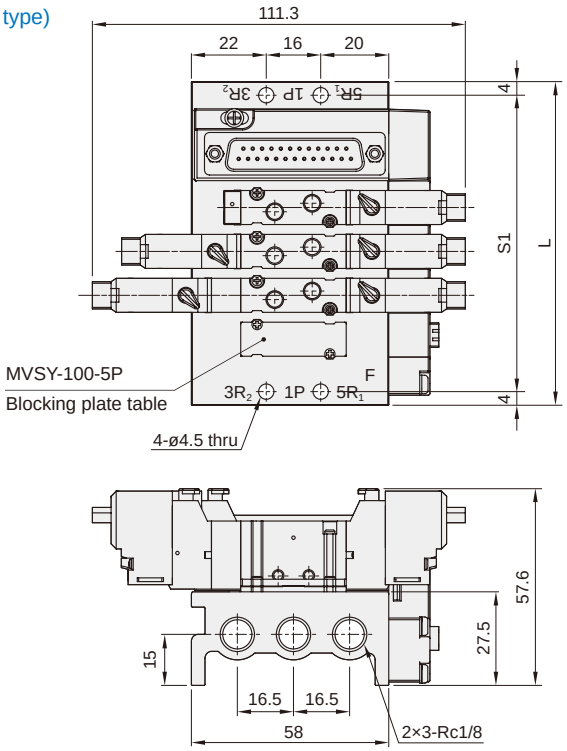
Order example of cable

MVB — 100 — D

- D-SUB CABLE

MVB-100-5B*

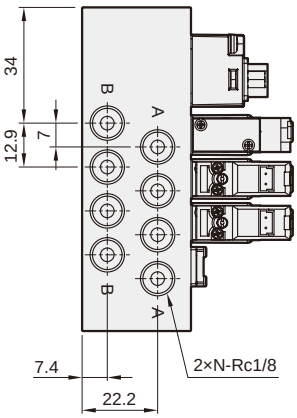
5 port (for body ported type)

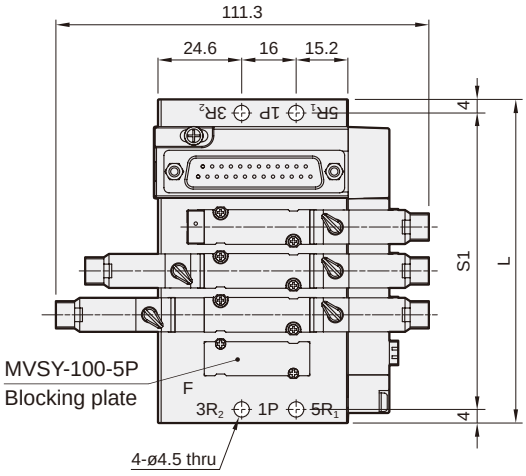


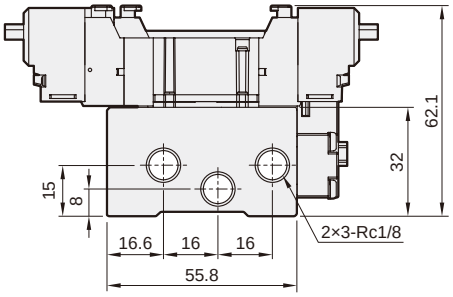
No. of stations	L	S1
2	69.3	61.3
3	82.2	74.2
4	95.1	87.1
5	108	100
6	120.9	112.9
7	133.8	125.8
8	146.7	138.7
9	159.6	151.6
10	172.5	164.5
11	185.4	177.4
12	198.3	190.3

MVB-100M-5M*

5 port (for manifold type)







No. of stations (N)	L	S1
2	69.3	61.3
3	82.2	74.2
4	95.1	87.1
5	108	100
6	120.9	112.9
7	133.8	125.8
8	146.7	138.7
9	159.6	151.6
10	172.5	164.5
11	185.4	177.4
12	198.3	190.3

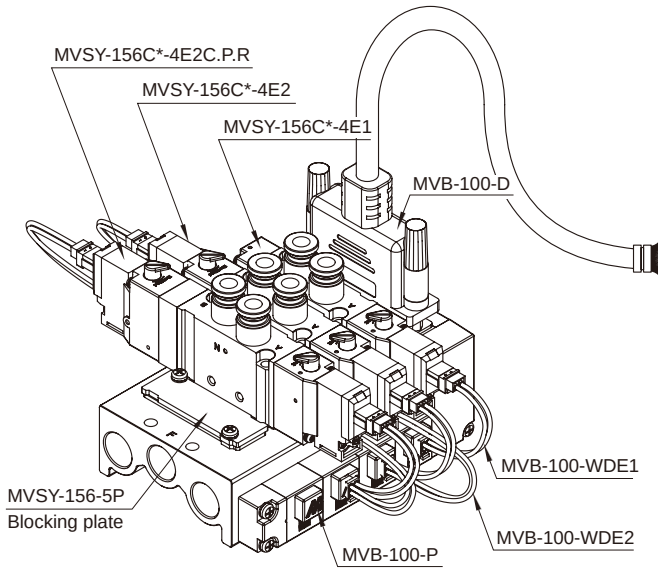
Order example of wire

* **MVB-100, MVB1-100** and **MVB-156** use the same accessories.

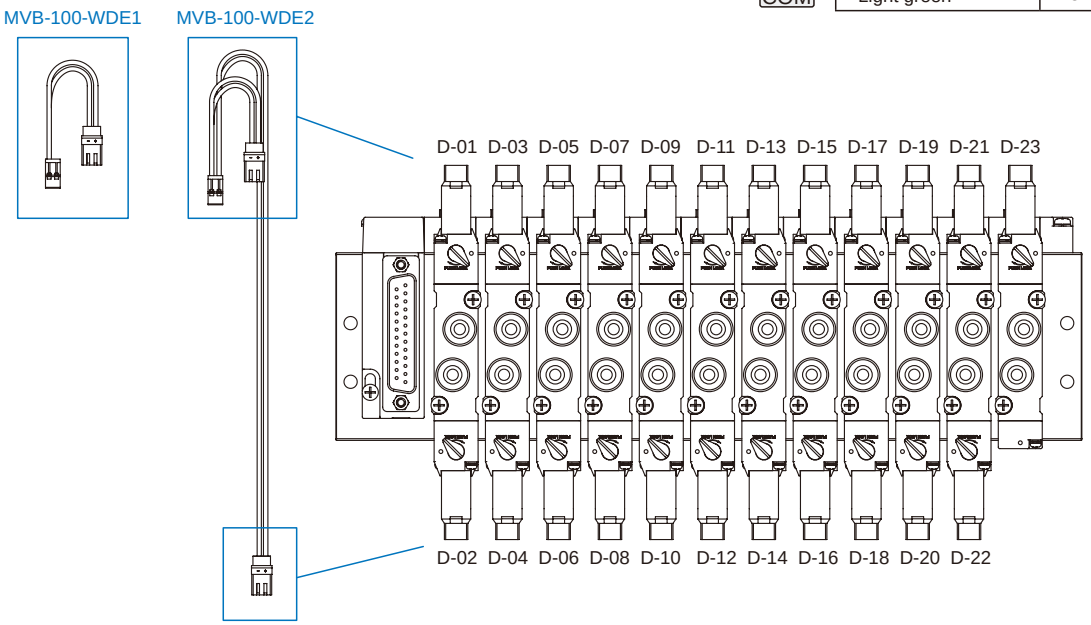
MVB — 100 — □ — WDE1

MODEL	COM SPEC.	WIRE TYPE
	Blank: -COM **N**: +COM	**E1**: for **4E1** valves **E2**: for **4E2** valves

25 PIN



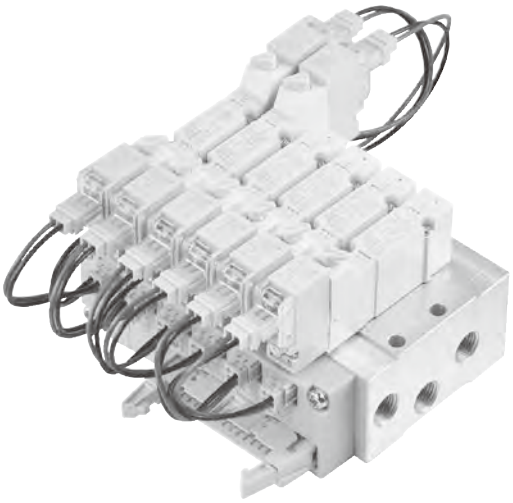
Wire color	Pin No.	Coil No.
Brown	1	D-01
Purple / white	14	D-02
Brown / white	2	D-03
Gray	15	D-04
Red	3	D-05
Gray / black	16	D-06
Red / black	4	D-07
White	17	D-08
Orange	5	D-09
White / black	18	D-10
Orange / black	6	D-11
Pink	19	D-12
Yellow	7	D-13
Pink / black	20	D-14
Yellow / black	8	D-15
White / red	21	D-16
Green	9	D-17
White / blue	22	D-18
Green / black	10	D-19
Light blue	23	D-20
Blue	11	D-21
Light blue / black	24	D-22
Blue / white	12	D-23
Purple	13	COM
Light green	25	COM



MVB1-100 series

MULTI **CONNECTOR SYSTEM** (FLAT CABLE TYPE)

mindman

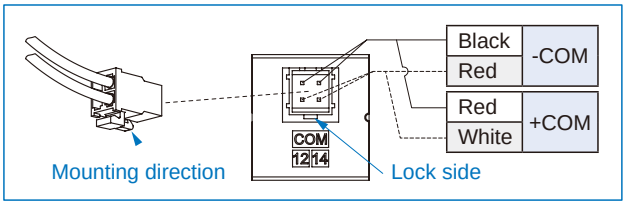


Specification

- 26-Pin flat connector.
- Simple electric wire system.
- Max. operating frequency: 5Hz.

Remark

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.
- Maximum stations: 12
  Minimum stations: 5
- For MVSY-100 series solenoid valve only (Only with LJ plug type).



* PLC type (PNP output) is applied to −COM.
* PLC type (NPN output) is applied to +COM.

Order example (Multi connector system)

MVB1 — 100M — 5M5 □ — SSDC — DC24 □ — F — G

- MODEL
- BODY WIDTH: 100M
- MANIFOLD: **5M**: 5 port (for manifold type); **M**: Manifold type
- MANIFOLD NUMBER: **5, 6, 7... 12**; * Maximum stations: 12, Minimum stations: 5
- COM SPEC.: Blank: -COM; **N**: +COM
- SOLENOID VALVE

S	**4E1**: 5/2 Single solenoid
D	**4E2**: 5/2 Double solenoid
C	**4E2C**: 5/3 Double solenoid
P	**4E2P**: 5/3 Double solenoid
R	**4E2R**: 5/3 Double solenoid
B	Blocking plate

- VOLTAGE: **DC24**V; **DC12**V; **DC6**V
- POWER CONSUMPTION: (Only for **DC12/24**V); Blank: 1.2W; **L**: 0.55W
- CABLE: Blank: Without; **F**: With flat cable (Cable length 3m)
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

* Valves are assembled from the flat cable side.

Order example of circuit board and manifold

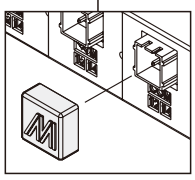
MVB1 — 100M — 5M6 — G

- MODEL
- M: Manifold type
- MANIFOLD: **5M**: 5 port (for manifold type)
- MANIFOLD NUMBER: **5, 6, 7... 12**
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

Order example of protective plate

* Use the same accessories with MVB-100.

MVB — 100 — P



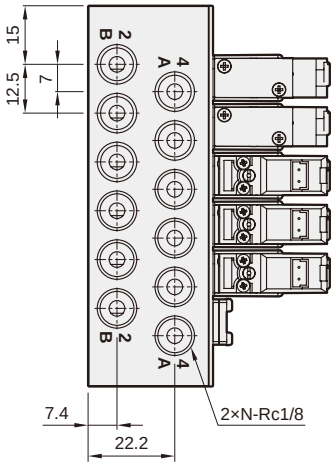
Order example of cable

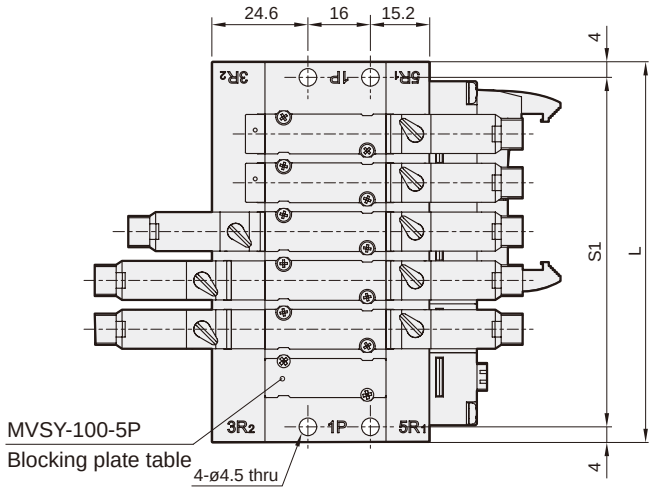
MVB1 — 100 — F

- FLAT CABLE

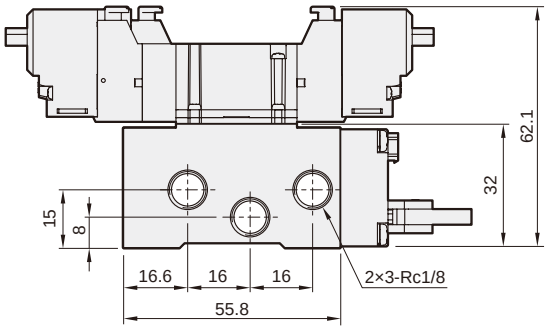
MVB1-100M-5M*

5 port (for manifold type)





No. of stations (N)	L	S1
5	85	77
6	97.5	89.5
7	110	102
8	122.5	114.5
9	135	127
10	147.5	139.5
11	160	152
12	172.5	164.5



MVB1-100 Order example of wire

MULTI **CONNECTOR SYSTEM** (FLAT CABLE TYPE)

mindman

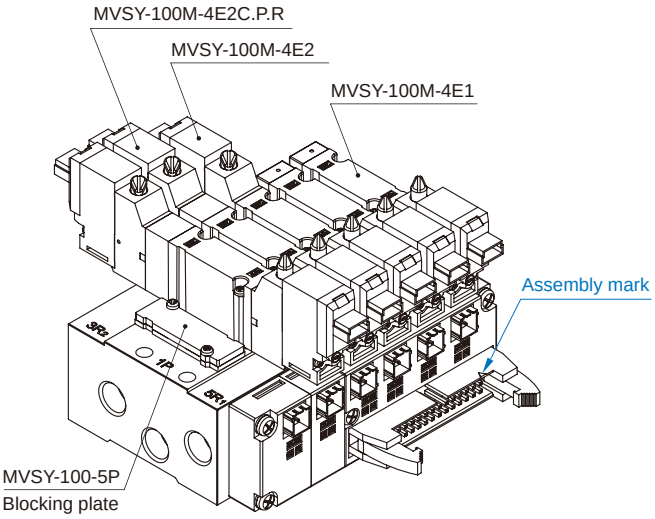
Order example of wire

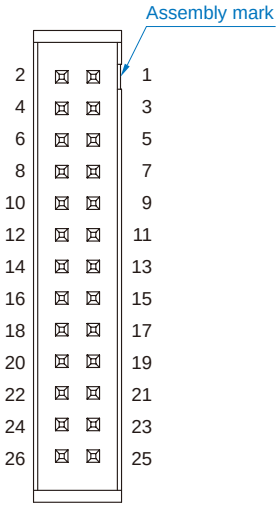
* **MVB-100, MVB1-100** and **MVB-156** use the same accessories.

MVB — 100 — □ — WDE1

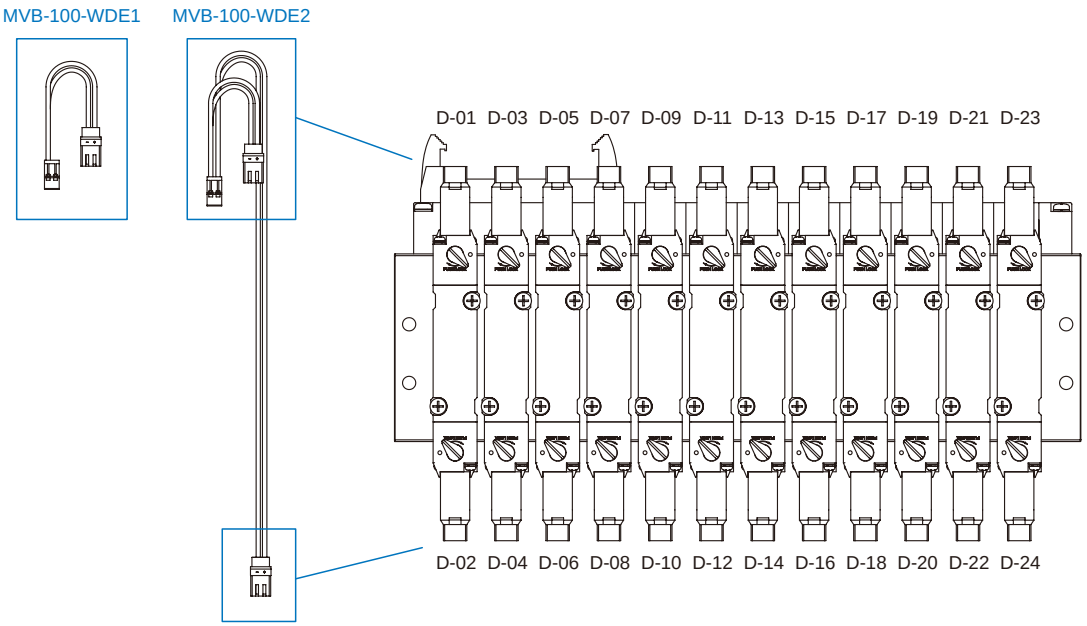
- MODEL
- COM SPEC.
  Blank: -COM
  N: +COM
- WIRE TYPE
  E1: for **4E1** valves
  E2: for **4E2** valves

26 PIN



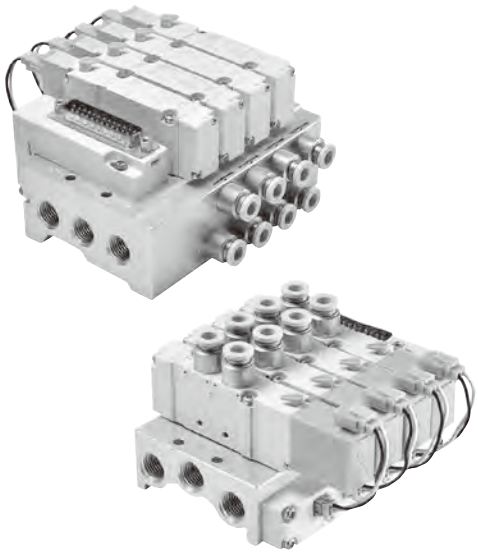


Pin No.	Coil No.
1	D-01
2	D-02
3	D-03
4	D-04
5	D-05
6	D-06
7	D-07
8	D-08
9	D-09
10	D-10
11	D-11
12	D-12
13	D-13
14	D-14
15	D-15
16	D-16
17	D-17
18	D-18
19	D-19
20	D-20
21	D-21
22	D-22
23	D-23
24	D-24
25	COM
26	COM



MVB-156 series

MULTI **CONNECTOR SYSTEM**

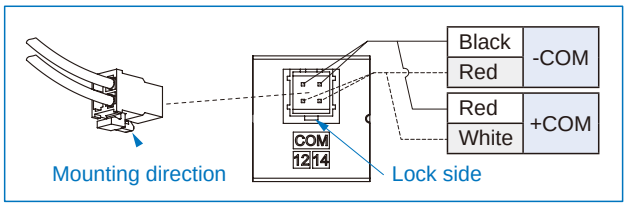


Specification

- 25-Pin D-sub connector.
- Simple electric wire system.
- Max. operating frequency: 5Hz.

Remark

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.
- Maximum stations
  4E1: 12 stations
  4E2 & 4E2C.P.R: 11 stations
- For MVSY-156 series solenoid valve only (Only with LJ plug type).
- For MVSP-156 series solenoid valve only (Only with H plug type).



* PLC type (PNP output) is applied to −COM.
* PLC type (NPN output) is applied to +COM.

Order example (Multi connector system)

MVB — 156M4 — 5B4 □ □ — SSDC — DC24 — D — G

- MODEL
- BODY WIDTH
- MANIFOLD NUMBER: **2, 3, 4..., 12**
- SOLENOID VALVE TYPE: Blank: MVSY-156; **P**: MVSP-156
- VOLTAGE: **DC24**V; **DC12**V
- CABLE: Blank: Without; **D**: With D-sub cable (Cable length 3m)
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

MANIFOLD
5B: 5 port (for body ported type)
5M: 5 port (for manifold type)

C4: Body ported type with tube fitting (dia. ø4mm)
C6: Body ported type with tube fitting (dia. ø6mm)
C8: Body ported type with tube fitting (dia. ø8mm)
M4: Manifold type with tube fitting (dia. ø4mm)
M6: Manifold type with tube fitting (dia. ø6mm)
M8: Manifold type with tube fitting (dia. ø8mm)

COM SPEC.
Blank: -COM
N: +COM

CODE

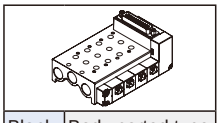
S	**4E1**: 5/2 Single solenoid
D	**4E2**: 5/2 Double solenoid
C	**4E2C**: 5/3 Double solenoid
P	**4E2P**: 5/3 Double solenoid
R	**4E2R**: 5/3 Double solenoid
B	Blocking plate

* Valves are assembled from the D-sub side.

Order example of circuit board and manifold

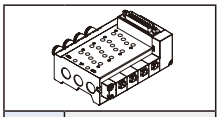
MVB — 156M4 — 5M3 — G

- MODEL
- Body ported type



Blank	Body ported type

Manifold type with tube fitting



M4	dia. ø4mm
M6	dia. ø6mm
M8	dia. ø8mm

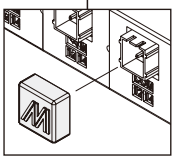
- MANIFOLD NUMBER: **2, 3, 4..., 12**
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread
- MANIFOLD: **5B**: 5 port (for body ported type); **5M**: 5 port (for manifold type)

Order example of protective plate

* Use the same accessories with MVB-100.

MVB — 100 — P

- MODEL



Order example of cable

MVB — 100 — D

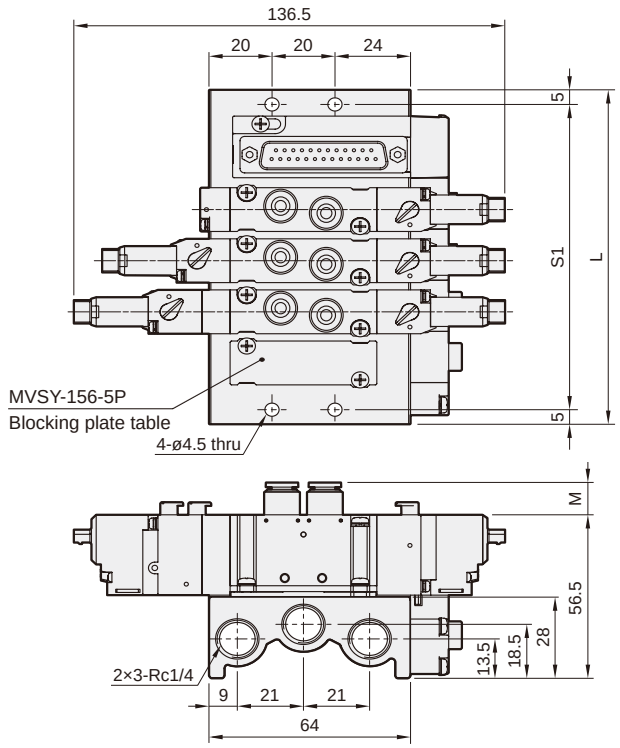
- MODEL
- D-SUB CABLE

Order example of wire

* Use the same wire with MVB-100, please refer to page 1-100.

MVB-156C*-5B*

5 port (for body ported type)

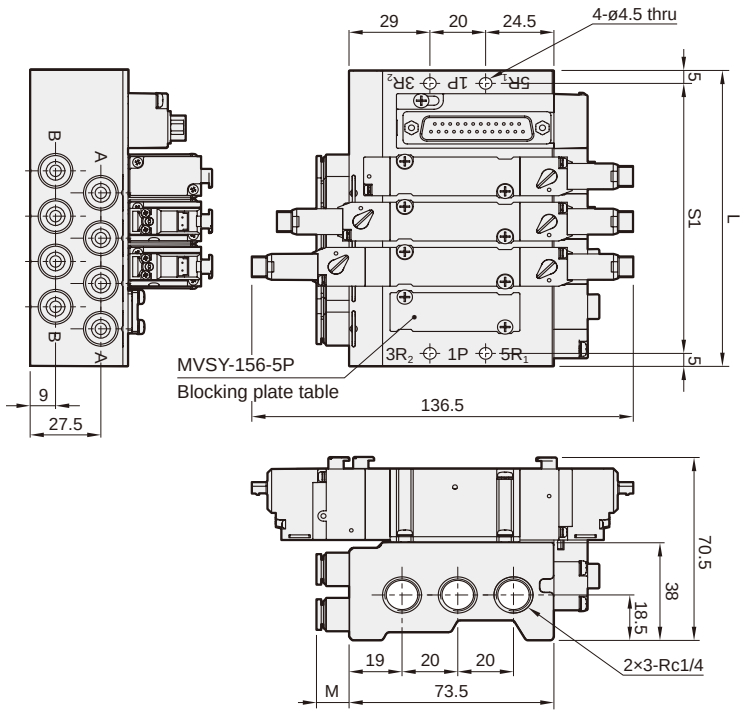


No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVB-156M*-5M*

5 port (for manifold type)

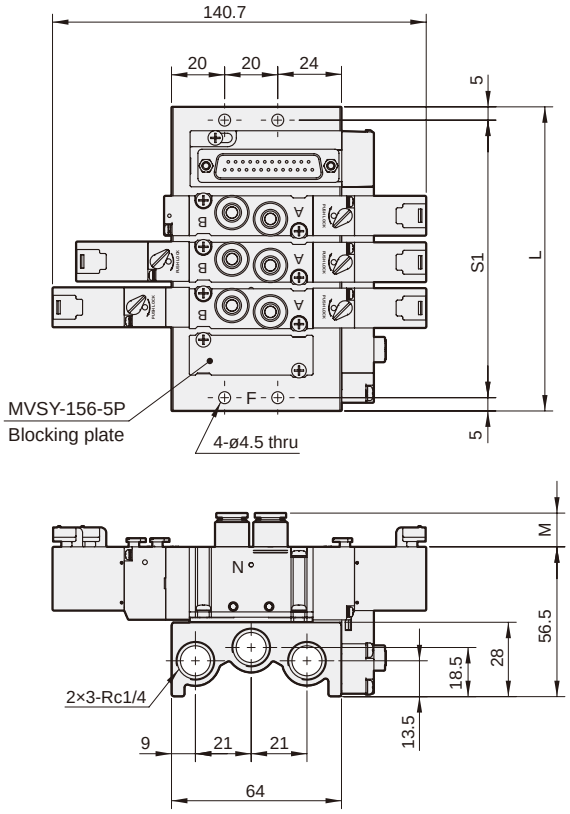


No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVB-156C*-5B*P*

5 port (for body ported type)

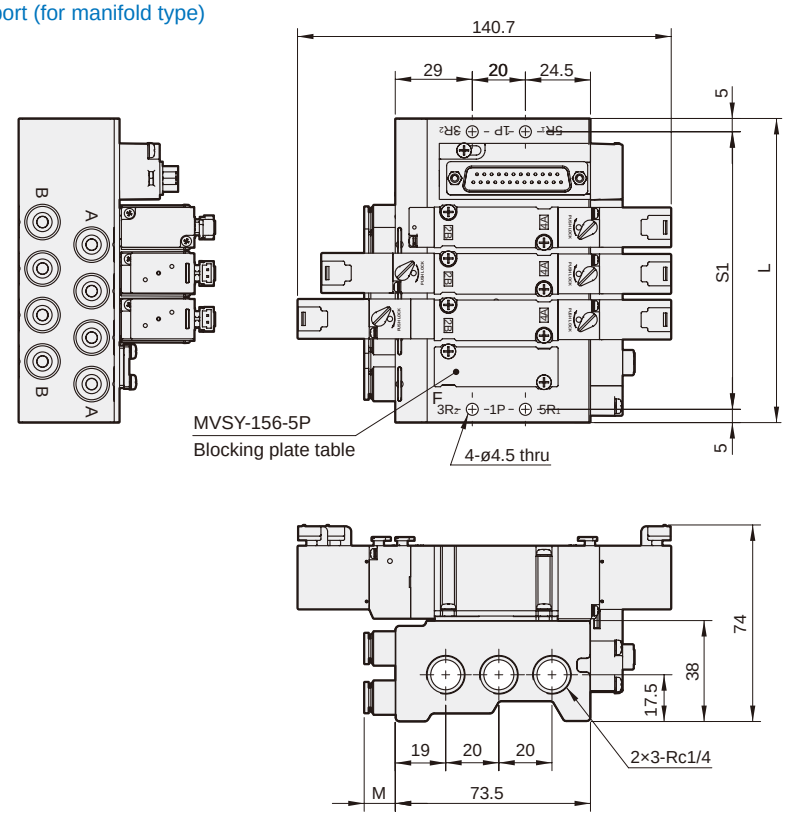


No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVB-156M*-5M*P*

5 port (for manifold type)



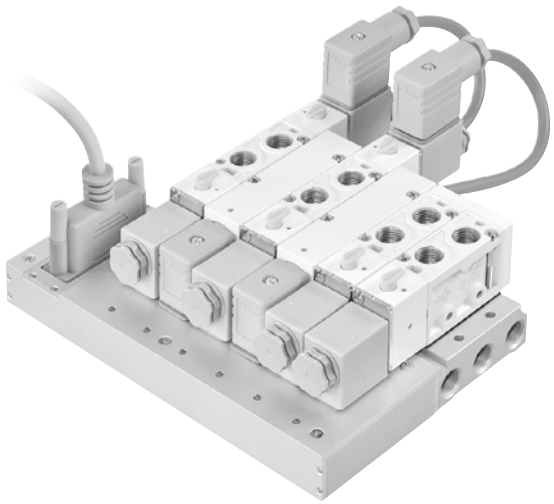
No. of stations	L	S1
2	79.5	69.5
3	97	87
4	114.5	104.5
5	132	122
6	149.5	139.5
7	167	157
8	184.5	174.5
9	202	192
10	219.5	209.5
11	237	227
12	254.5	244.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVB series

MULTI CONNECTOR SYSTEM

mindman



Specification

- DC24V
- 25 Pin D-sub connector (cable length 3m).
- Simple electric wire system.

Remark

- MVB-300, 460 series is available in 3-station~12-station manifold.
- Individual manifold can be ordered. EX: MVB-220-5B5-G.
- Maximum number of stations is 20 and please contact sales people before ordering.
- Please contact sales people for the manifold for 3/2 valves.

Order example (Multi connector system)

MVB — 220 — 5B6 — SSDC — G

MODEL

BODY WIDTH
220: for MVSC-220 series
300: for MVSC-300 series
460: for MVSC-460 series

MANIFOLD
3B: 3 port (for body ported type)
5B: 5 port (for body ported type)

MANIFOLD NUMBER
2, 3, 4..., 12

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

SOLENOID VALVE (for 5B)

S	**4E1**: 5/2 Single solenoid
D	**4E2**: 5/2 Double solenoid
C	**4E2C**: 5/3 Double solenoid
P	**4E2P**: 5/3 Double solenoid
R	**4E2R**: 5/3 Double solenoid
B	Blocking plate

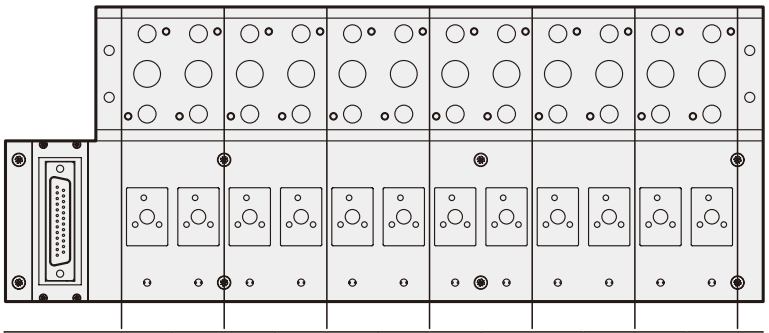
SOLENOID VALVE (for 3B)

C	**3E1-NC**: 3/2 Single solenoid / Normally closed
O	**3E1-NO**: 3/2 Single solenoid / Normally open
D	**3E2**: 3/2 Double solenoid
B	Blocking plate

* Every double solenoid valve requires 2 stations on the manifold. (One is for the valve and another is for the adapter)
* Valves are assembled from the D-sub side.

Valves assembled

Left → Right



No. of stations (N)	1	2	3	4	5	6	7	8	9	10	11	12	
EX.1	S	S	S	S	S	S	D		D		C		
EX.2	S	S	D		D		C		P		R		

* EX.1 5B12-SSSSSSDDC
* EX.2 5B12-SSDDCPR

Order example (Solenoid valve)

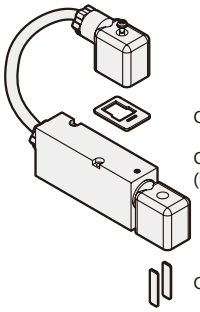
MVSC — 220 — 4E2C — DC24 — N — G

- MODEL
- BODY WIDTH
  - **220**
  - **300**
  - **460**
- 5/2 Single solenoid — **4E1**
- 3/2 Single solenoid/ Normally closed — **3E1-NC**
- 5/2 Double solenoid — **4E2**
- 3/2 Single solenoid/ Normally open — **3E1-NO**
- 5/3 Double solenoid — **4E2C.P.R**
- 3/2 Double solenoid — **3E2**
- VOLTAGE
- **N**: No connector
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Order example (Adapter for a double solenoid valve)

MVB — 220 — 5T

- MODEL
- BODY WIDTH
  - **220**: for MVSC-220 series
  - **300**: for MVSC-300 series
  - **460**: for MVSC-460 series
- **3T**: Adapter for a 3-port double solenoid valves.
- **5T**: Adapter for a 5-port double solenoid valves.

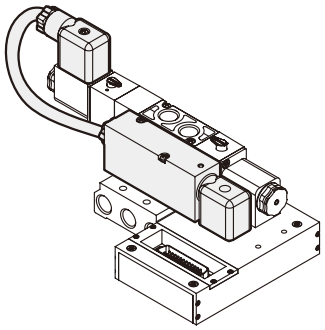


Gasket for connector × 1

Connector × 1 (includes adapter)

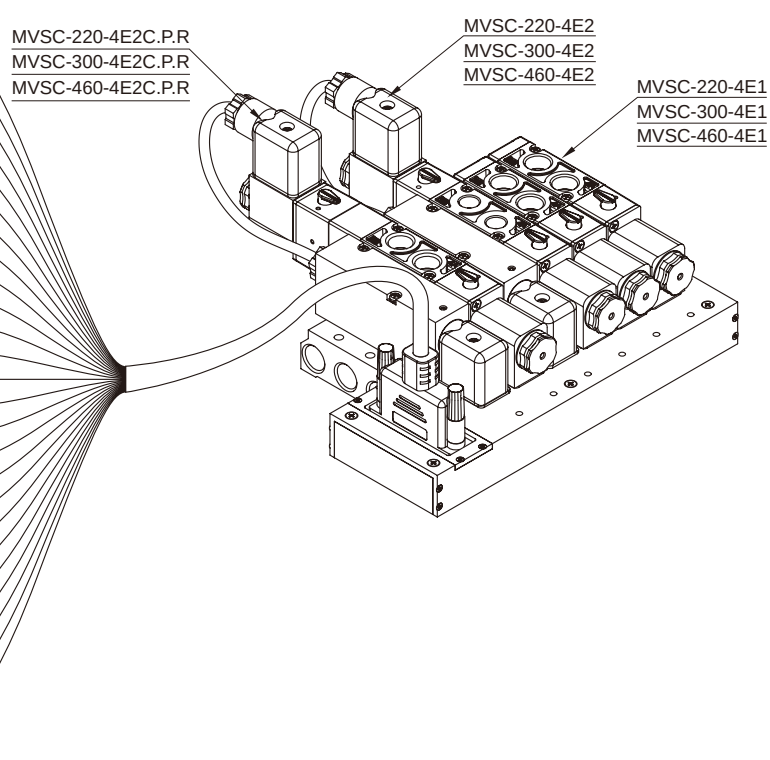
Connection pin × 2

Ex



25 PIN

Wire color	Pin No.	Coil No.	
Brown	1	D-01	D-01
Brown / white	2	D-02	D-02
Red	3	D-03	D-03
Red / black	4	D-04	D-04
Orange	5	D-05	D-05
Orange / black	6	D-06	D-06
Yellow	7	D-07	D-07
Yellow / black	8	D-08	D-08
Green	9	D-09	D-09
Green / black	10	D-10	D-10
Blue	11	D-11	D-11
Blue / white	12	D-12	D-12
Purple / white	14	D-13	D-13
Gray	15	D-14	D-14
Gray / black	16	D-15	D-15
White	17	D-16	D-16
White / black	18	D-17	D-17
Pink	19	D-18	D-18
Pink / black	20	D-19	D-19
White / red	21	D-20	D-20
White / blue	22	D-21	D-21
Light blue	23	D-22	D-22
Light blue / black	24	D-23	D-23
Purple	13	COM	COM
Light green	25	COM	COM



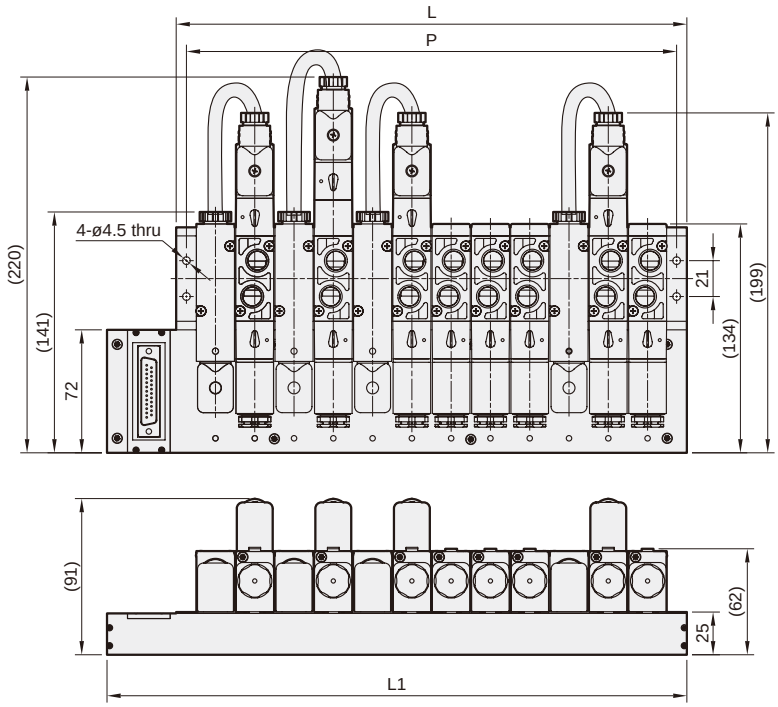
MVB-220 Dimensions

MULTI **CONNECTOR SYSTEM**

mindman

MVB-220-5B*

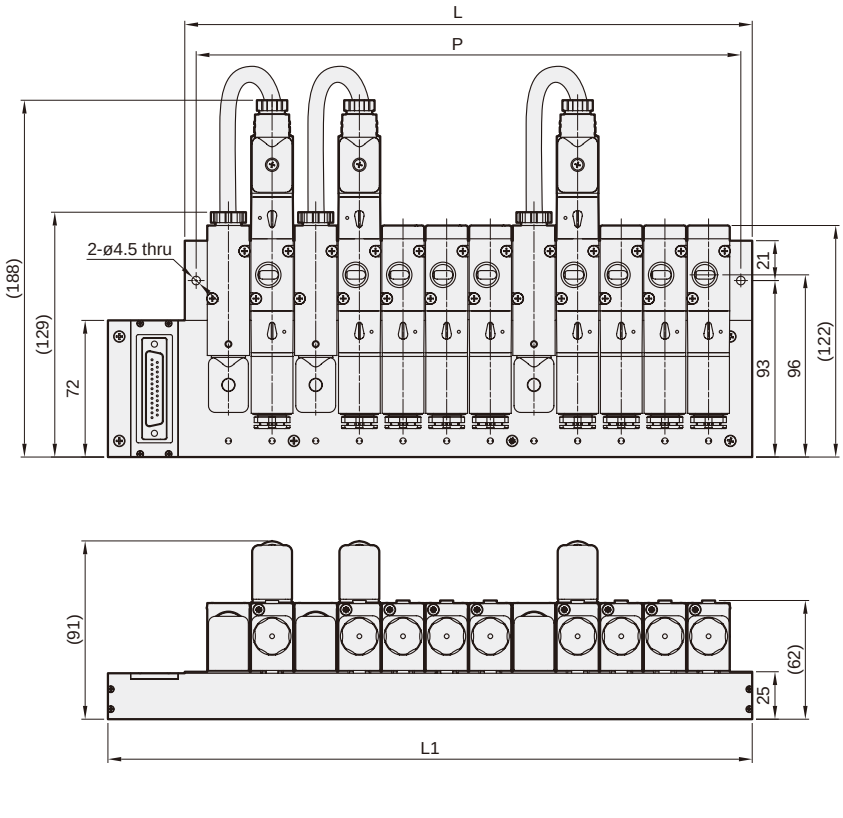
5 port (for body ported type)



No. of stations	L	L1	P
2	69	109.5	57
3	92	132.5	80
4	115	155.5	103
5	138	178.5	126
6	161	201.5	149
7	184	224.5	172
8	207	247.5	195
9	230	270.5	218
10	253	293.5	241
11	276	316.5	264
12	299	339.5	287

MVB-220-3B*

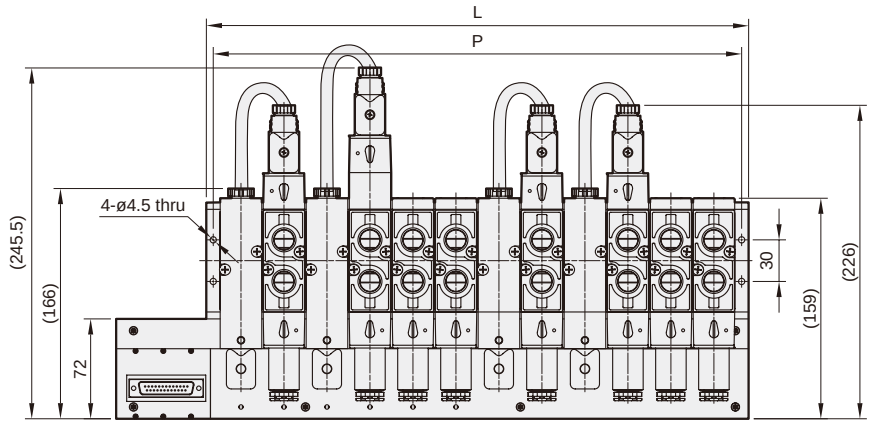
3 port (for body ported type)



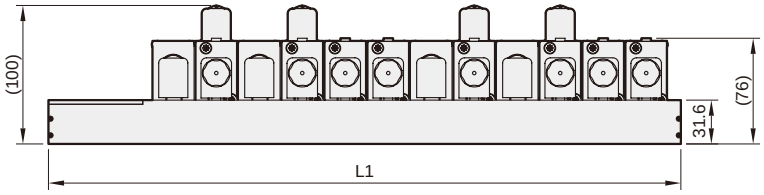
No. of stations	L	L1	P
2	69	109.5	57
3	92	132.5	80
4	115	155.5	103
5	138	178.5	126
6	161	201.5	149
7	184	224.5	172
8	207	247.5	195
9	230	270.5	218
10	253	293.5	241
11	276	316.5	264
12	299	339.5	287

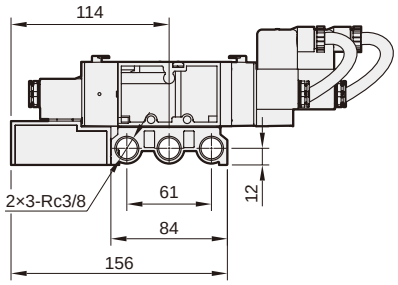
MVB-300-5B*

5 port (for body ported type)



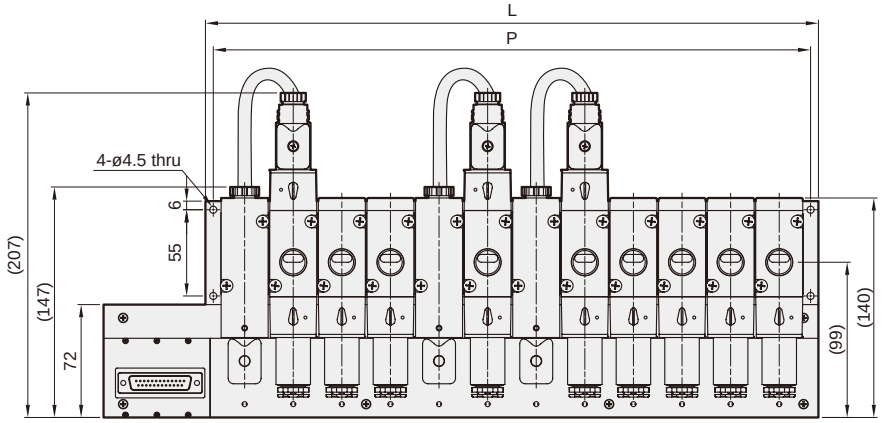
No. of stations	L	L1	P
3	112	177	102
4	143	208	133
5	174	239	164
6	205	270	195
7	236	301	226
8	267	332	257
9	298	363	288
10	329	394	319
11	360	425	350
12	391	456	381



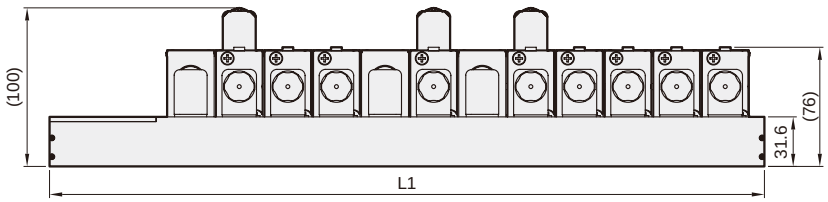


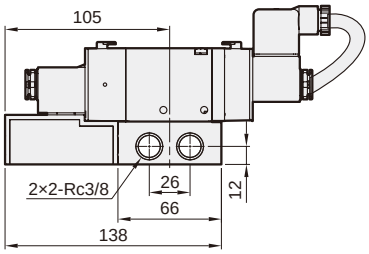
MVB-300-3B*

3 port (for body ported type)



No. of stations	L	L1	P
3	112	177	102
4	143	208	133
5	174	239	164
6	205	270	195
7	236	301	226
8	267	332	257
9	298	363	288
10	329	394	319
11	360	425	350
12	391	456	381



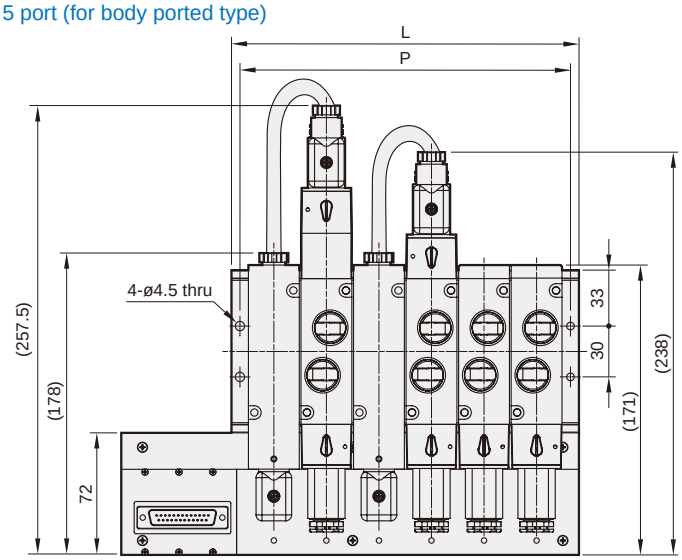


MVB-460 Dimensions

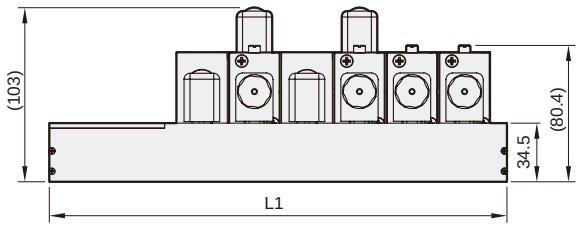
MULTI CONNECTOR SYSTEM

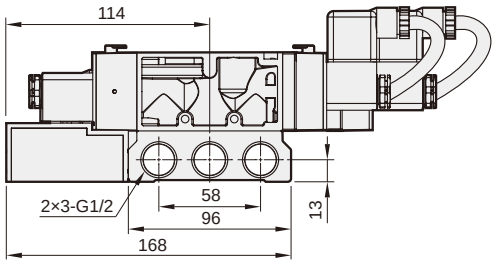
MVB-460-5B*

5 port (for body ported type)



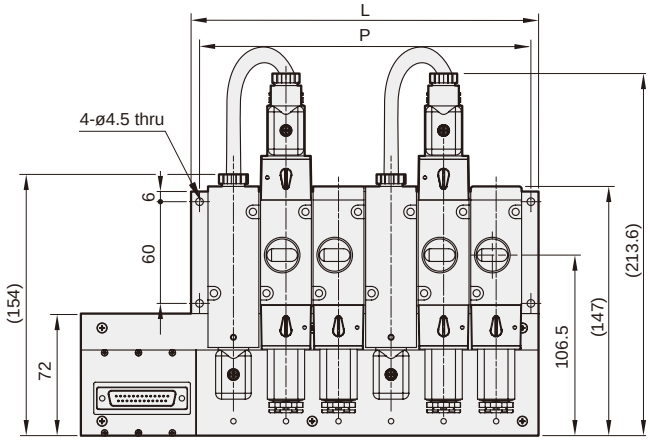
No. of stations	L	L1	P
3	112	177	102
4	143	208	133
5	174	239	164
6	205	270	195
7	236	301	226
8	267	332	257
9	298	363	288
10	329	394	319
11	360	425	350
12	391	456	381



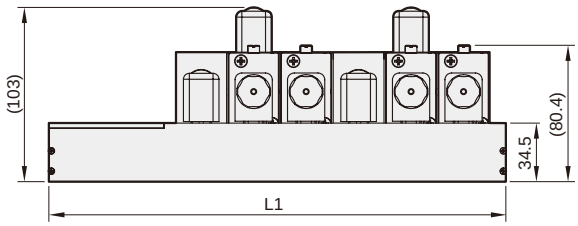


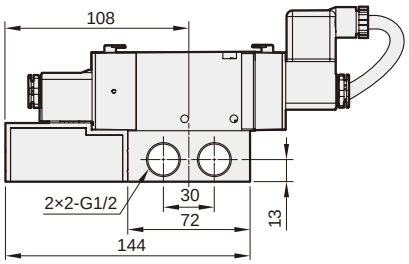
MVB-460-3B*

3 port (for body ported type)



No. of stations	L	L1	P
3	112	177	102
4	143	208	133
5	174	239	164
6	205	270	195
7	236	301	226
8	267	332	257
9	298	363	288
10	329	394	319
11	360	425	350
12	391	456	381





MVE series

EtherNet/IP

FIELDBUS SYSTEM

Output Device

Valve



MVSC-220



MVSY-100



MVSP-156

Others

Relay
buzzer
Indicator light

Input Device

Switch



Pressure Switch



Flow rate Switch



Sensing Switch
(For cylinder)

Others

Proximate Sensor
Photoelectric Switch
Limit Switch

Feature

Compatible Protocol
EtherNet/IP

Max. 8 units can be connected of I/O

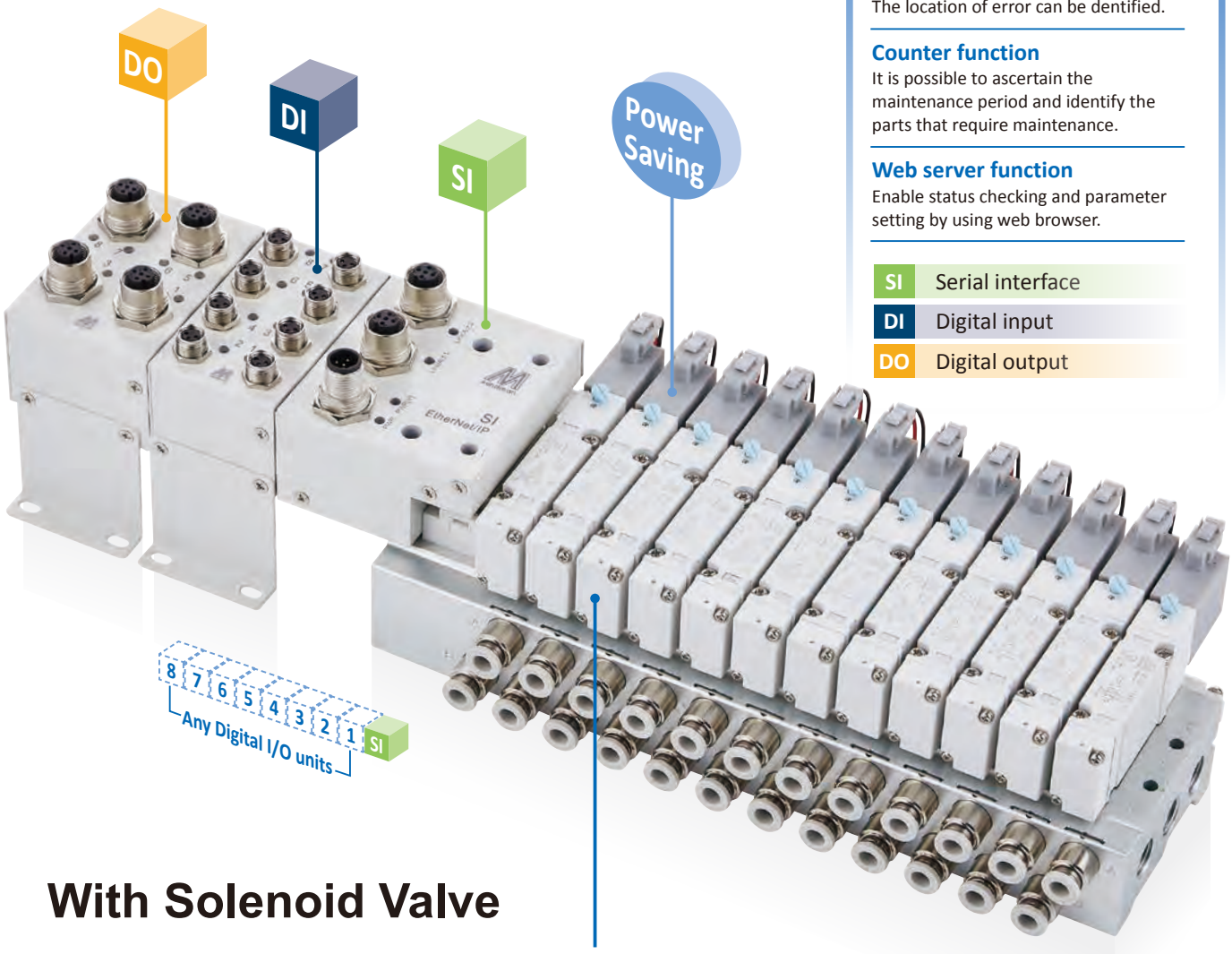
Wiring time and labor costs can be reduced

Short/Open-circuit detection function
The location of error can be dentified.

Counter function
It is possible to ascertain the maintenance period and identify the parts that require maintenance.

Web server function
Enable status checking and parameter setting by using web browser.

SI	Serial interface
DI	Digital input
DO	Digital output



With Solenoid Valve

MVE-100 series



MVE-156 series



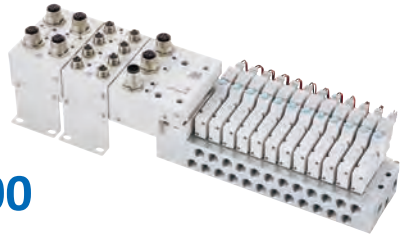


	MVE-100 series	MVE-156 series	
Valve Series	MVSY-100	MVSY-156	MVSP-156
Power Consumption	0.55W	0.55W	0.95W
With tube fitting		ø4, ø6, ø8 mm	ø4, ø6, ø8 mm

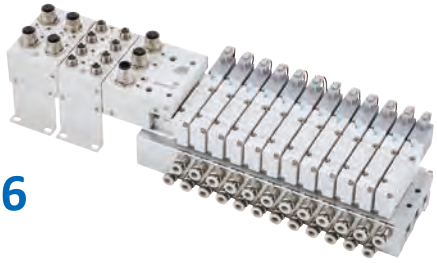
MVE series

EtherNet/IP

FIELDBUS SYSTEM



MVE-100 series

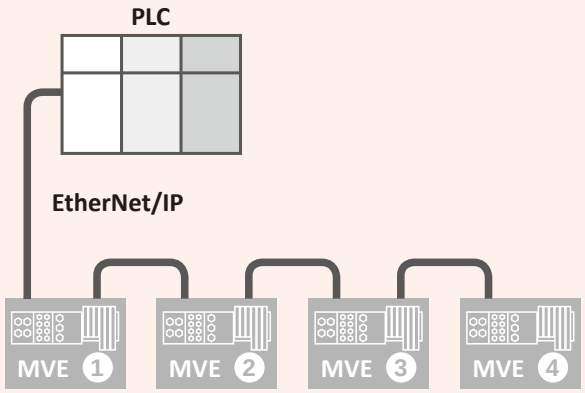


MVE-156 series

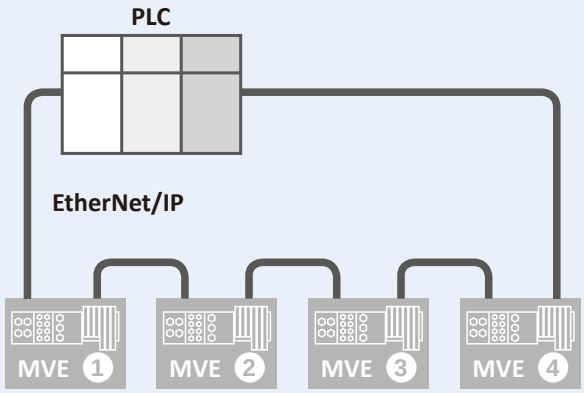
Compatible Topologies

In addition to the general star type, it is available for **linear** and **ring** topologies.

Linear type



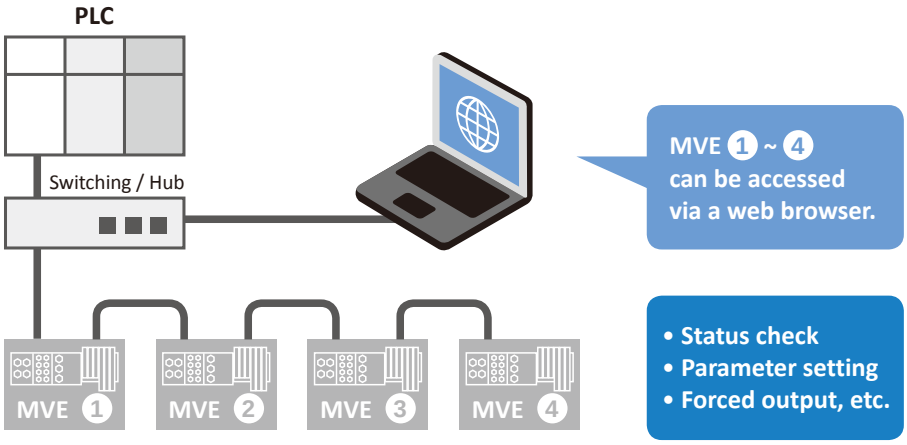
Ring type



Web server function

Using general web browsers, such as IE, Google Chrome which enables status check and parameter settings.

Operation and maintenance of the system can be performed efficiently.





Feature

- Wiring time can be reduced.
- Labor cost can be reduced.
- High flexibility for system expansion.
- Circuit protection and self diagnosis function.
- Reduce error of wiring.
- Web server function.

Remark

- Maximum number of stations
  4E1: 12 stations
  4E2 & 4E2C.P.R: 11 stations
- For MVSY-100 series solenoid valve (Only with LJ plug type)

Order example of fieldbus system

MVE — 100M — 5B4□ — SSDC — G — EAN6

MODEL

BODY WIDTH

Blank: Body ported type
M: Manifold type

MANIFOLD

5B: 5 port (for body ported type)
5M: 5 port (for manifold type)

MANIFOLD NUMBER
2, 3, 4..., 12

(VALVE) COM SPEC.
Blank: -COM
N: +COM

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

SOLENOID VALVE

S	**4E1**: 5/2 Single solenoid
D	**4E2**: 5/2 Double solenoid
C	**4E2C**: 5/3 Double solenoid
P	**4E2P**: 5/3 Double solenoid
R	**4E2R**: 5/3 Double solenoid
B	Blocking plate

* The valve arrangement is numbered as the 1st station from the SI side.

SI unit	SI unit output
Blank: Without **EA**: EtherNet/IP (Correspond) (I/O unit cannot be installed without SI)	**P**: -COM **N**: +COM (Make sure a match with the common specification of the valve to be used.)

Number of I/O	
–	None
1	1 station
2	2 stations
3	3 stations
4	4 stations
5	5 stations
6	6 stations
7	7 stations
8	8 stations

* When I/O unit is selected, it is shipped separately, and assembled by user.

Order example of SI unit

MVE — 100 — SEA — N

PROTOCOL
EA: EtherNet / IP

OUTPUT TYPE
P: PNP (-COM)
N: NPN (+COM)

Order example of DI digital input unit

MVE — 100M — DI P A

Blank: Body ported type
M: Manifold type

Input type

N	NPN
P	PNP

Number of input and connector

Symbol	Number	Connector
A	8 input	M8 connector (3 PIN) 8 pcs

Order example of DO digital output unit

MVE — 100M — DO P B

Blank: Body ported type
M: Manifold type

Output type

N	NPN
P	PNP

Number of output and connector

Symbol	Number	Connector
B	8 output	M12 connector (5 PIN) 4 pcs

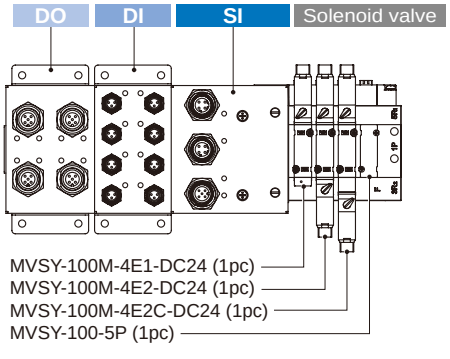
EX

Fieldbus system (Inclusion SI unit and solenoid valve)
MVE-100M-5M4-SDCB-G-EAP2 × 1 set

Digital input unit (DI unit)
MVE-100M-DIPA × 1 set

Digital output unit (DO unit)
MVE-100M-DOPB × 1 set

* The valve arrangement is numbered as the 1st station from the SI side.



MVE-100 / 156 Specification of SI unit

FIELDBUS **SYSTEM** (EtherNet / IP)

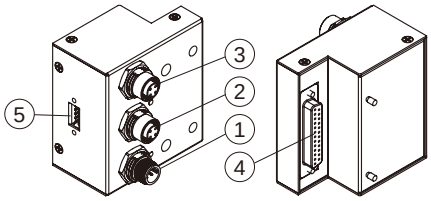
mindman

Specification

Model		SI unit
Interface	Protocol	Ethernet/IP
	Communication speed	10/100 Mbps
	Configuration file	EDS file
Power supply	Power connector	M12 (5 pins) plug
	Control & input	24VDC class2, 2A
	Output	24VDC class2, 2A
	Consumption	12W
Valve output	Polarity of output	PNP(-com) or NPN(+com)
	Power supply	24VDC Class2, 2A
	Number of outputs	23 outputs
	Connected load	Solenoid valve, MVSY-100 / MVSY-156 / MVSP-156 series, DC24V
	Fail safe	Hold / Off / Setting value
	Protective function	Short circuit protection.
Environment	Working temperature	-20°C ~ +50°C
	Working humidity	10% ~ 90% RH

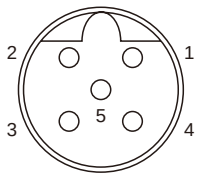
Connector

No.	Item	Description
1	Power	M12 B-coded plug
2	EtherNet/IP port1	M12 D-coded socket
3	EtherNet/IP port2	M12 D-coded socket
4	Valve output	25 PIN D-sub
5	Extended I/O	10 pins connector

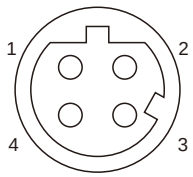


Pin arrangement

Power

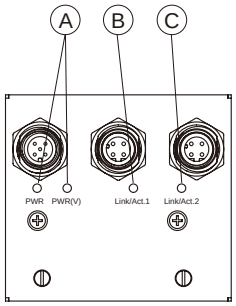
Plug, B-coded	Pin	Signal
	1	24 V (Output)
	2	0 V (Output)
	3	24 V (Control and input)
	4	0 V (Control and input)
	5	FE

Ethernet / IP

Socket, D-coded	Pin	Signal
	1	TX +
	2	RX+
	3	TX-
	4	RX-

LED Indicator

NO.	LED	Status	Description
A	PWR (Yellow)	ON	Power-ON
		OFF	Power-OFF
B	LAN1 (Green)	Flash	Data Transmission
		OFF	No Link / Activity
		ON	Link / Activity
C	LAN2 (Green)	Flash	Data Transmission
		OFF	No Link / Activity
		ON	Link / Activity



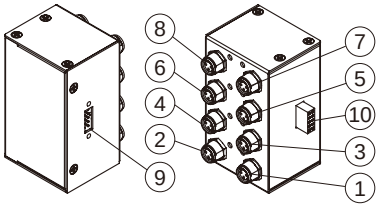
Specification

Model		DI unit
Input spec.	Input type	PNP or NPN
	Input connector	M8 (3PIN) socket
	Number of inputs	8 input (1 input / connector)
	Sensor supplied voltage	DC24V
	Maximum sensor supplied current	0.25A / Connector & 2A / Unit
	Rated input current	9mA
	ON voltage	≥ 17V *
	OFF voltage	≤ 5V *
Feature		Short-Circuit Detection & Open-Circuit Detection
Power	Power supply voltage (control and input)	DC24V, Class2, 2A
Environment	Working temperature	-10°C ~ +50°C
	Storage temperature	-20°C ~ +60°C
	Working humidity	35% ~ 85% RH
	Isolation	500VAC,10MΩ

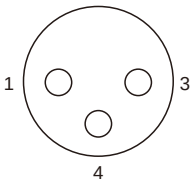
* At NPN input, between the pin for input terminal and supplied voltage of +24V.
* At PNP input, between the pin for input terminal and supplied voltage of 0V.

Connector

No.	Item	Description
1	DI 0	M8, 3PIN socket (Female)
2	DI 1	
3	DI 2	
4	DI 3	
5	DI 4	
6	DI 5	
7	DI 6	
8	DI 7	
9	IOM Interface	10PIN connector (Male)
10	IOM Interface	10PIN connector (Female)

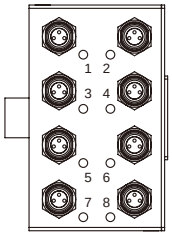


Pin arrangement

Socket	Pin	Signal
	1	24 V (Control and input)
	3	0 V (Control and input)
	4	Input

LED Indicator

NO.	LED	Status	Description	NO.	LED	Status	Description
1	DI 0	ON	Input device is ON	5	DI 4	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF
2	DI 1	ON	Input device is ON	6	DI 5	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF
3	DI 2	ON	Input device is ON	7	DI 6	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF
4	DI 3	ON	Input device is ON	8	DI 7	ON	Input device is ON
		OFF	Input device is OFF			OFF	Input device is OFF



MVE-100 / 156 Specification of DO unit

FIELDBUS **SYSTEM** (EtherNet / IP)

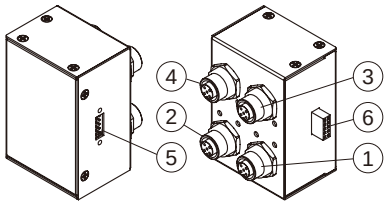
mindman

Specification

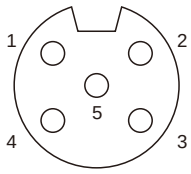
Model		DO unit
Output spec.	Output type	PNP or NPN
	Output connector	M12 (5PIN) socket
	Number of outputs	8 output (2 output / connector)
	Rated load voltage	DC24V
	Maximum load current	0.5A / Connector & 2A / Unit
Feature		Short-Circuit Detection & Open-Circuit Detection
Power	Power supply voltage (output)	DC24V, Class2, 2A
Environment	Working temperature	-10°C ~ +50°C
	Storage temperature	-20°C ~ +60°C
	Working humidity	35% ~ 85% RH
	Isolation	500VAC,10MΩ

Connector

No.	Item	Description
1	DO 0, DO 1	M12, 5PIN socket (Female)
2	DO 2, DO 3	
3	DO 4, DO 5	
4	DO 6, DO 7	
5	IOM Interface	10PIN connector (Male)
6	IOM Interface	10PIN connector (Female)

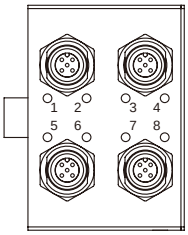


Pin arrangement

Socket, A-coded	Pin	Signal	
		PNP	NPN
	1	NC	24 V (Output)
	2	Output 2	Output 2
	3	0 V (Output)	NC
	4	Output1	Output1
	5	FE	FE

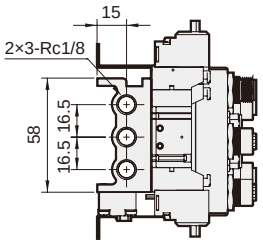
LED Indicator

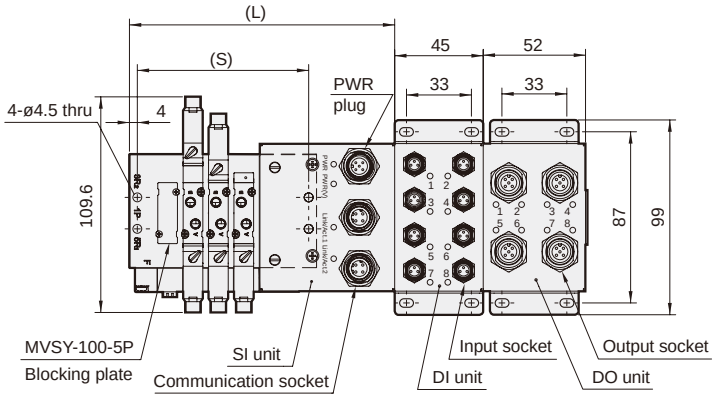
NO.	LED	Status	Description	NO.	LED	Status	Description
1	DO 0	ON	DO Output	5	DO 4	ON	DO Output
		OFF	No DO Output			OFF	No DO Output
2	DO 1	ON	DO Output	6	DO 5	ON	DO Output
		OFF	No DO Output			OFF	No DO Output
3	DO 2	ON	DO Output	7	DO 6	ON	DO Output
		OFF	No DO Output			OFF	No DO Output
4	DO 3	ON	DO Output	8	DO 7	ON	DO Output
		OFF	No DO Output			OFF	No DO Output

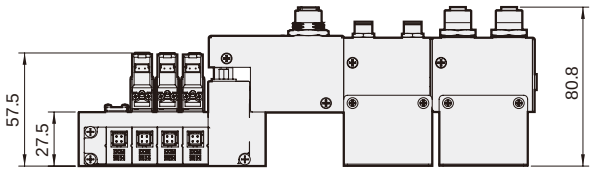


MVE-100-5B*

5 port (for body ported type)



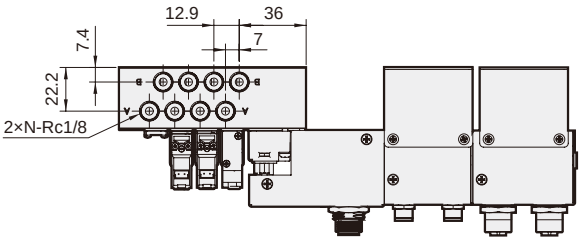


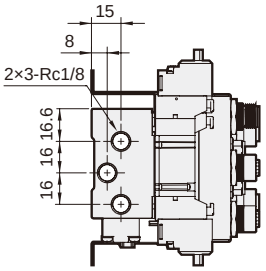


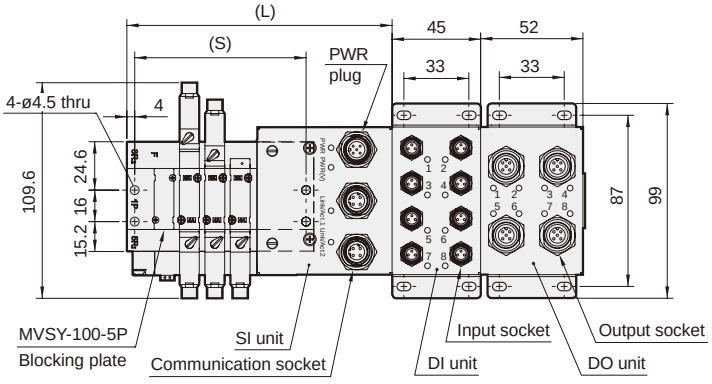
No. of stations	L	S
2	109	62.3
3	121.9	75.2
4	134.8	88.1
5	147.7	101
6	160.6	113.9
7	173.5	126.8
8	186.4	139.7
9	199.3	152.6
10	212.2	165.5
11	225.1	178.4
12	238	191.3

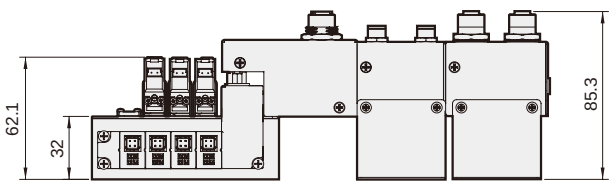
MVE-100M-5M*

5 port (for manifold type)





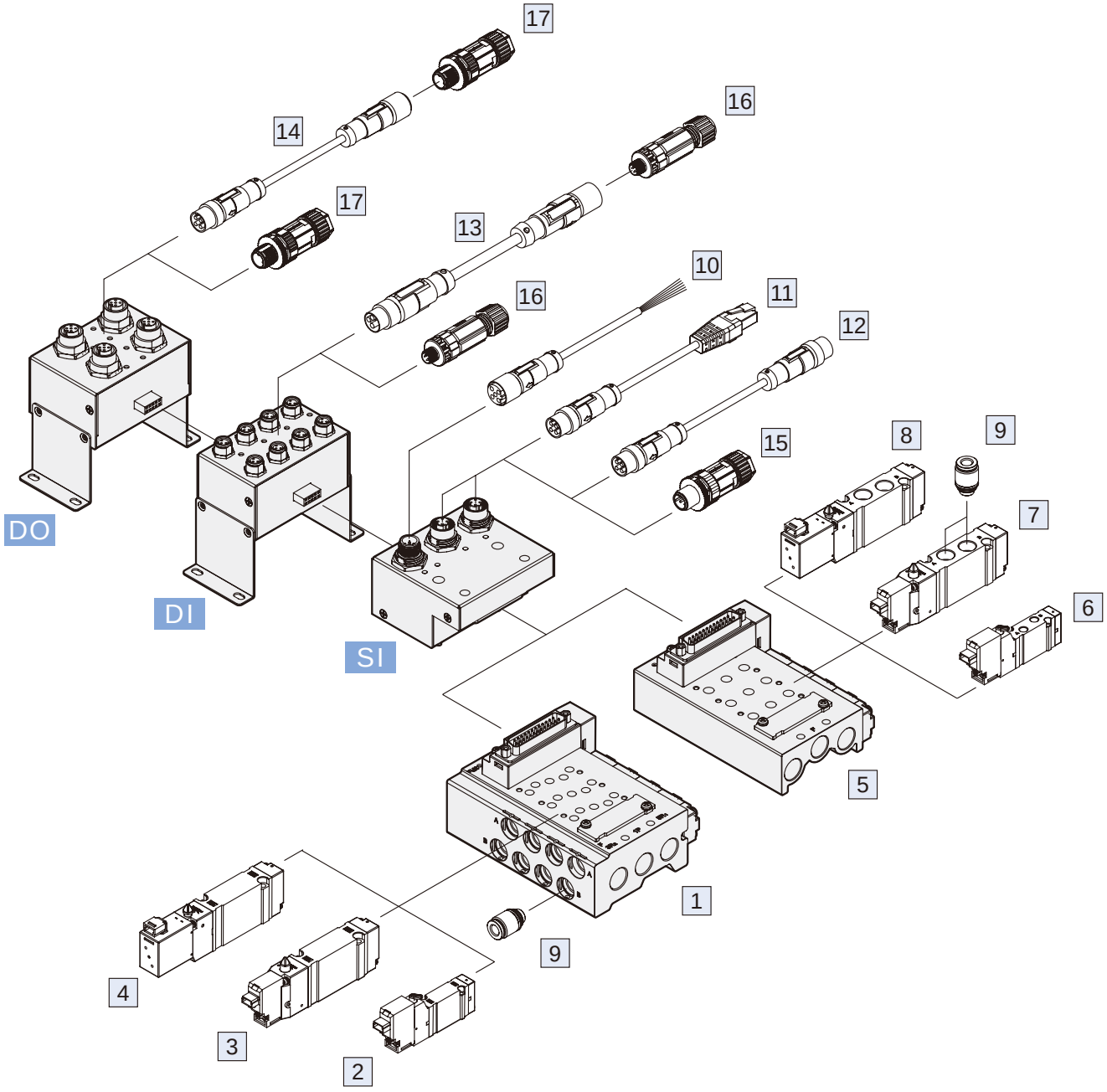




No. of stations	L	S
2	109	62.3
3	121.9	75.2
4	134.8	88.1
5	147.7	101
6	160.6	113.9
7	173.5	126.8
8	186.4	139.7
9	199.3	152.6
10	212.2	165.5
11	225.1	178.4
12	238	191.3

MVE-100 / 156 Valve / Accessories

FIELDBUS **SYSTEM** (EtherNet / IP)



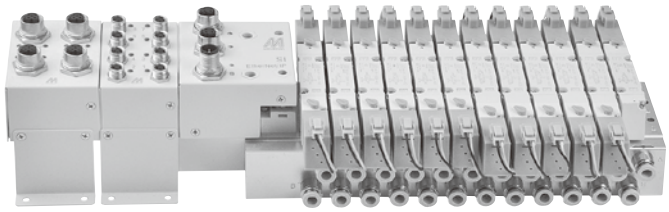
No.	Device	Page
1	Manifold (manifold type)	–
2	Solenoid valve MVSY-100M	1-67
3	Solenoid valve MVSY-156M	1-71
4	Solenoid valve MVSP-156M	1-58
5	Manifold (body ported type)	–
6	Solenoid valve MVSY-100	1-67
7	Solenoid valve MVSY-156	1-71
8	Solenoid valve MVSP-156	1-58
9	Tube fitting (ø4,ø6,ø8) (*1)	–

No.	Device	Page
10	Power supply cable M125R-WB*	6-14
11	Cable with connector M124R-RJD*	6-16
12	Cable with connector M124R-MD*	6-16
13	Cable with connector M83R-F*	6-13
14	Cable with connector M124R-FA*	6-15
15	Connector M124C-MD	6-18
16	Connector M83C-M	6-17
17	Connector M124C-MA	6-18

*1. Only for MVE-156 series.

MVE-156 series

FIELDBUS **SYSTEM** (EtherNet / IP)



Feature

- Wiring time can be reduced.
- Labor cost can be reduced.
- High flexibility for system expansion.
- Circuit protection and self diagnosis function.
- Reduce error of wiring.
- Web server function.

Remark

- Maximum number of stations
  4E1: 12 stations
  4E2 & 4E2C.P.R: 11 stations
- For MVSY-156 series solenoid valve (Only with LJ plug type)
- For MVSP-156 series solenoid valve (Only with H plug type)

Order example of fieldbus system

MVE — 156M4 — 5B4□□ — SSDC — G — EAN6

MODEL

BODY WIDTH

MANIFOLD
5B: 5 port (for body ported type)
5M: 5 port (for manifold type)

C4: Body ported type with tube fitting (dia. ø4mm)
C6: Body ported type with tube fitting (dia. ø6mm)
C8: Body ported type with tube fitting (dia. ø8mm)
M4: Manifold type with tube fitting (dia. ø4mm)
M6: Manifold type with tube fitting (dia. ø6mm)
M8: Manifold type with tube fitting (dia. ø8mm)

* Use the same SI, DO, DI unit and accessories with MVE-100 series, please refer to page 1-121~1-126.

MANIFOLD NUMBER
2, 3, 4..., 12

(VALVE) COM SPEC.
Blank: -COM
N: +COM

SOLENOID VALVE MODEL
Blank: MVSY-156 (0.55W)
P : MVSP-156 (0.95W)
P1 : MVSP-156 (2.5W)

S	**4E1**: 5/2 Single solenoid
D	**4E2**: 5/2 Double solenoid
C	**4E2C**: 5/3 Double solenoid
P	**4E2P**: 5/3 Double solenoid
R	**4E2R**: 5/3 Double solenoid
B	Blocking plate

* The valve arrangement is numbered as the 1st station from the SI side.

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

SI unit	SI unit output
Blank: Without **EA**: EtherNet/IP (Correspond) (I/O unit cannot be installed without SI)	**P**: -COM **N**: +COM (Make sure a match with the common specification of the valve to be used.)

Number of I/O	
–	None
1	1 station
2	2 stations
3	3 stations
4	4 stations
5	5 stations
6	6 stations
7	7 stations
8	8 stations

* When I/O unit is selected, it is shipped separately, and assembled by user.

Order example of SI unit

MVE — 100 — SEA — N

PROTOCOL
EA: EtherNet / IP

OUTPUT TYPE
P: PNP (-COM)
N: NPN (+COM)

Order example of DI digital input unit

MVE — 156M — DI P A

Blank: Body ported type
M: Manifold type

Input type

N	NPN
P	PNP

Number of input and connector

Symbol	Number	Connector
A	8 input	M8 connector (3 PIN) 8 pcs

Order example of DO digital output unit

MVE — 156M — DO P B

Blank: Body ported type
M: Manifold type

Output type

N	NPN
P	PNP

Number of output and connector

Symbol	Number	Connector
B	8 output	M12 connector (5 PIN) 4 pcs

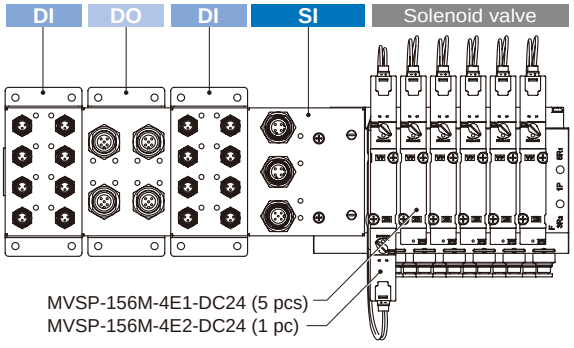
EX (How to order manifold assembly)

Fieldbus system (Inclusion SI unit and solenoid valve)
MVE-156M4-5M6NP-DSSSSS-G-EAN3 × 1 set

Digital input unit (DI unit)
MVE-156M-DIPA × 2 set

Digital output unit (DO unit)
MVE-156M-DOPB × 1 set

* The valve arrangement is numbered as the 1st station from the SI side.



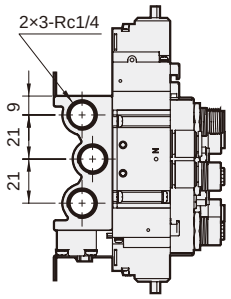
MVE-156 with MVSY-156

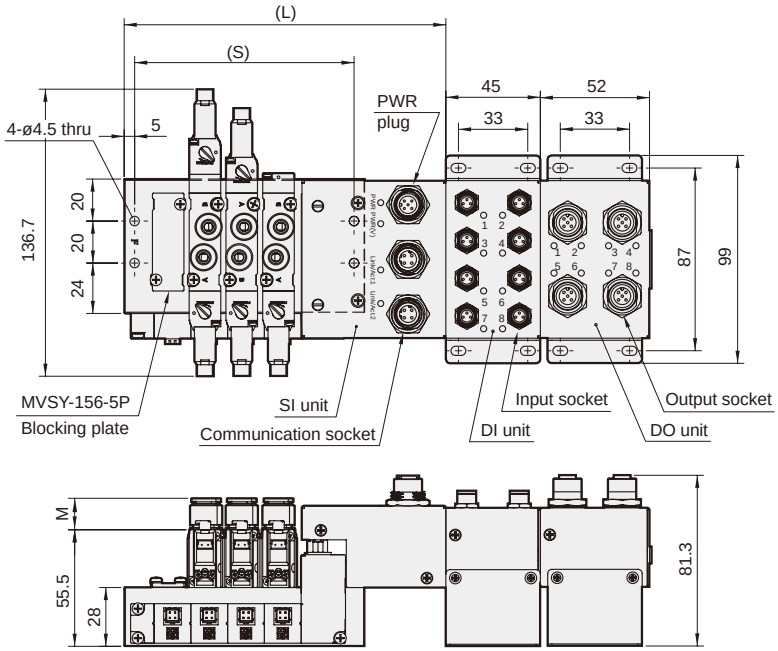
FIELDBUS **SYSTEM** (EtherNet / IP)

mindman

MVE-156C*-5B*

5 port (for body ported type)



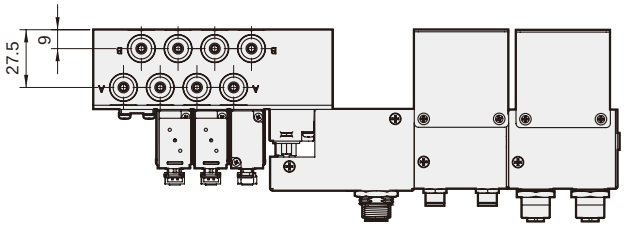


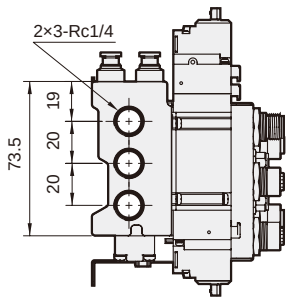
No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5

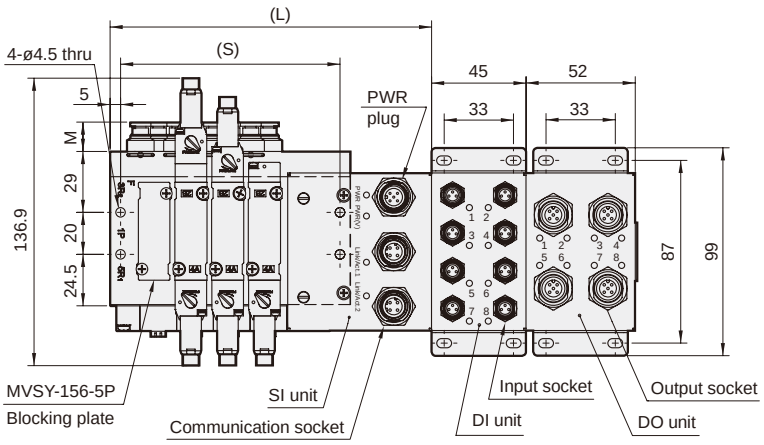
Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

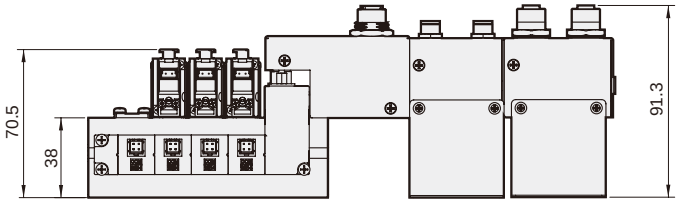
MVE-156M*-5M*

5 port (for manifold type)







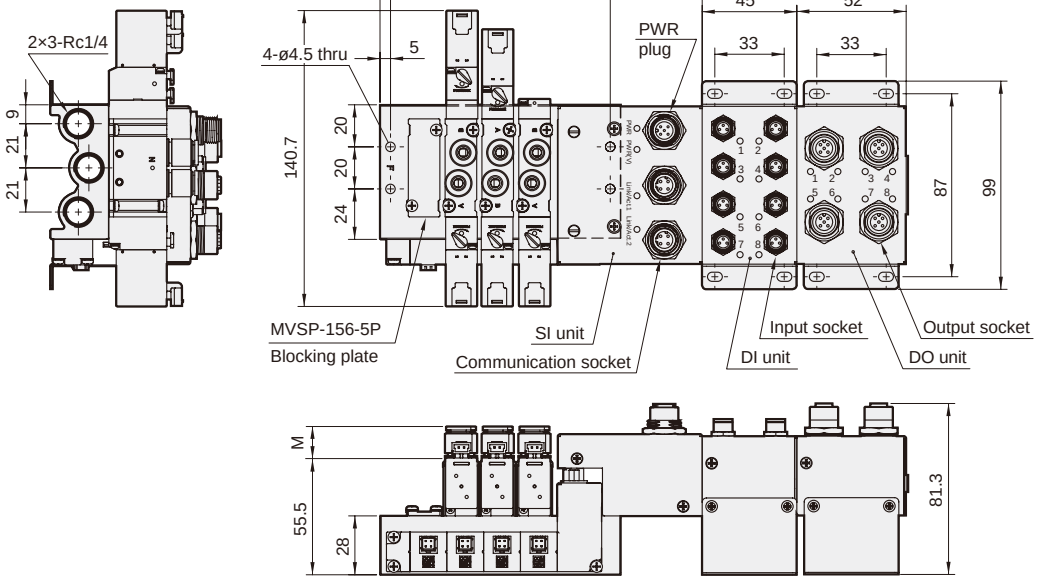


No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVE-156C*-5B*P*

5 port (for body ported type)

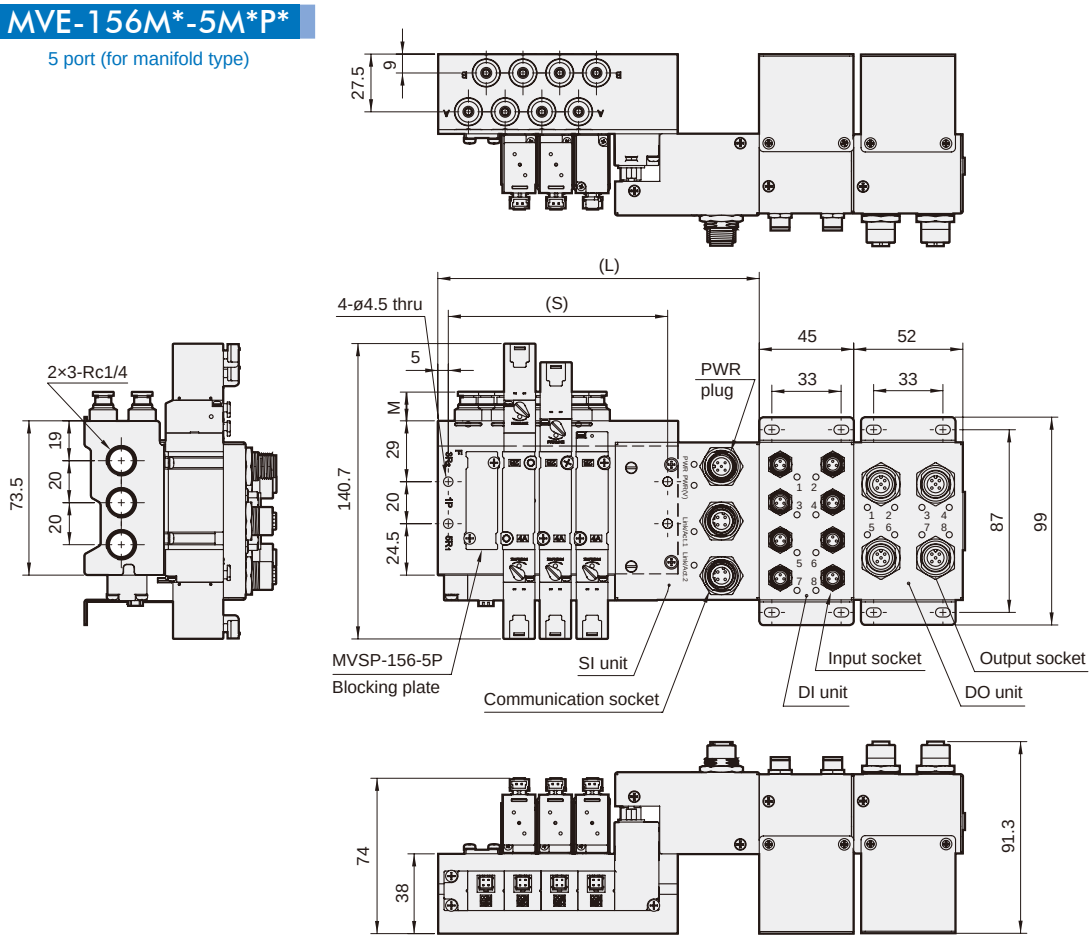


No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

MVE-156M*-5M*P*

5 port (for manifold type)



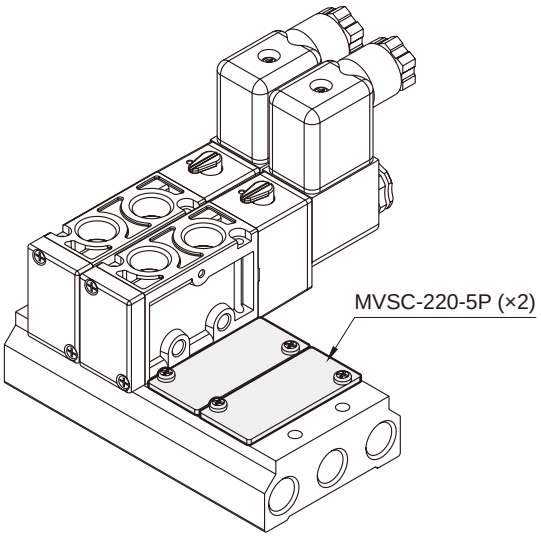
No. of stations	L	S
2	118.2	70.5
3	135.7	88
4	153.2	105.5
5	170.7	123
6	188.2	140.5
7	205.7	158
8	223.2	175.5
9	240.7	193
10	258.2	210.5
11	275.7	228
12	293.2	245.5

Code / Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

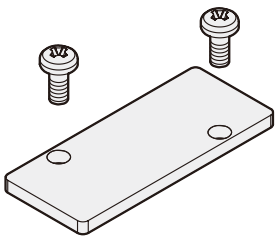
Order example

MVSC — 220 — 5P

- MODEL
- BLOCKING PLATE
  3P: for 3 port
  5P: for 5 port



Blocking plate parts

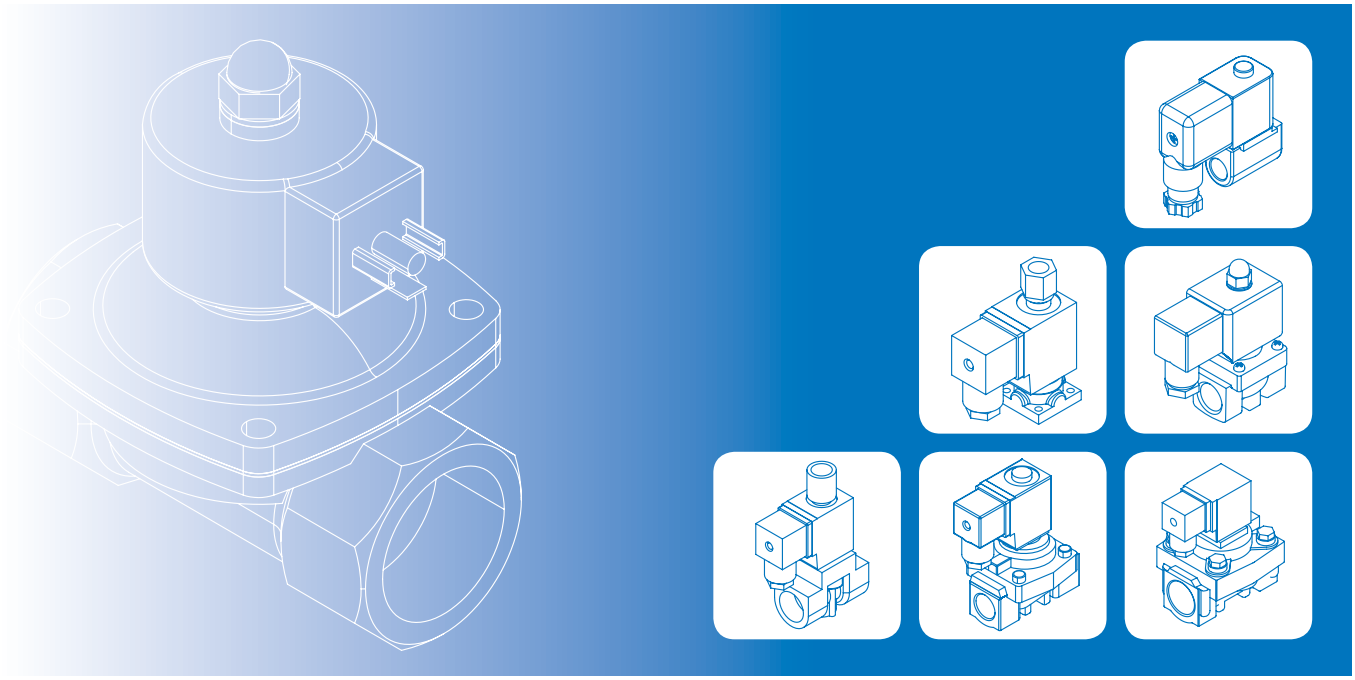


Blocking plate table

Applicable model	Symbol for order	
Solenoid valve	**3P**: for 3 port	**5P**: for 5 port
MVSC-220	MVSC-220-3P	MVSC-200-5P
MVSC-260	—	MVSC-260-5P
MVSC-300	MVSC-300-3P	MVSC-300-5P
MVSC-460	MVSC-460-3P	MVSC-460-5P
MVSC1-150	—	MVSC1-150-5P
MVSC1-180	MVSC1-180-3P	MVSC1-180-5P
MVSC1-220	MVSC-220-3P (*1)	MVSC-220-5P (*1)
MVSD1-180	—	MVSD1-180-5P
MVSE-260	—	MVSC-260-5P (*1)
MVSE-300	—	MVSE-300-5P
MVSE-500	—	MVSC-460-5P (*1)
MVSF-100	MVSF-100-3P	MVSF-100-5P
MVSG-180	—	MVSG-180-5P
MVSP-156	—	MVSY-156-5P (*2)
MVSP-188	—	MVSY-188-5P (*2)
MVSY-100	—	MVSY-100-5P
MVSY-156	—	MVSY-156-5P
MVSY-188	—	MVSY-188-5P
MVSZ-100	—	MVSZ-100-5P
MVDY-100	MVDY-100-3P	—
MVB-100	—	MVSY-100-5P (*2)
MVB1-100	—	MVSY-100-5P (*2)
MVB-156	—	MVSY-156-5P (*2)
MVB-220	MVSC-220-3P (*1)	MVSC-200-5P (*1)
MVB-300	MVSC-300-3P (*1)	MVSC-300-5P (*1)
MVB-460	MVSC-460-3P (*1)	MVSC-460-5P (*1)
MVE-100	—	MVSY-100-5P (*1)
MVE-156	—	MVSY-156-5P (*2)
Pilot valve	**3P**: for 3 port	**5P**: for 5 port
MVAA-150	—	MVSC1-150-5P (*3)
MVAA-180	MVSC1-180-3P (*3)	MVSC1-180-5P (*3)
MVAA-220	MVSC-220-3P (*1)	MVSC-200-5P (*1)
MVAA-260	—	MVSC-260-5P (*1)
MVAA-300	MVSC-300-3P (*1)	MVSC-300-5P (*1)
MVAA-460	MVSC-460-3P (*1)	MVSC-460-5P (*1)

*1. Use the same blocking plate with **MVSC**.
*2. Use the same blocking plate with **MVSY**.
*3. Use the same blocking plate with **MVSC1**.

PROCESS VALVE



Selector Table 2-2
MBS 2-6
MBD 2-7
MCS 2-8
MCT 2-9
MED 2-10
MEP 2-11
MGA / MGS 2-12
MGD 2-13
MJS/R/T, MRJ 2-14
MPD / MPK 2-16
MRB / MRC 2-17
MUSC 2-18
MUSD 2-19
MUST 2-20
MUT 2-21
MWA/S/H 2-22
MWD / MWK 2-24
MYA / MYS 2-25
MZS 2-26
MZT 2-27

MU* Selector Table 2-28
MUD / MUS 2-30
MUA 2-31
MUDC 2-32
MSUS 2-33
MUAO 2-35
MUW 2-36
MUW-NO 2-37
MUW-F 2-38
MUG / MUV 2-39
MUAW 2-40
MUS / MUS-F 2-41
MSUW / MSUW-NO 2-42
MSUW-F 2-43
MUPS 2-44
MXAD 2-45
MXAD-AF 2-46
MXBD 2-47
MXCD 2-48
MXPV 2-49

Selector table

*Seal-code **N** NBR, **P** PTFE, **J** EPDM, **V** Viton, **T** Teflon, **R** RUBY, **Z** FFKM, **S** Silicon

	Model	Inside structure			N.C.	N.O.	Fluid							Material		Port size	CV	Page
		Piston	Diaphragm	Plunger			Water / Air	Hot water	Steam	Light oil	Heavy oil	Gas	Vaccum	Body	Seal			
2/2 WAY	**MBS**			○	●		●			●		●	●	Brass	N,J,V,T,Z	M5,1/8,1/4	0.03~0.40	2-6
	MBD			○	●		●			●		●	●	Forged brass	N,V	1/4~1/2	0.14~0.95	2-7
	MCS			○	●		●			●		●	●	Forged brass	N,J,V,T,R,Z	1/4~3/4	0.10~1.30	2-8
	MED		○		●		●			●		●		Forged brass	N,J,V	1/4~1/2	1.8~2.2	2-10
	MEP			○	●		●							Forged brass	N,J,V	3/8,1/2	1.8~2.8	2-11
	MGA	○			●		●	●						Forged brass	N,J,V	3/8,1/2	1.9~2.6	2-12
	MGS	○			●		●	●	●					Forged brass	T	3/8,1/2	1.9~2.6	2-12
	MGD		○		●		●					●		Forged brass	N,J,V	3/8,2	2.0~31	2-13
	MJS			○	●		●			●		●	●	Brass	N,J,V	—	0.08~0.32	2-14
	MJR			○	●		●			●		●	●	Brass	N,J,V	—	0.10~0.42	2-14
	MPD		○		●		●							PA (Nylon)	N,J,V	1/2~1	4~11	2-17
	MPK		○		●		●							PA (Nylon)	N,J,V	1/2~1	4~11	2-17
	MRB			○		●	●			●		●		Brass	N,J,V	1/8,1/4	0.05~0.09	2-17
	MRC			○		●	●			●		●		Brass	N,J,V	1/8~3/8	0.10~0.31	2-17
	MUSC			○	●		●			●		●	●	S.S.#303	N,J,V,T,R,Z	1/8~3/8	0.03~1.30	2-18
	MUSD		○		●		●			●		●		SCS14	N,J,V	1/2	2.0	2-19
	MWA	○			●		●			●		●		Forged brass	N	3/8~2	3.0~31	2-22
	MWH	○			●						●			Forged brass	V	3/8~2	3.0~31	2-22
	MWS	○			●		●	●	●					Forged brass	T	3/8~2	3.0~31	2-22
	MWD		○		●		●					●		Forged brass	N,J,V	3/8~2	3.0~31	2-24
	MWK		○		●		●			●		●	●	Forged brass	N,J,V	3/8~2	3.0~31	2-24
	MYA	○			●		●	●						Forged brass	N,J,V	3/8,1/2	1.9~2.6	2-25
	MYS	○			●		●	●	●					Forged brass	T	3/8,1/2	1.9~2.6	2-25
	MZS			○	●		●		●	●		●		Forged brass	N,J,V,T,R,Z	3/8~1/2	0.12~0.83	2-26
	MUD			○	●	●	●			●		●	●	Brass	N,J,V,S	1/8~1/2	0.23~0.58	2-30
	MUS-6~10			○	●				●					Brass	P	1/8~3/8	0.23	2-30
	MUDC		○		●		●	Hydrochioric acid, sulfuric acid						PVC / PTEF	P	1/4~1	0.28~4	2-32
	MSUS	○		○	●	●	●		●	●		●	●	S.S.#304	N,P,V,S,J	1/8~2	0.23~48	2-33
	MUAO	○			●		●				●			Brass	N	1/4~1/2	2.5	2-35
	MUW		○		●		●			●				Forged brass	N,J,V,S	3/8~2	4.5~48	2-36
	MUW-NO		○			●	●			●		●	●	Forged brass	N,J,V,S	3/8~2	4.5~48	2-37
	MUW-F		○		●	●	●			●				FC-20	N,J,V,S	1 1/4~4	22~180	2-38
	MUG		○		●							●		Forged brass	N	3/8~2	4.5~48	2-39
	MUV		○		●								●	Forged brass	N	3/8~2	4.5~48	2-39
	MUAW	○			●		●							Cast bronze	N	1/2~2	4~48	2-40
	MUS	○			●				●	●	●			Cast bronze	P	1/2~2	4~48	2-41
	MUS-F	○			●		●		●	●				FC-20	P,V,S,J	1 1/4~4	22~175	2-41
	MSUW		○		●	●	●			●			●	S.S.#304	N,J,V,S	1/2~2	4.5~48	2-42
	MSUW-F		○		●		●			●			●	S.S.#304	N,J,V,S	1/2~2	4.5~48	2-43
	MUPS	○			●		●		●	●				Cast bronze	P,V,S,J	1/2~1	4~12	2-44
	MXAD			○	●		●			●		●	●	Forged brass	N,J,V,S	1/8~1/2	0.26~0.97	2-45
	MXAD-AF		○		●		●			●		●	●	Forged brass	N,J,V,S	3/8~2	4.5~48	2-46
	MXBD			○	●		●			●		●	●	Forged brass	N,J,V,S	1/4~1/2	0.23~0.79	2-47
	MXCD		○		●		●			●				Forged brass	N,V	1/4~1/2	2.4~2.7	2-48
	MXPV		○		●		●			●				Forged brass	N,J,V,S	3/8~3/4	4.5~9.3	2-49

	Model	Inside structure			N.C.	N.O.	Fluid							Material		Port size	CV	Page
		Piston	Diaphragm	Plunger			Water / Air	Hot water	Steam	Light oil	Heavy oil	Gas	Vaccum	Body	Seal			
3/2 WAY	**MCT**			○	●		●			●		●	●	Forged brass	N,J,V,Z	1/4~3/4	0.02~0.65	2-9
	MJT			○	●		●			●		●	●	Brass	N,J,V	—	0.10~0.42	2-14
	MRJ			○		●	●			●		●	●	Brass	N,J,V	—	0.10~0.31	2-14
	MUST			○	●		●			●		●	●	S.S.#303	N,J,V,Z	1/8~3/8	0.02~0.80	2-20
	MUT			○	●	●	●			●		●	●	Forged brass	V	1/8~3/8	0.02~0.31	2-21
	MZT			○	●		●		●	●		●		Forged brass	N,J,V,Z	1/8~1/2	0.08~0.80	2-27
	MUA			○	●		●						●	Forged brass	N,V	1/4,3/8	0.1~0.12	2-31

Rubber, plastic

Code	Generic Name	Names	Features
N	NBR -5ºC~80ºC	Nitrile rubber	* Oil resistance and abrasion resistance, often apply to seal materials, particularly resistant to mineral oil for the best. * Not suitable for using in polar solvents, such as ketones, ozone, nitro hydrocarbons, MEK and chloroform.
T	PTFE (Teflon) -5ºC~185ºC	Polytetrafluoroethylene	* Able to withstand all the strong acid(including aqua regia), strong oxidants, reducing agents and various organic solvents except alkali metal fluoride, sodium hydroxide medium. * It is better than rubber almost in all physical properties except elasticity and it has the characteristics of a low coefficient friction.
J	EPDM -5ºC~130ºC	Ethylene propylene rubber	* Resistance to polar solvents (alcohols, ketones, ethylene glycol) of hydrochloric acid. With good ozone resistance, excellent water resistance and chemical resistance. * Not recommended for aromatic hydrogen.
V	VITON (FKM) (FPM) -5ºC~130ºC	Fluorocarbon rubber	* Premium chemical resistance and higher price are the two characteristics, can be resistant to most oils and solvents * Not recommended for ketones, esters and mixtures containing nitrate
R	RUBY -10ºC~200ºC	–	* The artificial ruby sheet is used as a seal to block the orifice, which is resistant to various corrosive and volatile fluids such as aromatic hydrocarbon fluids. But a slight gas leak is caused by the hardness of the ruby.
Z	FFKM -10ºC~290ºC	Perfluoroelastomer	* Excellent air tightness and optimum temperature and chemical resistance in all elastomer materials. * Resistant to corrosion from various chemical products such as strong acids, alkalis, ethers, ketones, esters, lubricants, fats, aromatics, nitrogenous compounds, hydrocarbons, alcohols, aldehydes, oils, vapors, amines, etc.
S	Silicone -5ºC~130ºC	Silicone rubber	* Excellent ozone ,oxides corrosion, and neutral solvent resistance * Not recommended for most concentrated solvents, oils, concentrated acid and dilution sodium hydroxide

* Please follow the recommended solenoid valve temperatures.

◎: Outstanding ○: Resistant, unless otherwise specified △: Have no resistance ,Unless otherwise specified ×: Have no resistance

Oil, solvents		Rubber types					
		NBR	PTFE	EPDM	VITON	FFKM	Silicone
Engine oil	SAE#30	◎	◎	×	◎	–	◎
	SAE 10w-#30	◎	◎	×	◎	–	○
Gear oil	For Vehicles	◎	◎	×	○	–	△
	Industrial second type (polarity) synthesis	◎	◎	△	○	–	△
Brake oil	DOT3(ethanol)	△	◎	○	×	–	○
	DOT5(ethanol)	△	◎	○	×	–	○
	DOT5(Silicon-based)	◎	◎	×	◎	–	×
Machine oil (the 2nd axis lubricants)		○	◎	×	◎	–	×
Hydraulic operating oil (mineral oil-based)		◎	◎	×	◎	–	△
Flame retardant hydraulic oil	Phosphate ester	×	◎	×	△	–	◎
	Water + diethanol Department	○	◎	×	△	–	△
Consumers cut oil		△	◎	×	◎	–	◎
Lubricating oil	Mineral oil-based	◎	◎	×	◎	◎	◎
	Silicon-based	◎	◎	○	◎	◎	×
	Fluorine	◎	◎	×	×	◎	◎
Refrigerant	R12+Paraffinic	△	◎	×	×	–	×
	R134a+Glycol	△	◎	◎	×	–	×
Gasoline, diesel oil		△	◎	×	◎	◎	×
Light oil, kerosene		△	◎	×	◎	◎	×
Heavy oil		△	◎	×	◎	–	×
Antifreeze (in ene glycol system)		○	◎	◎	×	–	△
Warm water		◎	◎	◎	○	◎	◎
Sea water		△	◎	◎	○	–	×
Hot water, Steam (100ºC)		×	◎	◎	△	○	○
Hydrochloric acid solution		△	◎	◎	○	–	○
30% Sulfuric acid solution		×	◎	○	△	–	×
10%Nitric acid solution		×	◎	○	△	–	×
40% Sodium hydroxide solution		△	◎	◎	×	–	×
Benzene		×	◎	×	×	◎	×
Alcohol		△	◎	◎	○	◎	○
Butanone		×	◎	×	×	◎	△

◎: Outstanding ○: Resistant, unless otherwise specified △: Have no resistance ,Unless otherwise specified ×: Have no resistance

Oil, solvents		Rubber types					
		NBR	PTFE	EPDM	VITON	FFKM	Silicone
Organic acids	Acetic acid	△	◎	◎	○	◎	◎
Inorganic acid	Hydrochloric acid solution	△	◎	◎	○	◎	◎
	Sulfuric acid solution	–	◎	◎	◎	◎	○
	Nitric acid solution	×	◎	○	△	◎	○
Alkalies	Sodium hydroxide	△	◎	◎	○	◎	○
	Ammonium hydroxide	△	◎	◎	○	◎	◎
Salt	Sodium chloride	△	◎	◎	◎	–	◎
	Sodium carbonate	△	◎	◎	○	–	◎
Oxidizing agent	Sydrogen peroxide	△	◎	○	◎	◎	◎
	Sodium hypochlorite	×	◎	○	◎	◎	○
Aliphatic carbohydrates	Trimethylpentane	△	◎	×	◎	◎	×
Aromatic carbohydrate	Methylbenzene	△	◎	×	◎	◎	△
Chlorination of carbohydrates	Trichloro ethylene	△	◎	×	◎	–	×
Alcohols	Methyl alcohol	△	◎	◎	△	◎	◎
	Ethyl alcohol	△	◎	◎	◎	◎	◎
Ethers	Diethyl ether	△	◎	△	×	◎	×
Esters	Ethyl acetate	×	◎	○	△	–	×
Ketone	Chloromethyl ethyl ketone	×	◎	◎	×	◎	×
Aldehydes	Furfuraldehyde	△	◎	◎	×	◎	×
Amine	Triethanolamine	△	◎	◎	×	–	×
Sulfur	Carbon disulfide	△	◎	×	◎	–	–

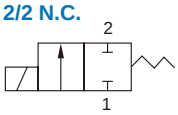
MBS series

2/2 WAY N.C. PLUNGER TYPE **SOLENOID VALVE**





2/2 N.C.



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~50°C
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8.0	5.3
DC (W)	6.0	6.8	5.2

Dimensions

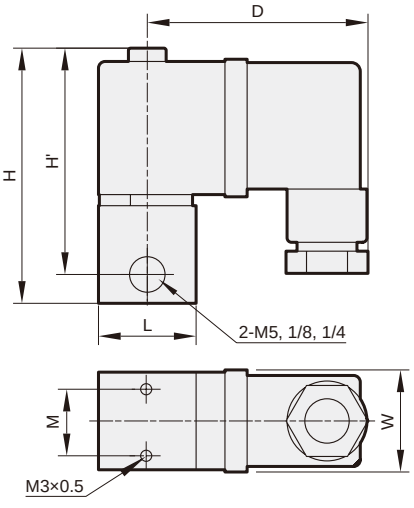
Model		MBS			
Code / Dimension (mm)		**01**	**03**	**04**	**06**
D	#2	51	51	51	51
	#3	54	54	54	54
	#2E	48	48	48	48
H		54	58	60	60
H'		49	51	51	51
L		22	22	35	35
M		15	15	11	11
W	#2	22	22	22	22
	#3, 2E	30	30	30	30
N.W. (kg)	#2	0.16	0.17	0.20	0.18
	#3	0.21	0.22	0.25	0.23
	#2E	0.48	0.49	0.52	0.50

Order example

MBS — 03 — 2 — N — 2 — D — AC110 — □

- **MODEL**
- **CODE**: **01**: M5, **03**: 1/8, **04**: 1/8, **06**: 1/4
- **FIG.**: **1**, **2**, **3**, **4**, **5**, **6**, **7**
- **SEAL MAT'L**: **N**: NBR, **J**: EPDM, **V**: Viton, **T**: Teflon (*1), **Z**: FFKM
- **COIL**: **2**: #2, **3**: Bigger, **2E**: Explosion-Proof (*2)
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (only for coil #2)
- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

*1. When the seal material is (**T**) Teflon, the valve has slight leakage.
*2. Explosion-Proof (**2E**) coil with LED (**D**) plug is not applicable.



Specification

Model **MBS**: Brass body, mini 2/2 way N.C. for air, gas, water, vacuum, light oil (50cst down) etc.

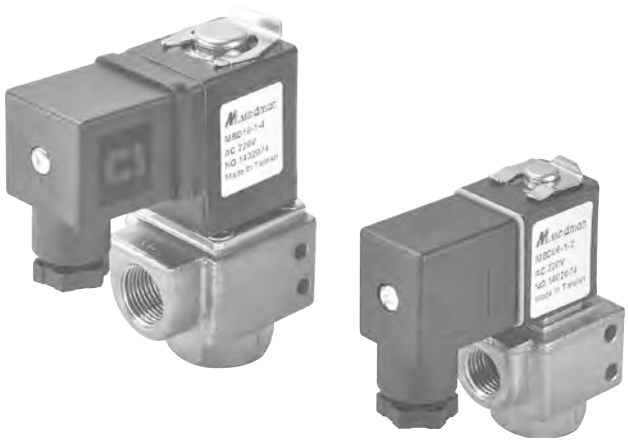
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp.°C										Max. O.P.D bar (Min. 0 bar)						CV	VAC. torr
					Coil 2, 2E					Coil 3					Coil 2		Coil 3		Coil 2E			
					N	J	V	T	Z	N	J	V	T	Z	AC	DC	AC	DC	AC	DC		
01(M5) 03(1/8) 04(1/8) 06(1/4)	1	N J V T Z	2 3 2E	1.0	-5 ~ 80	-10 ~ 80		-20 ~ 80		-5 ~ 80	-10 ~ 145				30						0.03	10^{-2}
	2			1.3											30	24	30	30	30	30	0.05	
	3			1.6											30	20	30	30	30	24	0.09	
	4			2.0											16	11	22	20	17	14	0.14	
	5			2.5											10	7	12	10	10	8	0.18	10^{-1}
	6			3.0											6	4	8	8	7	5	0.27	
	7*			5.0											1	0.2	2	0.5	1	0.1	0.40	10

* Only for code 01(M5), 03(1/8).

MBD series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**

mindman



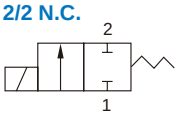
Specification

- IP65 100% ED coil
- PTB approval EExm II T4 coil

Dimensions

Model		MBD			
Code / Dimension (mm)		6	9	10	15
L		36		46	
H		31		37	
W		69		91	
C		49		67	
D		21		28	
E		8.5		7	
F		30		41	
G		11			
N.W. (kg)	Coil 2	0.26	0.25	–	
	Coil 3	0.30	0.29	–	
	Coil 2E	0.66	0.65	–	
	Coil 4	–		0.50	0.49
	Coil 5	–		0.59	0.58
	Coil 3E	–		0.84	0.83

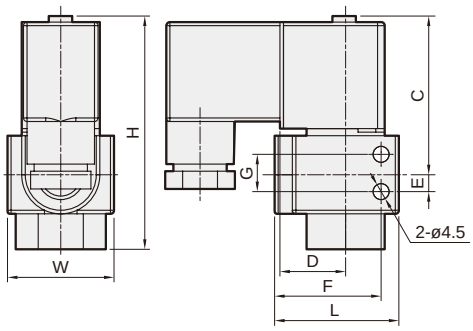
2/2 N.C.



Order example

MBD – 09 – 2 – V – 3 – D – AC110 – □

- MODEL
- CODE: **06**: 1/4, **09**: 3/8, **10**: 3/8, **15**: 1/2
- FIG.: **1**, **2**, **3**, **4**, **5**
- SEAL MAT'L: **N**: NBR, **V**: Viton
- COIL: **2**, **3**, **2E**, **4**, **5**, **3E** (*)
- PLUG: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (only for coil #2)
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



* Explosion-Proof (**2E/3E**) coil with LED (**D**) plug is not applicable.

Specification

Model **MBD**: Forged brass body, for water, air, gas, light oil, vacuum.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp.°C Coil 2, 2E N	Temp.°C Coil 2, 2E V	Temp.°C Coil 3 N	Temp.°C Coil 3 V	Working press. bar Coil 2 AC	Coil 2 DC	Coil 3 AC	Coil 3 DC	Coil 2E AC	Coil 2E DC	CV
06(1/4) 09(3/8)	1	N V	2 3 2E	2.0	-10 ~ 90		-10 ~ 90	-10 ~ 145	13	5	20	10	14	8	0.14
	2			2.5					7	2.5	11	6	7	4	0.18
	3			3.0					5	2	9	4	5	3	0.27
	4			3.5					2	0.5	4	2	3	1	0.30

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp.°C Coil 4, 5, 3E N	Temp.°C Coil 4, 5, 3E V	Working press. bar Coil 4 AC	Coil 4 DC	Coil 5 AC	Coil 5 DC	Coil 3E AC	Coil 3E DC	CV
10(3/8) 15(1/2)	1	N V	4 5 3E	3.5	-10 ~ 90	-10 ~ 160	20	16	25	20	16	16	0.45
	2			4.0			16	13	20	16	10	13	0.53
	3			4.5			13	10	16	13	8	10	0.65
	4			5.0			8	5	12	10	4	5	0.83
	5			6.0			4.5	1.5	7	3	1.5	1.5	0.95

Power consumption

Coil power	2	3	2E
AC 50/60Hz (VA)	6.9	8.0	5.7
DC (W)	6.0	6.8	5.2

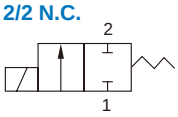
Coil power	4	5	3E
AC 50/60Hz (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

MCS series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**



2/2 N.C.



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~+50°C
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)
- The Max. Orifice for seal **J**=5.0mm, **T**=4.0mm, **R**=2.5mm, **Z**=5.0mm.

Order example

MCS – 06 – 2 – J – 5 – D – AC110 – □

MODEL

CODE
06: 1/4
10: 3/8
15: 1/2
20: 3/4

FIG.
1, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**

SEAL MAT'L
N: NBR
J: EPDM
V: Viton
T: Teflon (*1)
R: RUBY (*1)
Z: FFKM

COIL
4: #4
5: Bigger
3E: Explosion-Proof (*2)

PLUG
Blank: DIN
D: LED
G: 1/2" NPT

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

*1. When the seal material is (**T**) Teflon or (**R**) RUBY, the valve has slight leakage, not suitable for vacuum.
*2. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

Weight

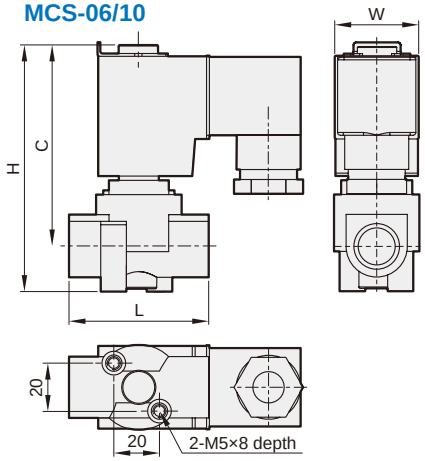
Unit: kg

Model	MCS		
Coil Code	4	5	3E
06	0.43	0.51	0.74
10	0.41	0.49	0.72
15	0.47	0.55	0.80
20	0.55	0.63	0.88
Coil power			
AC (VA)	18.0	24.0	8.6
DC (W)	15.0	18.5	10.0

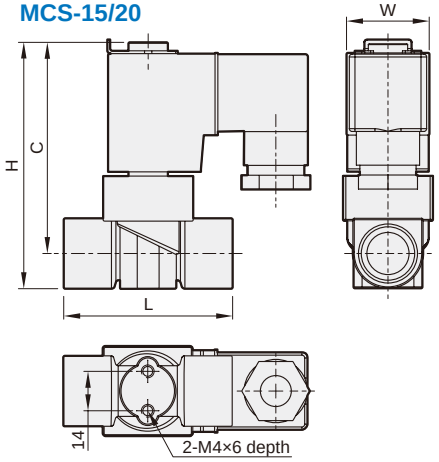
Dimensions

Code / Dimension (mm)		06	10	15	20
L		49		55	60
H		86		88	91
C		71		74	74
W	Coil 4	30		32	
	Coil 5	36		36	
	Coil 3E	36		36	

MCS-06/10



MCS-15/20



Model **MCS**: Forged brass body, 2/2 way N.C. Available fluid: water, air, gas, vacuum, light oil (50cst down) etc.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Seal temp.°C												Max. O.P.D bar (Min. 0 bar)						CV	VAC. torr
					Coil 4, 3E						Coil 5						Coil 4		Coil 5		Coil 3E			
					N	J	V	R	T	Z	N	J	V	R	T	Z	AC	DC	AC	DC	AC	DC		
06(1/4) 10(3/8) 15(1/2) 20(3/4)	1	N J V T R Z	4 5 3E	1.6	-5 ~ 80	-10 ~ 145		-20 ~ 160			-5 ~ 80	-10 ~ 145		-20 ~ 185			30	20	40	30	25	20	0.10	10^{-2}
	2			2.0													24	14	30	28	16	12	0.15	
	3			2.5													17	10	24	20	10	8	0.20	
	4			3.0													10	6	16	13	7	6	0.31	
	5			4.0													8	4	12	8	4.5	3.5	0.54	10^{-1}
	6			5.0													6	2	9	5	2.5	2	0.80	
	7			5.5													4	2	7	4	2	2	0.95	
	8			7.5													2	0.8	3	2	1	1	1.10	10
	9			10.0													0.8	0.4	1.6	0.8	0.4	0.4	1.30	

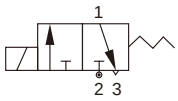
MCT series

3/2 WAY N.C. PLUNGER TYPE **SOLENOID VALVE**

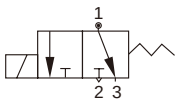
mindman



3/2 Function 1



3/2 Function 2



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~50°C (No freezing)
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)

Weight

Unit: kg

Model	MCT		
Coil Code	4	5	3E
06	0.43	0.51	0.76
10	0.41	0.49	0.74
15	0.43	0.51	0.76
20	0.55	0.63	0.88
Coil power			
AC (VA)	18	24.0	8.6
DC (W)	15	18.5	10.0

Order example

MCT — 06 — 2 — J — U — 5 — D — AC110 — □

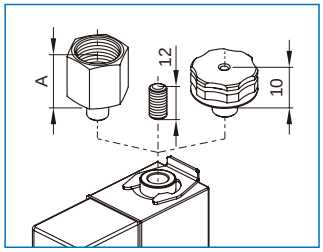
- MODEL
- CODE: **06**: 1/4", **10**: 3/8", **15**: 1/2", **20**: 3/4"
- FIG.: **A**, **0**, **1**, **2**, **3**, **4**, **5**, **6**,
- SEAL MAT'L: **N**: NBR, **J**: EPDM, **V**: Viton, **Z**: FFKM
- EXHUST ACCESSORIES

U	—	Without
F		PS female
C		Dust-proof & silencer cap
P		1/8" PS male

- COIL: **4**: #4, **5**: Bigger, **3E**: Explosion-Proof (*)
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PLUG: Blank: DIN, **D**: LED, **G**: 1/2" NPT
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

* Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

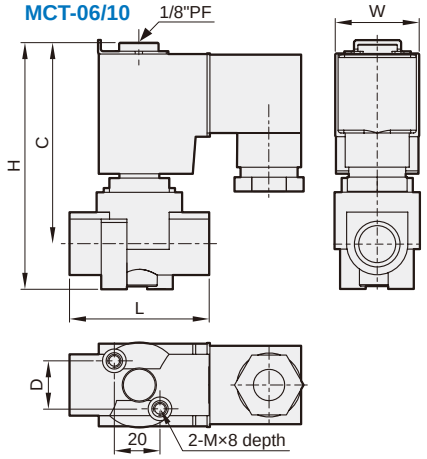
Exhaust accessories



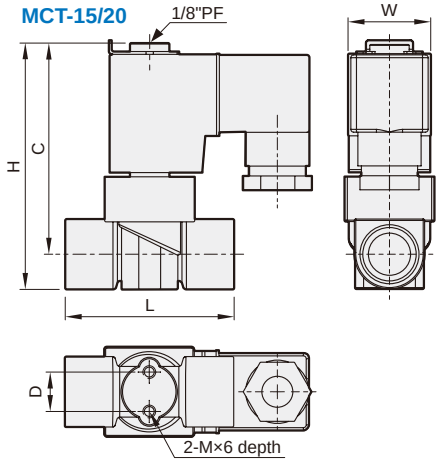
Dimensions

Code / Dimension (mm)	06	10	15	20
A	20	22	—	—
L	49		56	60
H	86		88	91
C	71		74	74
D	20		21	14
W 4	31		32	32
W 5, 3E	36			
M	M5			M4

MCT-06/10



MCT-15/20

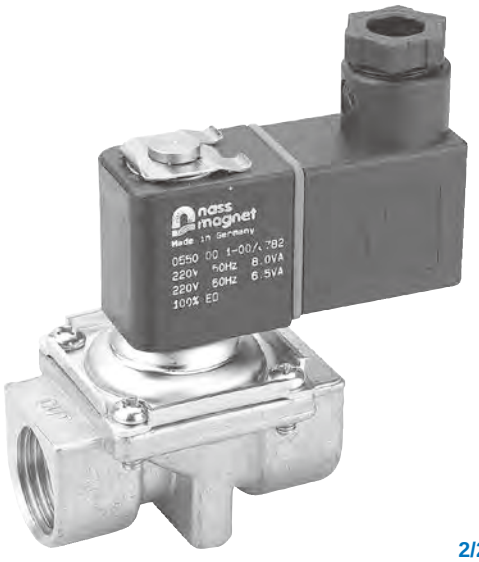


Model **MCT**: Forged brass body, Available fluid: water, air, gas, vacuum, light oil (50 cst down) etc. 3/2 way N.C.

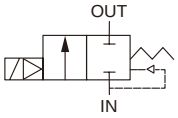
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp.°C						Max. O.P.D bar (Min. 0 bar)						CV	VAC. torr
						Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E			
				Body	Tube	N	J V	Z	N	J V	Z	AC/DC, Funtion							
												1	2	1	2	1	2		
06(1/4) 10(3/8) 15(1/2) 20(3/4)	A	N J V Z	4 5 3E	1.0	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	12	10	16	12	11	10	0.02	10^{-2}
	0			1.3								9		12		8		0.05	
	1			1.6								7		8.5		6		0.10	
	2			2.0	2.0							5.5	8	7	10	5	8	0.15	
	3			2.5	2.5							4	6.5	5.5	8	3	6.5	0.20	
	4			3.0								2.5	4.5	4	5.5	2	4.5	0.31	
	5			4.0	3.0							1.5		2.5		1.5		0.51	10^{-1}
	6			5.0								1		1.5		0.8		0.65	

MED series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**



2/2 N.C.



Specification

- If the working pressure is 5 bar up for air, the operating cycle cannot 10 times/min. over.

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8.0	5.3
Last temp.°C	70.0	60.0	50.0
DC (W)	6.2	6.8	5.2
Last temp.°C	78.0	73.0	62.0
Coil ambient temp.	-15~50°C (No freezing)		

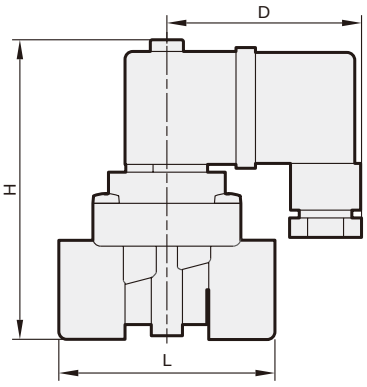
Dimensions

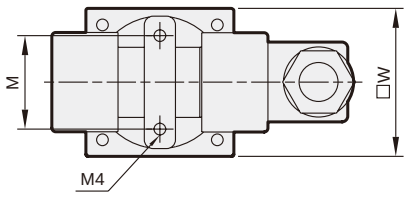
Model		MED			
Code Dimension (mm)		08	09	10	15
D		50.0		50.0	
L		40.0		55.0	
H		72.0		76.5	
M		17.0		24.0	
W		32.0		38.0	
N.W. (kg)	Coil 2	0.25	0.24	0.37	0.34
	Coil 3	0.30	0.29	0.42	0.39
	Coil 2E	0.57	0.56	0.69	0.66

Order example

MED – 10 – □ – N – 2 – □ – AC110 – □

- **MODEL**
- **CODE**: **08**: 1/4, **09**: 3/8, **10**: 3/8, **15**: 1/2
- **FIG.**: **A**: High pressure, **B**: Big flow
- **SEAL MAT'L**: **N**: NBR, **J**: EPDM, **V**: Viton
- **COIL**: **2**: #2, **3**: Bigger, **2E**: Explosion-Proof (*)
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (only for coil #2)
- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread





* Explosion-Proof (**2E**) coil with LED (**D**) plug is not applicable.

Specification

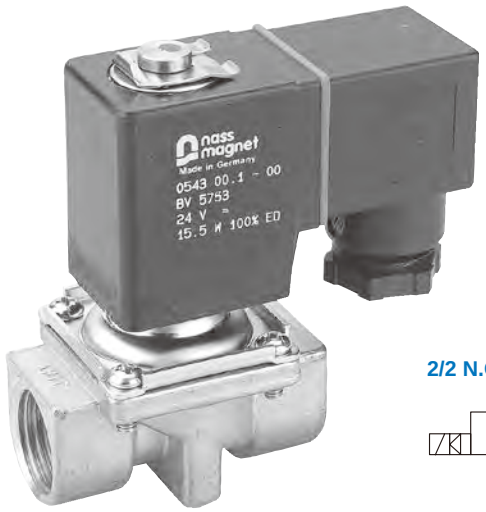
* **A**: Air, **L**: Liquid

Model **MED**: Forged brass body, pressure forming S.S. plate, for water, air, gas, light oil. 2/2 way N.C.																					
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp.°C						Working press. (0.3~ bar)										CV
					Coil 2, 2E			Coil 3			Coil 2				Coil 3				Coil 2E		
					N	J	V	N	J	V	AC		DC		AC		DC		AC		DC	
											A*	L*	A	L	A	L	A	L	A	L	A	L	
08(1/4) 09(3/8)	A	N J V	2 3 2E	10	-5 ~ 80	-10 ~ 80		-5 ~ 80	-10 ~ 120		7	4	4	4	10	4	7	4	7	4	5	4	1.1
	B										6	4	2	2	9	4	5	2	6	4	4	2	1.4
10(3/8) 15(1/2)	A			15							6.5	4.5	0.8	0.4	10	8	8	6	5.5	4.5	4.5	4.5	1.8
	B										5.5	3.5	0.2	–	9	6	6	5	4.5	3.5	3.5	3.5	2.2

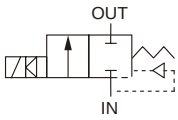
MEP series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**

mindman



2/2 N.C.



Specification

- IP65 100% ED coil

Power consumption

Coil power	4	5	3E
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

Weight

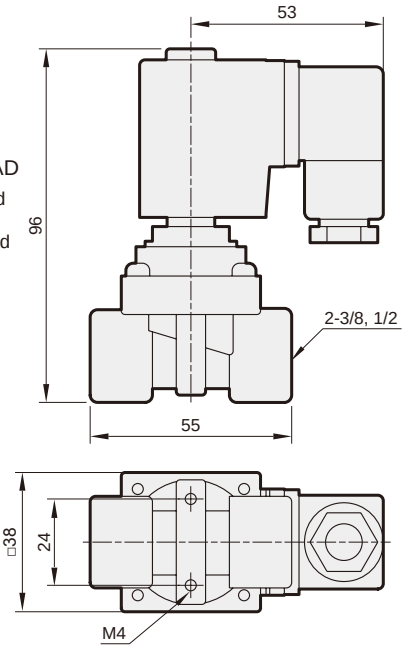
Model		MEP		
Code \ Coil		4	5	3E
N.W (kg)	10	0.45	0.53	0.76
	15	0.44	0.52	0.75

Order example

MEP — 10 — A — N — 4 — □ — AC110 — □

- MODEL
- CODE
  - **10**: 3/8
  - **15**: 1/2
- FIG.
  - **A**: High pressure
  - **B**: Big flow
- SEAL MAT'L
  - **N**: NBR
  - **J**: EPDM
  - **V**: Viton
- COIL
  - **4**: #4
  - **5**: Bigger
  - **3E**: Explosion-Proof (*)
- PLUG
  - Blank: DIN
  - **D**: LED
  - **G**: 1/2" NPT
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

* Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.



Specification

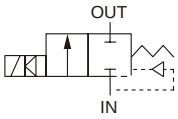
Model **MEP**: Forged brass body, pressure forming S.S. plate, for water, air. 2/2 way N.C.																								
Code (Port)	Fig.	Seal mat'l	Coil	Orifice mm	Temp.°C						Working press. (0~ bar)						VAC. Torr						CV	
					Coil 4		Coil 5		Coil 3E		Coil 4		Coil 5		Coil 3E		Coil 4		Coil 5		Coil 3E			
					N	J,V	N	J,V	N	J,V	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	10	15
10(3/8) 15(1/2)	A	N J V	4 5 3E	15	-5 ~ 80	-10 ~ 90	-5 ~ 80	-10 ~ 145	-5 ~ 80	-10 ~ 145	1.0	0.5	1.5	1.0	0.3		10	400	10	10	500		1.8	2.2
	B										0.5	0.2	1.0	0.5	0.2		400	600	10	400	600		2.4	2.8

MGA / MGS series

2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**



2/2 N.C.



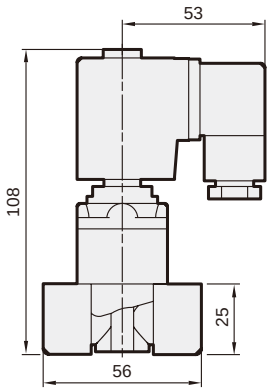
Specification

- Forged brass body.
- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

Coil power	4	5	3E
AC (VA)	17.6/15.4	33/23	9.2
DC (W)	15.0	18.5	10

Model	MGA / MGS	
Code	10	15
N.W (kg)	0.6	

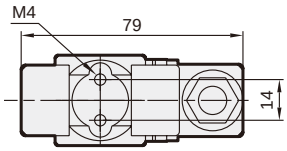


Order example

MGA — 10 — N — 4 — □ — AC110 — □

MODEL	CODE	SEAL MAT'L	COIL	PLUG	VOLTAGE	PORT THREAD
MGA **MGS**	**10**: 3/8 **15**: 1/2	**N**: NBR **J**: EPDM **V**: Viton **T**: Teflon (*1)	**4**: #4 **5**: Bigger **3E**: Explosion-Proof (*2)	Blank: DIN **D**: LED **G**: 1/2" NPT	**AC220**V(50/60)Hz **AC110**V(50/60)Hz **DC24**V	Blank: Rc thread **G**: G thread **NPT**: NPT thread

*1. When the seal material is (**T**) Teflon, the valve has slight leakage.
*2. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.



Specification

Model **MGA**: for water, air and higher temp. fluids. 2/2 way N.C.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C						Working press. bar					CV
				Coil 4			Coil 5, 3E			Coil 4		Coil 5		Coil 3E	
				N	J	V	N	J	V	AC	DC	AC	DC	AC/DC	
10(3/8)	N,J,V	4,5,3E	12	95	120		95	145		0.3~10	0.3~7	0.3~16	0.3~10	0.3~5	1.9
15(1/2)															2.6

Model **MGS**: for steam and higher temp. fluids. 2/2 way N.C.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C		Working press. bar		CV
				Coil 4	Coil 5	Coil 4	Coil 5	
10(3/8)	T*	4, 5	12	158	185	0.3~5	0.3~10	1.9
15(1/2)								2.6

* Teflon seal will have 400cc/min. down gas leakage.

MGD series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

mindman



Specification

- IP65 100% ED coil
- EExm II T4 PTB approval coil

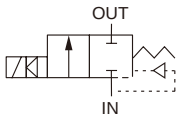
Power consumption

Coil power	2	2E	3	4	3E
AC (VA)	6.9	8.0	5.7	15.4	9.2
DC (W)	6.2	6.8	5.2	15.0	10.0

Dimensions

Model		MGD								MGD-F				
Code / Dimension (mm)		10	15	20	25	32	40	45	50	25	32	40	45	50
A		68.3		72.7	75.5	91.0		97.5		138	155	155	175	175
B		81.3		88.7	95	119		132		125	135	140	140	155
C		64		80	90	102		122		138	159	161	168	175
D		42		51	61	76		95		—	—	—	—	—
E		22		28	34	—		—		—	—	—	—	—
N.W (kg)	Coil 2	0.47	0.45	0.70	0.90	1.98	1.67	3.50	2.86	3.22	5.33	4.93	6.76	6.98
	Coil 2E	0.78	0.75	1.00	1.20	2.29	1.98	3.80	3.17	3.52	5.64	5.24	7.06	7.29
	Coil 3	0.51	0.48	0.74	0.94	2.02	1.71	3.54	2.90	3.26	5.37	4.97	6.80	7.02
	Coil 4	0.60	0.57	0.83	1.03	2.11	1.80	3.62	2.98	3.63	5.75	5.35	7.17	7.40
	Coil 3E	0.89	0.86	1.12	1.32	2.40	2.09	3.91	3.28	3.33	5.46	5.06	6.88	7.10

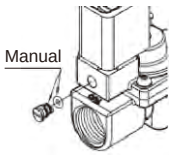
2/2 N.C.



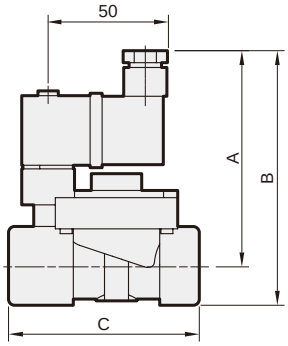
Order example

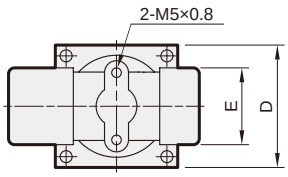
MGD — 25 — N — 3 — D — F — □ — AC110 — □

- **MODEL**
- **CODE**: **10**, **15**, **20**, **25**, **32**, **40**, **45**, **50**
- **SEAL MAT'L**: **N**: NBR, **J**: EPDM, **V**: Viton
- **COIL**: **2**, **3**, **4**, **2E**, **3E** (*)
  * Explosion-Proof (**2E/3E**) coil with LED (**D**) plug is not applicable.
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (only for coil #2)
- **CONN.**: Blank: Screwed, **F**: Flanged (**F** type no manual, for code 25~50)
- **MANUAL**: Blank: Without, **M**: With (for coil **2**, **2E**, **3**)



- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



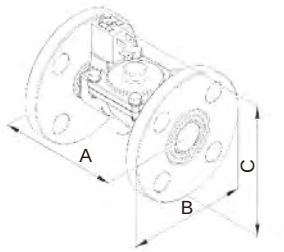


Specification

Model **MGD**: Forged brass body, for water, air, gas etc. 2/2 way N.C.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C					Working press.(0.3~ bar)										CV
				Coil 2	Coil 3, 2E		Coil 4, 3E		Coil 2		Coil 2E		Coil 3		Coil 4		Coil 3E		
				N,J,V	N	J,V	N	J,V	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	
10(3/8)	N J V	2 2E 3 4 3E	15	-5 ~ 60	-5 ~ 60	-5 ~ 100	-5 ~ 60	-5 ~ 145	10	10	16	15	16	16	—	—	—	16	2.0
15(1/2)			15						10	10	16	15	16	16	—	—	—	16	2.5
20(3/4)			20						10	10	14	13	16	16	—	—	16	16	5.2
25(1)			25						10	10	12	10	16	16	—	—	16	16	8.5
32(1 1/4)			33						10	9	10	8	14	13	16	16	16	16	16
40(1 1/2)			33						10	9	10	8	14	13	16	16	16	16	21
45(1 1/2)			44						8	5	8	5	12	10	16	16	16	16	26
50(2)			44						8	5	8	5	12	10	16	16	16	16	31

Flanged



MJ* / MRJ series

2/2 WAY N.C., N.O. PLUNGER TYPE **ACTUATOR VALVE**

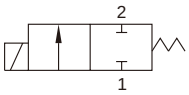


MJS/MJR

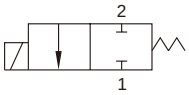


MJT/MRJ

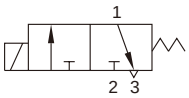
2/2 Function 1



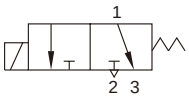
2/2 Function 2



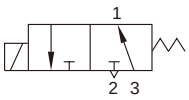
3/2 Function 1



3/2 Function 2



3/2 Function 3



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.
- For air, water, gas, oil. vacuum (10^{-3} torr).

Power consumption

Coil power	4	5	3E
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

Dimensions

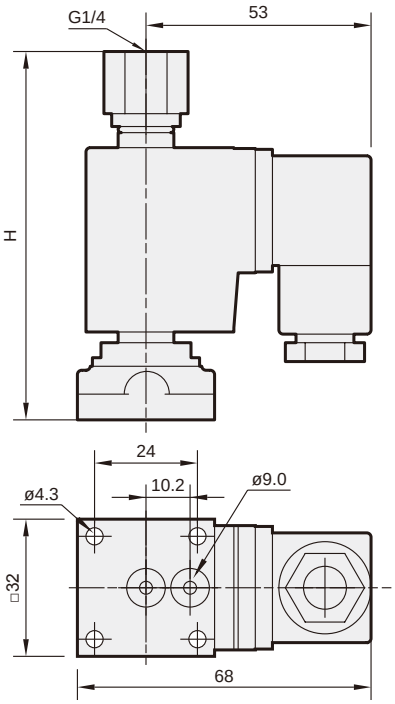
Model		MJS		MJR	MJT / MRJ
Body mat'l / Dimension (mm)		C	S	–	–
H		68	71	67	86
N.W (g)	4	308	316	310	320
	5	394	402		
	3E	614	622		

Order example

MJS – 00 – 1 – N – S – 4 – D – □ – AC110

- **MODEL**: **MJS**, **MJR**, **MJT**, **MRJ**
- **CODE**: **00**
- **FIG.**: **1**, **2**, **3**, **4**, **5**
- **SEAL MAT'L**: **N**: NBR; **J**: EPDM; **V**: Viton
- **BODY MAT'L**: **C**: Brass; **S**: S. Steel
- **COIL**: **4**: #4; **5**: Bigger; **3E**: Explosion-Proof (*)
- **PLUG**: Blank: DIN; **D**: LED; **G**: 1/2" NPT
- **MANUAL**: Blank: Without; **M**: With manual
- **VOLTAGE**: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz; **DC24**V

* Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.



MJ* / MRJ

2/2, 3/2 WAY N.C., N.O. PLUNGER TYPE **ACTUATOR VALVE**

mindman

Specification

Model **MJS**: Brass body, 2/2 way N.C. actuator valve.

Code	Fig. no.	Mat'l		Coil	Orifice mm	Temp. °C					Working press. (0~ bar)						CV	Torr
											Coil 4		Coil 5		Coil 3E			
		Seal	Body			Coil 4, 3E		Coil 5			Funtion 1							
						N	J,V	N	J	V	AC	DC	AC	DC	AC	DC		
00	1	N J V	C S*	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	-5 ~ 80	-10 ~ 145	-10 ~ 160	30	20	40	30	20	14	0.08	10^{-2}
	2				2.0						24	15	30	20	14	10	0.12	
	3				2.5						14	10	20	15	10	7	0.18	
	4				3.0						10	7	15	10	7	5	0.25	10^{-1}
	5				3.5						7	4	10	7	5	4	0.32	

Model **MJR**: Brass body, 2/2 way N.C. round trip actuator valve.

Code	Fig. no.	Mat'l		Coil	Orifice mm	Temp. 5~°C				Working press. (0~ bar)									CV
										Coil 4			Coil 5			Coil 3E			
		Seal	Body			Coil 4, 3E		Coil 5		1		2	1		2	1		2	
						N	J,V	N	J,V	AC	DC	A/DC	AC	DC	A/DC	AC	DC	A/DC	
00	1	N J V	C S*	4 5 3E	1.6	80	150	90	150	30	20	10	40	30	14	20	14	7	0.10
	2				2.0					20	14	7	30	20	10	14	10	5	0.15
	3				2.4					14	10	5	20	14	7	10	7	4	0.20
	4				3.0					10	7	4	14	10	5	7	5	3	0.31
	5				3.5					7	5	2	10	7	4	5	4	2	0.42

Model **MJT**: Brass body, 3/2 way N.C. actuator valve.

Code	Fig. no.	Mat'l		Coil	Orifice mm		Temp. 5~°C				Working press. (0~ bar)						CV
											Coil 4		Coil 5		Coil 3E		
		Seal	Body		Body	Top	Coil 4, 3E		Coil 5		AC/DC, Funtion						
							N	J,V	N	J,V	1	2	1	2	1	2	
00	1	N J V	C S*	4 5 3E	1.6	1.6	80	150	90	150	10	16	14	20	7	10	0.10
	2				2.0	1.6					7	16	10	20	5	10	0.15
	3				2.4	2.0					5	13	7	16	4	7	0.20
	4				3.0	2.2					4	10	5	13	3	5	0.31
	5				3.5	2.5					2	7	4	10	2	3	0.42

Model **MRJ**: Brass body, 3/2 way N.O. actuator valve.

Code	Fig. no.	Mat'l		Coil	Orifice mm		Temp. 5~°C				Working press. (0~ bar)			CV
							Coil 4, 3E		Coil 5		Coil 4	Coil 5	Coil 3E	
		Seal	Body		Body	Top	N	J,V	N	J,V	AC/DC, Funtion 3			
00	1	N J V	C S*	4 5 3E	2.0	1.6	80	150	90	150	7	10	3	0.10
	2				2.4	2.0					5	7	2	0.15
	3				2.4	2.2					3	5	1	0.17
	4				3.0	2.5					1	3	–	0.20
	5				3.5	3.0					–	1	–	0.31

* S.S. body is available.

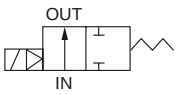
MPD / MPK series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

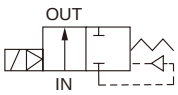


2/2 N.C.

Code 09,14



Code 15~25



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ambient temperature: -5~50°C (No freezing).

Power consumption

Coil power	2	3	4	5
AC (VA)	6.9	8.0	19.5	–
DC (W)	6.2	6.8	15.0	18.5

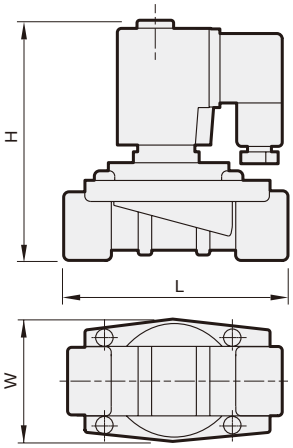
Dimensions

Model		MPD / MPK				
Code / Dimension (mm)		09	14	15	20	25
L		56		71	90	90
H		78		114	124	124
W		38		56	76	76
N.W (kg)	Coil 2,4	0.185	0.18	0.55	0.75	0.65
	Coil 3,5	0.235	0.23	1.1	1.3	1.2

Order example

MPD – 15 – J – 5 – D – AC110 – □

- **MODEL**: **MPD**, **MPK**
- **CODE**: **09**: 3/8, **14**: 1/2, **15**: 1/2, **20**: 3/4, **25**: 1
- **SEAL MAT'L**: **N**: NBR, **J**: EPDM, **V**: Viton
- **COIL**: **2**: #2, **3**: #3, **4**: #4, **5**: Bigger
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (**G**, **Y** only for coil #2, #3)
- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



Specification

Model **MPD**: PA (Nylon) body, N.C., for water, special fluids etc.													
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C				Max. O.P.D bar (0.2~ bar) (*1,2)						CV
				Coil 2	Coil 3	Coil 4	Coil 5	Coil 2		Coil 3		Coil 4	Coil 5	
				N,J,V				AC	DC	AC	DC	AC	DC	DC	
09(3/8)	N J V	2 3	15	4 ~ 60				4.0 (3.5)	0.8 (3.5)	5.0 (3.5)	3.5 (3.5)	–			1.6
14(1/2)			15												2.0
15(1/2)		4 5	18					–				7	1.5	4	4.0
20(3/4)			28									7	1.0	3	9.8
25(1)			28									7	1.0	3	11.0

Model **MPK**: PA (Nylon) body, N.C., for water, special fluids etc.													
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C				Max. O.P.D bar (0~ bar) (*2)						CV
				Coil 2	Coil 3	Coil 4	Coil 5	Coil 2		Coil 3		Coil 4	Coil 5	
				N,J,V				AC	DC	AC	DC	AC	DC	DC	
09(3/8)	N J V	2 3	15	4 ~ 60				6.0 (4.0)	0.8 (3.5)	7.0 (7.0)	7.0 (7.0)	–			1.6
14(1/2)			15												2.0
15(1/2)		4 5	18					–				7	0.5	2.5	4.0
20(3/4)			28									7	–	2.5	9.8
25(1)			28									7	–	2.5	11.0

*1. The max O.P.D bar of coil 2, 3 is (0.3~ bar).

*2. ( ) the value is for fluid.

MRB / MRC series

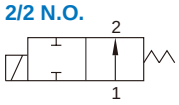
2/2 WAY N.O. PLUNGER TYPE **SOLENOID VALVE**

mindman





2/2 N.O.



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	8.5/6.9	13/10	4.8	17.6/15.4	33/23	9.2
DC (W)	4.9	6.8	5.2	15	18.5	10

Dimensions

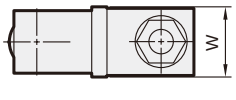
Model	MRB		MRC		
Code / Dimension (mm)	03	06	03	06	10
L	68		98		
H	50		53		
W	23		34		
S	19		16		
S'	–		8		
N.W (kg)	0.20		0.45		

Order example

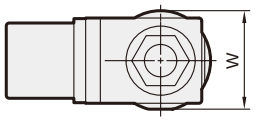
MRB – 06 – 2 – N – 2 – □ – AC110 – □

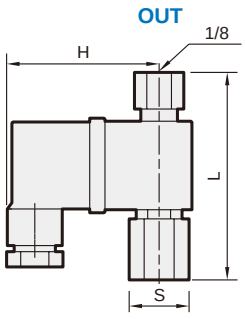
- **MODEL**: **MRB**, **MRC**
- **CODE**: **03**: 1/8, **06**: 1/4, **10**: 3/8
- **FIG.**: **1**, **2**, **3**, **4**, **5**
- **SEAL MAT'L**: **N**: NBR, **J**: EPDM, **V**: Viton
- **COIL**: **2**, **3**, **2E**, **4**, **5**, **3E** (*)
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (only for coil #2)
- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

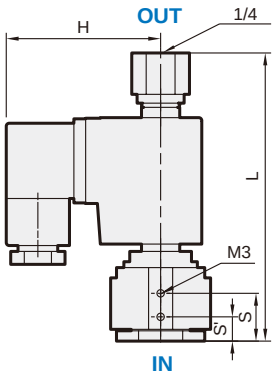
MRB



MRC







* Explosion-Proof (**2E/3E**) coil with LED (**D**) plug is not applicable.

Specification

Model **MRB**: Mini brass body, 2/2 way N.O., for water, air, gas, light oil.

Code (Port)	Fig. no.	Mat'l		Coil	Orifice mm	Temp. 5~°C						Working press. bar			CV	VAC. torr
						Coil 2, 2E			Coil 3			Coil 2	Coil 3	Coil 2E		
		Seal	Body			N	J	V	N	J	V	AC/DC				
03(1/8) 06(1/4)	1	N,J,V	C	2,3,2E	1.3	80			90	120		0~14	0~20	0~10	0.05	10^{-3}
	2				1.5							0~10	0~15	0~7	0.09	

Model **MRC**: Brass body, 2/2 way N.O., for water, air, gas, light oil.

Code (Port)	Fig. no.	Mat'l		Coil	Orifice mm	Temp. 5~°C						Working press. bar			CV	VAC. torr
						Coil 4, 3E			Coil 5			Coil 4	Coil 5	Coil 3E		
		Seal	Body			N	J	V	N	J	V	AC/DC				
03(1/8) 06(1/4) 10(3/8)	1	N J V	C	4 5 3E	1.6	90	120		90	150		0~16	0~24	0~16	0.10	10^{-3}
	2				2.0							0~13	0~20	0~13	0.15	
	3				2.2							0~10	0~16	0~10	0.17	
	4				2.5							0~7	0~10	0~7	0.20	10^{-2}
	5				3.0							0~5	0~7	0~5	0.31	

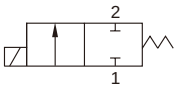
MUSC series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**

mindman



2/2 N.C.



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	18	24	8.6
DC (W)	6.0	6.8	5.2	15.0	18.5	10.0

Dimensions

Model	MUSC											
Code Dimension (mm)	03			06			08			10		
	2	3	2E	2	3	2E	4	5	3E	4	5	3E
L	25			30			40			42		
W	25	30		25	30		–			–		
H	58			63			86			87		
C	51			53			75			75		
D	18			23			31			31		
F	50			50			53			53		
M	M4			M4			M5			M5		
A	–			–			22			24		
N.W (kg)	0.18	0.23	0.5	0.23	0.28	0.55	0.50	0.58	0.79	0.52	0.60	0.81

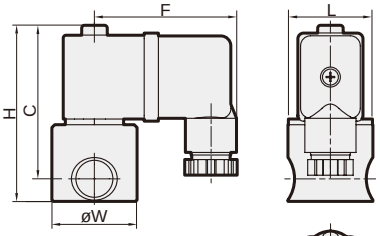
Order example

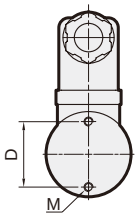
* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUSC – 06 – 2 – N – 3 – D – □ – AC110

MODEL	CODE	FIG.	SEAL MAT'L	COIL	PLUG	FIXED HOLE	VOLTAGE
	03: 1/8 **06**: 1/4 **08**: 1/4 **10**: 3/8	**1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**	**N**: NBR **J**: EPDM **V**: Viton **T**: Teflon (*1) **R**: RUBY (*1) **Z**: FFKM	**2**, **3**, **2E** **4**, **5**, **3E** (*2)	Blank: DIN **D**: LED **G**: 1/2" NPT **Y**: 2 wires (only for coil #2)	Blank: Opposite **A**: Diagonal hole (only for code **08**, **10**)	**AC220**V(50/60)Hz **AC110**V(50/60)Hz **DC24**V

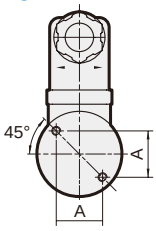
*1. When the seal material is (**T**) Teflon or (**R**) RUBY, the valve has slight leakage.
*2. Explosion-Proof (**2E/3E**) coil with LED (**D**) plug is not applicable.





A

Diagonal hole



Specification

Model **MUSC**: 303 S.S. body, for water, air, gas, light oil (50cst down), vacuum. 2/2 way N.C.

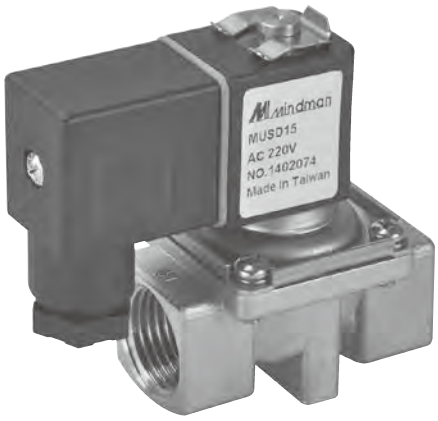
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C					Working pressuer 0~bar						CV	VAC. torr
					Coil 2/2E			Coil 3		Coil 2		Coil 3		Coil 2E			
					N	JV	TZ	N	JVTZ	AC	DC	AC	DC	AC	DC		
03(1/8) 06(1/4)	1	N J V T Z	2 3 2E	1.0	-5 ~ 80	-10 ~ 80	-20 ~ 80	-5 ~ 80	-10 ~ 145	30	30	30	30	30	30	0.03	10^{-2}
	2			1.3						30	24	30	30	30	30	0.05	
	3			1.6						30	20	30	30	30	24	0.09	
	4			2.0						16	11	22	20	17	14	0.14	
	5			2.5						10	7	12	10	10	8	0.18	10^{-1}
	6			3.0						6	4	8	8	7	5	0.27	
	8			5.0						1	0.2	2	0.5	1	0.1	0.40	10

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Max. O.P.D. bar (Min. 0 bar)						CV	VAC. torr
					Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E			
					N	JV	TRZ	N	JV	TRZ	AC	DC	AC	DC	AC	DC		
08(1/4) 10(3/8)	1	N J V T R Z	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	30	20	40	30	25	20	0.10	10^{-2}
	2			2.0							24	14	30	28	16	12	0.15	
	3			2.5							17	10	24	20	10	8	0.20	
	4			3.0							10	6	16	13	7	6	0.31	
	5			4.0							8	4	12	8	4.5	3.5	0.54	10^{-1}
	6			5.0							6	2	9	5	2.5	2	0.80	
	7			5.5							4	2	7	4	2	2	0.95	
	8			7.5							2	0.8	3	2	1	1	1.10	10
	9			10.0							0.8	0.4	1.6	0.8	0.4	0.4	1.30	

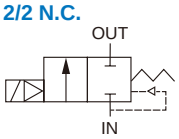
* Max. Orifice: 03/06 **T**=2.5mm, **Z**=3.0mm., 08/10 **J**=5.0mm, **T**=4.0mm, **R**=2.5mm, **Z**=5.0mm
* Seal **T** and **R** might have below 300cc/min. slight leakage, so it is not suitable for vacuum.

MUSD series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**



2/2 N.C.



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8.0	5.3
DC (W)	6.0	6.8	5.2

Dimensions

Model		MUSD
Code Dimension (mm)		**15**
L		55
H		72
W		38
C		60
D		24
N.W (kg)	Coil 2	0.26
	Coil 3	0.31
	Coil 2E	0.54

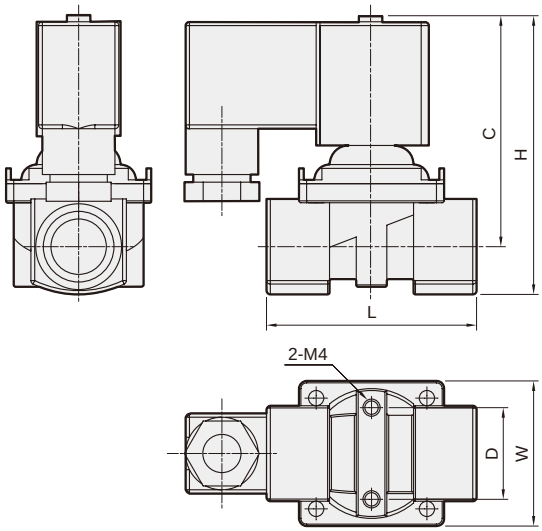
Order example

* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUSD — 15 — J — 5 — D — AC110

- MODEL
- CODE — **15**: 1/2
- SEAL MAT'L — **N**: NBR; **J**: EPDM; **V**: Viton
- COIL — **2**: #2; **3**: Bigger; **2E**: Explosion-Proof (*1)
- PLUG — Blank: DIN; **D**: LED; **G**: 1/2" NPT; **Y**: 2 wires (only for coil #2)
- VOLTAGE — **AC220**V(50/60)Hz; **AC110**V(50/60)Hz; **DC24**V

*1. Explosion-Proof (**2E**) coil with LED (**D**) plug is not applicable.



Specification

Model **MUSD**: SCS14 body, for water, air, gas, light oil. 2/2 way N.C.															
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C						Working press. (0.3~ bar)						CV
				Coil 2, 2E			Coil 3			Coil 2		Coil 3		Coil 2E		
				N	J	V	N	J	V	AC	DC	AC	DC	AC	DC	
15(1/2)	N J V	2 3 2E	15	-5 ~ 60	-10 ~ 80		-5 ~ 60	-15 ~ 120		5	1	10	3	5	1	2.0

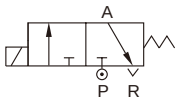
MUST series

3/2 WAY N.C. PLUNGER TYPE **SOLENOID VALVE**

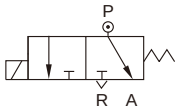
mindman



3/2 Function 1



3/2 Function 2



* O.P.D. of function 1, 2 refer to specification table.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	18.0	24.0	8.6
DC (W)	6.2	6.8	5.2	15.0	18.5	10.0

Dimensions

Model		MUST			
Code / Dimension (mm)		03	06	08	10
L		25	30	40	42
W	2	25	25	–	–
	3, 2E	30	30	–	–
F		22	22	29	29
H		58	63	86	87
C		51	53	75	75
D		18	23	31	31
M		M4	M4	M5	M5
A		–	–	22	24
N.W (kg)	2, 4	0.18	0.23	0.52	0.52
	3, 5	0.23	0.28	0.58	0.60
	2E, 3E	0.50	0.55	0.83	0.85

Order example

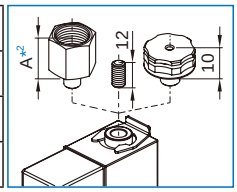
* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUST – 06 – 2 – N – C – 5 – D – S – AC110

- MODEL
- CODE: **03**: 1/8, **06**: 1/4, **08**: 1/4, **10**: 3/8
- FIG.: **1**, **2**, **3**, **4**, **5**, **6**, **7**
- SEAL MAT'L: **N**: NBR, **J**: EPDM, **V**: Viton, **Z**: FFKM
- COIL: **2**, **3**, **2E**, **4**, **5**, **3E** (*1)
- PLUG: Blank: DIN, **D**: LED, **G**: 1/2" NPT, **Y**: 2 wires (only for coil #2)
- (*3) FIXED HOLE: Blank: Opposite, **A**: Diagonal
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V

EXHUST ACCESSORIES

U	–	Without
F		PS female
C		Dust-proof & silencer cap
P		1/8" PS male

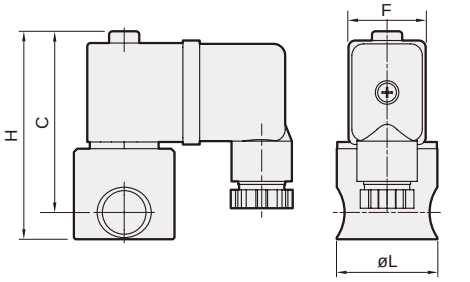


*1. Explosion-Proof (**2E/3E**) coil with LED (**D**) plug is not applicable.

*2.

Code	03	06	08	10
A	19	20	20	22

*3. Only for code **08**, **10**.

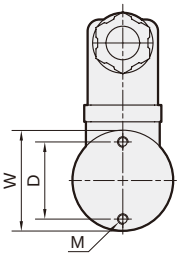


Specification

Model **MUST**: 303 S.S. bar body , for water, air, gas, light oil (50cst down) , vacuum. 3/2 way N.C., N.O.

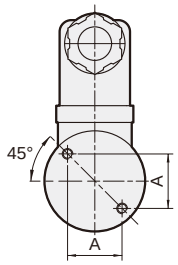
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp.°C					Working pressure (0~ bar)						CV	Torr
						Coil 2, 2E			Coil 3		Coil 2		Coil 3		Coil 2E			
				Body	Tube	N	J V	Z	N	JVZ	1	2	1	2	1	2		
03(1/8) 06(1/4)	2	N J V Z	2 3 2E	1.0	1.2	-5 ~ 80	-10 ~ 80	-20 ~ 80	-5 ~ 80	-10 ~ 145	6.5	7.0	8.0	9.0	5.5	5.5	0.03	10^{-1}
	3			1.3							6.0		7.0		4.8		0.05	
	4			1.6							4.0		5.5		3.5		0.09	
	5			2.0	1.5						2.8	5.0	3.5	7.0	2.0	3.5	0.14	
	6			2.5							1.2		1.5		0.8		0.18	

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C						Working pressure (0~ bar)						CV	Torr
						Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E			
				Body	Tube	N	JV	Z	N	JV	Z	1	2	1	2	1	2		
08(1/4) 10(3/8)	1	N J V Z	4 5 3E	1.3	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	9.0	10	12	12	8.0	10	0.05	10^{-2}
	2			1.6								7.0		8.5		6.0		0.10	
	3			2.0	2.0							5.5	8.0	7.0	10	5.0	8.0	0.15	
	4			2.5	2.5							4.0	6.5	5.5	8	3.0	6.5	0.20	
	5			3.0								2.5		4.0		2.0		0.31	
	6			4.0	3.0							1.5	4.5	2.5	5.5	1.5	4.5	0.51	10^{-1}
	7			5.0								1.0		1.5		0.8		0.65	



A

Diagonal hole

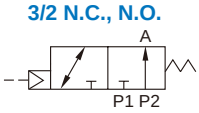


MUT series

3/2 WAY N.C., N.O. PLUNGER TYPE **SOLENOID VALVE**



3/2 N.C., N.O.



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.

Power consumption

Coil power	3	2E	4	3E
AC (VA)	8.0	4.8	15.4	9.2
DC (W)	6.8	5.2	15.0	10.0

Dimensions

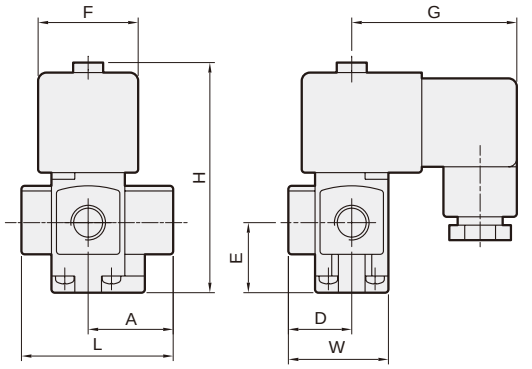
Model	MUT			
Code / Dimension (mm)	03	06	08	10
A	25.5		28.5	
D	19.0		22.5	
E	21.0		23.0	
F	30.0		30.0	
G	50.0		53.0	
H	69.0		87.0	
L	45.5		51.0	
W	30.5		39.0	
N.W (kg) 2, 4	0.34		0.5	
N.W (kg) 3, 5	0.31		0.6	
N.W (kg) 2E, 3E	0.58		0.8	

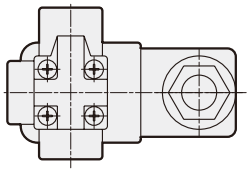
Order example

MUT – 10 – 2 – 3 – □ – AC110 – □

- **MODEL**
- **CODE**: **03**: 1/8, **06**: 1/4, **08**: 1/4, **10**: 3/8
- **FIG.**: **1**, **2**, **3**, **4**, **5**
- **COIL**: **2**, **3**, **2E**, **4**, **5**, **3E** (*)
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT
- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

* Explosion-Proof (**2E/3E**) coil with LED (**D**) plug is not applicable.





Specification

Model **MUT**: Forged brass body, 3/2 way N.C., N.O., for water, air, gas, light oil, vacuum.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Mat'l / Temp.°C / V	Max O.P.D. bar (Min. 0 bar) Coil 2 AC	Coil 3 DC	Coil 2E AC	Coil 2E DC	Cv	VAC. torr
03(1/8) 06(1/4)	1	V	2 3 2E	1.0	-5~95	6	6	6	4	0.02	10^{-2}
	2			1.3		5	5	5	3	0.03	
	3			1.6		3	3	2.5	1.5	0.05	
	4			2.0		2	2	1.5	1	0.09	10^{-1}

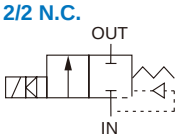
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Mat'l / Temp.°C / V	Max O.P.D. bar (Min. 0 bar) Coil 4 AC	Coil 5 DC	Coil 2E AC	Coil 2E DC	Cv	VAC. torr
08(1/4) 10(3/8)	1	V	4 5 3E	1.3	-5~95	10	15	10	7	0.07	10^{-2}
	2			1.6		7	12	7	5	0.10	
	3			2.0		6	10	6	3	0.15	
	4			2.4		5	8	5	2	0.20	10^{-1}
	5			3.0		3	5	3	1	0.31	

MWA / MWH / MWS series

2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**



2/2 N.C.



Specification

- IP65 waterproof coil.
- Ex coil is EExm II T4 PTB approval.
- Ambient temp.:-15~50°C
- Voltage tolerance: ±8%
- Installing position is free.
  (You'd better put the coil upright)
- Pilot piston series.

Power consumption

Coil power	4	5	3E
AC (VA)	17.6/15.4	33/23	9.2
DC (W)	15	18.5	10

Dimensions

Model	MWA / H / S				
Code Dimension (mm)	10/15	20	25	32/40	45/50
L	71	80	90	97	118
H	136	141	148	171	191
H'	122	114	127	142	156
W	51	61	71	76	95
N.W (kg)	1.3	1.5	1.9	2.9	4.5

Order example

* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MWA — 10 — N — 4 — □ — F — AC110

MODEL
MWA
MWH
MWS

CODE
10, **15**, **20**, **25**,
32, **40**, **45**, **50**

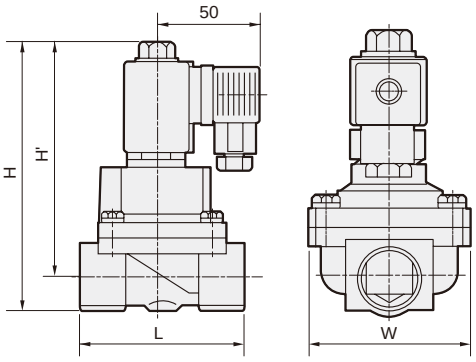
SEAL MAT'L
N: NBR
V: Viton
T: Teflon (*1)

COIL
4: #4
5: Bigger
3E: Explosion-Proof (*2)

PLUG
Blank: DIN
D: LED
G: 1/2" NPT
Y: Single frequency (only for coil #2)

CONN.
Blank: Screwed
F: Flanged
RF: Raised face flanged
(Custom order)

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V



*1. When the seal material is (**T**) Teflon, the valve has slight leakage.
*2. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

MWA / MWH / MWS

2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**

mindman

Specification

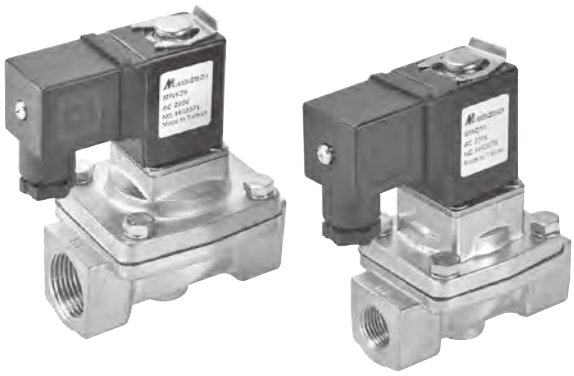
Model **MWA**: Forged brass body, 2/2 way N.C. for air, water, light oil, gas etc.												
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C	Max. O.P.D. bar (min. 0.5 bar)						CV
				Coil 4, 5, 3E	Coil 4		Coil 5		Coil 3E		
				N	AC	DC	AC	DC	AC	DC	
10(3/8)	N	4 5 3E	15	-5 ~ 80	12	6	16	10	7	4	3.0
15(1/2)			15		12	6	16	10	7	4	4.0
20(3/4)			20		12	6	16	10	7	4	6.8
25(1)			25		9	3	13	7	5	3	11.0
32(1 1/4)			31		9	3	13	7	5	3	16.0
40(1 1/2)			31		9	3	13	7	5	3	21.0
45(1 1/2)			41		6	2	10	5	3	1	26.0
50(2)			41		6	2	10	5	3	1	31.0

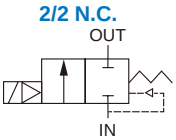
Model **MWH**: Forged brass body, 2/2 way N.C. for heavy oil. hight viscosity fluids (Max. 120 cst) etc.												
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C	Max. O.P.D. bar (min. 0.5 bar)						CV
				Coil 4, 5, 3E	Coil 4		Coil 5		Coil 3E		
				V	AC	DC	AC	DC	AC	DC	
10(3/8)	V	4 5 3E	15	-10 ~ 145	7	3	15	10	5	3	3.0
15(1/2)			15		7	3	15	10	5	3	4.0
20(3/4)			20		7	3	15	10	5	3	6.8
25(1)			25		5	2	13	7	4	2	11.0
32(1 1/4)			31		5	2	13	7	4	2	16.0
40(1 1/2)			31		5	2	13	7	4	2	21.0
45(1 1/2)			41		3	1	10	5	3	1	26.0
50(2)			41		3	1	10	5	3	1	31.0

Model **MWS**: Forged brass body, 2/2 way N.C. for steam. hight temp. fluids etc.												
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C		Max. O.P.D. bar (min. 0.5 bar)						CV
				Coil 4	Coil 5,3E	Coil 4		Coil 5		Coil 3E		
				T	T	AC	DC	AC	DC	AC	DC	
10(3/8)	T	4 5 3E	15	-10 ~ 155	-10 ~ 185	5	3	10	7	5	3	3.0
15(1/2)			15			5	3	10	7	5	3	4.0
20(3/4)			20			5	3	10	7	5	3	6.8
25(1)			25			4	2	10	5	4	2	11.0
32(1 1/4)			31			4	2	10	5	4	2	16.0
40(1 1/2)			31			4	2	10	5	4	2	21.0
45(1 1/2)			41			3	1	10	3	3	1	26.0
50(2)			41			3	1	10	3	3	1	31.0

MWD / MWK series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**





Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.

Dimensions

Model		MWD / MWK						
Code Dimension (mm)		10	15	20	25	32	40	45	50
L		77	82	93	101	101	123	123
H		107	111	119	135	135	150	150
W		51	61	72	76	76	95	95
N.W (kg)	Coil 4	0.83	1.0	1.4	2.0	1.9	3.7	3.2
	Coil 5	0.9	1.1	1.5	2.1	2.0	3.8	3.3
	Coil 3E	1.2	1.4	1.8	2.4	2.3	4.1	3.6

Order example

* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MWD — 15 — J — M — 5 — G — □ — AC110

- MODEL: **MWD**, **MWK**
- CODE: **10**, **15**, **20**, **25**, **32**, **40**, **45**, **50**
- SEAL MAT'L: **N**: NBR, **J**: EPDM, **V**: Viton
- MANUAL: Blank: Without, **M**: With
- COIL: **4**: #4, **5**: Bigger, **3E**: Explosion-Proof (*1)
- PLUG: Blank: DIN, **D**: LED, **G**: 1/2" NPT
- CONN.: Blank: Screwed
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V

*1. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

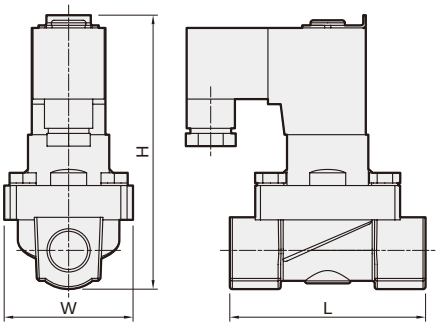
Power consumption

Coil power	4	5	3E
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

Specification

Model **MWD**: Forged brass body, 2/2 way N.C., O.P.D. 0.2 bar, for water, air, gas.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp.°C Coil 4, 5, 3E N	J	V	Working press. (0.2~ bar) Coil 4 AC	Coil 4 DC	Coil 5 AC	Coil 5 DC	Coil 3E AC	Coil 3E DC	CV
10(3/8)	N J V	4 5 3E	18	-10 ~ 80	-10 ~ 145		10	1.5	16	4.0	2.5	1.5	3.0
15(1/2)			18				10	1.5	16	4.0	2.5	1.5	4.0
20(3/4)			23				10	1.5	16	3.5	1.5	1.5	6.8
25(1)			28				10	1.5	13	3.0	1.5	1.5	11.0
32(1 1/4)			33				10	1.0	13	3.0	1.2	1.5	16.0
40(1 1/2)			33				10	1.0	13	3.0	1.2	1.5	21.0
45(1 1/2)			44				7.0	0.5	10	1.0	0.5	0.5	26.0
50(2)			44				7.0	0.5	10	1.0	0.5	0.5	31.0



Model **MWK**: Forged brass body, 2/2 way N.C., O.P.D. 0 bar, for water, air, gas, light oil, vacuum.

Code (Port)	Seal Mat'l	Coil	Orifice mm	Temp.°C Coil 4, 5, 3E N	J	V	Working press. (0~ bar) Coil 4 AC	Coil 5 AC	Coil 5 DC	Coil 3E AC	CV
10(3/8)	N J V	4 5 3E	18	-10 ~ 80	-10 ~ 145		10	16	4.0	2.5	3.0
15(1/2)			18				10	16	4.0	2.5	4.0
20(3/4)			23				10	15	3.5	1.5	6.8
25(1)			28				10	12	3.0	1.5	11.0
32(1 1/4)			33				10	12	1.5	1.5	16.0
40(1 1/2)			33				10	12	1.5	1.5	21.0
45(1 1/2)			44				6.0	10	1.0	1.0	26.0
50(2)			44				6.0	10	1.0	1.0	31.0

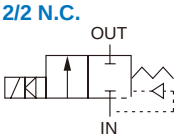
MYA / MYS series

2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**

mindman



2/2 N.C.



Specification

- Y type forged brass body.
- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

Coil power	4	5	3E
AC (VA)	17.6/15.4	33/23	9.2
DC (W)	15	18.5	10

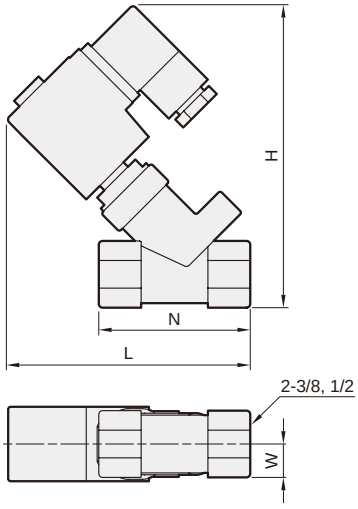
Dimensions

Model	MYA / MYS	
Code Dimension (mm)	10	15
H	118.0	
L	95.0	
N	59.0	
W	13.0	
N.W (kg)	0.55	

Order example

MYA — 10 — N — 4 — □ — AC110 — □

- MODEL: **MYA**, **MYS**
- CODE: **10**: 3/8, **15**: 1/2
- SEAL MAT'L: **N**: NBR, **J**: EPDM, **V**: Viton, **T**: Teflon (*1)
- COIL: **4**: #4, **5**: Bigger, **3E**: Explosion-Proof (*2)
- PLUG: Blank: DIN, **D**: LED, **G**: 1/2" NPT
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



*1. When the seal material is (**T**) Teflon, the valve has slight leakage.
*2. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

Model **MYA**: for water, air and high temp. fluids.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C				Working press. bar					CV
				Coil 4		Coil 5, 3E		Coil 4		Coil 5		Coil 3E	
				N	J, V	N	J, V	AC	DC	AC	DC	AC/DC	
10(3/8)	N, J, V	4, 5, 3E	12	95	120	95	145	0.3~16	0.3~10	0.3~20	0.3~12	0.3~5	1.9
15(1/2)			12					0.3~16	0.3~10	0.3~20	0.3~12	0.3~5	2.6

Model **MYS**: for steam and high temp. fluids.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C		Working press. bar					CV
				Coil 4, 3E	Coil 5	Coil 4		Coil 5		Coil 3E	
				T	T	AC	DC	AC	DC	AC/DC	
10(3/8)	T*	4, 5, 3E	12	158	185	0.3~5	0.3~2	0.3~10	0.3~7	0.3~5	1.9
15(1/2)			12			0.3~5	0.3~2	0.3~10	0.3~7	0.3~5	2.6

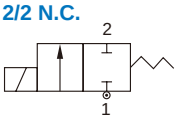
* Teflon seal will have 400 cc/min. down gas leakage.

MZS series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**



2/2 N.C.



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

Coil power	4	5	3E
AC (VA)	18.0	24.0	8.6
DC (W)	15.0	18.5	10.0

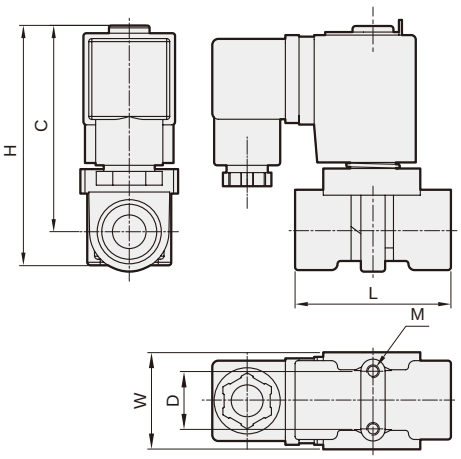
Dimensions

Model		MZS			
Code / Dimension (mm)		03	06	10	15
L		41		51.5	
W	Coil 4	32			
	Coil 5	36			
	Coil 3E	36			
H		74.5		80.5	
C		66		68	
D		16		19	
M		M3×0.5		M4×0.7	
N.W (kg)	Coil 4	0.37	0.36	0.45	0.43
	Coil 5	0.45	0.44	0.53	0.51
	Coil 3E	0.67	0.66	0.75	0.73

Order example

MZS – 06 – 2 – N – 5 – □ – AC110 – □

- **MODEL**
- **CODE**: **03**: 1/8", **06**: 1/4", **10**: 3/8", **15**: 1/2"
- **FIG.**: **1**, **2**, **3**, **4**, **5**, **6**
- **SEAL MAT'L**: **N**: NBR, **J**: EPDM, **V**: Viton, **T**: Teflon (*1), **R**: RUBY (*1), **Z**: FFKM
- **COIL**: **4**: #4, **5**: Bigger, **3E**: Explosion-Proof (*2)
- **PLUG**: Blank: DIN, **D**: LED, **G**: 1/2" NPT
- **VOLTAGE**: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- **PORT THREAD**: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



*1. When the seal material is (**T**) Teflon or (**R**) RUBY, the valve has slight leakage.
*2. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

Model **MZS**: Forged brass body, 2/2 way N.C., for water, air, gas, light oil (50cst down), vacuum etc.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp.°C						Max. O.P.D. bar (Min. 0 bar)						CV	VAC. torr
					Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E			
					N	JV	TRZ	N	JV	TRZ	AC	DC	AC	DC	AC	DC		
03(1/8) 06(1/4) 10(3/8) 15(1/2)	1	N J V T R Z	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	30	20	40	30	25	20	0.10	10^{-2}
	2			2.0							24	14	30	28	16	12	0.15	
	3			2.5							17	10	24	20	10	8	0.20	
	4			3.0							10	6	16	13	7	6	0.31	
	5			4.0							8	4	12	8	4.5	3.5	0.54	10^{-1}
	6			5.0							6	2	9	5	2.5	2	0.80	

* The max. orifice for seal T = 4.0mm, R = 2.5mm.
* Seal T and R will have slight leakage, so it will not be suitable for vacuum.

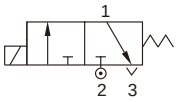
MZT series

3/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**

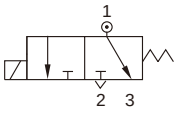
mindman



3/2 Function 1



3/2 Function 2



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

Coil power	4	5	3E
AC (VA)	18	24.0	8.6
DC (W)	15	18.5	10.0

Dimensions

Model		MZT			
Code / Dimension (mm)		03	06	10	15
L		41		51.5	
W	Coil 4	32			
	Coil 5	36			
	Coil 3E	36			
H		74.5		80.5	
C		66		68	
D		16		19	
M		M3×0.5		M4×0.7	
N.W (kg)	Coil 4	0.37	0.36	0.45	0.43
	Coil 5	0.45	0.44	0.53	0.51
	Coil 3E	0.70	0.69	0.78	0.76

Order example

MZT — 06 — 2 — N — C — 5 — D — AC110 — □

MODEL

CODE
- **03**: 1/8"
- **06**: 1/4"
- **10**: 3/8"
- **15**: 1/2"

FIG.
1, **2**, **3**, **4**, **5**, **6**, **7**

SEAL MAT'L
- **N**: NBR
- **J**: EPDM
- **V**: Viton
- **Z**: FFKM

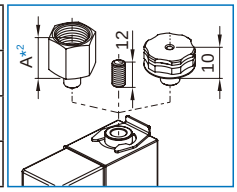
COIL
- **4**: Standard
- **5**: Bigger
- **3E**: Explosion-Proof (*1)

VOLTAGE
- **AC220**V(50/60)Hz
- **AC110**V(50/60)Hz
- **DC24**V

PORT THREAD
- Blank: Rc thread
- **G**: G thread
- **NPT**: NPT thread

EXHUST ACCESSORIES

U	–	Without
F		PS female
C		Dust-proof & silencer cap
P		1/8" PS male

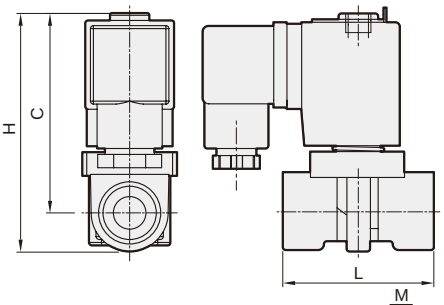


PLUG
- Blank: DIN
- **D**: LED
- **G**: 1/2" NPT

*1. Explosion-Proof (**3E**) coil with LED (**D**) plug is not applicable.

*2.

Code	03	06	10	15
A	19	20	22	–



Model **MZT**: Forged brass body, 3/2 way N.C., for water, air, gas, vacuum, light oil (50cst down) etc.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp.°C						Max. O.P.D bar (Min. 0 bar)						CV	VAC. torr
						Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E			
				Body	Top	N	JV	Z	N	JV	Z	AC/DC, Funtion							
												1	2	1	2	1	2		
03(1/8) 06(1/4) 10(3/8) 15(1/2)	1	N J V Z	4 5 3E	1.3	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	9	10	12	12	8	10	0.05	10^{-2}
	2			1.6								7		8.5		6		0.10	
	3			2.0	2.0							5.5	8	7	10	5	8	0.15	
	4			2.5	2.5							4	6.5	5.5	8	3	6.5	0.20	
	5			3.0	3.0							2.5	4.5	4	5.5	2	4.5	0.31	
	6			4.0								1.5		2.5		1.5		0.51	10^{-1}
	7			5.0								1		1.5		0.8		0.65	

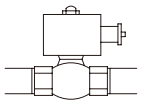
Quick reference chart normally closed & normally open

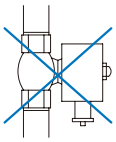
The spot indicated on the effective area present the more the better, ●●● the best, ●● better, good.

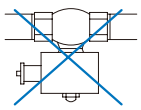
Model	MUD / MUS	MUA	MUDC	MSUS	MUAO	MUW	MUW-NO	MUW-F
Photograph								
Port size	1/8"~3/8"	1/4", 3/8"	1/4"~1"	1/8"~2"	1/4"~1/2"	3/8"~2"	3/8"~2"	1 1/4"~4"
Operating pressure (MPa)	0~2	0~1	0~0.1	0~1	0.05~1.5	0~2	0~0.7	0.02~0.8
Fluid temp. °C	-5~+130°C	-5~+80°C	-5~+80°C	-5~+185°C	-5~+80°C	-5~+80°C	-5~+80°C	-5~+80°C
Steam	●●			●●●				
Water	●●●	●●●	●●●	●●●	●●	●●●	●●●	●●●
Air	●●●	●●●	●●	●●●	●●●	●●●	●●●	●●●
Oil	●●			●●	●●●	●●	●●	●●
Gas	●●			●●			●●	
Vacuum	●●	●●		●●			●●	

Model	MUG / MUV	MUAW	MUS / MUS-F	MSUW	MSUW-F	MUPS
Photograph						
Port size	3/8"~2"	1/2"~2"	1/2"~4"	1/2"~2"	1/2"~2"	1/2"~1"
Operating pressure (MPa)	0~0.7	0.05~1.5	0.05~1	0~2	0~2	0.05~1
Fluid temp. °C	-5~+80°C	-5~+80°C	-5~+185°C	-5~+80°C	-5~+80°C	-5~+185°C
Steam			●●●			●●●
Water	●●	●●●	●●●	●●●	●●●	●●●
Air	●●	●●●	●●●	●●●	●●●	●●●
Oil			●●	●●	●●	●●
Gas	●●●					
Vacuum	●●●			●●	●●	

Prohibition vertical operation ⚠

1 

2 

3 

Caution

1. Pipes must be washed neat and clean before fitted.
2. A Y-strainer has to installed in the front of solenoid valve, that is best for long life.
3. Before installation, be sure what type of fluid, voltage, pressure and fluid temperature used.

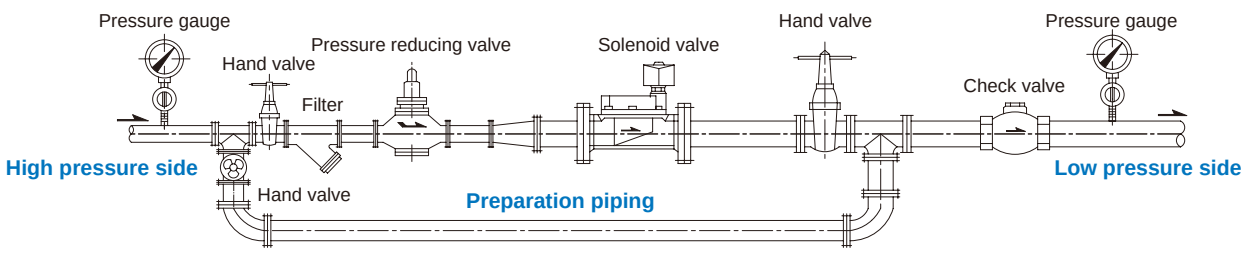
Remark

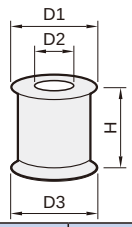
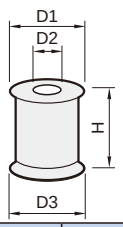
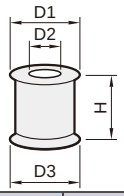
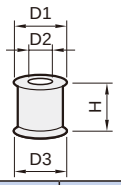
Wire color of outlet coil

Voltage	AC110V	AC220V	Other
Color	Blue	Red	Blue+Red

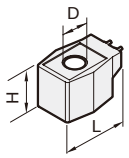
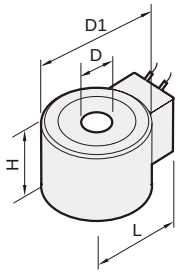
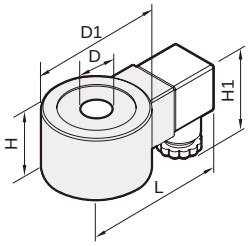
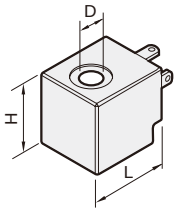
Standard voltage: AC 110V/220V (50/60)Hz

Detailed description of diagram



Type	XL type				L type				M type				S type			
Dimension (mm)																
	D1	**D2**	**D3**	**H**	**D1**	**D2**	**D3**	**H**	**D1**	**D2**	**D3**	**H**	**D1**	**D2**	**D3**	**H**
	ø60.7	ø23	ø63.2	53.1	ø42.3	ø11.6	ø44.4	42.1	ø42.5	ø16.5	ø44.4	34.4	ø37.3	ø14.2	ø37.5	29.2
Model	MUAW-15~50 MUS-15~50 MUDC(TF)-20~25				MUD-15 MUD-10(8mm)				MUA-10 MUS-10 MUD-10(H)(NO) MSUS-10 MUAO-8~15 MUDC-8~15(TF) MUW(F)-10~25(NO) MUW(F)-35-1~50-1(NO) MUV-10~50 MUG-10~50 MSUW(F)-10~25(NO) MSUW(F)-35-1~50-1(NO) MUPS(F)-15~25 MSUS(F)-15~50(NO) MUW-35F~100F(NO)				MUA-8 MUD-6~8(H) MUD-6 NO~8 NO MSUS-6 NO~8 NO			

Waterproof coil

Type	S type			M type				DIN 63650					NASS DIN 63650		
Dimension (mm)															
	D	**L**	**H**	**D**	**D1**	**L**	**H**	**D**	**D1**	**L**	**H**	**H1**	**D**	**L**	**H**
	ø14.1	50.5	32.4	ø16.3	ø56	69.3	38.2	ø16.3	ø56	97	38.2	52	ø14.6	71.1	42.3
Model	MUA-8 MUS-6~8 MSUS-6~8 MUD-6~8(H)			MUA-10 MUS-10 MUD-10(H)(NO) MSUS-10 MUAO-8~15 MUDC-8~15(TF) MUW(F)-10~25(NO) MUW(F)-35-1~50-1(NO)				MUV-10~50 MUG-10~50 MSUW(F)-10~25(NO) MSUW(F)-35-1~50-1(NO) MUPS(F)-15~25 MSUS(F)-15~50(NO) MUW-35F~100F(NO)					MUD-10 MSUS-10 MUW(F)-10~25 MUG-10~25 MUV-10~25 MSUW(F)-10~25 MUPS(F)-10~25 MSUS(F)-15~50		

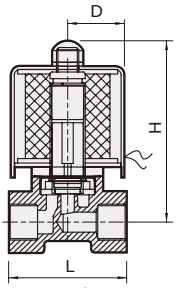
MUD / MUS series

2/2 WAY N.C., N.O. PLUNGER TYPE **SOLENOID VALVE**

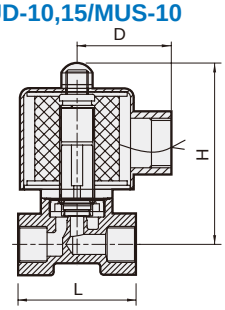
2 way normally closed / normally open solenoid valve.
Available fluid: Water, air, steam, light oil, gas & vacuum.



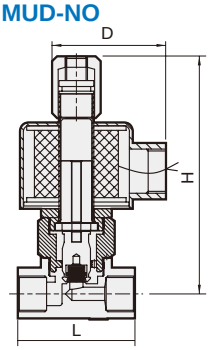
MUD/MUS-6,8

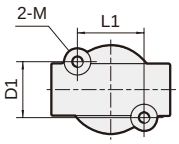


MUD-10,15/MUS-10

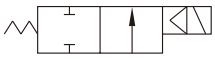


MUD-NO

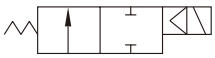




2/2 N.C.



2/2 N.O.



Specification

- Direct acting, conductive and normal close / normal open.
- Able to be operated under no pressure.
- MUD: Acceptable for customization: Viton(130°C), Silicon(130°C), EPDM(130°C) for seal plug.
- AC (DC) voltage tolerance: ±10% (±1%)

Material

Parts name	MUD	MUS
Body	Brass	
Coil	Special copper wire (H class)	
Tube	Stainless steel	
Spring	Stainless steel	
Core	Stainless steel	
Plug	NBR	PTFE (Teflon)
O-ring	NBR	PTFE (Teflon)

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- MUD: Viscosity over 20 cst.
- MUS: Viscosity over 50 cst.

Order example

MUD — 6 H — NO — □ — G — AC110 — G

- MODEL: **MUD**, **MUS**
- PORT SIZE: **6**: 1/8", **8**: 1/4", **10**: 3/8", **15**: 1/2"
- OPERATING PRESSURE: Blank: Standard, **H**: High pressure
- Blank: Normally closed, **NO**: Normally open
- COIL: Blank: Standard coil, **D**: Waterproof DIN (under130°C) (*1)
- FLUID:

W	Water, air
G	Gas
LO	Light oil (*2)
VA	Vacuum

(Only for **MUD**)

T	Steam

(Only for **MUS**)

- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

	Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)					Vacuum	Dimensions (mm)						Weight (kg)
							Water	Air	Steam	Light oil	Gas		L	H	D	L1	D1	M	
NC	**MUD-6**	●	Rc1/8"	0.23	2.5	-5~+80	0~0.7	0~0.7	–	0~0.7	0~0.7	0~10^{-3}Torr	41	66	21.5	23	19.3	M4×0.7	0.32
	MUD-8	●	Rc1/4"	0.23	2.5	-5~+80	0~0.7	0~0.7	–	0~0.7	0~0.7	0~10^{-3}Torr	41	66	21.5	23	19.3	M4×0.7	0.31
	MUD-8	●	Rc1/4"	0.58	4.0	-5~+80	0~0.3	0~0.3	–	0~0.3	0~0.3	0~10^{-3}Torr	41	66	21.5	23	19.3	M4×0.7	0.31
	MUD-8		Rc1/4"	0.79	6.0	-5~+80	0~0.1	0~0.1	–	0~0.1	0~0.1	0~10^{-3}Torr	41	66	21.5	23	19.3	M4×0.7	0.31
	MUD-8H		Rc1/4"	0.18	1.2	-5~+130	0~2	0~2	–	0~2	0~2	0~10^{-3}Torr	41	66	21.5	23	19.3	M4×0.7	0.31
	MUD-10	●	Rc3/8"	0.58	4.0	-5~+80	0~1	0~1	–	0~1	0~1	0~10^{-3}Torr	53	75	48	20	21.0	M5×0.8	0.53
	MUD-10		Rc3/8"	0.79	8.0	-5~+80	0~0.3	0~0.5	–	0~0.3	0~0.5	0~10^{-3}Torr	53	90	48	20	21.0	M5×0.8	0.65
	MUD-10H	●	Rc3/8"	0.45	2.0	-5~+130	0~2	0~2	–	0~2	0~2	0~10^{-3}Torr	53	75	48	20	21.0	M5×0.8	0.54
	MUD-15		Rc1/2"	0.58	8.0	-5~+80	0~0.3	0~0.5	–	0~0.3	0~0.5	0~10^{-3}Torr	53	90	48	20	21	M5×0.8	0.64
	MUS-6	●	Rc1/8"	0.23	2.5	-5~+185	–	–	0~0.7	–	–	–	41	66	21.5	–	–	–	0.32
	MUS-8	●	Rc1/4"	0.23	2.5	-5~+185	–	–	0~0.7	–	–	–	41	66	21.5	23	19.3	M4×0.7	0.32
	MUS-10	●	Rc3/8"	0.23	4.0	-5~+185	–	–	0~1	–	–	–	53	75	48	20	21.0	M5×0.8	0.54
NO	**MUD-6-NO**		Rc1/8"	0.23	2.5	-5~+80	0~0.7	0~0.7	–	0~0.7		0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.44
	MUD-8-NO		Rc1/4"	0.23	2.5	-5~+80	0~0.7	0~0.7	–	0~0.7		0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.43
	MUD-8-NO		Rc1/4"	0.58	4.0	-5~+80	0~0.3	0~0.3	–	0~0.3		0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.43
	MUD-8-NO		Rc1/4"	0.79	6.0	-5~+80	0~0.1	0~0.1	–	0~0.1		0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.43
	MUD-8H-NO		Rc1/4"	0.18	1.2	-5~+130	0~2	0~2	–	0~2		0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.43
	MUD-10-NO	●	Rc3/8"	0.58	4.0	-5~+80	0~1	0~1	–	0~1		0~10^{-3}Torr	53	105	48	20	21.0	M5×0.8	0.7

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.
* MUD-6,8-NO: Voltage at DC24V, H: 79.5mm.

MUA series

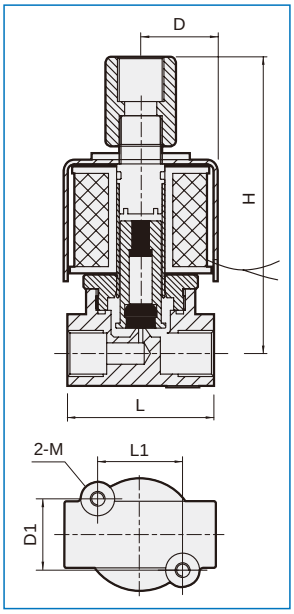
3/2 WAY N.C. PLUNGER TYPE **SOLENOID VALVE**

2 way normally closed solenoid valve
Available fluid: Water, air, vacuum.



3/2 N.C.





Specification

- MUA series is direct acting, conductive and normal close.
- Able to be operated under no differential pressure.
- Applied to the equipment need to exhaust after power-off.
- Acceptable for customization : Viton (130°C) for seal plug.
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Forge brass
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
O-ring	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- Temperature over 80°C.

Order example

MUA — 8 — □ — □ — AC110 — G

- MODEL
- PORT SIZE
  8: 1/4"
  10: 3/8"
- COIL
  Blank: Standard coil
  D: Waterproof DIN (under 130°C)
  * Please order according to the specification sheet.
- FLUID
  W: Water, air
  VA: Vacuum
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)		Vacuum	Dimensions (mm)						Weight (kg)
						Water	Air		L	H	D	L1	D1	M	
MUA-8		Rc1/4"	0.10	1.2	-5~+80	0~1	0~1	$0\sim10^{-3}$Torr	41	87	21.5	23	19.3	M4×0.7	0.38
MUA-10	●	Rc3/8"	0.12	1.5	-5~+80	0~1	0~1	$0\sim10^{-3}$Torr	53	93	48	20	21	M5×0.8	0.57

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

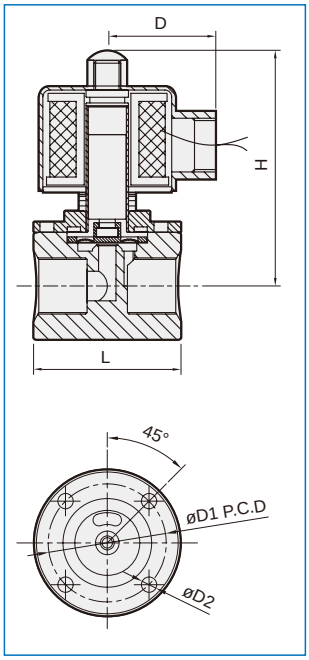
MUDC series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

2 way normally closed solenoid valve
Available fluid: Air, water, corrosive fluid



2/2 N.C.



Specification

- Direct acting, conductive to diaphragm, normal closed.
- Can be operated under no differential pressure.
- PVC valve body is corrosion-resistant (pH 3~11).
- PTFE valve body is corrosion-resistant (pH 0~14).
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Model / Parts name	MUDC	MUDC-TF
Body	PVC	PTFE (Teflon)
Coil	Special copper wire (H class)	
Core	Stainless steel	
Tube	Stainless steel	
Spring	Stainless steel	
Washer	Synthetic rubber	
Diaphragm	PTFE (Teflon)	

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Viscosity over 20 cst.
- Temperature over 80°C.

Order example

MUDC — 8 — □ — □ — AC110 — G

- MODEL
- PORT SIZE: **8**: 1/4", **10**: 3/8", **15**: 1/2", **20**: 3/4", **25**: 1"
- BODY: Blank: PVC; **TF**: PTFE (Teflon)
- COIL: Blank: Standard coil; **D**: Waterproof DIN (under130°C)
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

* Please order according to the specification sheet.

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)		Dimensions (mm)					Weight (kg)
						Water	Air	L	H	D	D1	D2	
MUDC-8	●	Rc1/4"	0.28	6.5	-5~+80	0~0.1	0~0.1	50	90	48	45	5.2	0.53
MUDC-10	●	Rc3/8"	0.28	6.5	-5~+80	0~0.1	0~0.1	50	90	48	45	5.2	0.52
MUDC-15	●	Rc1/2"	0.28	6.5	-5~+80	0~0.1	0~0.1	55	93	48	45	5.2	0.58
MUDC-20		Rc3/4"	3.5	10	-5~+80	0~0.1	0~0.1	76	119	58	–	–	1.84
MUDC-25		Rc1"	3.5	10	-5~+80	0~0.1	0~0.1	76	119	58	–	–	1.80
MUDC-8-TF	●	Rc1/4"	0.28	6.5	-5~+80	0~0.1	0~0.1	50	90	48	45	5.2	0.53
MUDC-10-TF	●	Rc3/8"	0.28	6.5	-5~+80	0~0.1	0~0.1	50	90	48	45	5.2	0.52
MUDC-15-TF	●	Rc1/2"	0.28	6.5	-5~+80	0~0.1	0~0.1	55	93	48	45	5.2	0.58
MUDC-20-TF		Rc3/4"	4	13.0	-5~+80	0~0.05	0~0.05	76	119	58	–	–	1.76
MUDC-25-TF		Rc1"	4	13.0	-5~+80	0~0.05	0~0.05	76	119	58	–	–	1.73

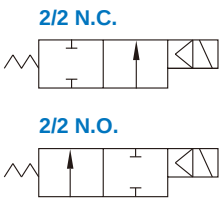
* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

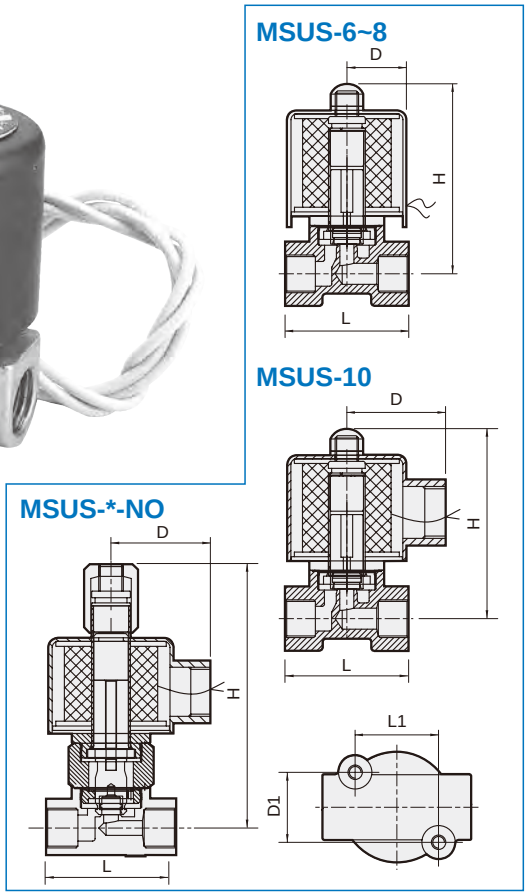
MSUS series Low flow

2/2 WAY N.C., N.O. PLUNGER TYPE SOLENOID VALVE

2 way normally closed / normally open solenoid valve.
Available fluid: Water, air, steam, gas, light oil & vacuum.







Specification

- Direct acting,conduct and normally closed / normally open
- Able to be operated under no differential pressure.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug.
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Parts name	MSUS	MSUS-NO
Body	Stainless steel #304 (option #316)	
Coil	Special copper wire (H class)	
Core	Stainless steel	
Tube	Stainless steel	
Spring	Stainless steel	
Plug	PTFE, NBR	Viton
O-ring	PTFE, NBR	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- N.C.: Viscosity over 50 cst.
  N.O.: Viscosity over 20 cst.

Order example

MSUS — 8 — NO — □ — G — AC110 — G

- MODEL: MSUS
- PORT SIZE: **6**: 1/8", **8**: 1/4", **10**: 3/8"
- Blank: Normally closed; **NO**: Normally open
- COIL: Blank: Standard coil; **D**: Waterproof DIN (under 130°C)(*1)
- FLUID: **T**: Steam; **G**: Gas; **LO**: Light oil (*2); **VA**: Vacuum; **W**: Water, air
- VOLTAGE: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz; **DC24**V
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

	Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa) (*1)					Vacuum	Dimensions (mm)						Weight (kg)
							Water	Air	Steam	Light oil	Gas		L	H	D	L1	D1	M	
NC	**MSUS-6**	●	Rc1/8"	0.23	2.5	-5~+185	0~0.7	0~0.7	0~0.7	0~0.7	0~0.7	0~10^{-3}Torr	41	68	21.5	23	19.3	M4×0.7	0.34
	MSUS-8	●	Rc1/4"	0.23	2.5	-5~+185	0~0.7	0~0.7	0~0.7	0~0.7	0~0.7	0~10^{-3}Torr	41	68	21.5	23	19.3	M4×0.7	0.33
	MSUS-10	●	Rc3/8"	0.58	4.0	-5~+185	0~1	0~1	0~1	0~1	0~1	0~10^{-3}Torr	53	83	48	20	21	M5×0.8	0.54
NO	**MSUS-6-NO**		Rc1/8"	0.23	2.5	-5~+130	0~0.7	0~0.7	0~0.7	0~0.7	0~0.7	0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.34
	MSUS-8-NO		Rc1/4"	0.23	2.5	-5~+130	0~0.7	0~0.7	0~0.7	0~0.7	0~0.7	0~10^{-3}Torr	41	87	21.5	23	19.3	M4×0.7	0.33
	MSUS-10-NO	●	Rc3/8"	0.58	4.0	-5~+130	0~1	0~1	0~0.7	0~0.7	0~1	0~10^{-3}Torr	53	105	48	20	21	M5×0.8	0.54

*1. When the fluid is steam or light oil, the plug material is PTFE; When the fluid is gas or vacuum, the plug material is NBR.
When the fluid is water or air, the plug material is PTFE or NBR.
*2. The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

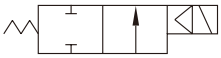
MSUS series High flow

2/2 WAY N.C., N.O. PISTON TYPE **SOLENOID VALVE**

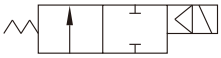
2 way normally closed / normally open solenoid valve.
Available fluid: Water, air, steam & light oil.



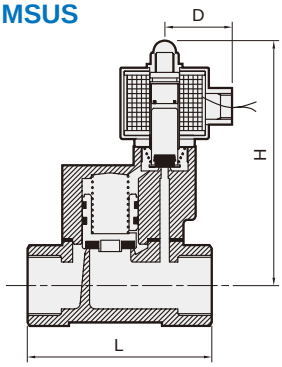
2/2 N.C.



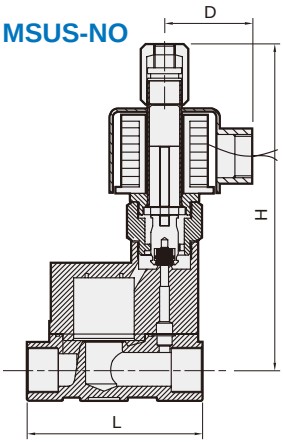
2/2 N.O.



MSUS



MSUS-NO



Specification

- MSUS series is multiplex acting, piston guide, conductive normal close / normal open.
- Acceptable for customize Viton , Silicone and EPDM for seal plug.
- AC voltage tolerance: ±10%, DC voltage tolerance: ±1%

Material

Parts name	MSUS	MSUS-NO
Body	Stainless steel #304 (option #316)	
Coil	Special copper wire (H class)	
Tube	Stainless steel	
Spring	Stainless steel	
Core	Stainless steel	
Plug	PTFE (Teflon)	Viton
Piston spring	Stainless steel	
Piston	Stainless steel	
Piston plug	PTFE (Teflon)	

Caution

- Min pressure to open (N.C.): over 0.05~0.1 MPa
  Min pressure to close (N.O.): over 0.05~0.1 MPa
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MSUS — 35 — NO — □ — □ — AC110 — G

- MODEL
- PORT SIZE
  - **15**: 1/2"
  - **20**: 3/4"
  - **25**: 1"
  - **35**: 1 1/4"
  - **40**: 1 1/2"
  - **50**: 2"
- Blank: Normally closed
  NO: Normally open
- COIL
  - Blank: Standard coil
  - **D**: Waterproof DIN (under130°C)
- FLUID
  - **T**: Steam
  - **LO**: Light oil (*)
  - **W**: Water, air
  - * Note, if diesel fuel or gasoline.
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

	Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)				Dimensions (mm)			Weight (kg)
							Water	Air	Steam	Light oil	L	H	D	
NC	MSUS-15	●	Rc1/2"	4	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	84	115	48	1.38
	MSUS-20	●	Rc3/4"	6	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	84	120	48	1.43
	MSUS-25	●	Rc1"	12	22	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	98	132	48	1.88
	MSUS-35	●	Rc1 1/4"	18	30	-5~+185	0.1~1	0.1~1	0.1~1	0.1~1	123	142	48	2.62
	MSUS-40	●	Rc1 1/2"	22	30	-5~+185	0.1~1	0.1~1	0.1~1	0.1~1	123	146	48	2.72
	MSUS-50	●	Rc2"	48	50	-5~+185	0.1~1	0.1~1	0.1~1	0.1~1	167	173	48	5.45
NO	MSUS-15-NO	●	Rc1/2"	4	17	-5~+130	0.05~1	0.05~1	0.05~1	0.05~0.8	84	147	48	1.52
	MSUS-20-NO	●	Rc3/4"	6	17	-5~+130	0.05~1	0.05~1	0.05~1	0.05~0.8	84	151	48	1.58
	MSUS-25-NO	●	Rc1"	12	22	-5~+130	0.05~1	0.05~1	0.05~1	0.05~0.8	98	162	48	2.0
	MSUS-35-NO	●	Rc1 1/4"	18	30	-5~+130	0.1~1	0.1~1	0.1~1	0.05~0.8	123	173	48	2.8
	MSUS-40-NO	●	Rc1 1/2"	22	30	-5~+130	0.1~1	0.1~1	0.1~1	0.05~0.8	123	175	48	2.9
	MSUS-50-NO	●	Rc2"	48	50	-5~+130	0.1~0.8	0.1~0.8	0.1~0.8	0.05~0.8	167	203	48	5.7

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

MUAO series

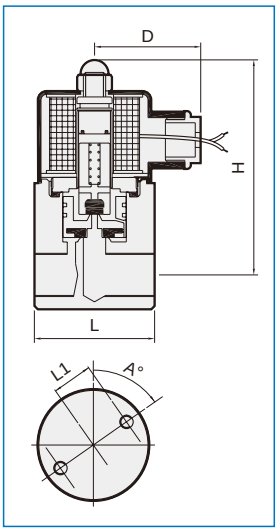
2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**

2-WAY normally closed solenoid valve.
Available fluid: Water, air, & oil.



2/2 N.C.





Specification

- Multiplex acting, piston guide, conductive normal close.
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%
- Applied to sand blasting machine and high-pressure air and oil injection system.

Material

Parts name	Material
Body	Brass
Coil	Special copper wire (H class)
Tube	Stainless steel
Spring	Stainless steel
Core	Stainless steel
Plug	NBR
Piston	Brass
Piston plug	NBR

Caution

- Min pressure to open: over 0.05 MPa
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.
- Temperature over 80°C.

Order example

MUAO — 8 — □ — HO — AC110 — G

- MODEL
- PORT SIZE
  8: 1/4"
  10: 3/8"
  15: 1/2"
- COIL
  Blank: Standard coil
  D: Waterproof DIN (under130°C)
- FLUID
  W: Water, air
  HO : Heavy oil (*)
  * Please indicate the kind.
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)			Dimensions (mm)						Weight (kg)
						Water	Air	Heavy oil	L	H	D	L1	A	M	
MUAO-8	●	Rc1/4"	2.5	10	-5~+80	0.05~1.5	0.05~1.5	0.05~1.5	50	95	48	18	55°	M6×1.0	1.13
MUAO-10	●	Rc3/8"	2.5	10	-5~+80	0.05~1.5	0.05~1.5	0.05~1.5	50	95	48	18	55°	M6×1.0	1.10
MUAO-15	●	Rc1/2"	2.5	10	-5~+80	0.05~1.5	0.05~1.5	0.05~1.5	54	100	48	18	55°	M6×1.0	1.23

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

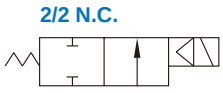
MUW series

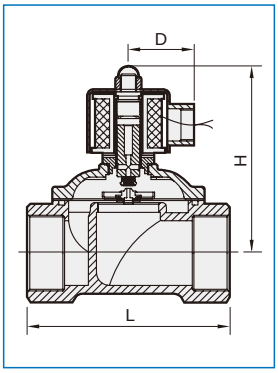
2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

2-WAY normally closed solenoid valve.
Available fluid: Water, air & light oil.



2/2 N.C.





Specification

- Direct and multiplex acting, connected diaphragm, normal close.
- Can be operated directly under low pressure.
- Acceptable for customization Viton (130°C) , Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- AC voltage tolerance: ±10%, DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Forged brass
Coil	Special copper wire (H)
Tube	Stainless steel
Spring	Stainless steel
Core	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Pipes must be washed neat and clean before fitted.
- A Y-STRAINER has to be installed in the front of solenoid valve, that is best for long life.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUW — 20 — □ — LO — AC110 — G

- MODEL
- PORT SIZE: **10**: 3/8", **15**: 1/2", **20**: 3/4", **25**: 1", **35-1**: 1 1/4", **40-1**: 1 1/2", **50-1**: 2"
- COIL: Blank: Standard coil; **D**: Waterproof DIN (under130°C)
- FLUID: **W**: Water, air; **LO**: Light oil (*); * Note, if diesel fuel or gasoline.
- VOLTAGE: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz; **DC24**V
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)			High pressure type		Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Water	Air	L	H	D	
MUW-10	●	Rc3/8"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	70	100	48	1.01
MUW-15	●	Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	70	100	48	1
MUW-20	●	Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	73	107	48	1.14
MUW-25	●	Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	100	112	48	1.7
MUW-35-1	●	Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	125	113	48	2.32
MUW-40-1	●	Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	125	118	48	2.53
MUW-50-1	●	Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	167	125	48	4.32

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

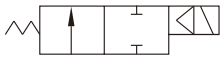
MUW-NO series

2/2 WAY N.O. DIAPHRAGM TYPE **SOLENOID VALVE**

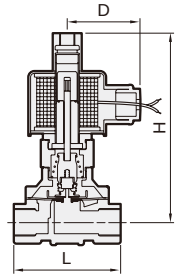
2-WAY normally open solenoid valve.
Available fluid: Water, air, light oil, gas & vacuum.



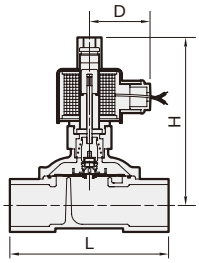
2/2 N.O.



MUW-10~25-NO



MUW-35~50-NO



Specification

- Direct and multiplex acting, connected diaphragm, normal open.
- Can be operated directly under low pressure.
- Acceptable for customization Viton (130°C) , Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Forge brass
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUW — 20 — NO — □ — G — AC110 — G

- MODEL: MUW
- PORT SIZE: **10**: 3/8", **15**: 1/2", **20**: 3/4", **25**: 1", **35-1**: 1 1/4", **40-1**: 1 1/2", **50-1**: 2"
- **NO**: Normally open
- COIL: Blank: Standard coil; **D**: Waterproof DIN (under130°C)
- FLUID: **W**: Water, air; **G**: Gas; **LO**: Light oil (*); **VA**: Vacuum
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

* Note, if diesel fuel or gasoline.

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)				Vacuum	Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Gas		L	H	D	
MUW-10-NO	•	Rc3/8"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	70	128	48	1
MUW-15-NO	•	Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	70	128	48	0.98
MUW-20-NO	•	Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	73	133	48	1.12
MUW-25-NO	•	Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	100	138	48	1.7
MUW-35-1-NO	•	Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	125	139	48	2.5
MUW-40-1-NO	•	Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	125	145	48	2.9
MUW-50-1-NO	•	Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	$0\sim10^{-3}$Torr	167	156	48	4.5

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

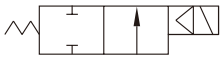
MUW-F series

2/2 WAY N.C., N.O. DIAPHRAGM TYPE **SOLENOID VALVE**

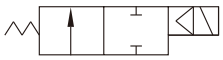
2-WAY normally closed and normally open solenoid valve.
Available fluid: Water, air, light oil.



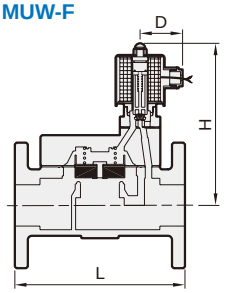
2/2 N.C.



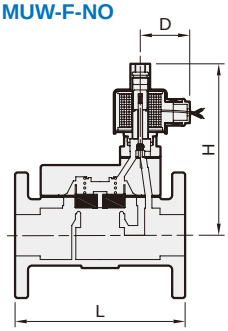
2/2 N.O.



MUW-F



MUW-F-NO



Specification

- Multiplex acting, piston guiding, conductive and normal close / normal open.
- Acceptable for customize Viton (130°C) , Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- Flange: JIS 10K (Option: ANSI 150LB or PN-16)
- AC voltage tolerance: ±10%, DC voltage tolerance: ±1%

Material

Parts name	Material
Body	FC-20
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Min pressure to open (N.C.): over 0.05 MPa
  Min pressure to close (N.O.): over 0.05 MPa
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUW — 40F — NO — □ — □ — AC110

- MODEL: MUW
- PORT SIZE: **35**: 1 1/4", **40**: 1 1/2", **50**: 2", **65**: 2 1/2", **80**: 3", **100**: 4"
- Blank: Normally closed, **NO**: Normally open
- COIL: Blank: Standard coil, **D**: Waterproof DIN (under130°C)
- FLUID: **W**: Water, air; **LO**: Light oil (*)
  * Note, if diesel fuel or gasoline.
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V

	Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)			Dimensions (mm)			Weight (kg)
							Water	Air	Light oil	L	H	D	
NC	**MUW-35F**	●	Rc1 1/4"	22	35	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	200	164	48	8.9
	MUW-40F	●	Rc1 1/2"	30	40	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	200	164	48	9.6
	MUW-50F	●	Rc2"	40	50	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	210	170	48	11.3
	MUW-65F	●	Rc2 1/2"	68	65	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	240	177	48	15.6
	MUW-80F	●	Rc3"	102	80	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	300	191	48	20.8
	MUW-100F	●	Rc4"	180	100	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	340	207	48	31.7
NO	**MUW-35F-NO**	●	Rc1 1/4"	22	35	-5~+80	0.02~0.8	0.02~0.8	0.05~0.5	200	195	48	9.1
	MUW-40F-NO	●	Rc1 1/2"	30	40	-5~+80	0.02~0.8	0.02~0.8	0.05~0.5	200	195	48	9.8
	MUW-50F-NO	●	Rc2"	40	50	-5~+80	0.02~0.8	0.02~0.8	0.05~0.5	210	208	48	11.5
	MUW-65F-NO	●	Rc2 1/2"	68	65	-5~+80	0.02~0.8	0.02~0.8	0.05~0.5	240	213	48	15.8
	MUW-80F-NO	●	Rc3"	102	80	-5~+80	0.02~0.8	0.02~0.8	0.05~0.5	300	222	48	21.0
	MUW-100F-NO	●	Rc4"	180	100	-5~+80	0.02~0.8	0.02~0.8	0.05~0.5	340	238	48	31.9

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

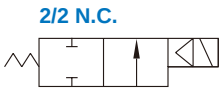
MUG / MUV series

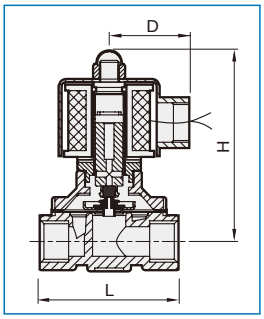
2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

2-WAY normally closed solenoid valve.
Available fluid: Gas, vacuum.



2/2 N.C.





Specification

- Direct and multiplex acting, connected diaphragm, normal close.
- Can be operated under no differential pressure.
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Parts name	MUG	MUV
Body	Forge brass	
Coil	Special copper wire (H)	
Core	Stainless steel	
Tube	Stainless steel	
Spring	Stainless steel	
Plug	NBR	
Diaphragm	NBR for gas use	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUG — 20 — □ — AC110 — G

MODEL
MUG: Gas
MUV: Vacuum

PORT SIZE
10: 3/8"
15: 1/2"
20: 3/4"
25: 1"
35: 1 1/4"
40: 1 1/2"
50: 2"

COIL
Blank: Standard coil
D: Waterproof DIN (under130°C)

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa) for Gas	Vacuum Torr	Dimensions (mm)			Weight (kg)
								L	H	D	
MUG/V-10	●	Rc3/8"	4.5	15	-5~+80	0~0.7	$0\sim10^{-3}$	70	100	48	1.01
MUG/V-15	●	Rc1/2"	4.5	15	-5~+80	0~0.7	$0\sim10^{-3}$	70	100	48	1.00
MUG/V-20	●	Rc3/4"	8.6	20	-5~+80	0~0.7	$0\sim10^{-3}$	73	102	48	1.13
MUG/V-25	●	Rc1"	12.0	25	-5~+80	0~0.7	$0\sim10^{-3}$	100	112	48	1.70
MUG/V-35	●	Rc1 1/4"	24.0	35	-5~+80	0~0.7	$0\sim10^{-3}$	125	113	48	2.32
MUG/V-40	●	Rc1 1/2"	28.0	40	-5~+80	0~0.7	$0\sim10^{-3}$	125	118	48	2.53
MUG/V-50	●	Rc2"	48.0	50	-5~+80	0~0.7	$0\sim10^{-3}$	167	125	48	4.32

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

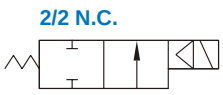
MUAW series

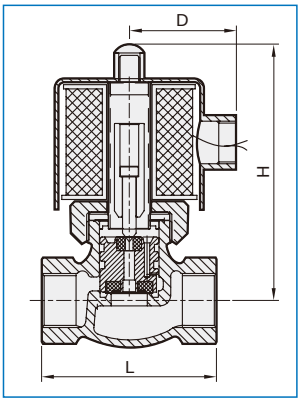
2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**

2-WAY normally closed solenoid valve.
Available fluid: Water, air.



2/2 N.C.





Specification

- MUAW series is multiplex acting, piston guide, conductive and normal close.
- AC voltage tolerance: ±10%, DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Cast bronze
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	PTFE+15%GF
Piston	Brass
Piston plug	NBR

Caution

- Min pressure to open: over 0.05~0.1 MPa.
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.
- Temperature over 80°C.

Order example

MUAW — 25 — AC110 — G

MODEL	PORT SIZE	VOLTAGE	PORT THREAD
	15: 1/2" **20**: 3/4" **25**: 1" **35**: 1 1/4" **40**: 1 1/2" **50**: 2"	**AC220**V(50/60)Hz **AC110**V(50/60)Hz **DC24**V	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)		Dimensions (mm)			Weight (kg)
						Water	Air	L	H	D	
MUAW-15		Rc1/2"	4.0	17	-5~+80	0.05~1	0.05~1.5	82	125	58	1.60
MUAW-20		Rc3/4"	6.0	17	-5~+80	0.05~1	0.05~1.5	82	125	58	1.67
MUAW-25		Rc1"	12.0	22	-5~+80	0.05~1	0.05~1.5	91	133	58	2.02
MUAW-35		Rc1 1/4"	18.0	30	-5~+80	0.1~1	0.1~1.5	111	141	58	3.08
MUAW-40		Rc1 1/2"	22.0	32	-5~+80	0.1~1	0.1~1.5	111	144	58	3.10
MUAW-50		Rc2"	48.0	50	-5~+80	0.1~1	0.1~1.5	163	175	58	6.82

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

MUS / MUS-F series

2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**

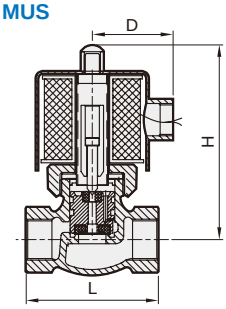
2-WAY normally closed solenoid valve.
Available fluid: Water, air, steam, light oil & heavy oil.



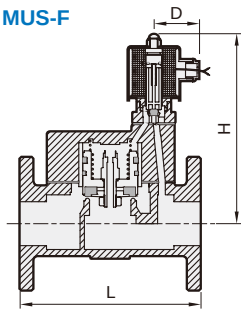
2/2 N.C.



MUS



MUS-F



Specification

- MUS/MUS-F series is multiplex-drive, piston guide, connected normal close.
- Acceptable for customization Viton (130°C) , Silicone (130°C) and EPDM (130°C) for seal plug.
- Flange: JIS 10K (Option: ANSI 150LB or PN-16)
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Model / Parts name	MUS	MUS-F
Body	Cast bronze	Cast Iron (FC-20)
Coil	Special copper wire (H class)	
Tube	Stainless steel	
Spring	Stainless steel	
Core	Stainless steel	
Plug	PTFE+15%GF	PTFE (Teflon)
Piston	Brass	
Piston plug	PTFE (Teflon)	

Caution

- Min pressure to open 0.05 MPa (over 1 1/4" is 0.1 MPa)
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Order example

MUS — 35 F — □ — □ — AC110 — G

MODEL

PORT SIZE
15: 1/2"
20: 3/4"
25: 1"
35: 1 1/4"
40: 1 1/2"
50: 2"
65: 2 1/2"
80: 3"
100: 4"

COIL
Blank: Standard coil
D: Waterproof DIN (under 130°C)(*1)

FLUID
T: Steam
LO: Light oil (*2)
HO: Heavy oil (*3)
W: Water, air

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread
(Only for standard type)

TYPE
Blank: Standard



F: Flange



VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.
*3. Please indicate the kind.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- Temperature over 185°C.

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)				Dimensions (mm)			Weight (kg)
						Steam	Water, air	Heavy oil	Light oil	L	H	D	
MUS-15		Rc1/2"	4.0	17	-5~+185	0.05~1	—	0.05~1	0.05~1	82	125	58	1.60
MUS-20		Rc3/4"	6.0	17	-5~+185	0.05~1	—	0.05~1	0.05~1	82	125	58	1.67
MUS-25		Rc1"	12.0	22	-5~+185	0.05~1	—	0.05~1	0.05~1	91	133	58	2.02
MUS-35		Rc1 1/4"	18.0	30	-5~+185	0.1~1	—	0.1~1	0.1~1	111	141	58	3.08
MUS-40		Rc1 1/2"	22.0	30	-5~+185	0.1~1	—	0.1~1	0.1~1	111	144	58	3.10
MUS-50		Rc2"	48.0	50	-5~+185	0.1~1	—	0.1~1	0.1~1	163	175	58	6.82
MUS-35F	●	1 1/4"	22	35	-5~+185	0.1~1	0.1~1	—	0.1~1	200	189	48	10.7
MUS-40F	●	1 1/2"	30	40	-5~+185	0.1~1	0.1~1	—	0.1~1	200	189	48	11.9
MUS-50F	●	2"	40	50	-5~+185	0.1~1	0.1~1	—	0.1~1	210	202	48	13.2
MUS-65F	●	2 1/2"	68	65	-5~+185	0.1~1	0.1~1	—	0.1~1	240	209	48	19.2
MUS-80F	●	3"	100	80	-5~+185	0.1~1	0.1~1	—	0.1~1	300	228	48	27.0
MUS-100F	●	4"	175	100	-5~+185	0.1~1	0.1~1	—	0.1~1	340	244	48	38.7

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

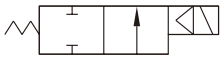
MSUW / MSUW-NO series

2/2 WAY N.C., N.O. DIAPHRAGM TYPE **SOLENOID VALVE**

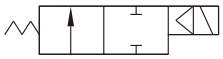
2-WAY normally closed / normally open solenoid valve.
Available fluid: Water, air, light oil, gas and vacuum.



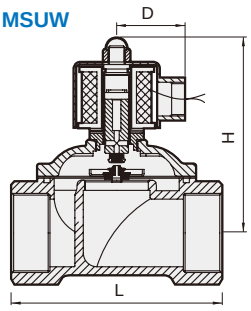
2/2 N.C.



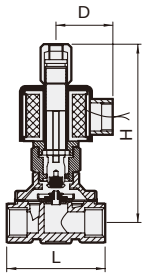
2/2 N.O.



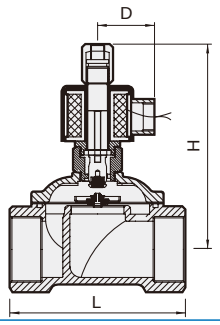
MSUW



MSUW-15~25-NO



MSUW-35~50-NO



Specification

- Direct and multiplex drive, connected diaphragm, normal close / normal open.
- Can be operated directly under low pressure.
- Acceptable for customization Viton (130°C) , Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- AC voltage tolerance: ±10%
- DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Stainless steel #304 (option #316)
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MSUW — 20 — NO — □ — □ — AC110 — G

- MODEL: MSUW
- PORT SIZE: **15**: 1/2", **20**: 3/4", **25**: 1", **35-1**: 1 1/4", **40-1**: 1 1/2", **50-1**: 2"
- Blank: Normally closed, **NO**: Normally open
- COIL: Blank: Standard coil, **D**: Waterproof DIN (under130°C)
- FLUID: **W**: Water, air, **G**: Gas, **LO**: Light oil (*), **VA**: Vacuum
- VOLTAGE: **AC220**V(50/60)Hz, **AC110**V(50/60)Hz, **DC24**V
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

* Note, if diesel fuel or gasoline.

	Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)				High pressure type		Vacuum Torr	Dimensions (mm)			Weight (kg)
							Water	Air	Light oil	Gas	Water	Air		L	H	D	
NC	**MSUW-15**	●	Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	$0\sim10^{-3}$	70	100	48	1.0
	MSUW-20	●	Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	$0\sim10^{-3}$	76	100	48	1.1
	MSUW-25	●	Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	$0\sim10^{-3}$	100	115	48	1.65
	MSUW-35-1	●	Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	$0\sim10^{-3}$	123	112	48	2.33
	MSUW-40-1	●	Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	$0\sim10^{-3}$	123	112	48	2.54
	MSUW-50-1	●	Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	$0\sim10^{-3}$	167	125	48	4.59
NO	**MSUW-15-NO**	●	Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	$0\sim10^{-3}$	70	126	48	1.0
	MSUW-20-NO	●	Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	$0\sim10^{-3}$	76	132	48	1.1
	MSUW-25-NO	●	Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	$0\sim10^{-3}$	100	139	48	1.65
	MSUW-35-1-NO	●	Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	$0\sim10^{-3}$	123	140	48	2.5
	MSUW-40-1-NO	●	Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	$0\sim10^{-3}$	123	140	48	2.7
	MSUW-50-1-NO	●	Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	$0\sim10^{-3}$	167	150	48	4.73

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.
* High Pressure Type Use N/O Coil.

MSUW-F series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

2-WAY normally closed solenoid valve.
Available fluid: Water, air, light oil, gas & vacuum.



2/2 N.C.



Specification

- MSUW-F series is direct multiplex acting, connected diaphragm, normal close.
- Able to be operated under low pressure.
- Acceptable for customization Viton (130°C) , Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- Flange: JIS 10K (Option: ANSI 150LB or PN-16)
- AC voltage tolerance: ±10%
  DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Stainless steel
Coil	Special copper wire (H)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MSUW — 20F — □ — □ — AC110

MODEL

PORT SIZE
15: 1/2"
20: 3/4"
25: 1"
35: 1 1/4"
40: 1 1/2"
50: 2"

COIL
Blank: Standard coil
D: Waterproof DIN (under 130°C)

FLUID
W: Water, air
G: Gas
LO: Light oil (*)
VA: Vacuum
* Note, if diesel fuel or gasoline.

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)			High pressure type		Vacuum Torr	Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Water	Air		L	H	D	
MSUW-15F	●	1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	$0\sim10^{-3}$	110	100	48	2.2
MSUW-20F	●	3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	$0\sim10^{-3}$	120	100	48	2.5
MSUW-25F	●	1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	$0\sim10^{-3}$	151	115	48	4.1
MSUW-35F	●	1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	$0\sim10^{-3}$	170	112	48	6.1
MSUW-40F	●	1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	$0\sim10^{-3}$	170	112	48	6.7
MSUW-50F	●	2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	$0\sim10^{-3}$	211	125	48	9.51

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.
* High pressure type use N.O. coil.

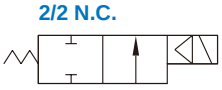
MUPS series

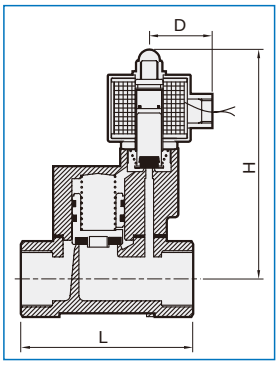
2/2 WAY N.C. PISTON TYPE **SOLENOID VALVE**

2-WAY normally closed solenoid valve.
Available fluid: Water, air, steam & light oil.



2/2 N.C.





Specification

- MUPS series is multiplex acting, piston guide, conductive normal close.
- Acceptable for customization Viton , Silicone and EPDM for seal plug.
- Minimum pressure to open: over 0.05 MPa.
- AC voltage tolerance: ±10%,
  DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Cast bronze
Coil	Special copper wire (H)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	PTFE (Teflon)
Piston Spring	Stainless steel
Piston	Brass
Piston plug	PTFE (Teflon)

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- Temperature over 185°C.

Order example

MUPS — 15 — □ — W — AC110 — G

- MODEL
- PORT SIZE
  - **15**: 1/2"
  - **20**: 3/4"
  - **25**: 1"
- COIL
  - Blank: Standard coil
  - **D**: DIN waterproof (under130°C)
- FLUID
  - **T**: Steam
  - **LO**: Light oil (*)
  - **W**: Water, air
  - * Note, if diesel fuel or gasoline.
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

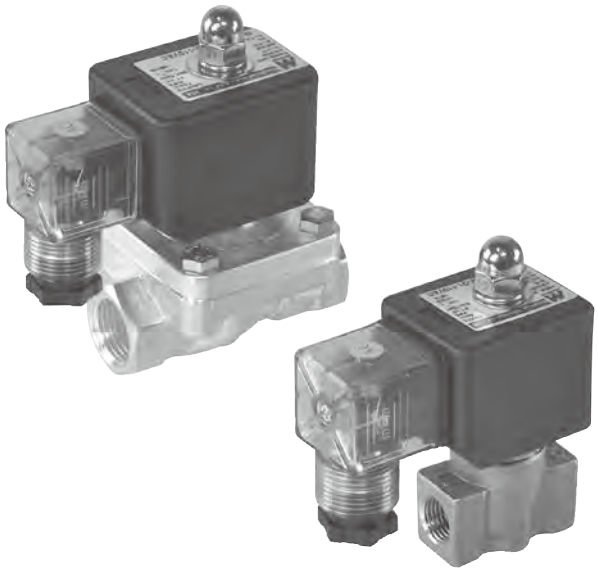
Model	DIN	Port size	CV	Orifice (mm)	Fluid temp.°C	Operating pressuer range (MPa)				Dimensions (mm)			Weight (kg)
						Water	Air	Steam	Light oil	L	H	D	
MUPS-15	●	Rc1/2"	4	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	82	118	48	1.32
MUPS-20	●	Rc3/4"	6	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	82	120	48	1.44
MUPS-25	●	Rc1"	12	22	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	100	135	48	2.13

* The pressure ratings indicated above are based on AC110V/220V. The maximum pressure may vary in case on DC/AC24V.

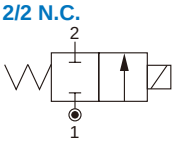
MXAD series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**

mindman



2/2 N.C.



Caution

- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within ± 10%.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: -10~+80°C (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

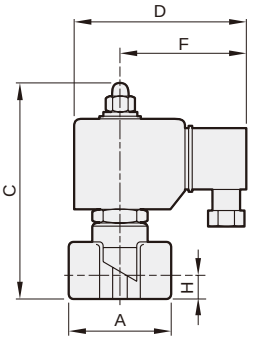
Model	MXAD			
Code / Dimension (mm)	6A/B/C	8A/B/C	10A/B/C	12A/B
A	41		50	55
B	19		25	27
C	90		94	98
D	78		87	87
E	37		42	42
F	58		64.5	64.5
G	15		15	–
H	10.5		11.7	13
N.W (kg)	0.49	0.47	0.73	0.78

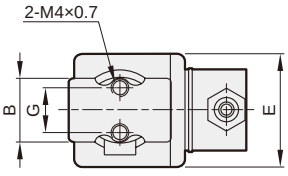
Order example

MXAD□ — 6A — V — G — A — AC110 — G

MODEL	BODY MAT'L	PORT SIZE	SEAL MAT'L	COIL	FLUID	VOLTAGE	PORT THREAD
	Blank: Brass **S**: S.Steel (*1)	**6A**, **6B**, **6C**, **8A**, **8B**, **8C**, **10A**, **10B**, **10C**, **12A**, **12B**	**N**: NBR **V**: Viton **S**: Silicon **J**: EPDM	**G**: Square DIN	**W**: Water **A**: Air **G**: Gas **LO**: Light oil (*2) **VA**: Vacuum	**AC220**V(50/60)Hz **AC110**V(50/60)Hz **DC24**V	Blank: Rc thread **G**: G thread **NPT**: NPT thread

*1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.





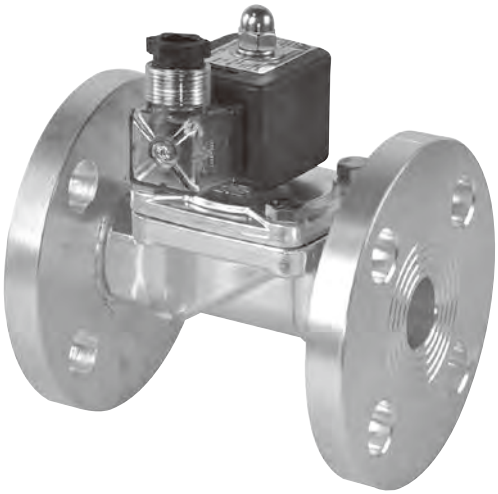
Specification

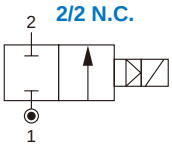
Model **MXAD**: Forged brass body, for water, air, gas, naphtha, vacuum.									
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)						CV
			Water	Air	Gas	Naphtha	Vacuum	acid & alkali(S.Steel)	
6A(1/8")	N S J V	3	0~10	0~10	0~10	0~7	0~10^{-6}Torr	0~10	0.26
6B(1/8")		4	0~7	0~7	0~7	0~5	0~10^{-6}Torr	0~7	0.58
6C(1/8")		5	0~5	0~5	0~5	0~3	0~10^{-6}Torr	0~5	0.64
8A(1/4")		3	0~10	0~10	0~10	0~7	0~10^{-6}Torr	0~10	0.26
8B(1/4")		4	0~7	0~7	0~7	0~5	0~10^{-6}Torr	0~7	0.58
8C(1/4")		5	0~5	0~5	0~5	0~3	0~10^{-6}Torr	0~5	0.64
10A(3/8")		4	0~10	0~10	0~10	0~7	0~10^{-6}Torr	0~10	0.58
10B(3/8")		6	0~5	0~5	0~5	0~3	0~10^{-6}Torr	0~5	0.79
10C(3/8")		8	0~2	0~2	0~2	0~1	0~10^{-6}Torr	0~2	0.97
12A(1/2")		6	0~5	0~5	0~5	0~3	0~10^{-6}Torr	0~5	0.79
12B(1/2")		8	0~2	0~2	0~2	0~1	0~10^{-6}Torr	0~2	0.97

MXAD-AF series

2/2 WAY N.C. DIAPHRAGM TYPE DIRECT ACTING **SOLENOID VALVE**

mindman





Caution

- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within ± 10%.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: -10~+80°C (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

Model	MXAD						
Code / Dimension (mm)	14	15	20	25	35	40	50
A	75	75	85	100	120	120	150
B	52	52	60	70	90	90	120
C	107	107	116	122	142.5	142.5	160
G	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
H	14.5	14.5	18	23	33	33	40.5
N.W (kg)	1.03	1.06	1.24	1.51	2.87	2.77	4.81

Order example

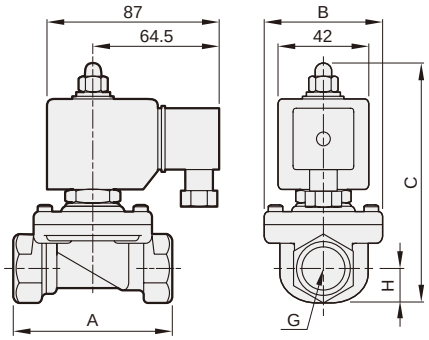
MXAD□– 35□ – V – G – A – AC110 – G

- MODEL
- BODY MAT'L
  - Blank: Brass
  - **S**: S.Steel (*1)
- PORT SIZE / CODE

PORT SIZE		CODE
14	3/8"	–
15	1/2"	
20	3/4"	
25	1"	Blank: Standard **AF**: Flange end (JIS 10K)
35	1 1/4"	
40	1 1/2"	
50	2"	

- SEAL MAT'L
  - **N**: NBR
  - **V**: Viton
  - **S**: Silicon
  - **J**: EPDM
- COIL
  - **G**: Square DIN
- FLUID
  - **W**: Water
  - **A**: Air
  - **G**: Gas
  - **LO**: Light oil (*2)
  - **VA**: Vacuum
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

*1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.

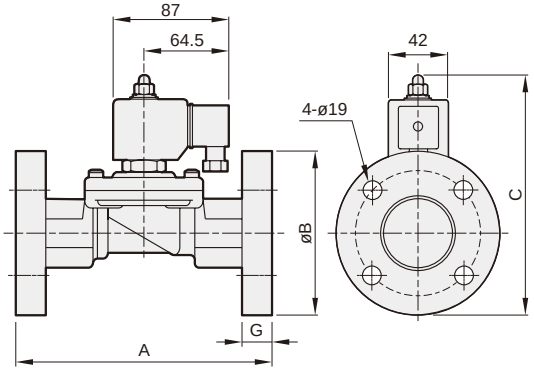


Dimensions

Model	MXAD-**AF			
Code / Dimension (mm)	25AF	35AF	40AF	50AF
A	130	160	160	200
B	125	135	140	155
C	165	177	180	195
G	14	16	16	16
N.W (kg)	5.35	7.75	8.0	11.0

Specification

Model **MXAD**: Forged brass body, for water, air, gas, naphtha, Vacuum.									
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)						CV
			Water	Air	Gas	Naphtha	Vacuum (Torr)	acid & alkali (S.Steel)	
14(3/8")	N S J V	15	0~10	0~10	0~10	0~10	$0\sim10^{-6}$	0~10	4.5
15(1/2")		15	0~10	0~10	0~10	0~10	$0\sim10^{-6}$	0~10	4.5
20(3/4")		20	0~10	0~10	0~10	0~10	$0\sim10^{-6}$	0~10	9.3
25(1")		25	0~10	0~10	0~10	0~10	$0\sim10^{-6}$	0~10	13.2
35(1 1/4")		35	0~10	0~10	0~10	0~10	$0\sim10^{-6}$	0~10	26
40(1 1/2")		35	0~10	0~10	0~10	0~10	$0\sim10^{-6}$	0~10	26
50(2")		50	0~7	0~7	0~7	0~5	$0\sim10^{-6}$	0~7	48

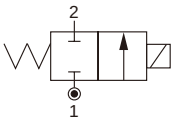


MXBD series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING **SOLENOID VALVE**



2/2 N.C.



Caution

- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within ± 10%.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: -10~+80°C (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

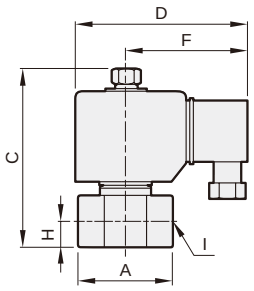
Model	MXBD		
Code / Dimension (mm)	**8A/B/C**	**10A/B**	**12A**
A	36	50	55
B	25	25	27
C	67.5	91.3	94.8
D	78	87	87
E	37	37	37
F	58	64.5	64.5
G	15	15	–
H	10.5	11.7	13
I	1/4"	3/8"	1/2"
N.W (kg)	0.35	0.5	0.55

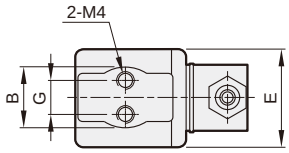
Order example

MXBD– 8A – N – G – A – AC110 – G

MODEL	PORT SIZE	SEAL MAT'L	COIL	FLUID	VOLTAGE	PORT THREAD
	8A, **8B**, **8C**, **10A**, **10B**, **12A**	**N**: NBR **V**: Viton **S**: Silicon **J**: EPDM	**G**: Square DIN	**W**: Water **A**: Air **G**: Gas **LO**: Light oil (*) **VA**: Vacuum	**AC220**V(50/60)Hz **AC110**V(50/60)Hz **DC24**V	Blank: Rc thread **G**: G thread **NPT**: NPT thread

* Note, if diesel fuel or gasoline.





Specification

Model **MXBD**: Forged brass body, for water, air, gas, naphtha, vacuum.								
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)					CV
			Water	Air	Gas	Naphtha	Vacuum	
8A(1/4")	N S J V	2.5	0~10	0~10	0~10	0~7	0~10^{-4}Torr	0.23
8B(1/4")		3.5	0~7	0~7	0~7	0~5	0~10^{-4}Torr	0.42
8C(1/4")		4.5	0~5	0~5	0~5	0~3	0~10^{-4}Torr	0.61
10A(3/8")		4.0	0~7	0~7	0~7	0~5	0~10^{-4}Torr	0.58
10B(3/8")		6.0	0~3	0~3	0~3	0~2	0~10^{-4}Torr	0.79
12A(1/2")		6.0	0~3	0~3	0~3	0~2	0~10^{-4}Torr	0.79

MXCD series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**



Caution

- In order to prolong operating life, it is better to allocate pipe horizontally and coil to face upward.
- Voltage drop range is within ± 10%.
- Pressure of voltage DC is 70% of voltage AC only.
- Combined diaphragm design assures no breaking.
- Fluid temp.: -10~+80°C (Naphtha 120°C)

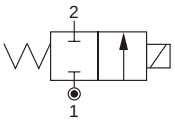
Not for fluid of

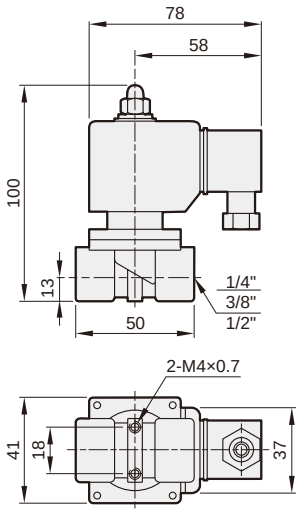
- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Weight

Model	MXCD		
Code	**8**	**10**	**12**
N.W (kg)	0.61	0.6	0.59

2/2 N.C.





Order example

MXCD□— 10 — N — G — A — AC110 — G

- **MODEL**
- **BODY MAT'L**: Blank: Brass; **S**: S.Steel (*1)
- **PORT SIZE**: **8**: 1/4"; **10**: 3/8"; **12**: 1/2"
- **SEAL MAT'L**: **N**: NBR; **V**: Viton
- **COIL**: **G**: Square DIN
- **FLUID**: **W**: Water; **A**: Air; **LO**: Light oil (*2)
- **VOLTAGE**: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz; **DC24**V
- **PORT THREAD**: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

*1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.

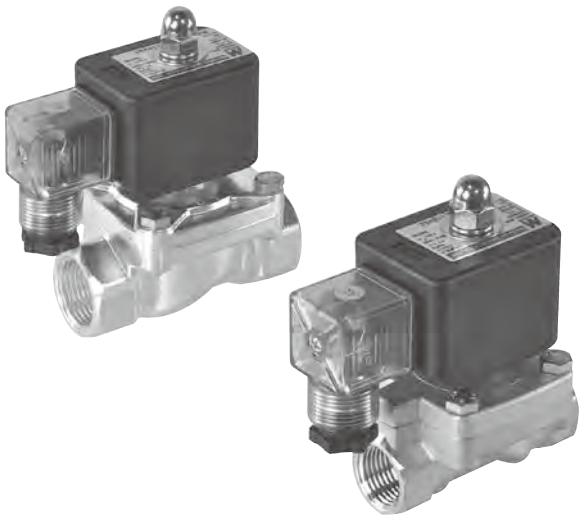
Specification

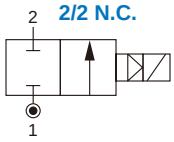
Model **MXCD**: Forged brass body, for water, air, naphtha.							
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)				CV
			Water	Air	Naphtha	acid & alkali (S.Steel)	
8(1/4")	N V	11	0.3~20	0.3~20	0.3~20	0.2~20	2.4
10(3/8")		12	0.3~20	0.3~20	0.3~20	0.2~20	2.7
12(1/2")		12	0.3~20	0.3~20	0.3~20	0.2~20	2.7

MXPV series

2/2 WAY N.C. DIAPHRAGM TYPE **SOLENOID VALVE**

mindman





Caution

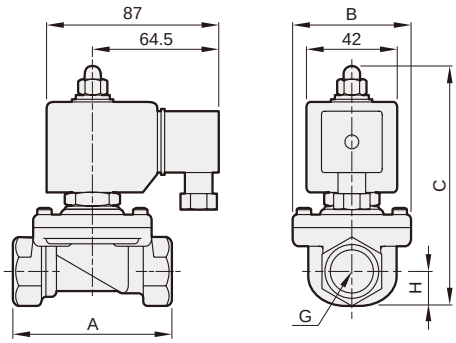
- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within ± 10%.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: -10~+80°C (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

Model	MXPV		
Code / Dimension (mm)	**14**	**15**	**20**
A	75		85
B	52		60
C	104		113
H	14.5		18
G	3/8"	1/2"	3/4"
N.W (kg)	0.85	0.88	1.06



Order example

MXPV□ — 20 — V — G — V — AC110 — G

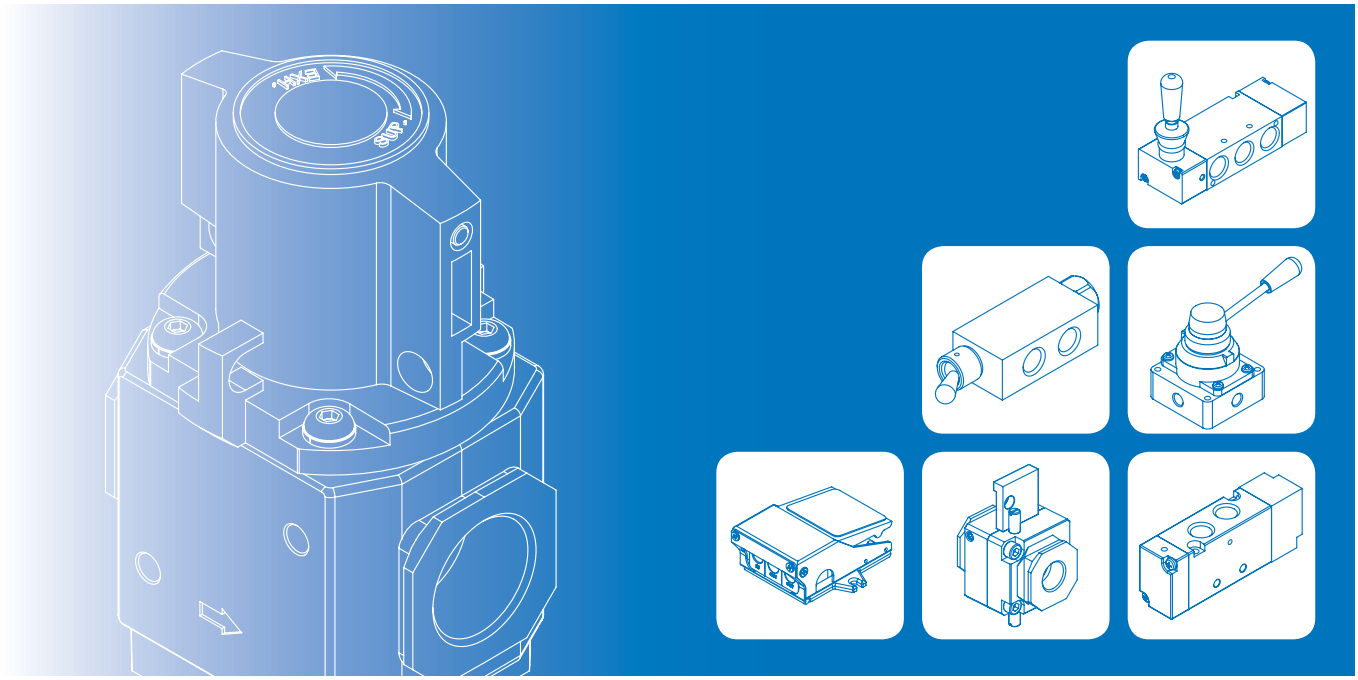
- MODEL
- BODY MAT'L
  - Blank: Brass
  - **S**: S.Steel (*1)
- PORT SIZE
  - **14**: 3/8"
  - **15**: 1/2"
  - **20**: 3/4
- SEAL MAT'L
  - **N**: NBR
  - **S**: Silicon
  - **J**: EPDM
  - **V**: Viton
- COIL
  - **G**: Square DIN
- FLUID
  - **W**: Water
  - **A**: Air
  - **LO**: Light oil (*2)
- VOLTAGE
  - **AC220**V(50/60)Hz
  - **AC110**V(50/60)Hz
  - **DC24**V
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

*1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.

Specification

Model **MXPV**: Forged brass body, for water, air, naphtha.							
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)				CV
			Water	Air	Naphtha	acid & alkali (S.Steel)	
14(3/8")	N, S J, V	15	0.5~10	0.5~10	0.5~10	0.2~20	4.5
15(1/2")		15	0.5~10	0.5~10	0.5~10	0.2~20	4.5
20(3/4")		20	0.5~10	0.5~10	0.5~10	0.2~20	9.3

PILOT & MECHANICAL VALVE



PILOT VALVE

MVAA MVAA-150 3-2
MVAA-180 3-4
MVAA-220 3-7
MVAA-260 3-11
MVAA-300 3-14
MVAA-460 3-19

MECHANICAL VALVE

MVMA MVMA-260 3-22
MVMA-300 3-23
MVMB Push button type 3-24
MVMB-220-3* 3-25
MVMB-220-4* 3-28
MVMB-250-2*, 3* 3-31
MVMB-300-4* 3-34
MVMC MVMC-210 3-37
ACT 3-40
EPA 3-40

HAND VALVE

MVHF-*P MVHF-2P/3P-NC 3-47
MVHF-3P-NO 3-47
MVHF-*V MVHF-3V 3-48
MVHF-5V 3-48
MVHF-5P 3-49

Miniature Pilot Actuator

MVHF-AP* MVHF-AP3 / MVHF-AP6A 3-49

Mounting Bracket

MVHF-LB 3-50

Valve Actuators Manual Push Button

MVHF-PB MVHF-PB2 / MVHF-PB5 3-50

HAND VALVE

MVHA MVHA-2*, 3* 3-51
MVHA-4* 3-52
MVHA-31* 3-53
MVHA-41* 3-54
Manual / Mech. Operator 3-56

HAND LEVER VALVE

MVHB MVHB-220 3-57
MVHB-260 3-58
MVHB-300 3-60
MVHB-500 3-62
MVHD MVHD-220 3-64

ROTARY HAND LEVER VALVE

MVHC 3-65

HAND SLIDE VALVE

MVHS 3-68

SHUTOFF VALVE

MVHT 3-69
MVHR New 3-71

FOOT PEDAL VALVE

MVFA 3-74



Specification

Model	4A1	4A2
Bore No.	M5	
Port size	M5×0.8	
No. of port	5	
Medium	Air	
Operating pressure range	0.15~0.8 MPa	0~0.8 MPa
Proof pressure	1 MPa	
Effective orifice	3.8 mm^2	
Pilot pressure range	(0.45×P*+0.1)~0.8 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Weight	47 g	58 g

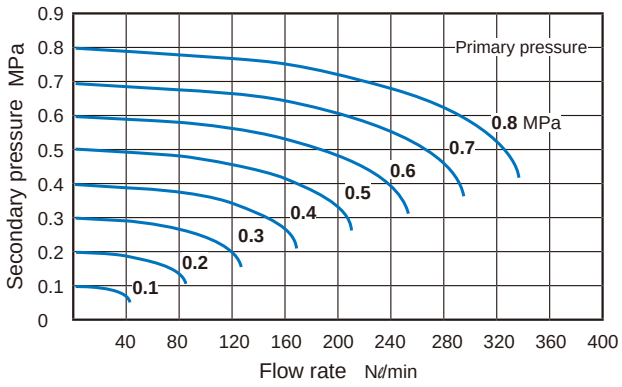
* P: Operating pressure.

Order example of valve

MVAA — 150 — 4A2

- MODEL
- BODY WIDTH
- **4**: 4way (5 port)
- **A1**: Single pilot
  A2: Double pilot

Flow features



* Use the same manifold with MVSC1.

Order example of manifold

MVSC1 — 150 — 5B3 — G

- MODEL
- MANIFOLD
  5B: 5 port
  (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

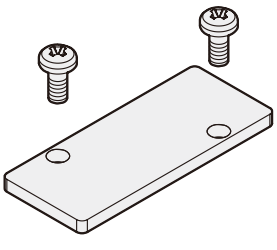
* Use the same blocking plate with MVSC1.

Order example of blocking plate

MVSC1 — 150 — 5P

- MODEL
- BLOCKING PLATE
  5P: for 5 port

Blocking plate parts



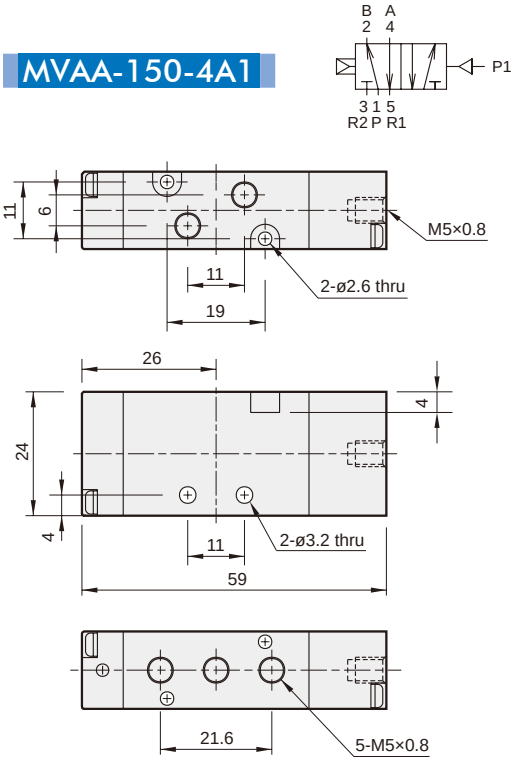
Bolt × 2

Blocking plate × 1

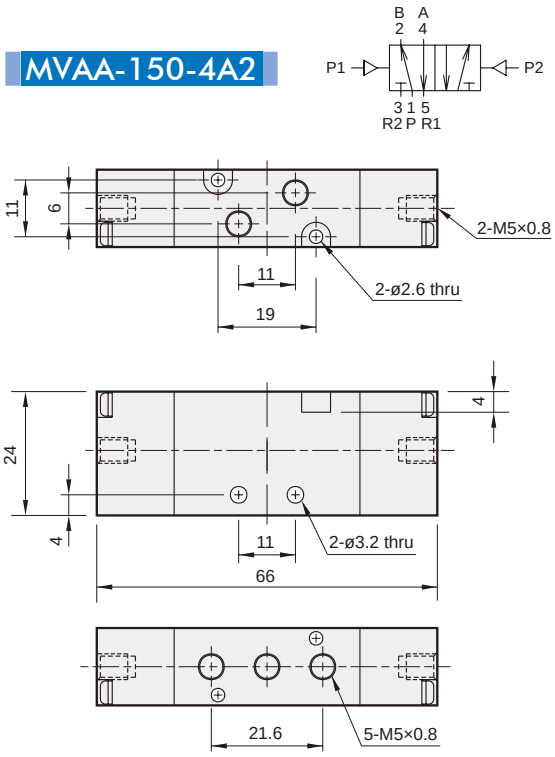
MVAA-150 Dimensions

PILOT **VALVE**

MVAA-150-4A1



MVAA-150-4A2

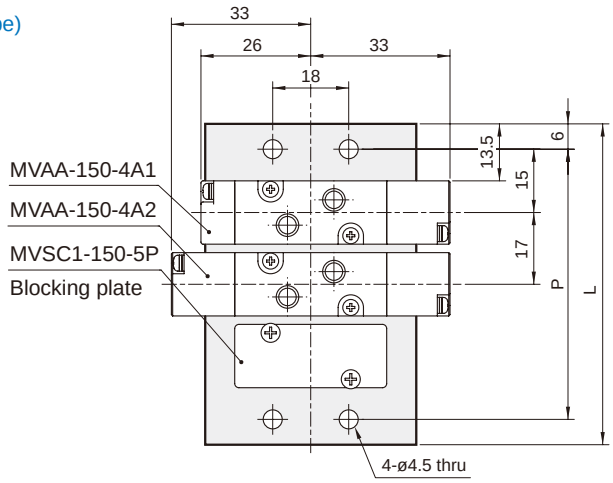


Manifold of pilot valve

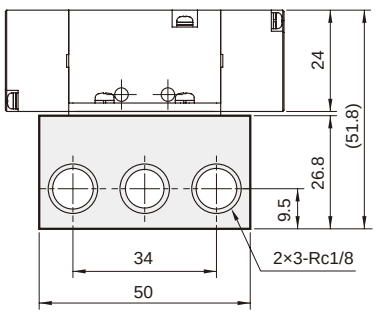
MVSC1-150-5B*

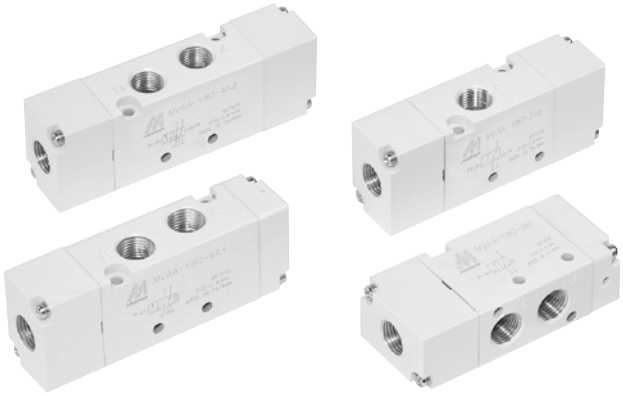
* Use the same manifold with MVSC1.

5 port (for body ported type)



No. of stations	P	L
2	47	59
3	64	76
4	81	93
5	98	110
6	115	127
7	132	144
8	149	161
9	166	178
10	183	195





Specification

Model	3A1	3A2	4A1	4A2
Bore No.	6A			
Port size	Rc1/8			
No. of port	3		5	
Medium	Air			
Operating pressure range (MPa)	0~0.8		0.15~0.8	0~0.8
Proof pressure	1 MPa			
Effective orifice	12 mm^2			
Pilot pressure range	(0.45×P*+0.1)~0.8 MPa			
Ambient temperature	-5~+60°C (No freezing)			
Weight	61 g	74 g	71 g	84 g

* P: Operating pressure.

Order example of valve

MVAA — 180 — 4A2 — NC — G

- MODEL
- BODY WIDTH
- **3**: 3way (3 port)
  4: 4way (5 port)
- **A1**: Single pilot
  A2: Double pilot
- **NC**: Normally closed
  NO: Normally open
  (Only for **3A1** type)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

* Use the same manifold with MVSC1.

Order example of manifold

MVSC1 — 180 — 3B3 — G

- MODEL
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

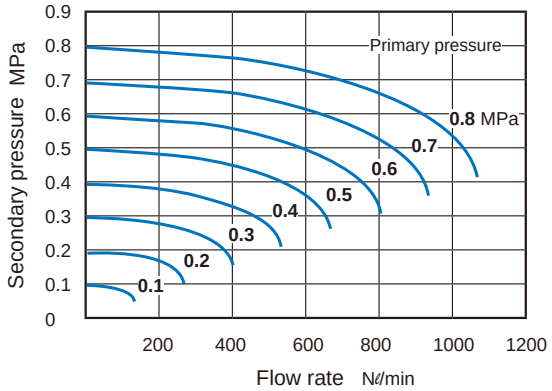
* Use the same blocking plate with MVSC1.

Order example of blocking plate

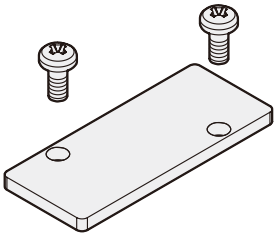
MVSC1 — 180 — 5P

- MODEL
- BLOCKING PLATE
  3P: for 3 port
  5P: for 5 port

Flow features



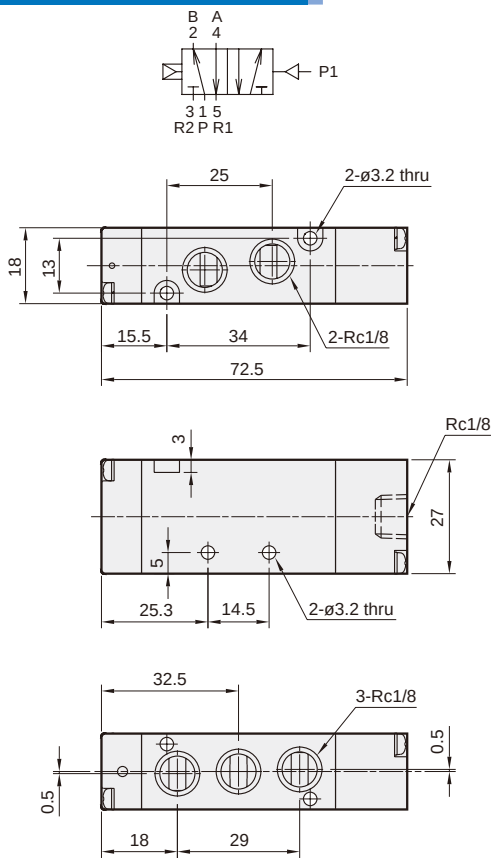
Blocking plate parts



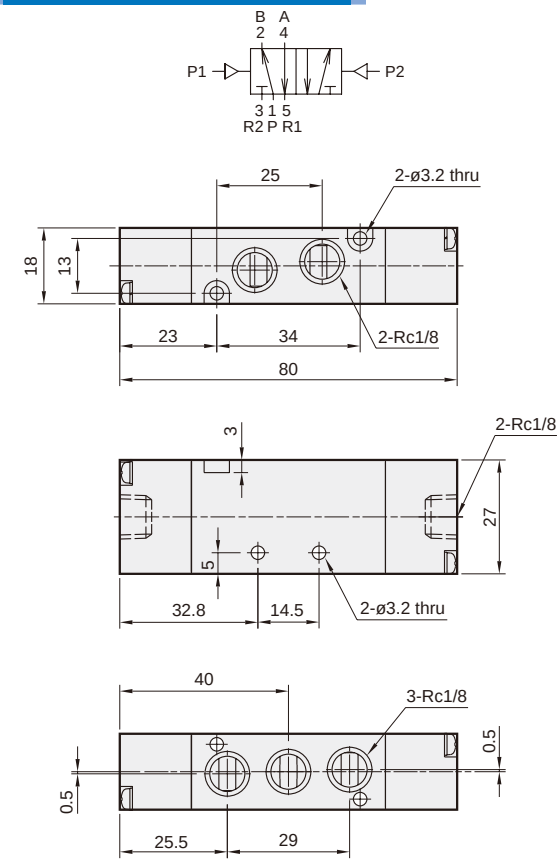
Bolt × 2

Blocking plate × 1

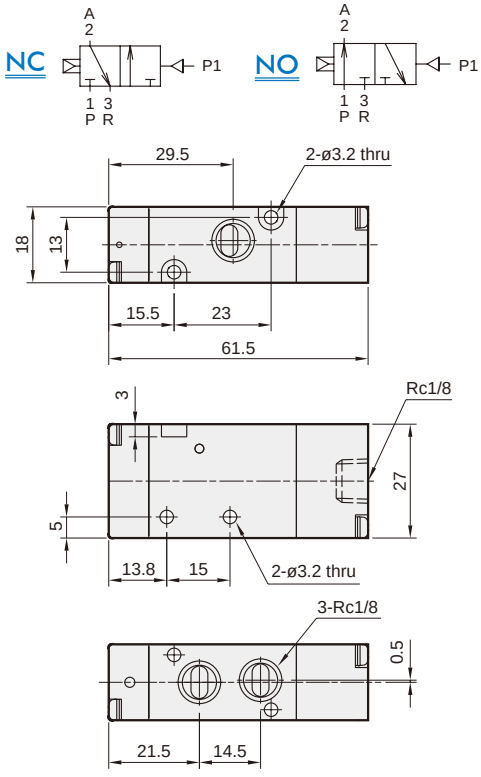
MVAA-180-4A1



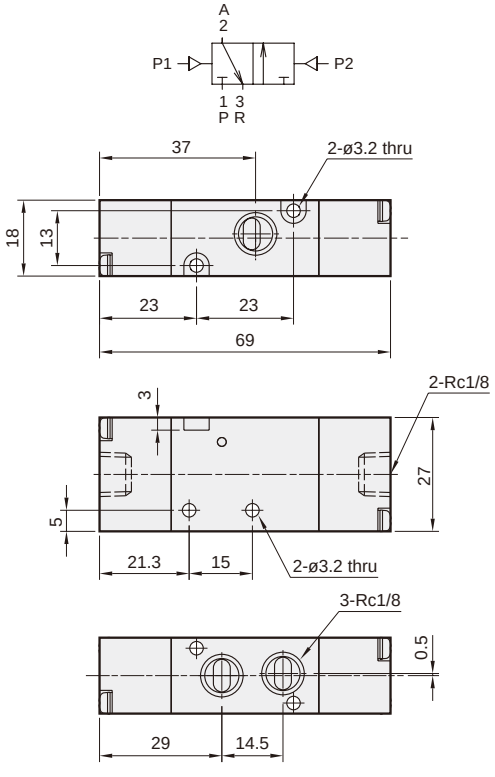
MVAA-180-4A2



MVAA-180-3A1-NC/NO



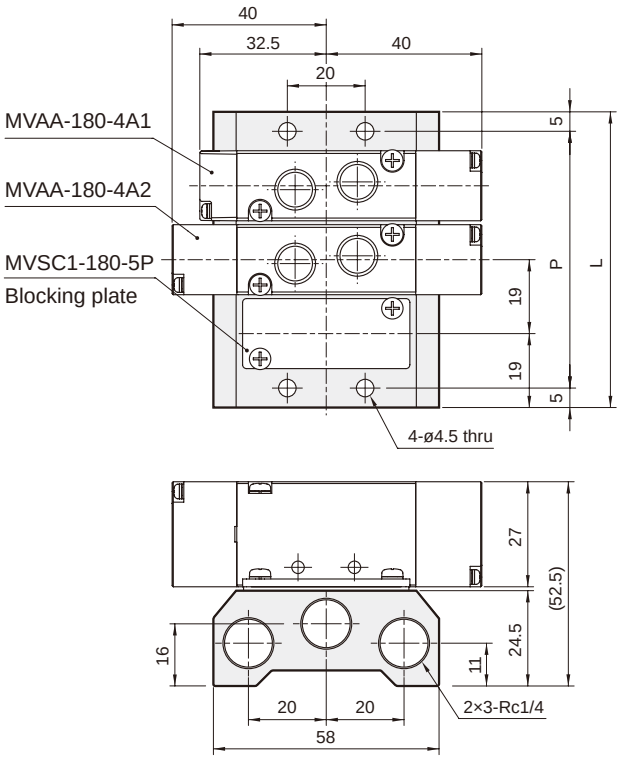
MVAA-180-3A2



MVSC1-180-5B*

* Use the same manifold with MVSC1.

5 port (for body ported type)

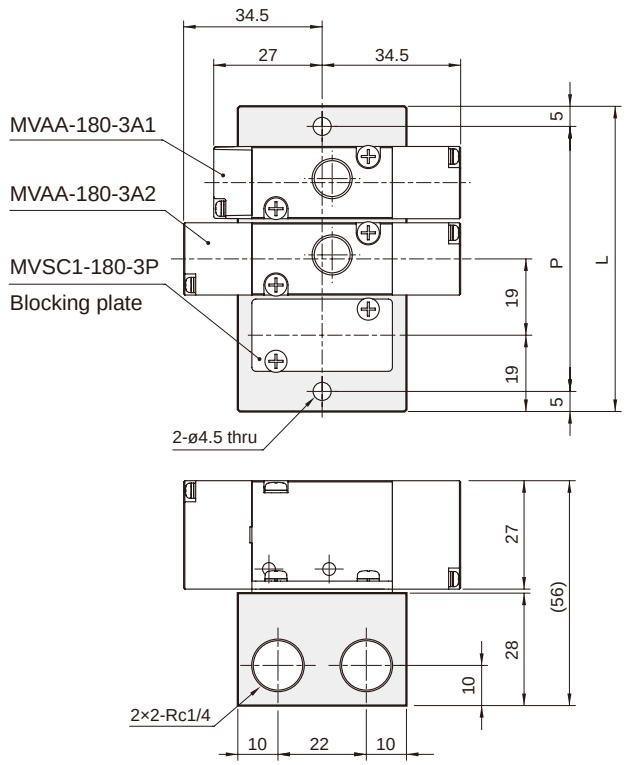


No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

MVSC1-180-3B*

* Use the same manifold with MVSC1.

3 port (for body ported type)



No. of stations	P	L
2	47	57
3	66	76
4	85	95
5	104	114
6	123	133
7	142	152
8	161	171
9	180	190
10	199	209

MVAA-220 series

PILOT **VALVE**

mindman



Specification

Model	3A1	3A2	4A1	4A2	4A2C.P.R
Bore No.	8A				
Port size	Rc1/4				
No. of port	3		5		
Medium	Air				
Operating pressure range	0~0.8 MPa				
Proof pressure	1 MPa				
Effective orifice	18 mm^2				
Pilot pressure range	(0.3×P*+0.1)~0.8 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	122 g	134 g	106 g	134 g	179 g

* P: Operating pressure.

Order example of valve

MVAA — 220M — 4A2C — NC — G

- MODEL
- BODY WIDTH
  - Blank: Body ported type
  - **M**: Manifold type
- **3**: 3way (3 port)
  4: 4way (5 port)
  - **A1**: Single pilot
  - **A2**: Double pilot
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4A2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3A1** type)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

* Use the same manifold with MVSC.

Order example of manifold

MVSC — 220M — 5M3 — G

- MODEL
- Blank: Body ported type
  M: Manifold type
- MANIFOLD
  3B: 3 port (for body ported type)
  3M: 3 port (for manifold type)
  5B: 5 port (for body ported type)
  5M: 5 port (for manifold type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

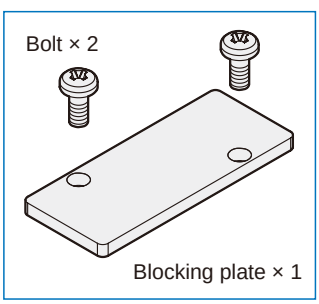
* Use the same blocking plate with MVSC.

Order example of blocking plate

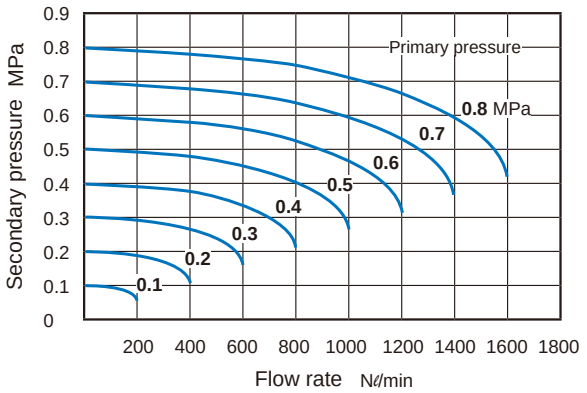
MVSC — 220 — 5P

- MODEL
- BLOCKING PLATE
  3P: for 3 port
  5P: for 5 port

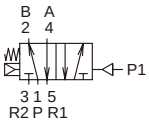
Blocking plate parts

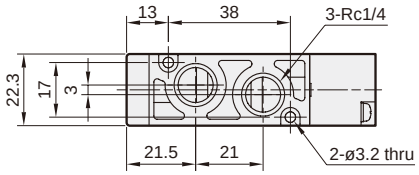


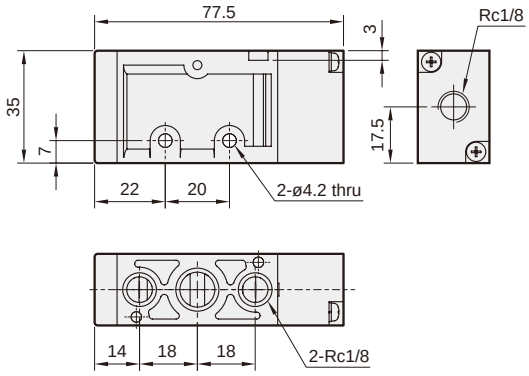
Flow features



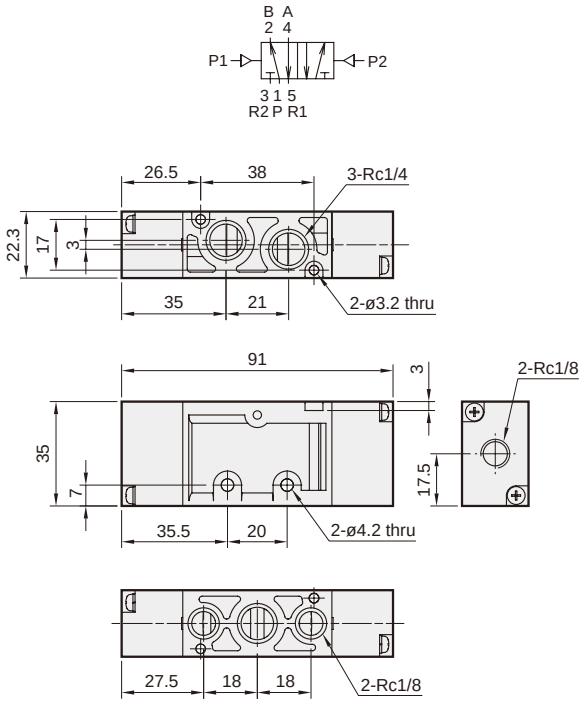
MVAA-220-4A1





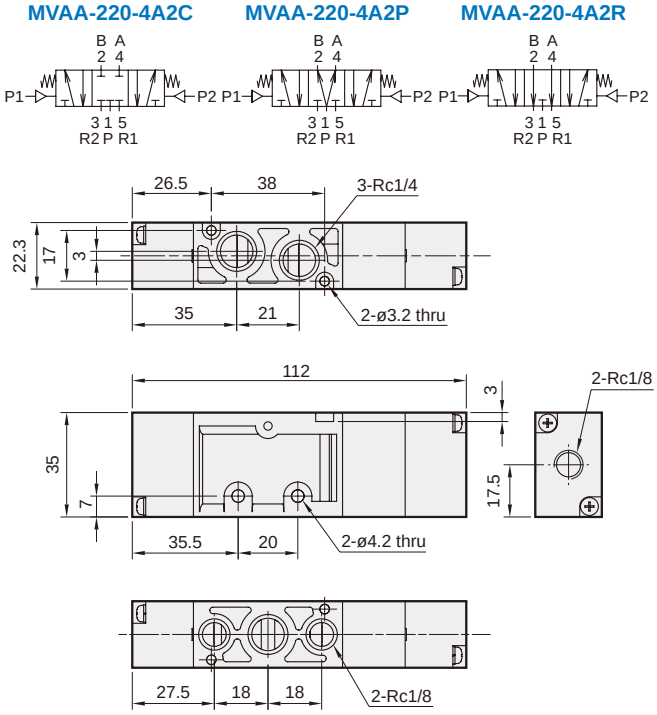


MVAA-220-4A2

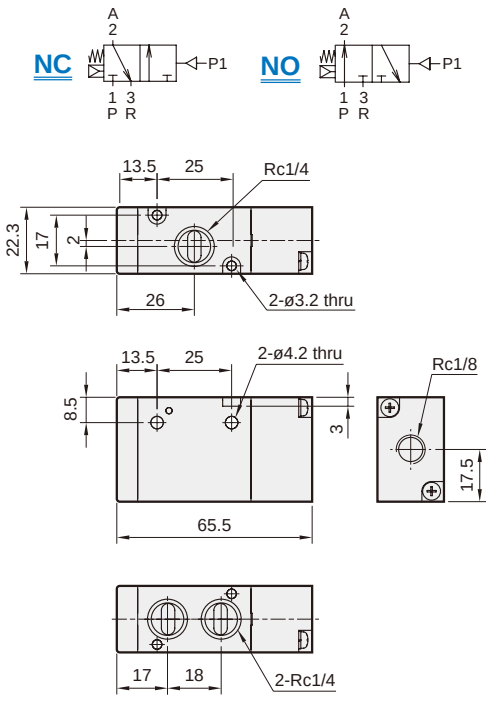


MVAA-220-4A2C.P.R

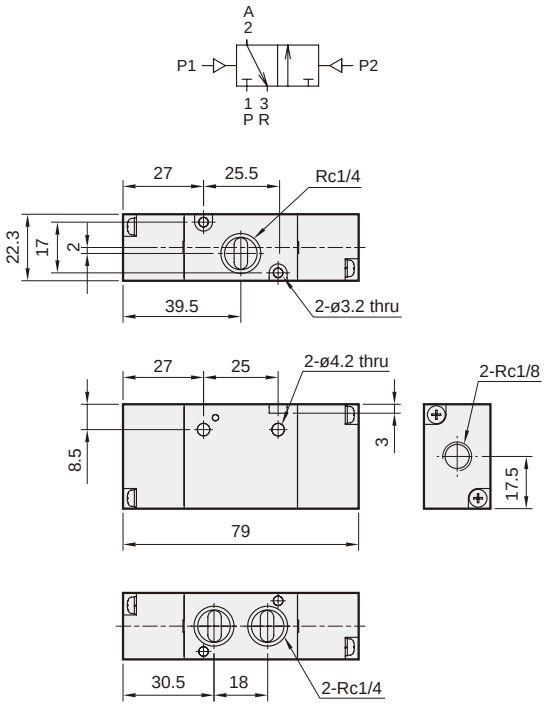
MVAA-220-4A2C MVAA-220-4A2P MVAA-220-4A2R



MVAA-220-3A1-NC/NO



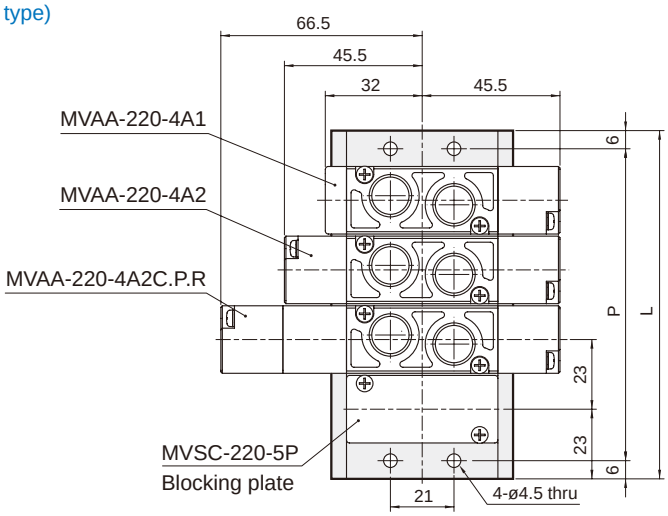
MVAA-220-3A2

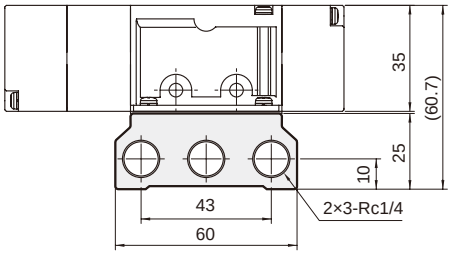


MVSC-220-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)



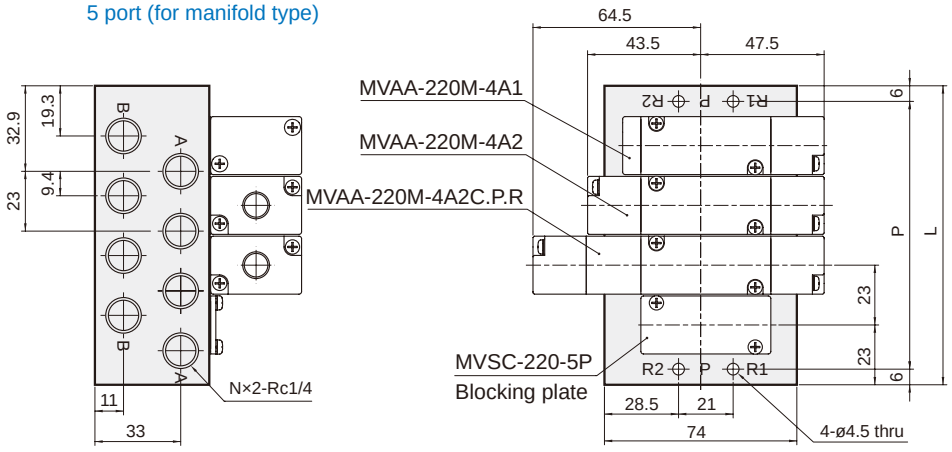


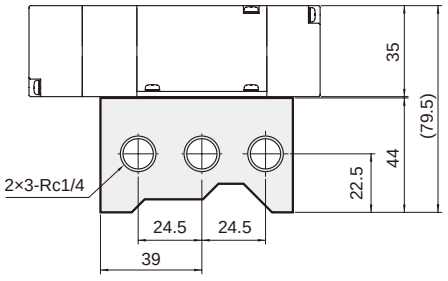
No. of stations	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSC-220-5M*

* Use the same manifold with MVSC.

5 port (for manifold type)



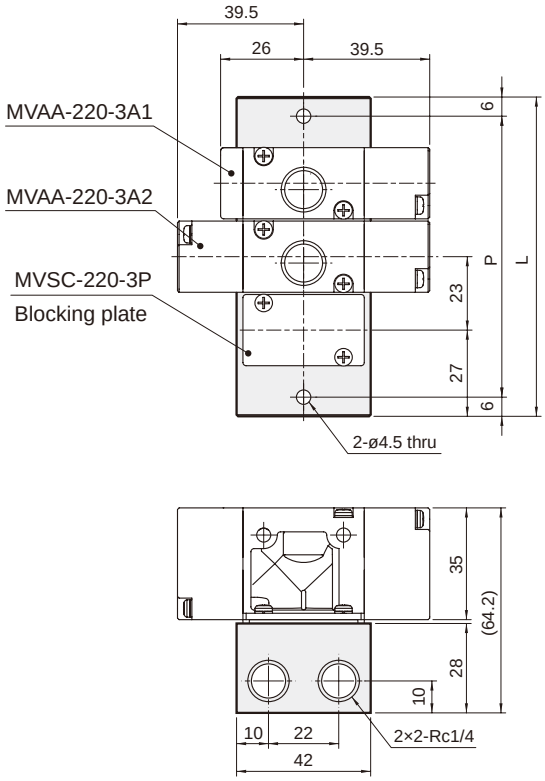


No. of stations (N)	P	L
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

MVSC-220-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)

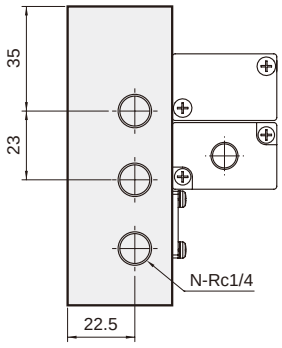


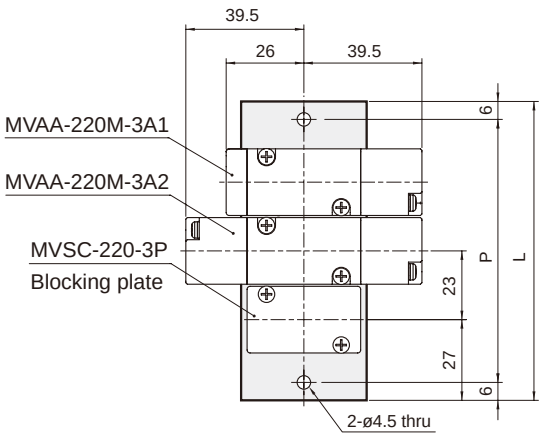
No. of stations	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

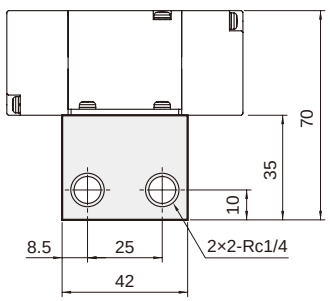
MVSC-220-3M*

* Use the same manifold with MVSC.

3 port (for manifold type)







No. of stations (N)	P	L
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261



Specification

Model	4A1	4A2	4A2C.P.R
Bore No.	8A		
Port size	Rc1/4		
No. of port	5		
Medium	Air		
Operating pressure range	0~0.8 MPa		
Proof pressure	1 MPa		
Effective orifice	18 mm^2		
Pilot pressure range	(0.3×P*+0.1)~0.8 MPa		
Ambient temperature	-5~+60°C (No freezing)		
Weight	153 g	163 g	219 g

* P: Operating pressure.

Order example of valve

MVAA — 260 — 4A2C — G

- MODEL
- BODY WIDTH
- **4**: 4way (5 port)
- **A1**: Single pilot; **A2**: Double pilot
- **C**: Closed center; **P**: Pressure center; **R**: Exhaust center (Only for **4A2** type)
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

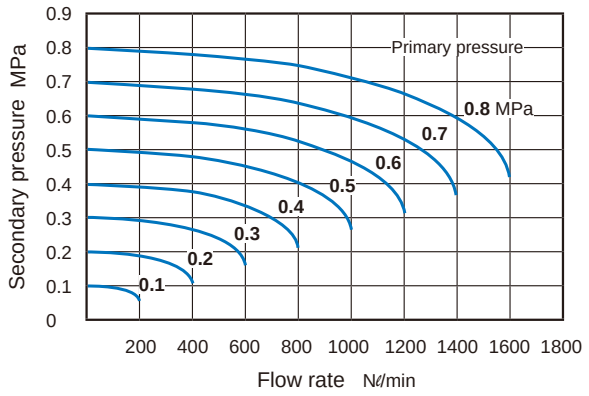
* Use the same manifold with MVSC.

Order example of manifold

MVSC — 260 — 5B3 — G

- MODEL
- MANIFOLD: **5B**: 5 port (for body ported type)
- MANIFOLD NUMBER: **1, 2, 3...**
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

Flow features



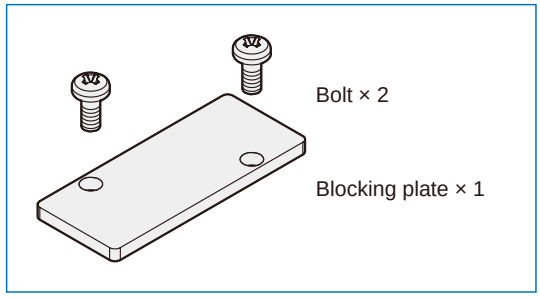
* Use the same blocking plate with MVSC.

Order example of blocking plate

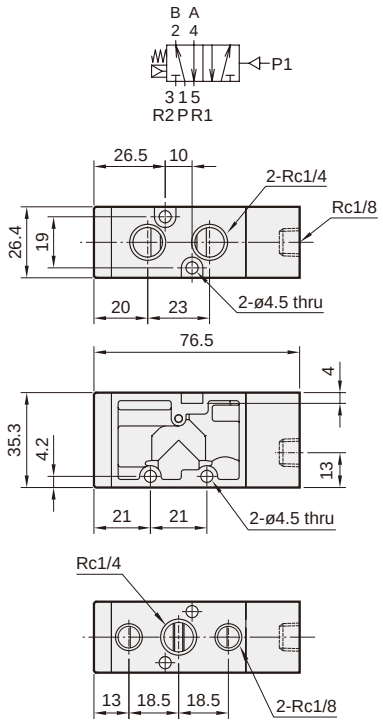
MVSC — 260 — 5P

- MODEL
- BLOCKING PLATE: **5P**: for 5 port

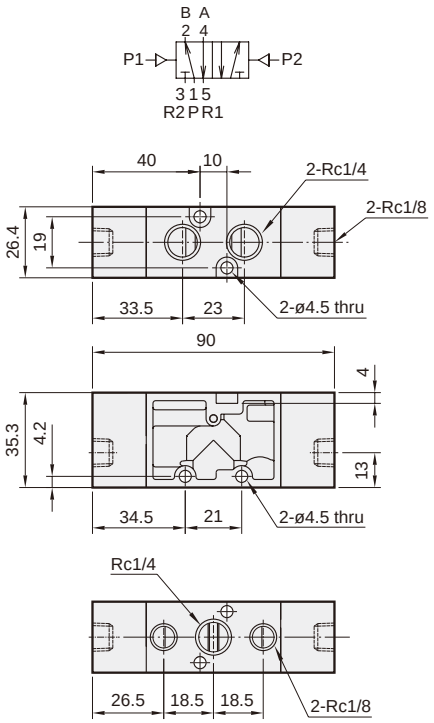
Blocking plate parts



MVAA-260-4A1

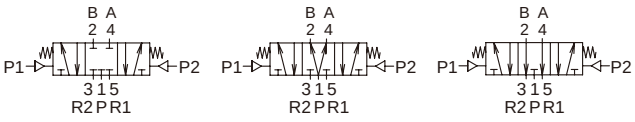


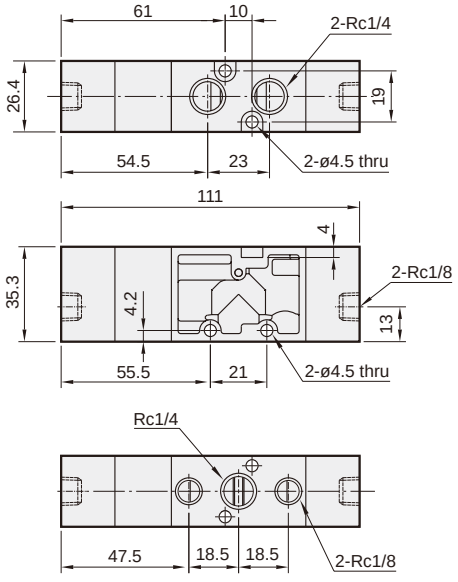
MVAA-260-4A2



MVAA-260-4A2C.P.R

MVAA-260-4A2C **MVAA-260-4A2P** **MVAA-260-4A2R**

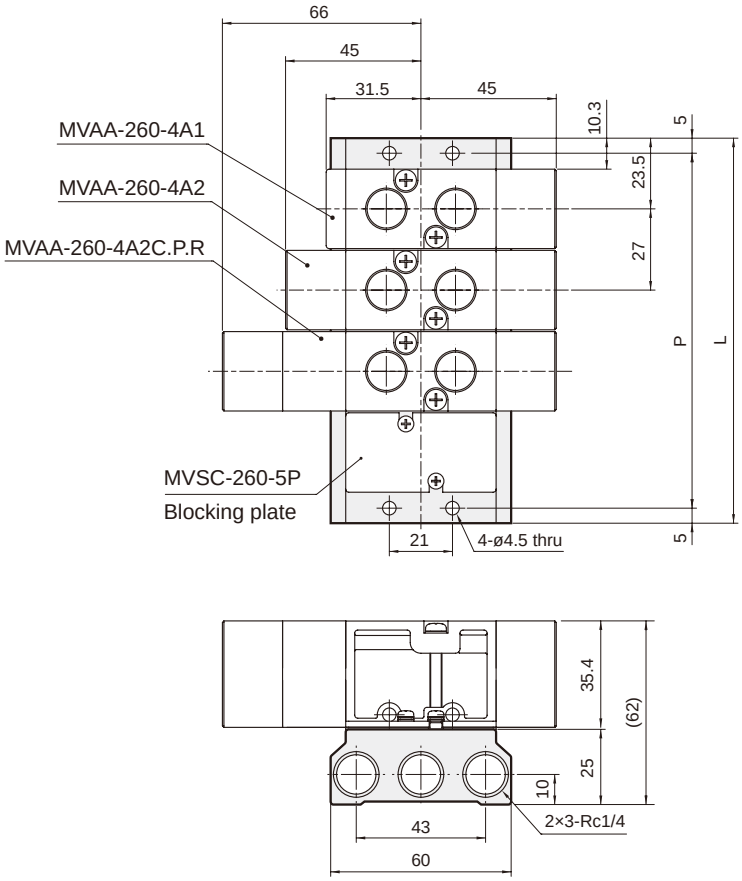




MVSC-260-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)



No. of stations	P	L
2	64	74
3	91	101
4	118	128
5	145	155
6	172	182
7	199	209
8	226	236
9	253	263
10	280	290



Specification

Model	3A1	3A2	4A1	4A2	4A2C.P.R
Bore No.	10A				
Port size	Rc3/8				
No. of port	3		5		
Medium	Air				
Operating pressure range	0~0.8 MPa				
Proof pressure	1 MPa				
Effective orifice	35 mm^2				
Pilot pressure range	(0.34×P*+0.1)~0.8 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	295 g	324 g	236 g	301 g	385 g

* P: Operating pressure.

Order example of valve

MVAA — 300 — 4A2C — NC — G

- MODEL
- BODY WIDTH
  - **3**: 3way (3 port)
  - **4**: 4way (5 port)
- **A1**: Single pilot
  A2: Double pilot
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4A2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3A1** type)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

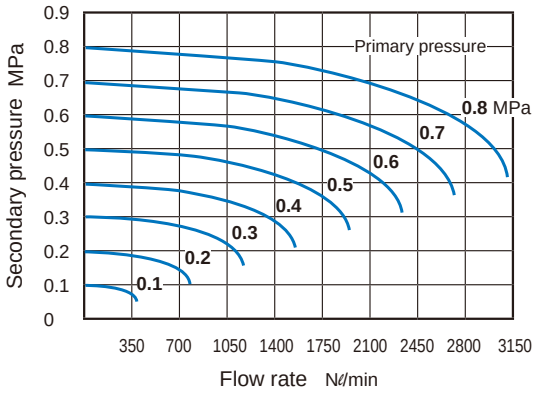
* Use the same manifold with MVSC.

Order example of manifold

MVSC — 300 — 5B3 — G

- MODEL
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Flow features



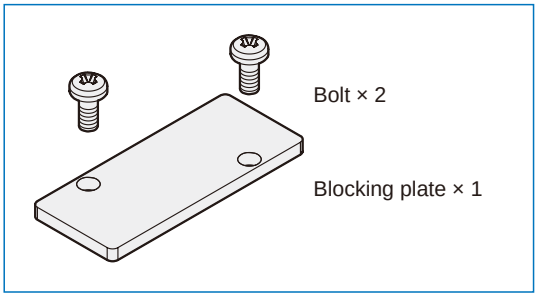
* Use the same blocking plate with MVSC.

Order example of blocking plate

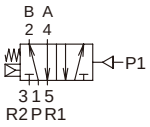
MVSC — 300 — 5P

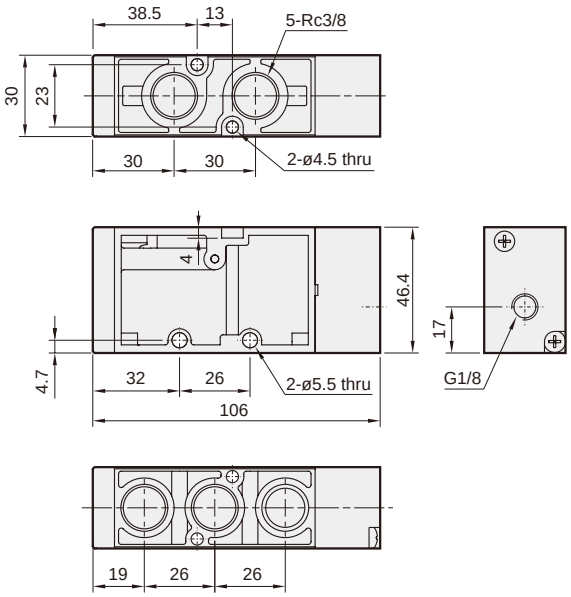
- MODEL
- BLOCKING PLATE
  3P: for 3 port
  5P: for 5 port

Blocking plate parts

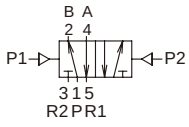


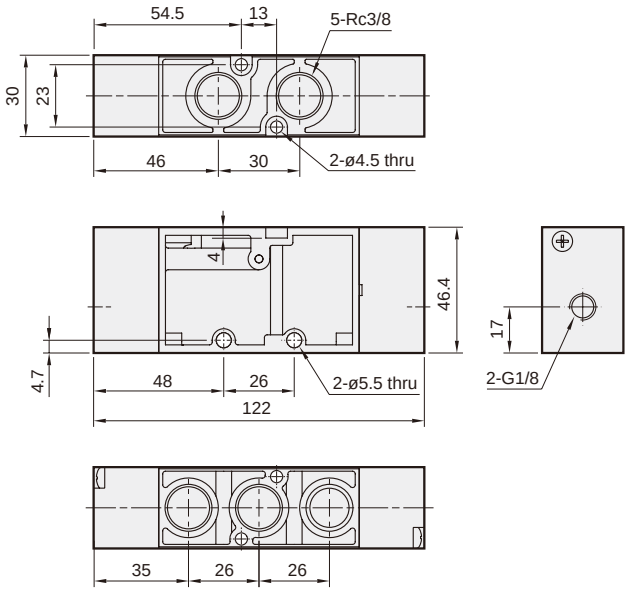
MVAA-300-4A1





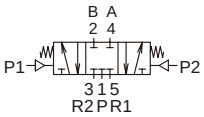
MVAA-300-4A2



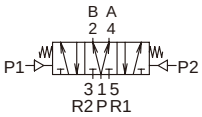


MVAA-300-4A2C.P.R

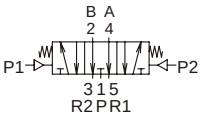
MVAA-300-4A2C

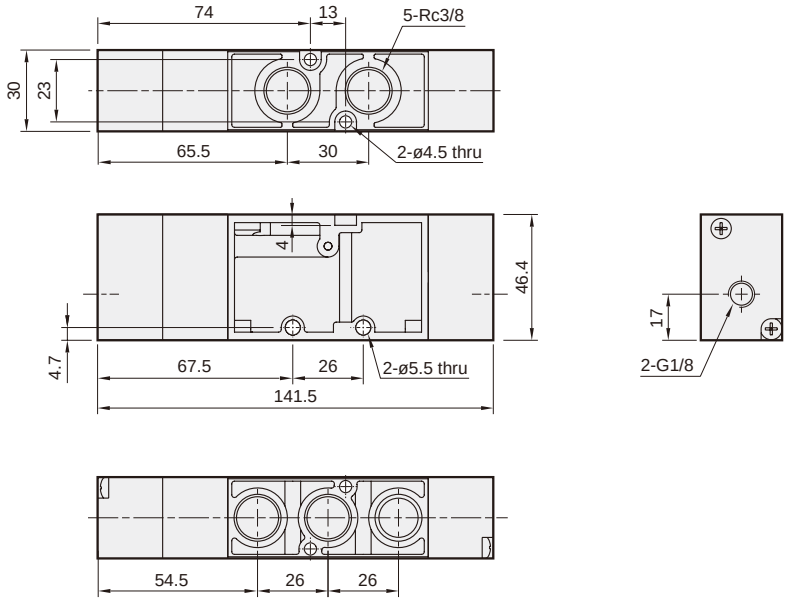


MVAA-300-4A2P

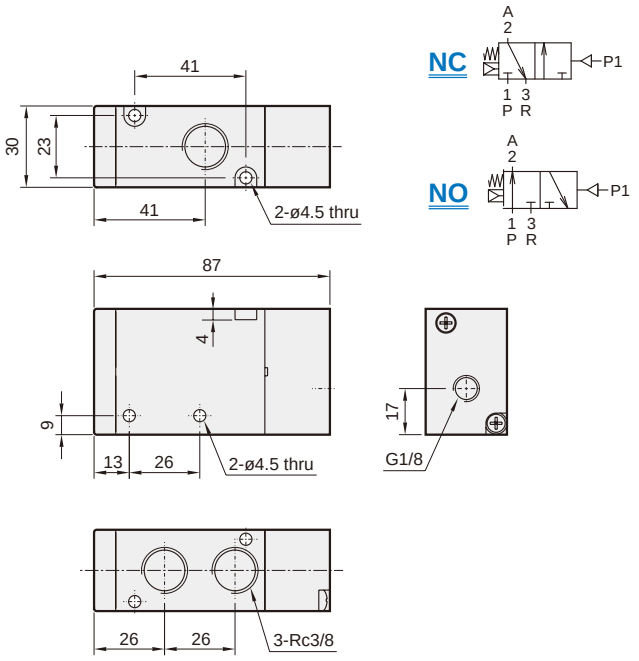


MVAA-300-4A2R

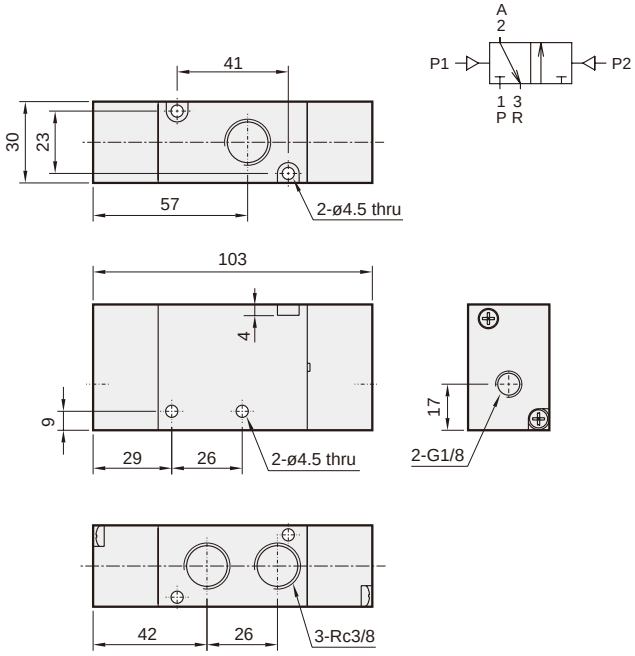




MVAA-300-3A1-NC/NO



MVAA-300-3A2

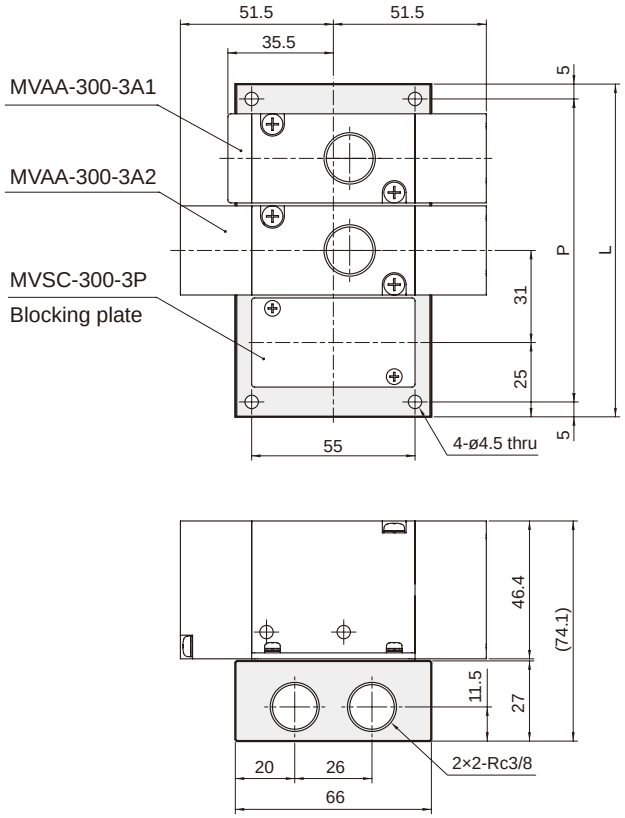


Manifold of pilot valve

MVSC-300-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)

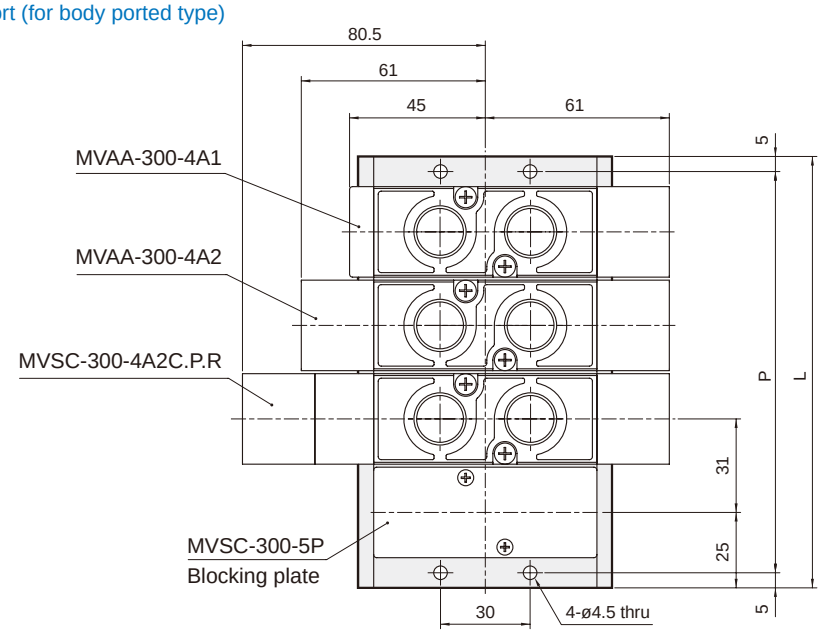


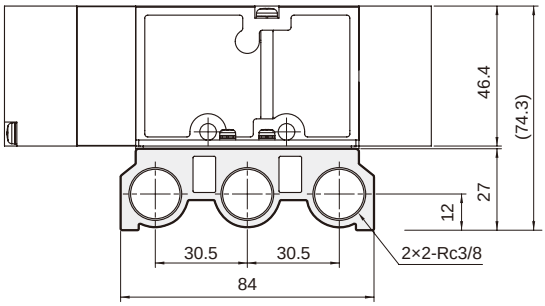
No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329

MVSC-300-5B*

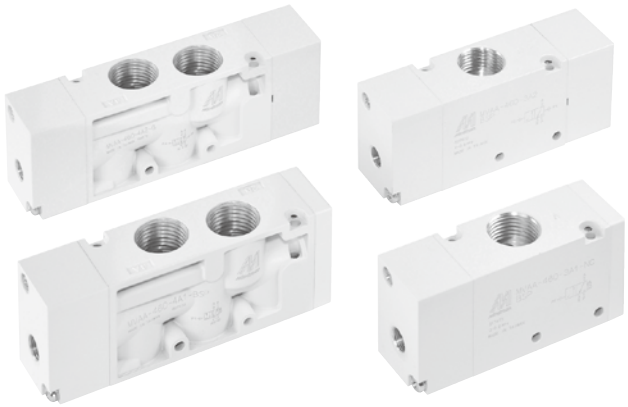
* Use the same manifold with MVSC.

5 port (for body ported type)





No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329



Specification

Model	3A1	3A2	4A1	4A2	4A2C.P.R
Bore No.	15A				
Port size	G1/2				
No. of port	3		5		
Medium	Air				
Operating pressure range	0~0.8 MPa				
Proof pressure	1 MPa				
Effective orifice	50 mm^2				
Pilot pressure range	(0.34×P*+0.1)~0.8 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	300 g	326 g	275 g	338 g	410 g

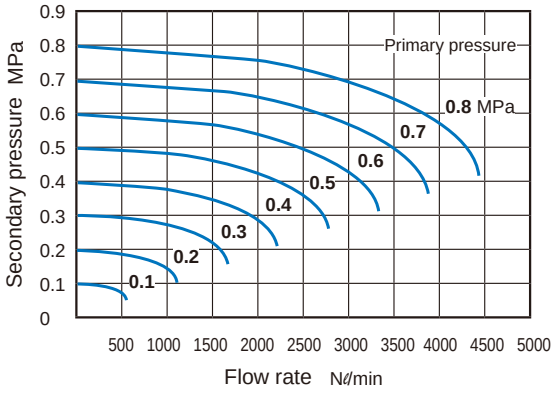
* P: Operating pressure.

Order example of valve

MVAA — 460 — 4A2C — NC — NPT

- MODEL
- BODY WIDTH
  - **3**: 3way (3 port)
  - **4**: 4way (5 port)
- **A1**: Single pilot
  A2: Double pilot
- **C**: Closed center
  P: Pressure center
  R: Exhaust center
  (Only for **4A2** type)
- **NC**: Normally closed
  NO: Normally open
  (Only for **3A1** type)
- PORT THREAD
  Blank: G thread
  RC: Rc thread
  NPT: NPT thread

Flow features



* Use the same manifold with MVSC.

Order example of manifold

MVSC — 460 — 5B3 — NPT

- MODEL
- MANIFOLD
  3B: 3 port (for body ported type)
  5B: 5 port (for body ported type)
- MANIFOLD NUMBER
  1, 2, 3...
- PORT THREAD
  Blank: G thread
  RC: Rc thread
  NPT: NPT thread

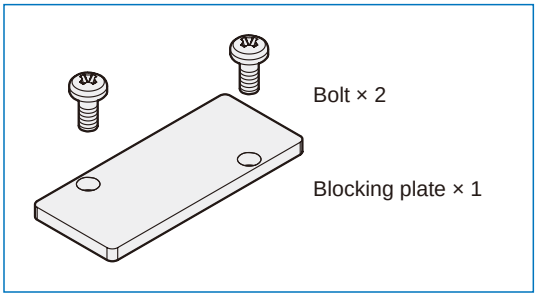
* Use the same blocking plate with MVSC.

Order example of blocking plate

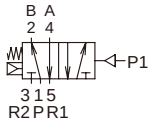
MVSC — 460 — 5P

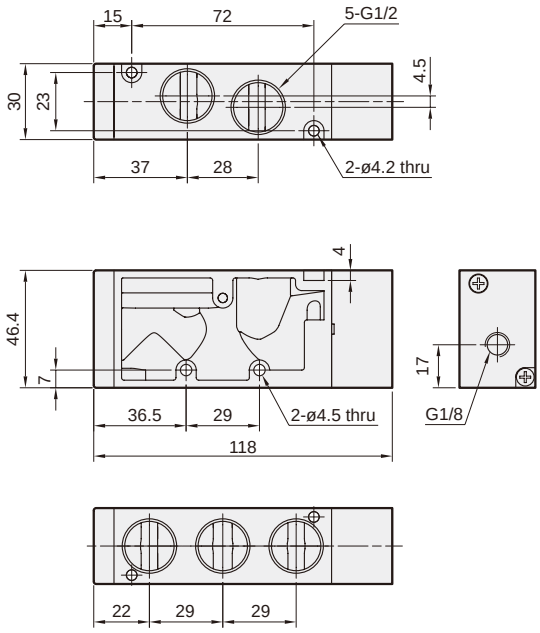
- MODEL
- BLOCKING PLATE
  3P: for 3 port
  5P: for 5 port

Blocking plate parts

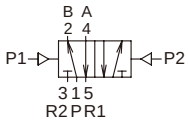


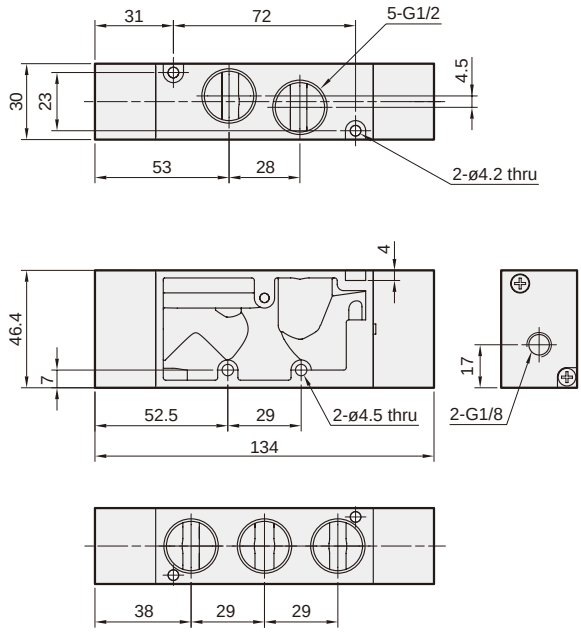
MVAA-460-4A1





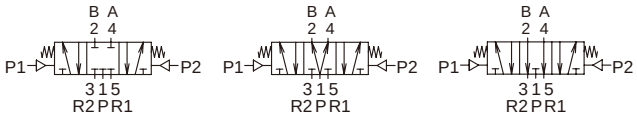
MVAA-460-4A2

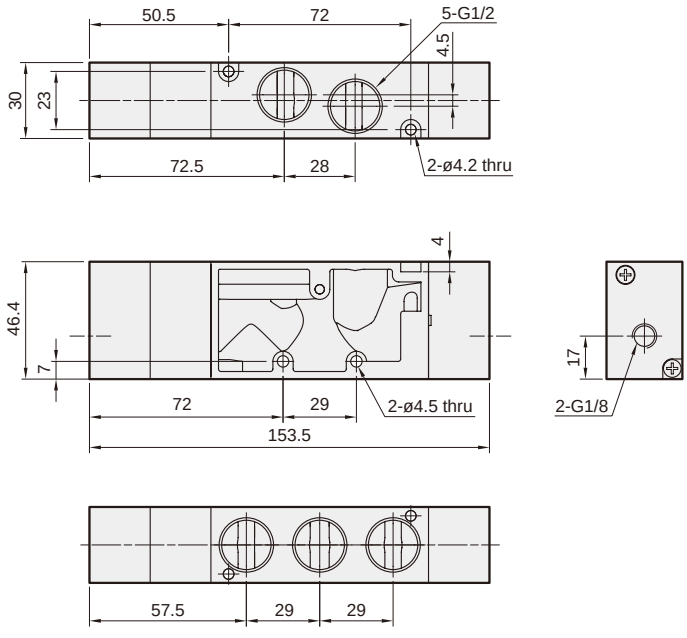




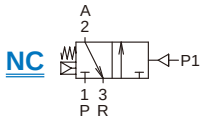
MVAA-460-4A2C.P.R

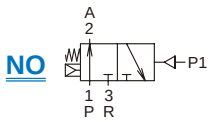
MVAA-460-4A2C **MVAA-460-4A2P** **MVAA-460-4A2R**

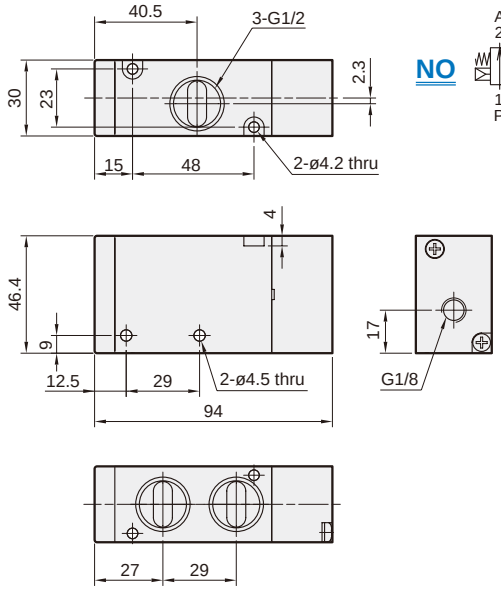




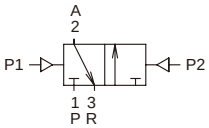
MVAA-460-3A1-NC/NO

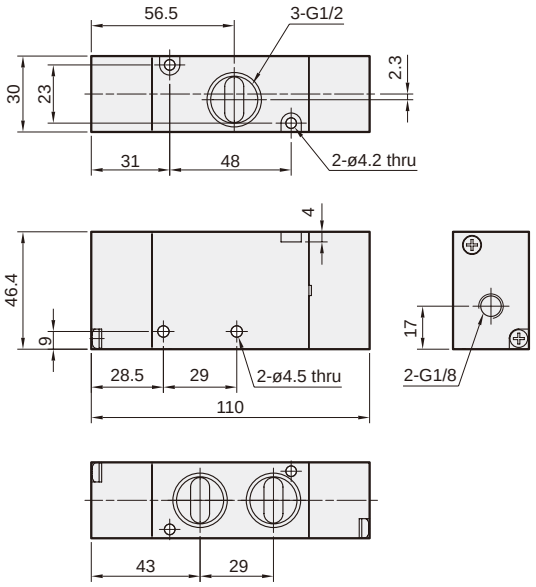






MVAA-460-3A2



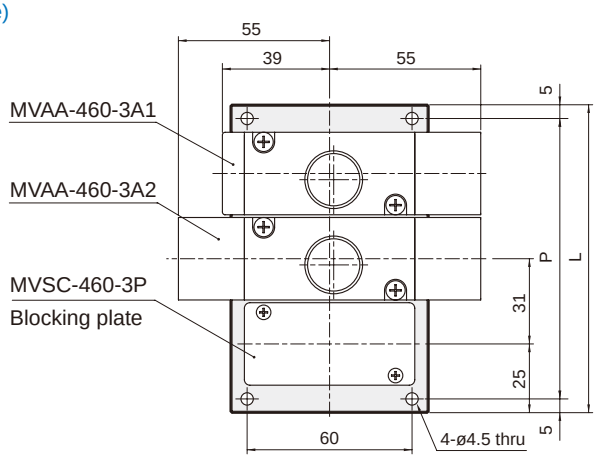


Manifold of pilot valve

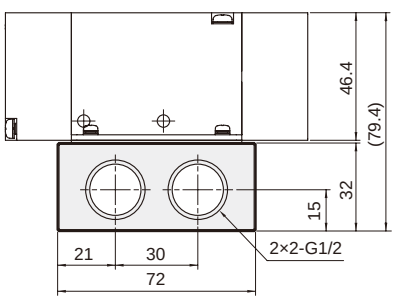
MVSC-460-3B*

* Use the same manifold with MVSC.

3 port (for body ported type)



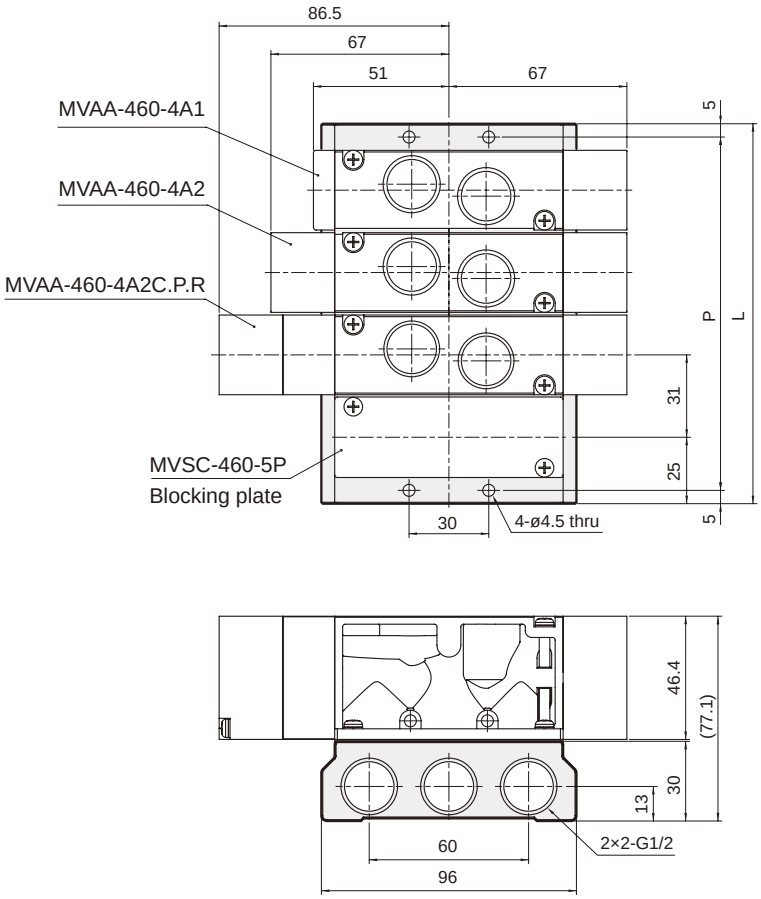
No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329



MVSC-460-5B*

* Use the same manifold with MVSC.

5 port (for body ported type)



No. of stations	P	L
2	71	81
3	102	112
4	133	143
5	164	174
6	195	205
7	226	236
8	257	267
9	288	298
10	319	329



Specification

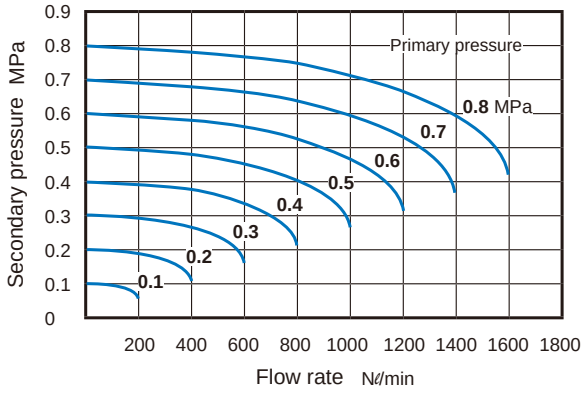
Model	MVMA-260-4R1
Bore No.	8A
Port size	Rc1/4
No. of port	5
Medium	Air
Operating pressure range	0~0.8 MPa
Proof pressure	1 MPa
Effective orifice	18 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	178 g

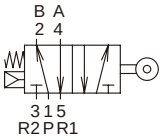
Order example

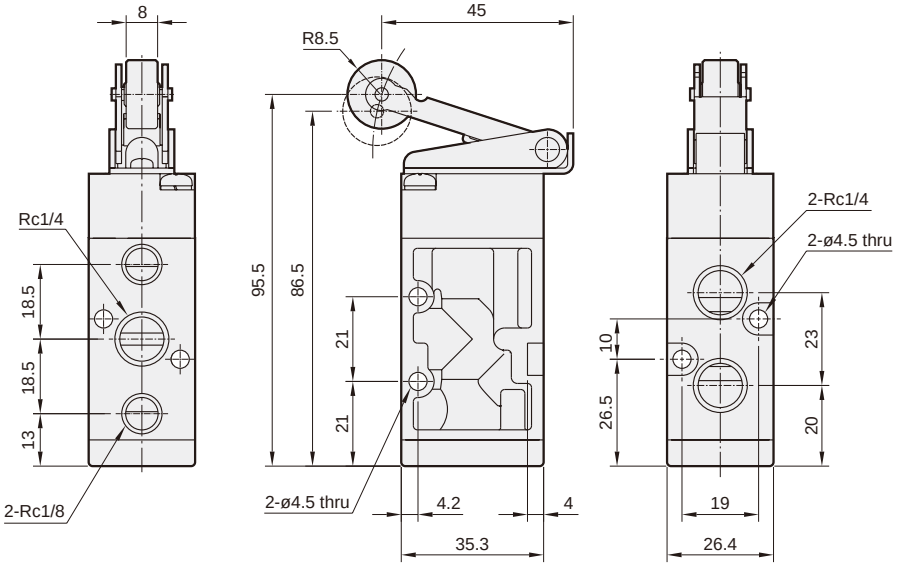
MVMA — 260 — 4R1 — G

- MODEL
- BODY WIDTH
- **4**: 4way (5 port)
- ROLLER LEVER
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Flow features









Specification

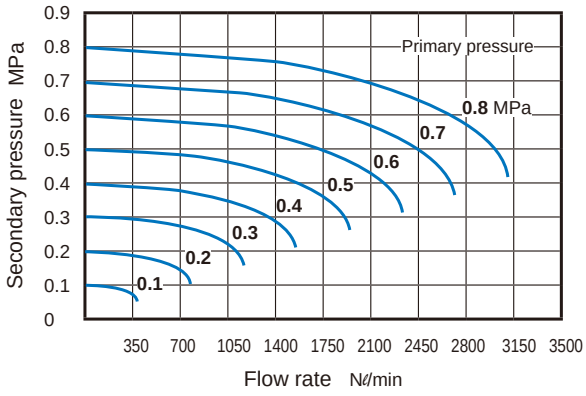
Model	MVMA-300-4R1
Bore No.	10A
Port size	Rc3/8
No. of port	5
Medium	Air
Operating pressure range	0~0.8 MPa
Proof pressure	1 MPa
Effective orifice	35 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	260 g

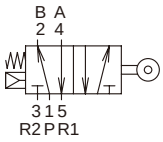
Order example

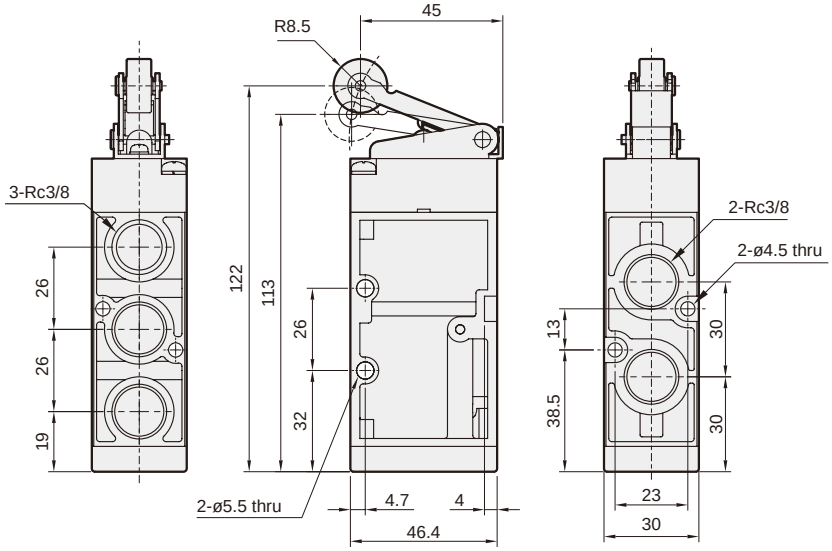
MVMA — 300 — 4R1 — G

- MODEL
- BODY WIDTH
- **4**: 4way (5 port)
- ROLLER LEVER
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

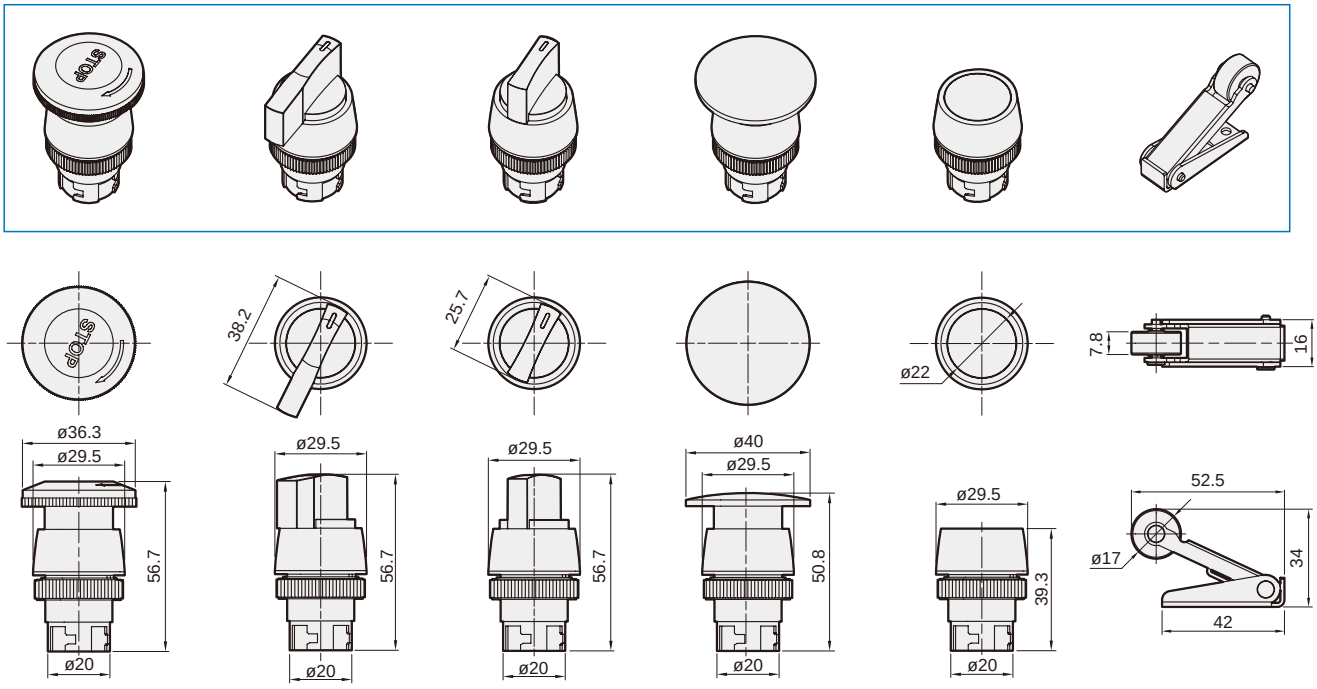
Flow features







EB-22
Latching palm button



LB-22
Extended twist button

TB-22
Twist button

PB-22
Mushroom palm button

PP-22
Push button

R1
Roller lever

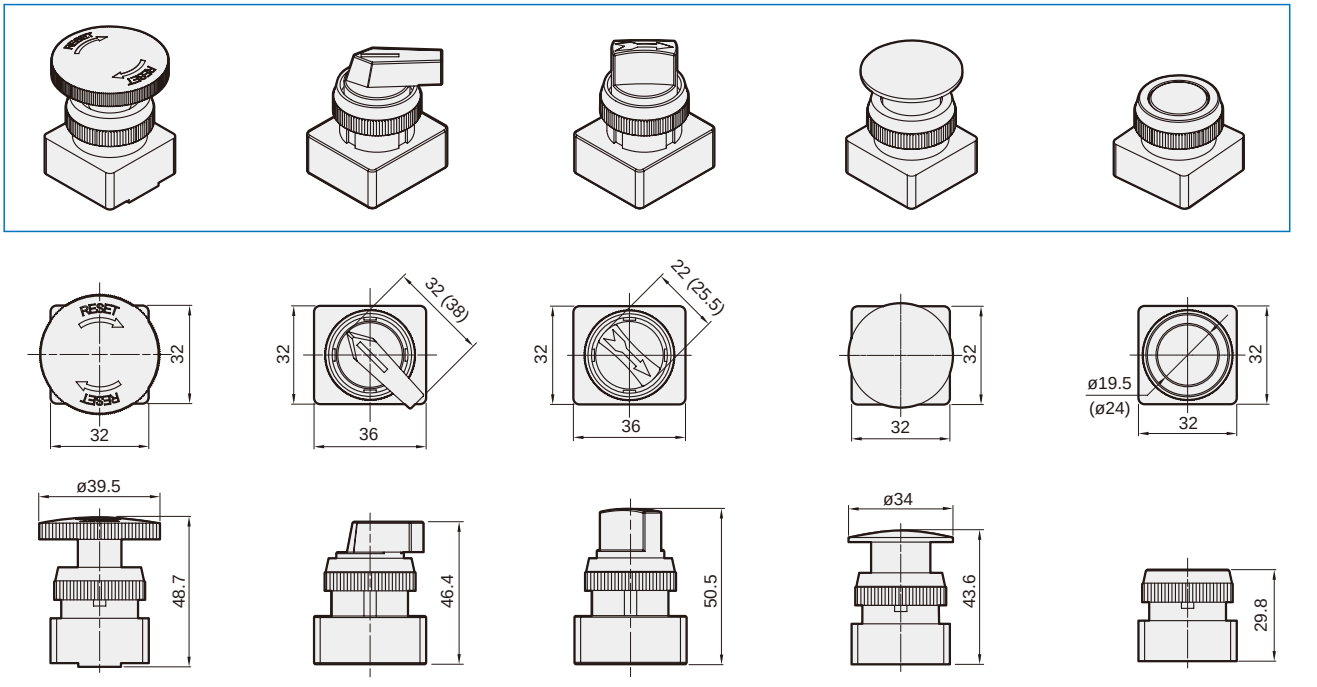
EB-25/30
Latching palm button

LB-25/30
Extended twist button

TB-25/30
Twist button

PB-25/30
Mushroom palm button

PP-25/30
Push button

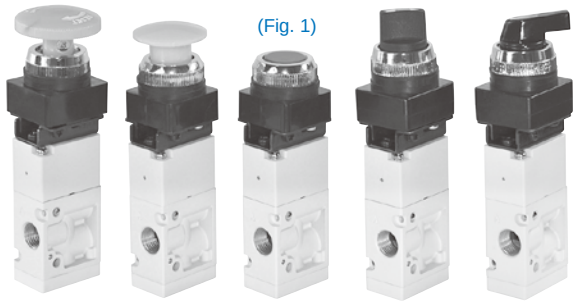


( ): Dimension for button size ø30.

MVMB-220-3** series

MECHANICAL **VALVE**

mindman



(Fig. 1)

Actuator-holder (Fig. 2)



- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 3B1-22, it need an extra order of Actuator-holder when a button is needed.

Specification

Model	MVMB-220-3**
Bore No.	8A
Port size	Rc1/4
No. of port	3
No.of position	2
Medium	Air
Operating pressure range	0.15~0.8 MPa
Proof pressure	1 MPa
Effective orifice	18 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	210 g

Order example

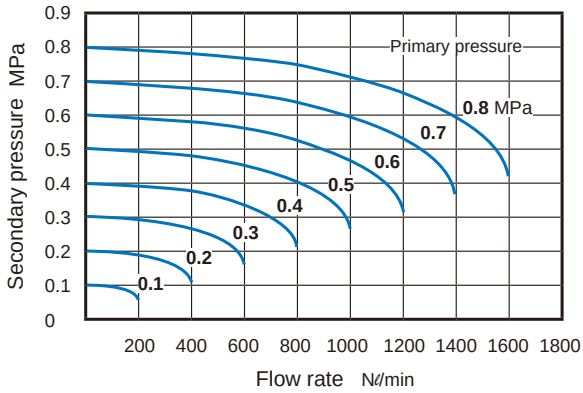
MVMB — 220 — 3EB — 25R — G

- MODEL
- BODY WIDTH
- **3**: 3way (3 port)
- BUTTON SIZE
  - **22**: ø22
  - **25**: ø25
  - **30**: ø30
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- **B1**: Body (without button)
- **EB**: Latching palm button
- **LB**: Extended twist button
- **TB**: Twist button
- **PB**: Mushroom palm button
- **PP**: Push button

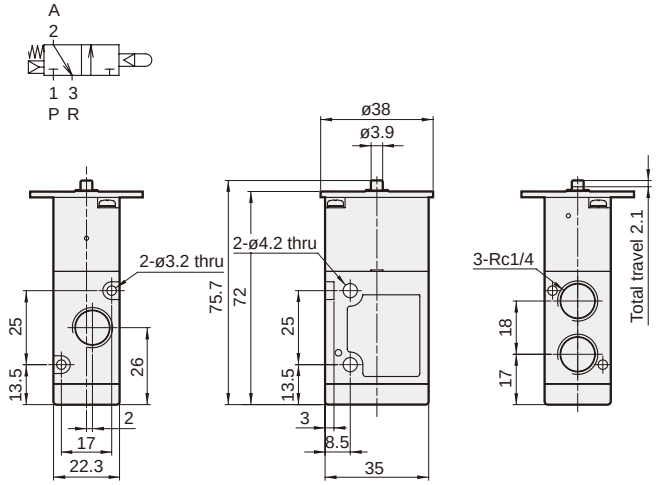
BUTTON COLOR

Color	Type
—	B1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	
R: Red	

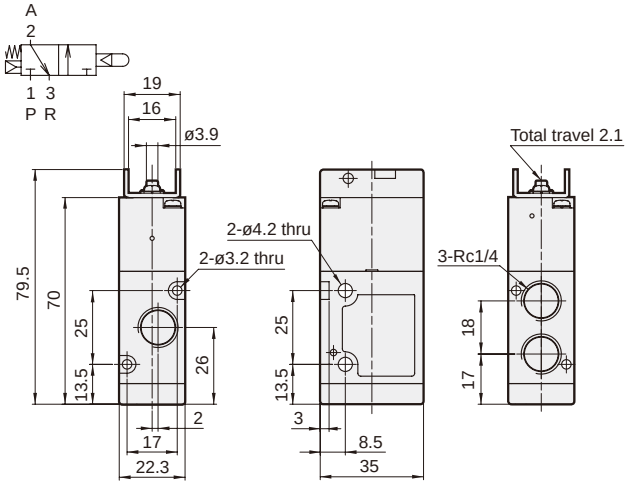
Flow features



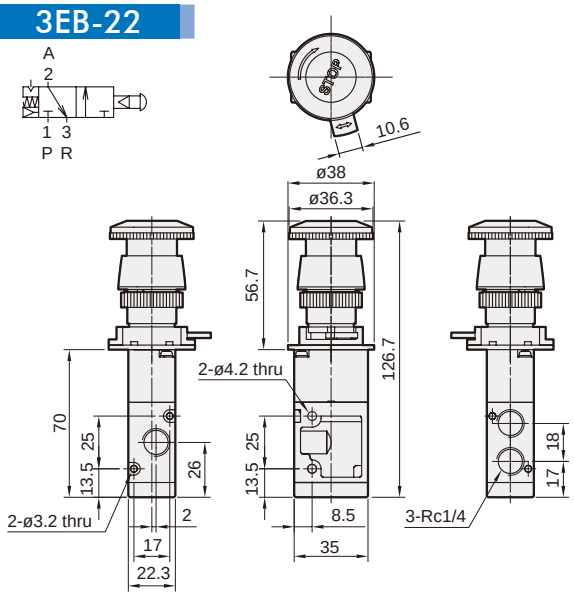
3B1-22



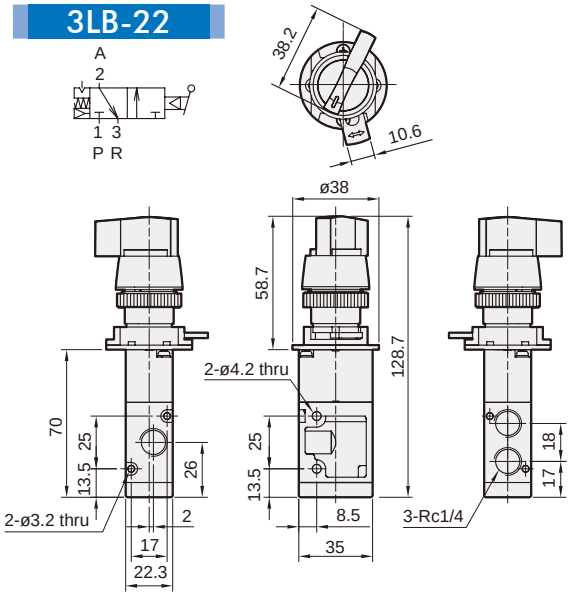
3B1-25/30



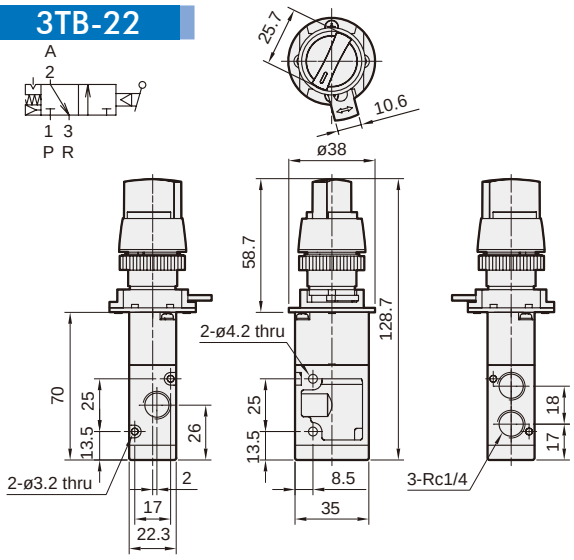
3EB-22



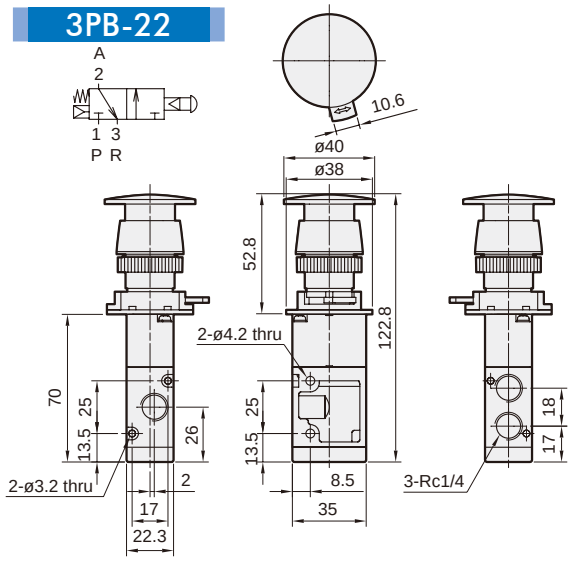
3LB-22



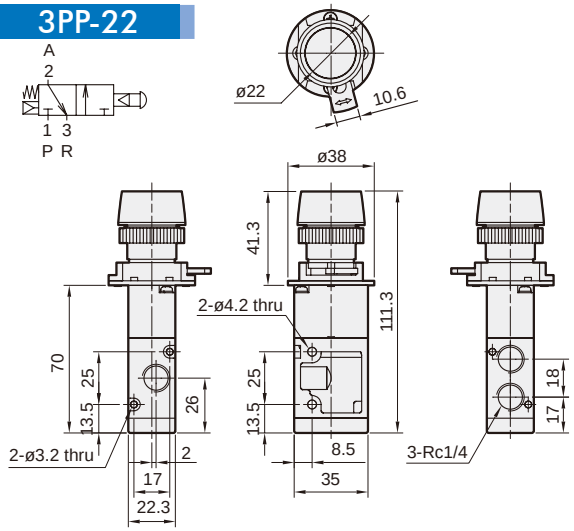
3TB-22



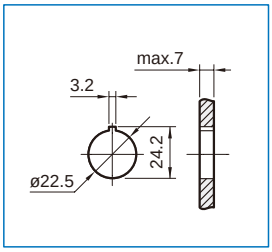
3PB-22



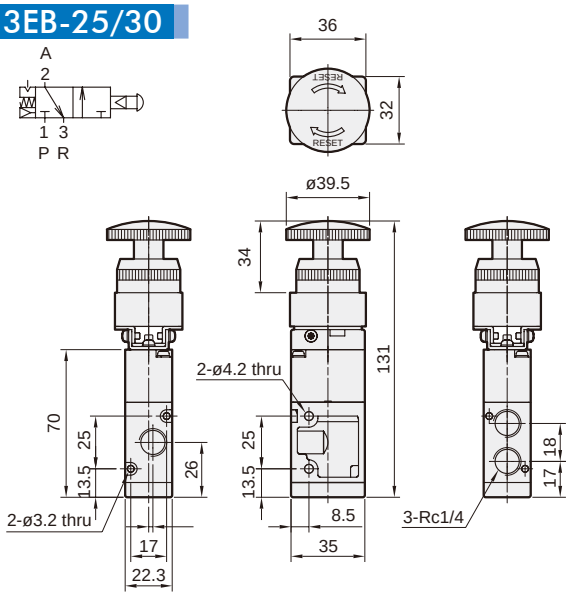
3PP-22



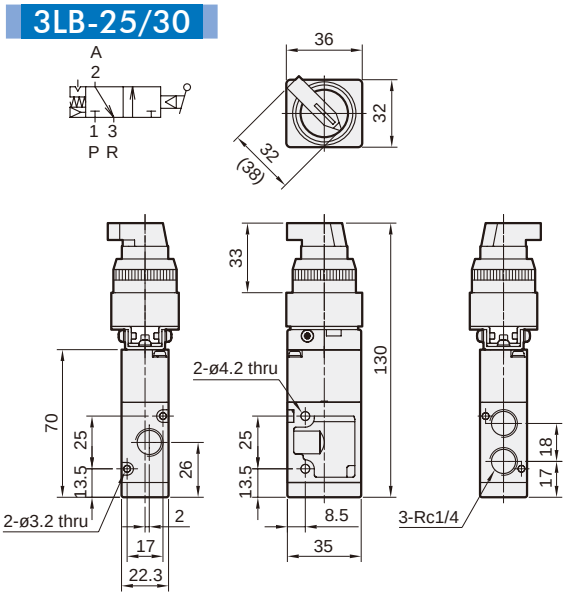
Panel mounting hole



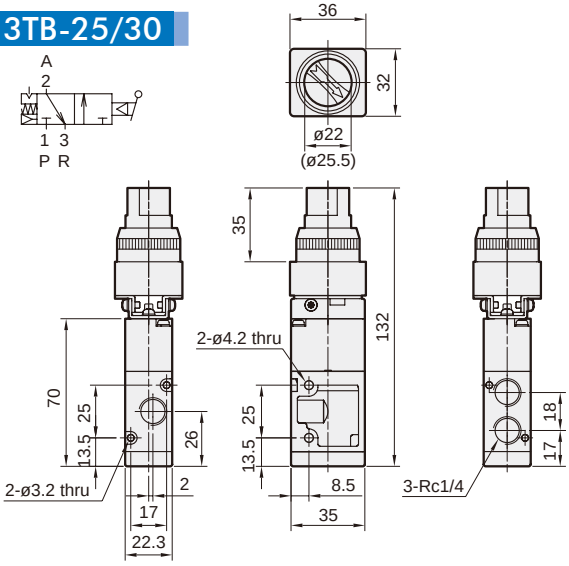
3EB-25/30



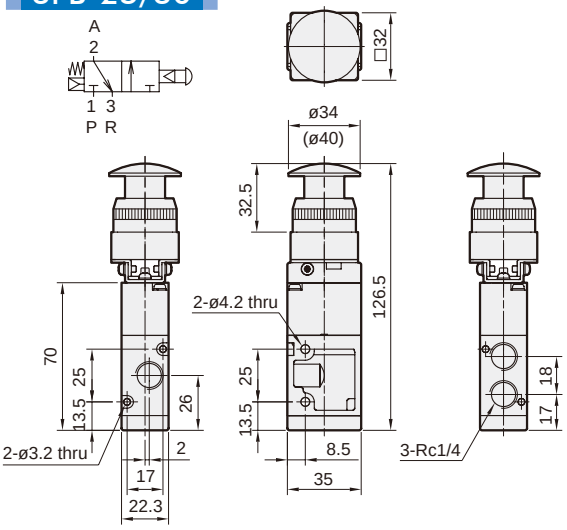
3LB-25/30



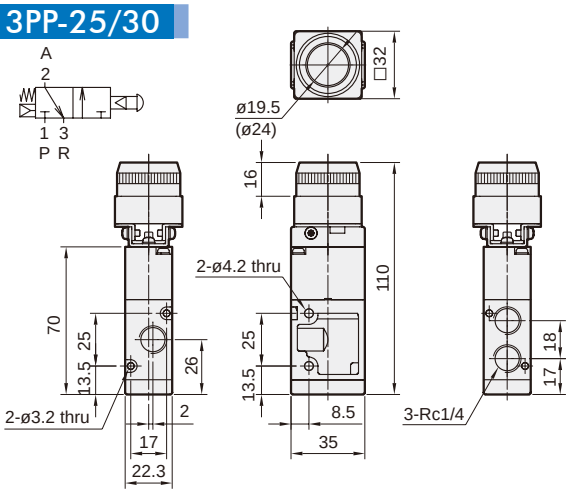
3TB-25/30



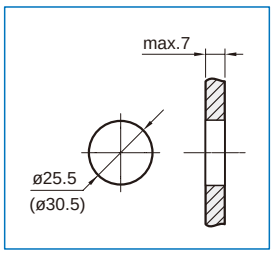
3PB-25/30



3PP-25/30



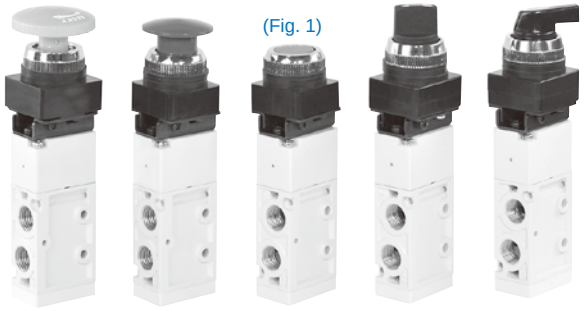
Panel mounting hole



( ): Dimension for button size ø30.

MVMB-220-4** series

MECHANICAL **VALVE**



(Fig. 1)

Actuator-holder



(Fig. 2)

- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 4B1-22, it need an extra order of Actuator-holder when a button is needed.

Specification

Model	MVMB-220-4**
Bore No.	8A
Port size	Rc1/4
No. of port	5
No.of position	2
Medium	Air
Operating pressure range	0.15~0.8 MPa
Proof pressure	1 MPa
Effective orifice	18 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	180 g

Order example

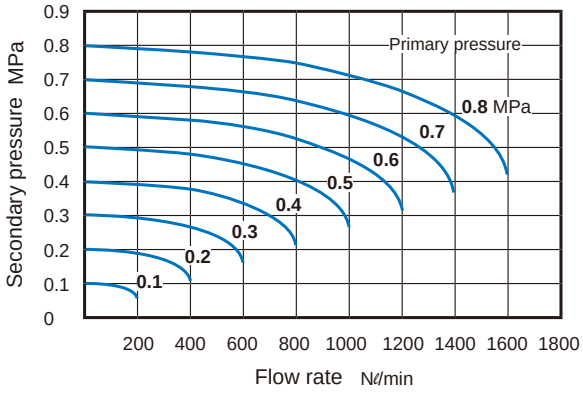
MVMB — 220 — 4EB — 25R — G

- MODEL
- BODY WIDTH
- **4**: 4way (5 port)
- BUTTON SIZE
  22: ø22
  25: ø25
  30: ø30
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
- **B1**: Body (without button)
  EB: Latching palm button
  LB: Extended twist button
  TB: Twist button
  PB: Mushroom palm button
  PP: Push button

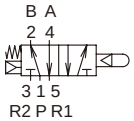
BUTTON COLOR

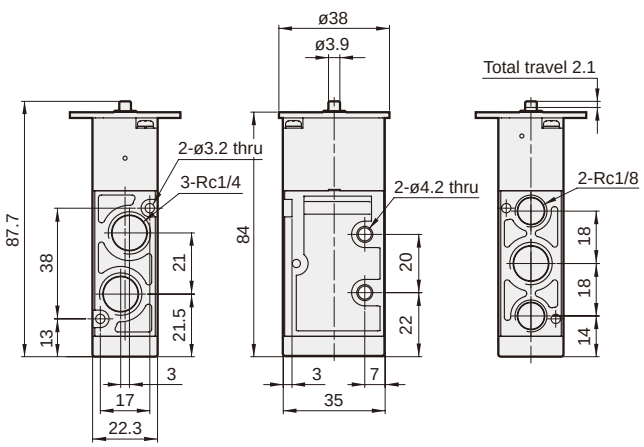
Color	Type
—	B1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	
R: Red	

Flow features

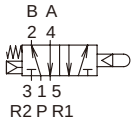


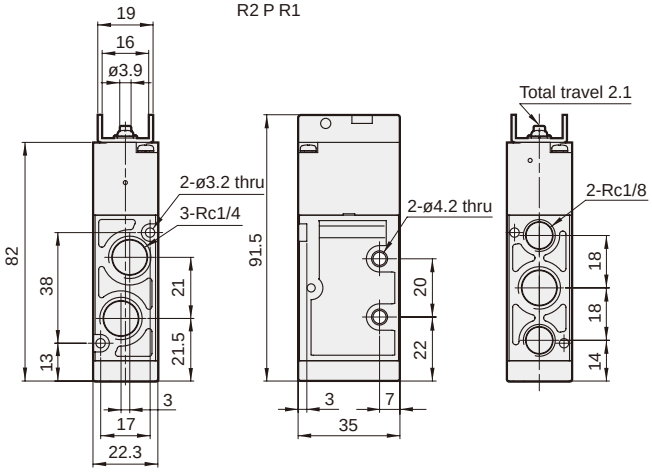
4B1-22



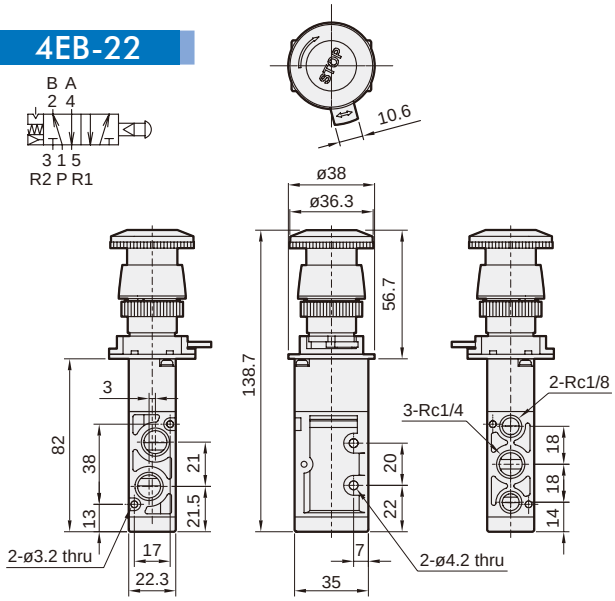


4B1-25/30

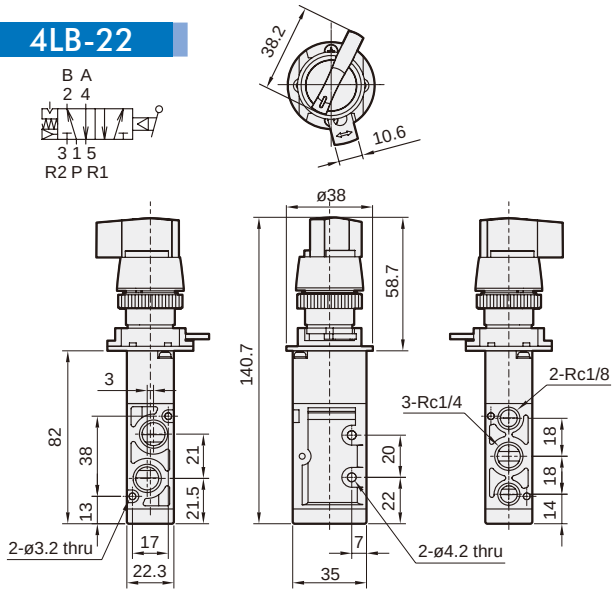




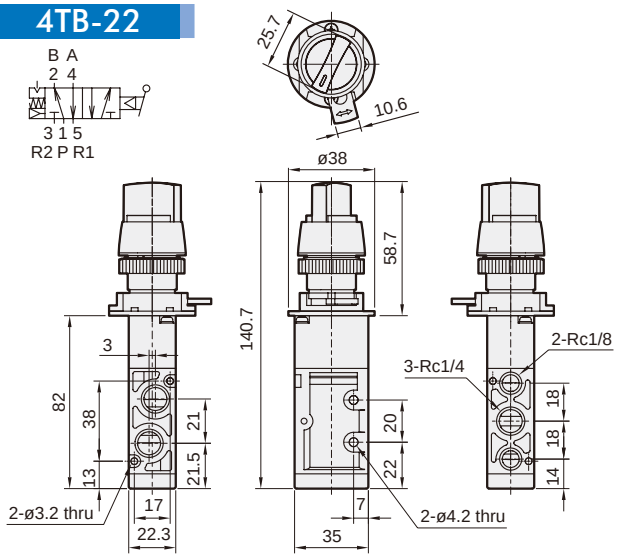
4EB-22



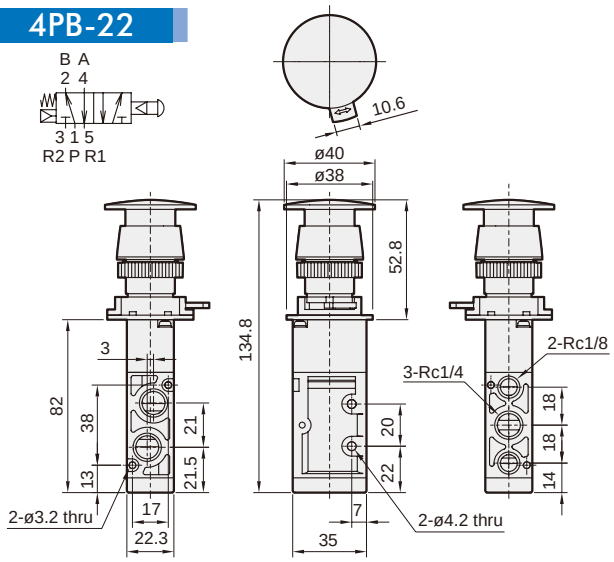
4LB-22



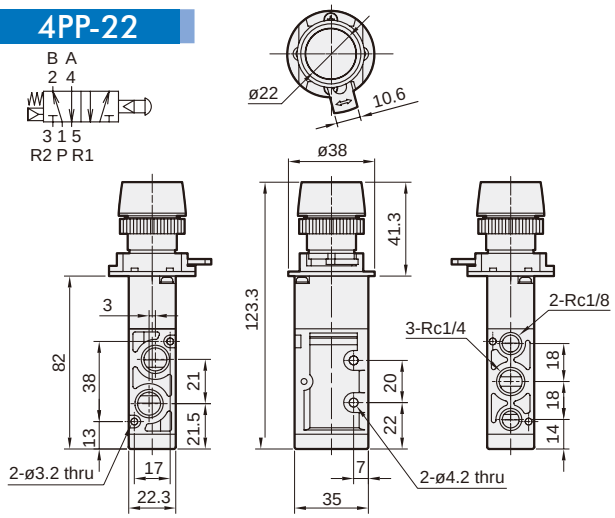
4TB-22



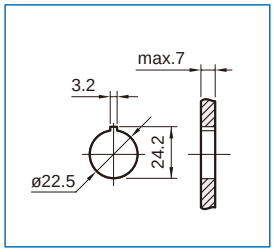
4PB-22



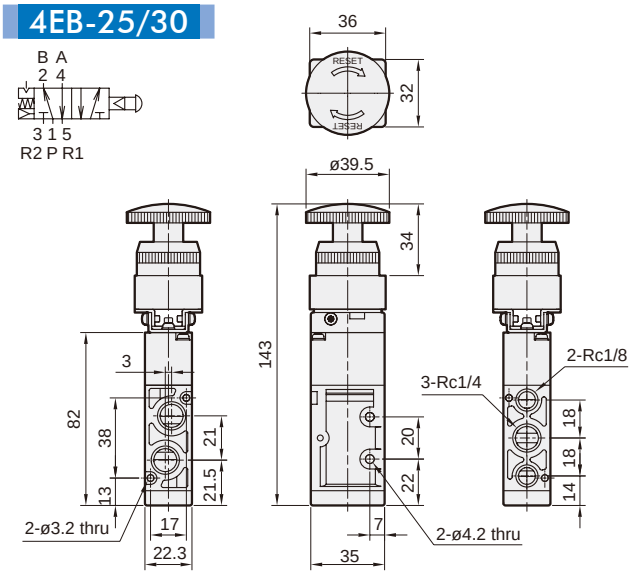
4PP-22



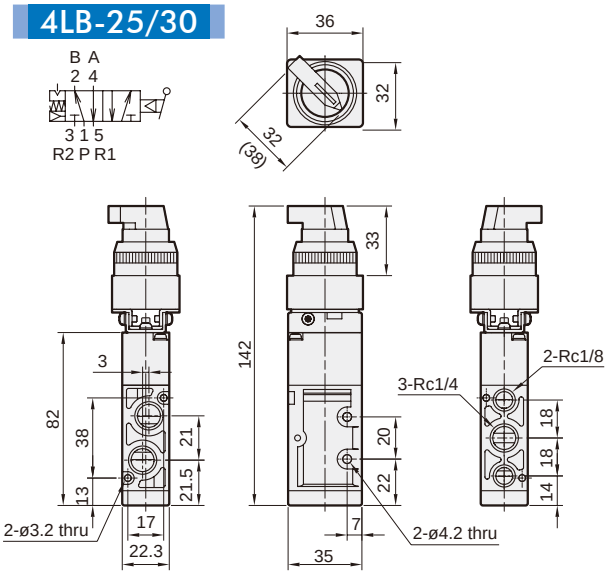
Panel mounting hole



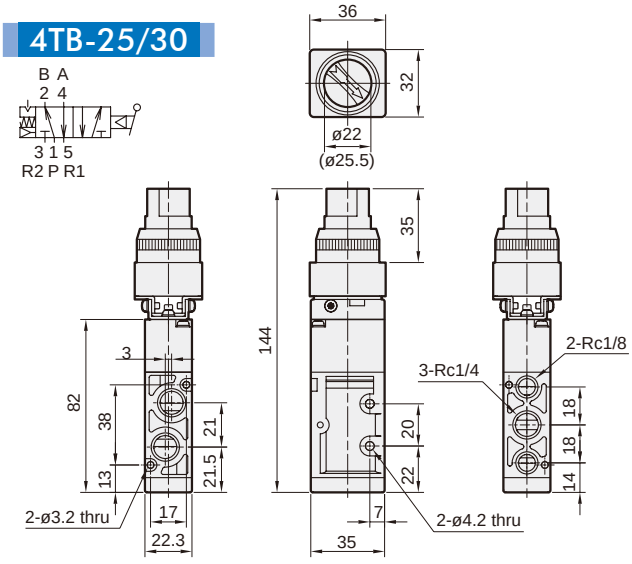
4EB-25/30



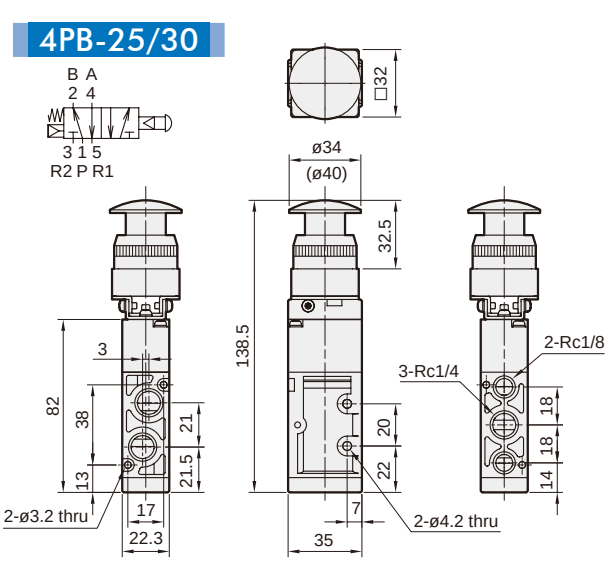
4LB-25/30



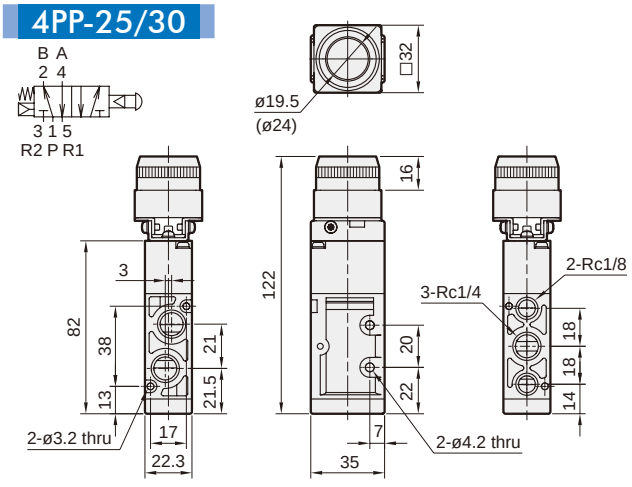
4TB-25/30



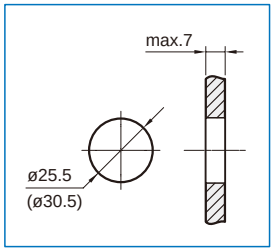
4PB-25/30



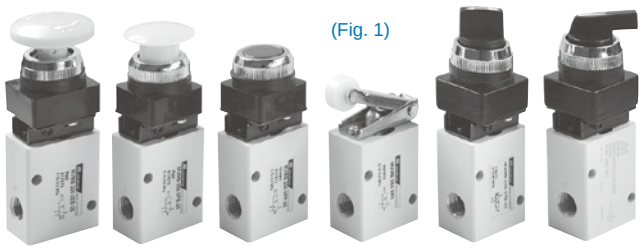
4PP-25/30



Panel mounting hole



( ): Dimension for button size ø30.



(Fig. 1)

Actuator-holder (Fig. 2)



- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 2B1-22 and 3B1-22, it need an extra order of Actuator-holder when a button is needed.

Specification

Model	MVMB-250
Bore No.	8A
Port size	Rc1/4
No. of port	2 or 3
No.of position	2
Medium	Air
Operating pressure range	0~1 MPa
Proof pressure	1 MPa
Effective orifice	18 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	193 g

Order example

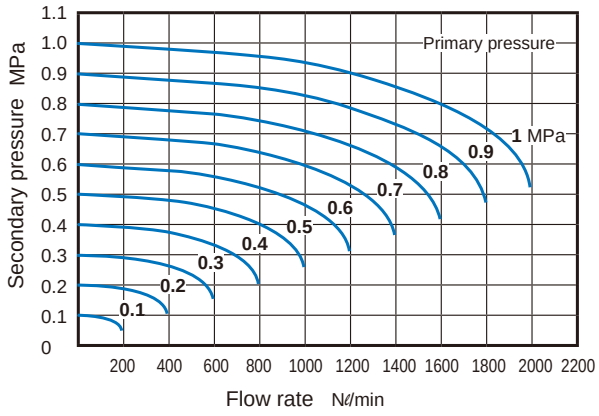
MVMB — 250 — 3PB — 25B — G

- MODEL
- BODY WIDTH
- **2**: 2way (2 port)
  3: 3way (3 port)
- **B1**: Body (without button)
  R1: Roller lever
  EB: Latching palm button
  LB: Extended twist button
  TB: Twist button
  PB: Mushroom palm button
  PP: Push button
- BUTTON SIZE
  22: ø22
  25: ø25
  30: ø30
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

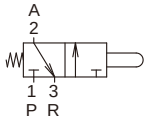
BUTTON COLOR

Color	Type
—	B1 type R1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	
R: Red	

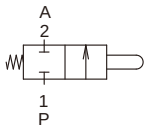
Flow features

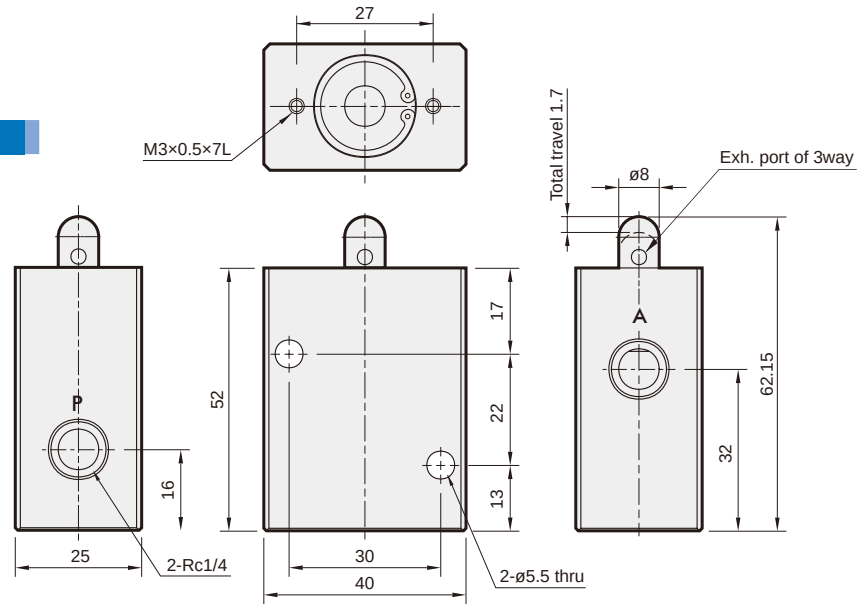


MVMB-250-3B1

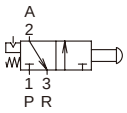


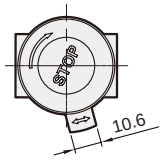
MVMB-250-2B1



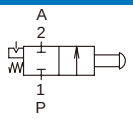


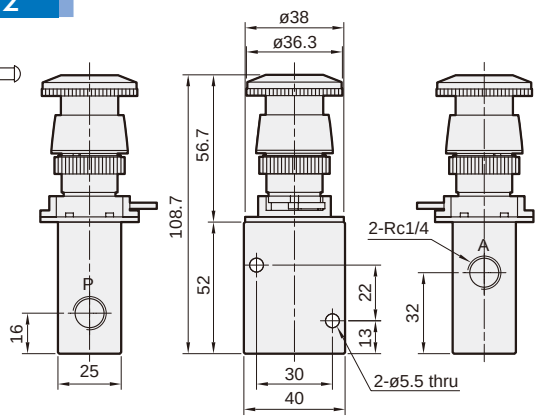
3EB-22



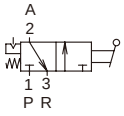


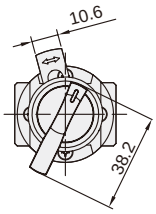
2EB-22



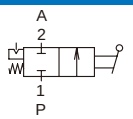


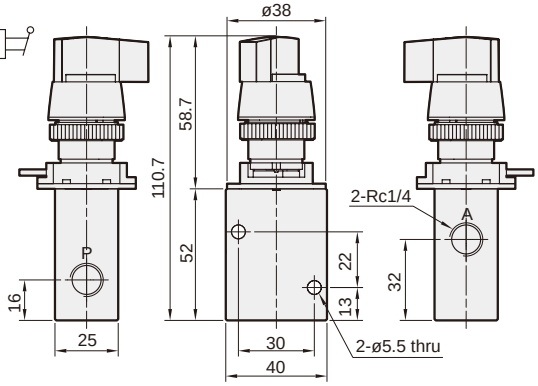
3LB-22



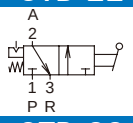


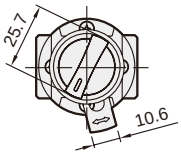
2LB-22



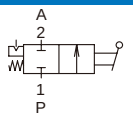


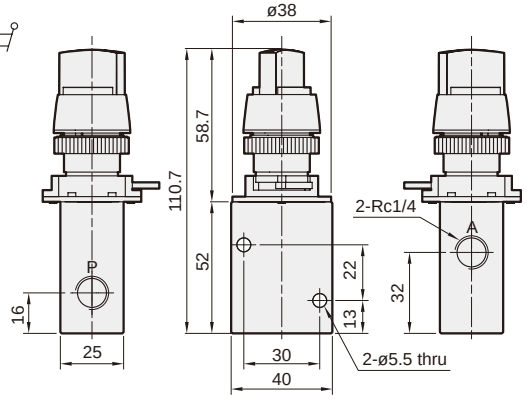
3TB-22



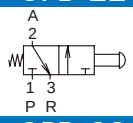


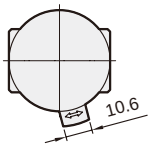
2TB-22



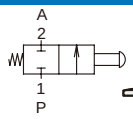


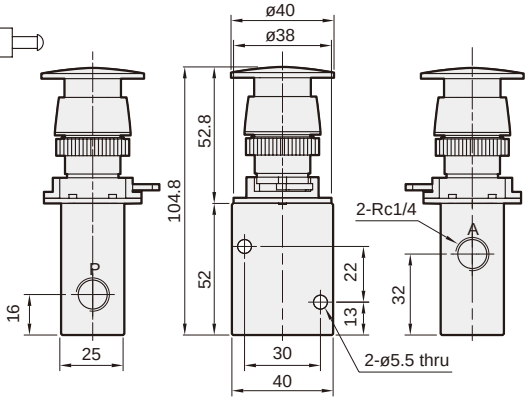
3PB-22



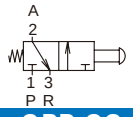


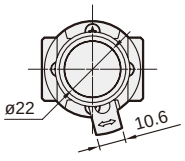
2PB-22



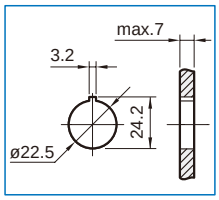


3PP-22

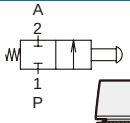


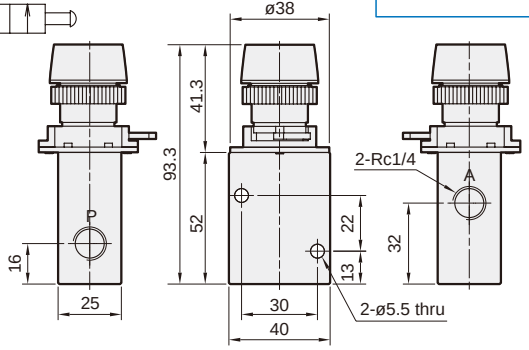


Panel mounting hole

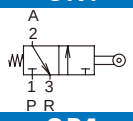


2PP-22

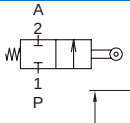


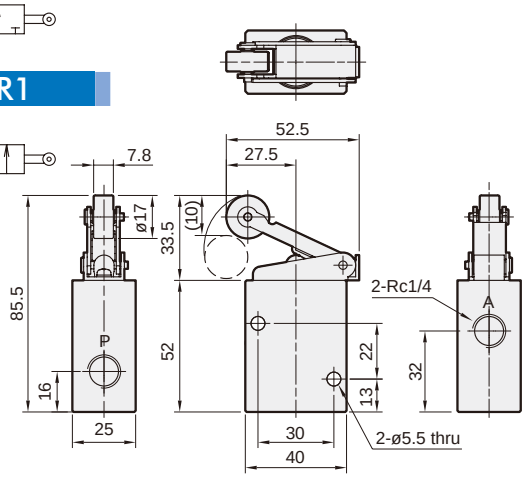


3R1



2R1



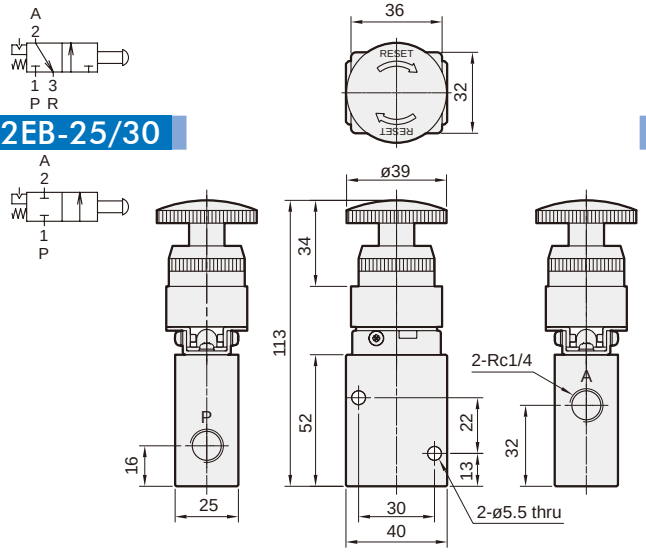


MVMB-250 Dimensions

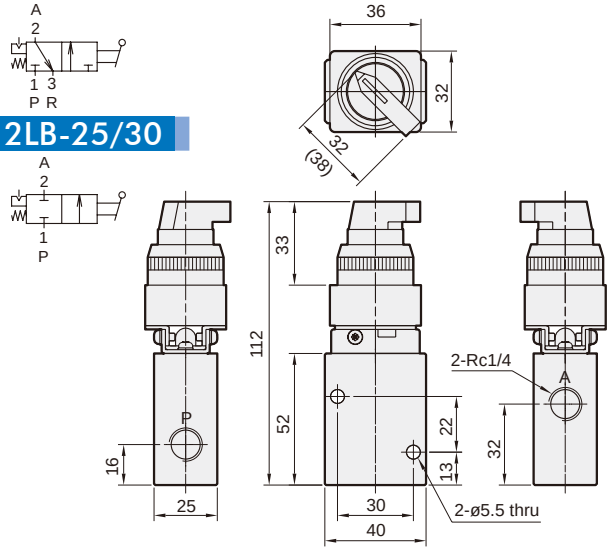
MECHANICAL **VALVE**

mindman

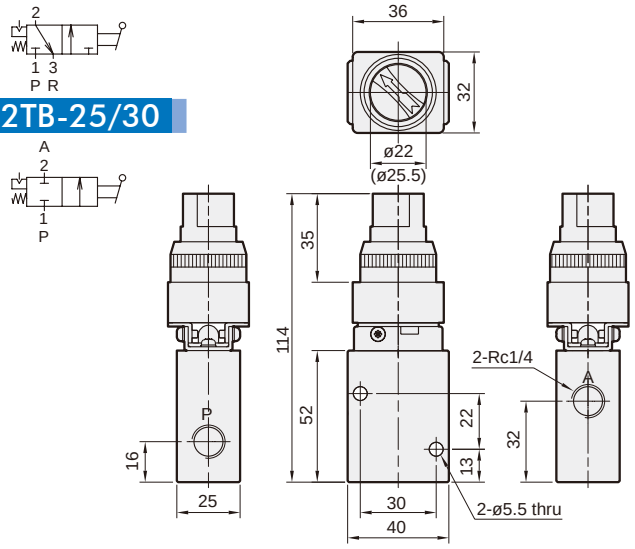
3EB-25/30
2EB-25/30



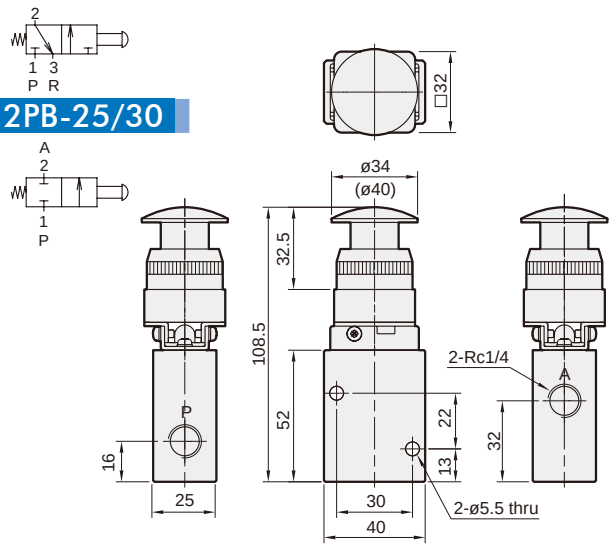
3LB-25/30
2LB-25/30



3TB-25/30
2TB-25/30

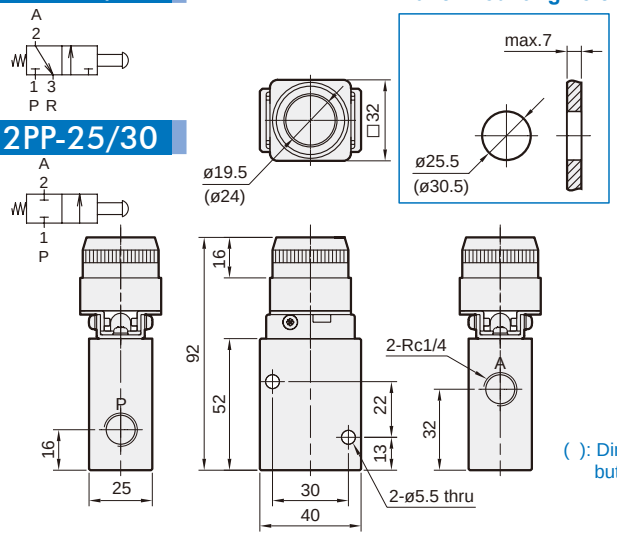


3PB-25/30
2PB-25/30

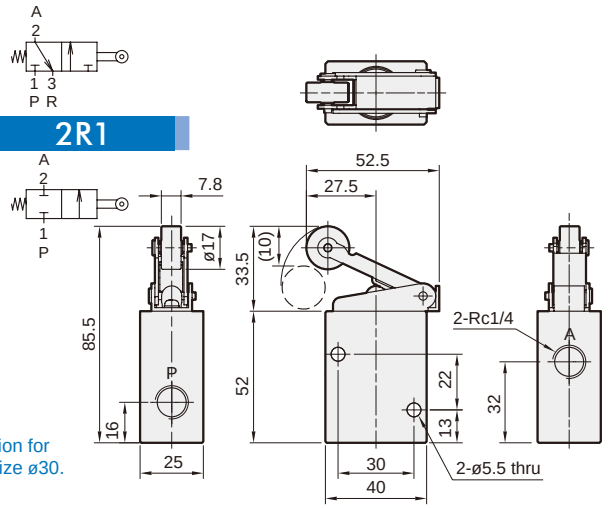


3PP-25/30
2PP-25/30

Panel mounting hole



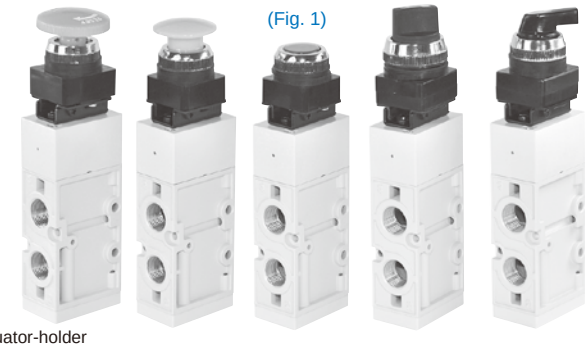
3R1
2R1



( ): Dimension for button size ø30.

MVMB-300-4** series

MECHANICAL **VALVE**



(Fig. 1)

Actuator-holder



(Fig. 2)

- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 4B1-22, it need an extra order of Actuator-holder when a button is needed.

Specification

Model	MVMB-300-4**
Bore No.	10A
Port size	Rc3/8
No. of port	5
No.of position	2
Medium	Air
Operating pressure range	0.15~0.8 MPa
Proof pressure	1 MPa
Effective orifice	30 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	315 g

Order example

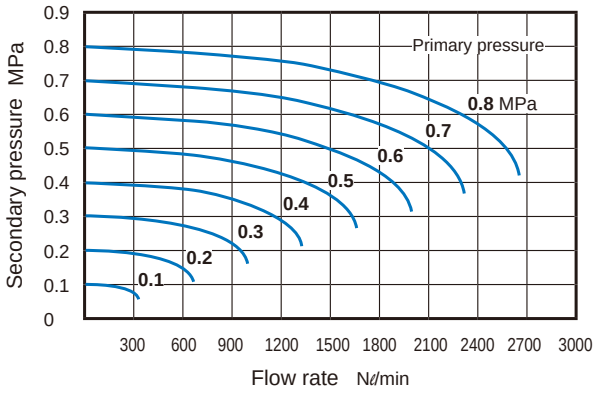
MVMB — 300 — 4EB — 25R — G

- MODEL
- BODY WIDTH
- **4**: 4way (5 port)
- BUTTON SIZE
  - **22**: ø22
  - **25**: ø25
  - **30**: ø30
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- **B1**: Body (without button)
- **EB**: Latching palm button
- **LB**: Extended twist button
- **TB**: Twist button
- **PB**: Mushroom palm button
- **PP**: Push button

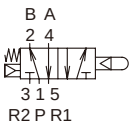
BUTTON COLOR

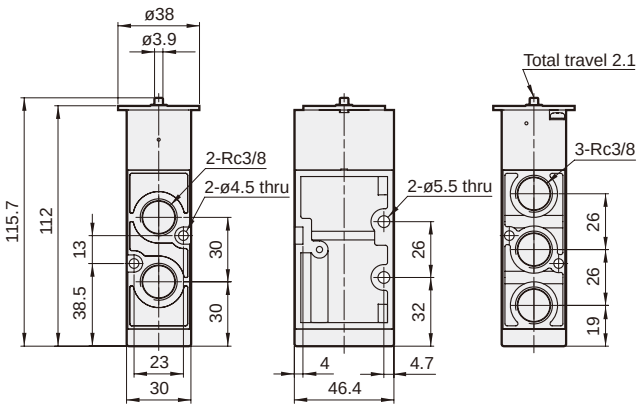
Color	Type
—	B1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	
R: Red	

Flow features

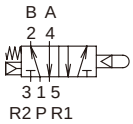


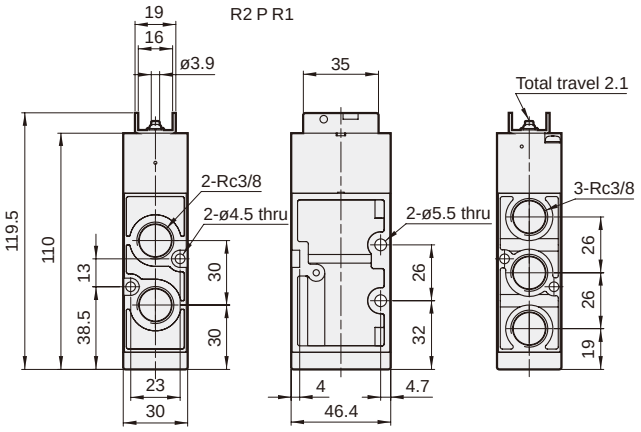
4B1-22



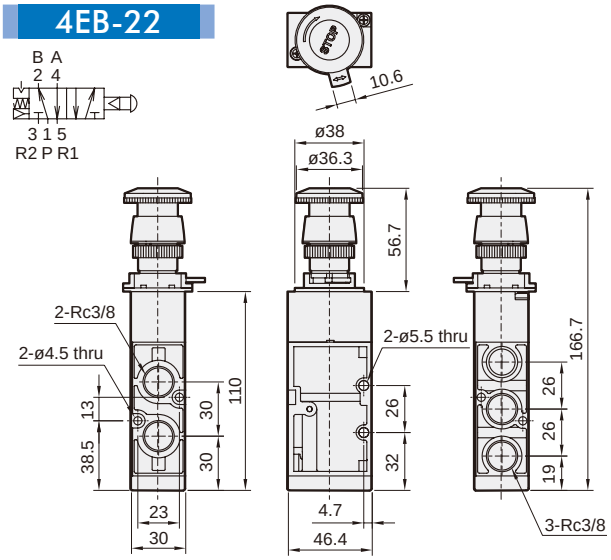


4B1-25/30

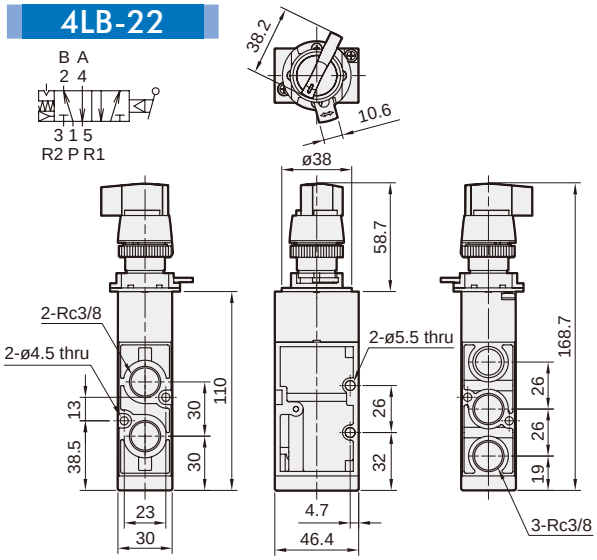




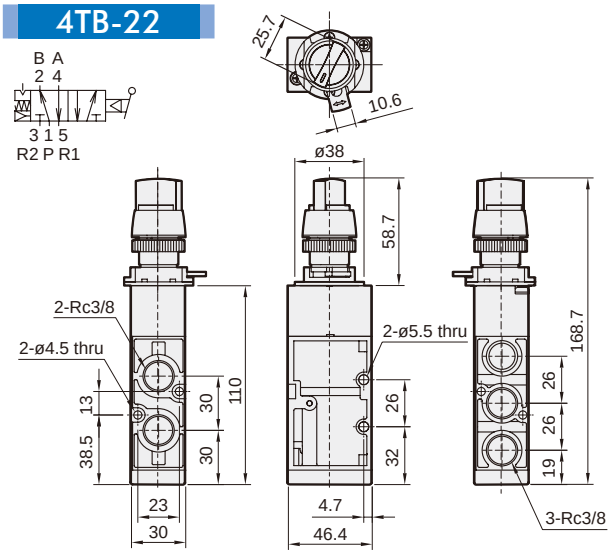
4EB-22



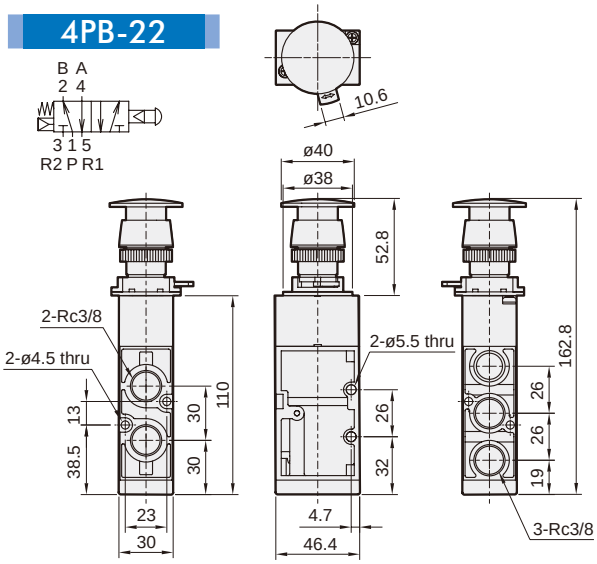
4LB-22



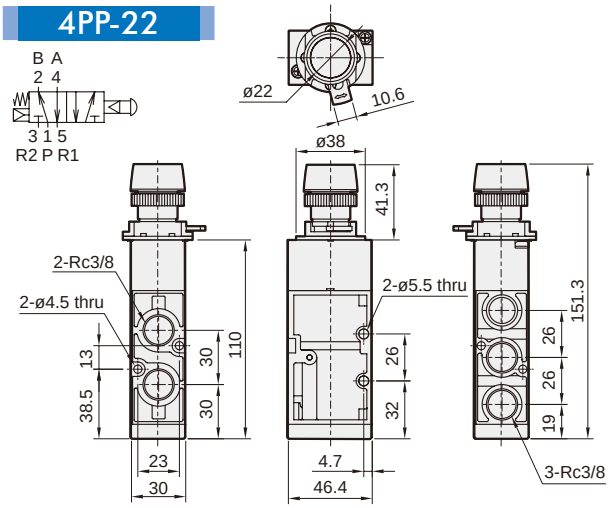
4TB-22



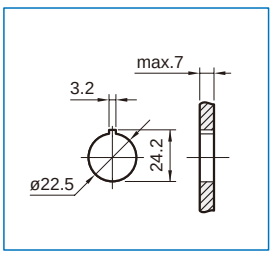
4PB-22



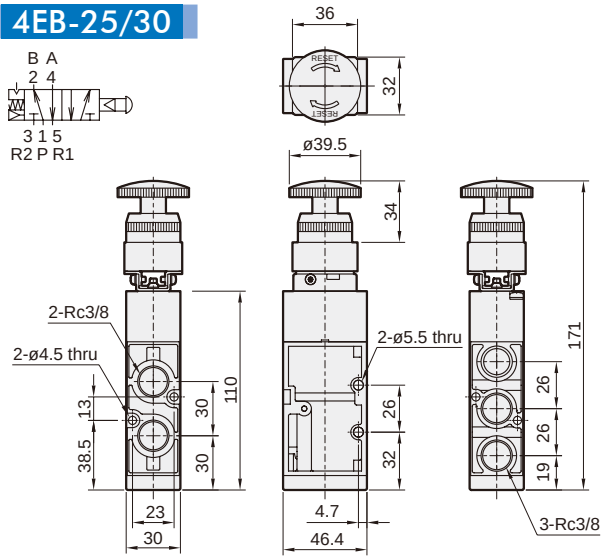
4PP-22



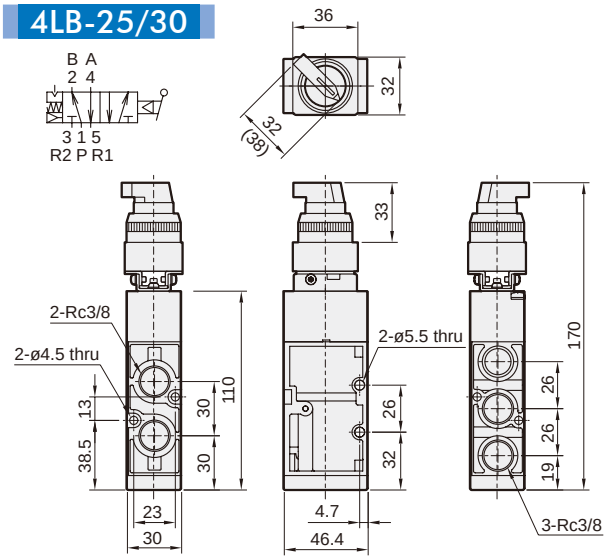
Panel mounting hole



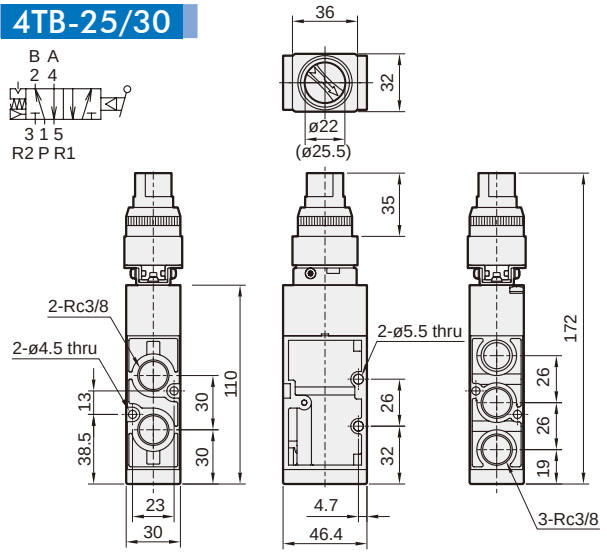
4EB-25/30



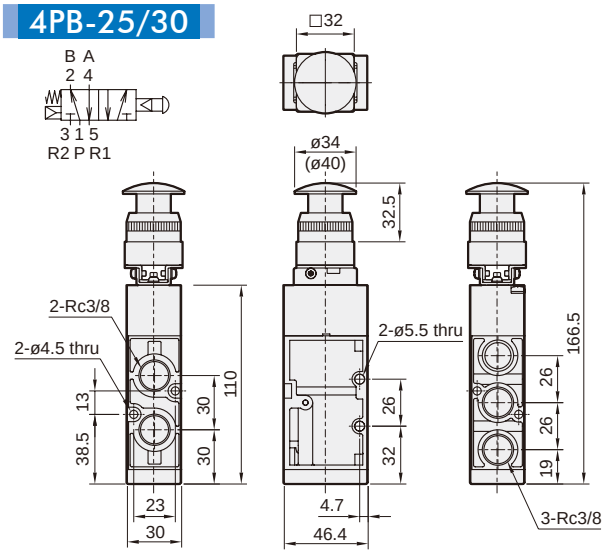
4LB-25/30



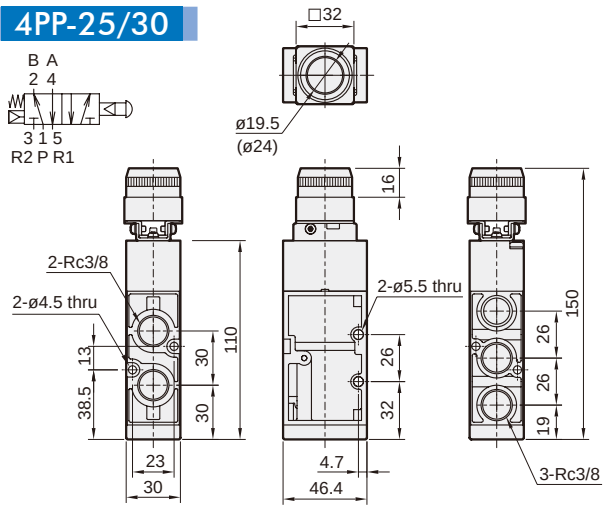
4TB-25/30



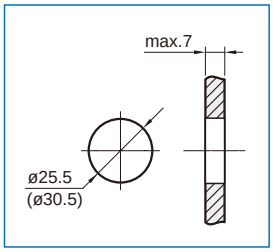
4PB-25/30



4PP-25/30



Panel mounting hole

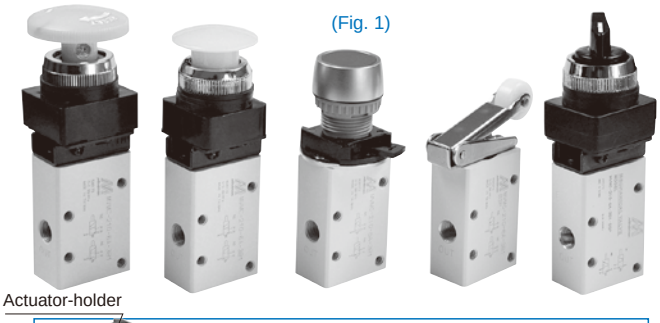


( ): Dimension for button size ø30.

MVMC-210 series

MECHANICAL **VALVE**

mindman



(Fig. 1)

Actuator-holder



(Fig. 2)

- Type ø22, the body and actuator-holder in (Fig. 2).
- Type ø22 can set or release button by simply switching actuator-holder.
- Type ø25, ø30 fix bracket in (Fig. 1).
- Type ø25, ø30 Actuator set or released by screwdriver.
- If choose type 3B1-22, it need an extra order of Actuator-holder when a button is needed.

Specification

Model	MVMC-210	
Bore No.	6A	8A
Port size	Rc1/8	Rc1/4
No. of port	3	
No.of position	2	
Medium	Air	
Operating pressure range	0~1 MPa	
Proof pressure	1 MPa	
Effective orifice	19 mm^2	
Ambient temperature	-5~+60°C (No freezing)	
Weight	155 g	

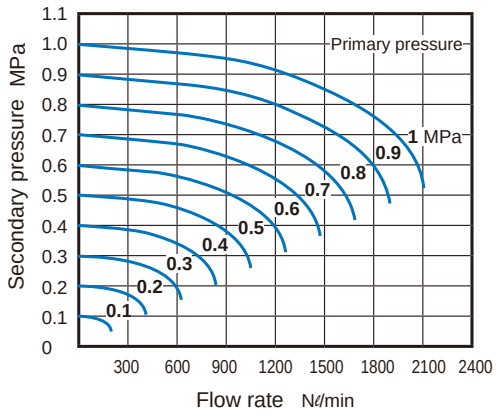
Order example

MVMC — 210 — 6A— 3EB — 25R — G

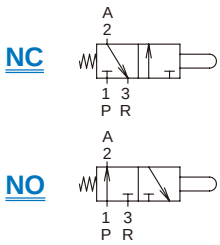
- MODEL
- BODY WIDTH
- BORE SIZE
  - **6A**: Rc1/8
  - **8A**: Rc1/4
- **3**: 3way (3 port)
  - **B1**: Body (without button)
  - **R1**: Roller lever
  - **EB**: Latching palm button
  - **LB**: Extended twist button
  - **TB**: Twist button
  - **PB**: Mushroom palm button
  - **PP**: Push button
- BUTTON SIZE
  - **22**: ø22
  - **25**: ø25
  - **30**: ø30
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread (only for 6A size)
  - **NPT**: NPT thread
- BUTTON COLOR

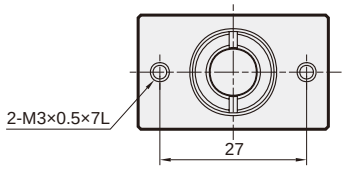
Color	Type
—	B1 type R1 type
G: Green	EB type
R: Red	
B: Black	LB type TB type
B: Black	PB type PP type
G: Green	
R: Red	

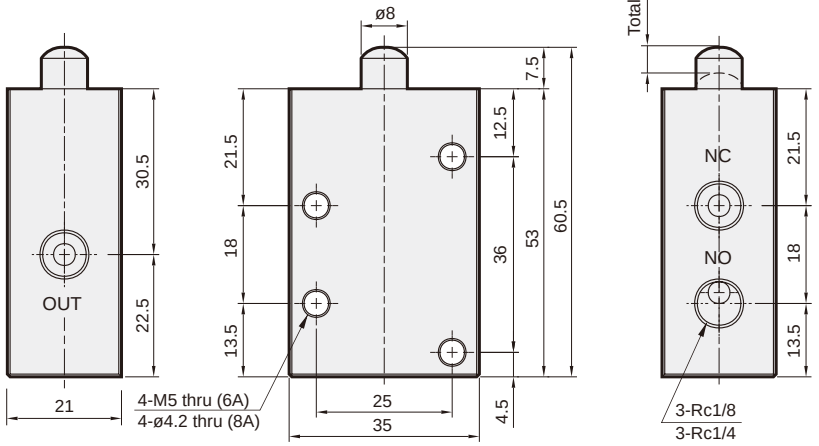
Flow features



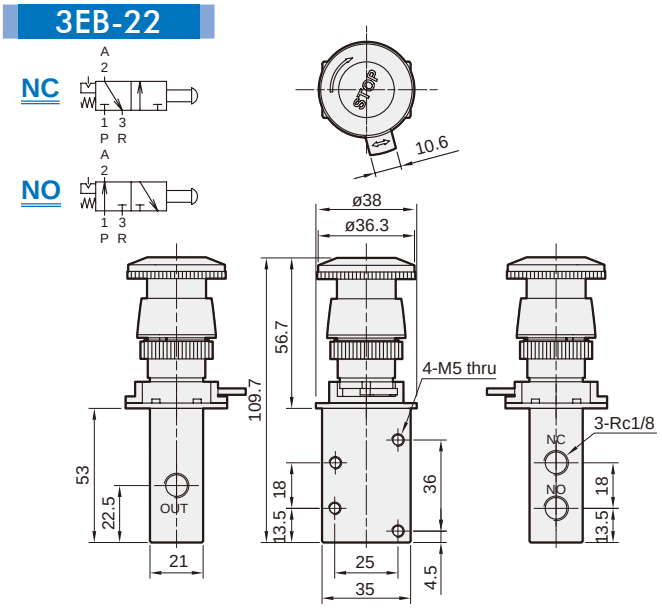
MVMC-210-3B1



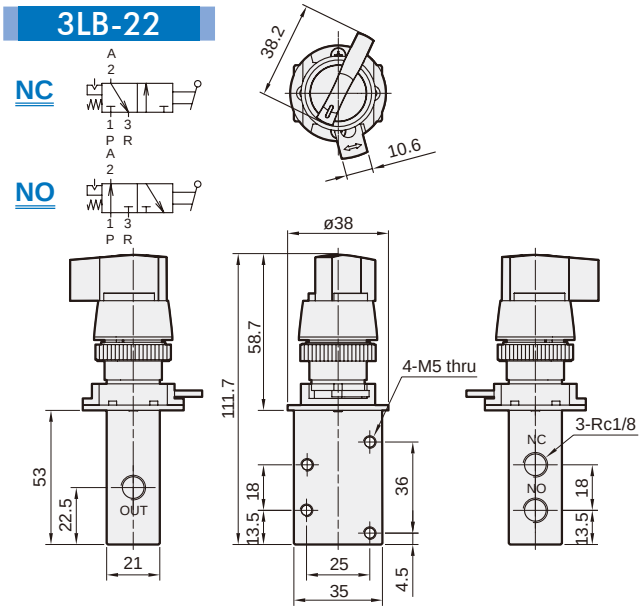




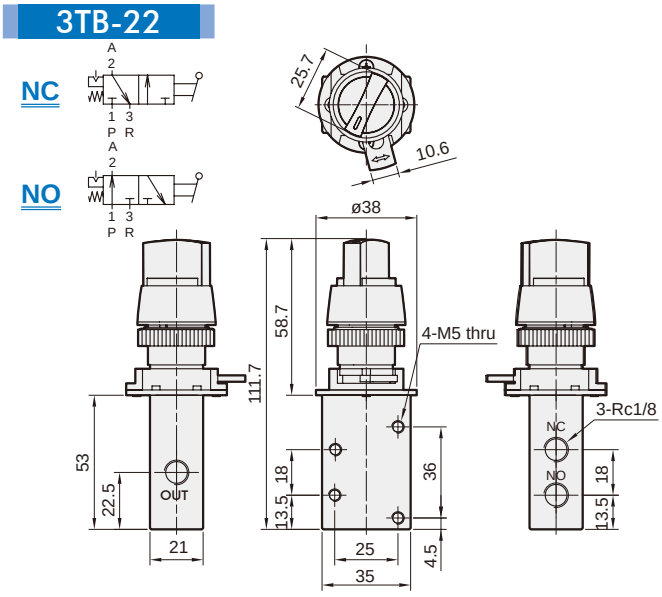
3EB-22



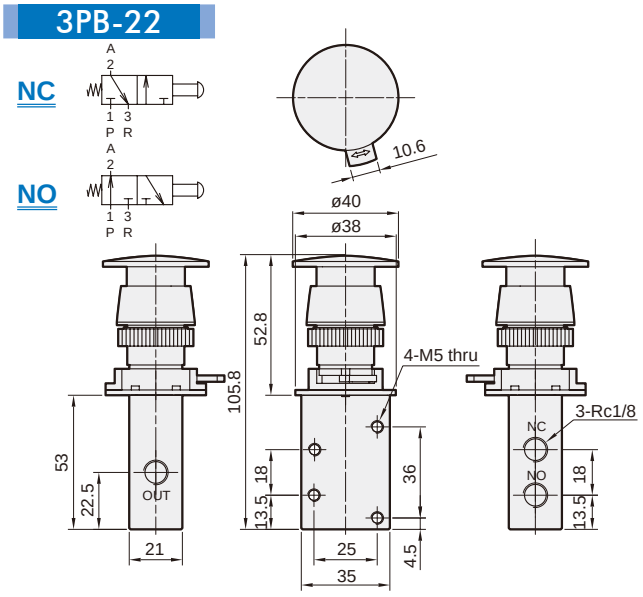
3LB-22



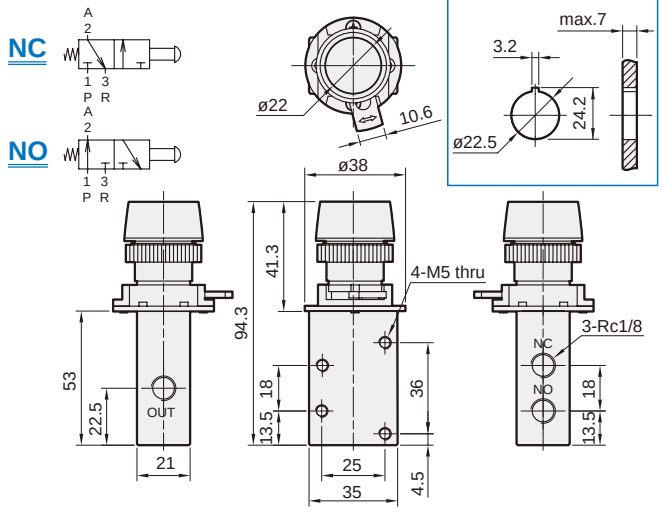
3TB-22



3PB-22

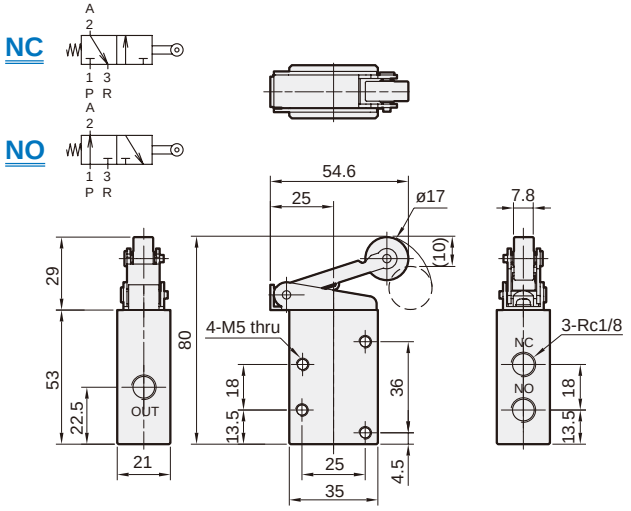


3PP-22

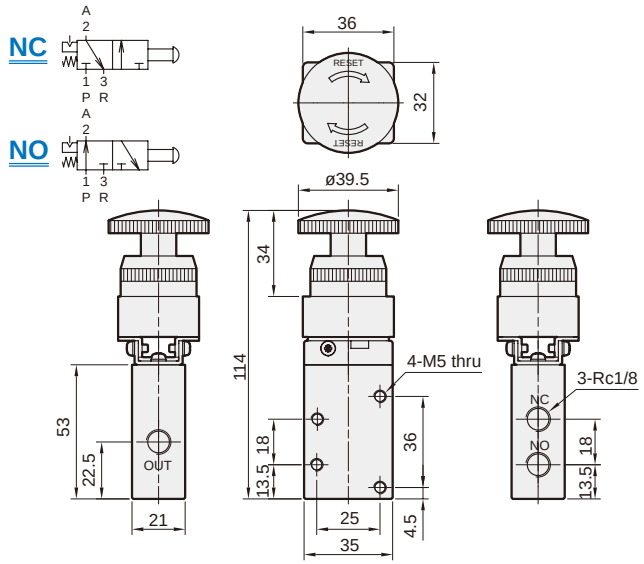


Panel mounting hole

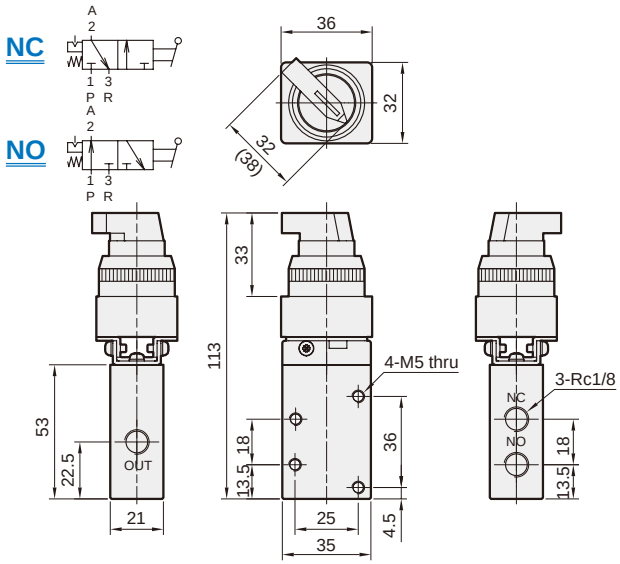
3R1



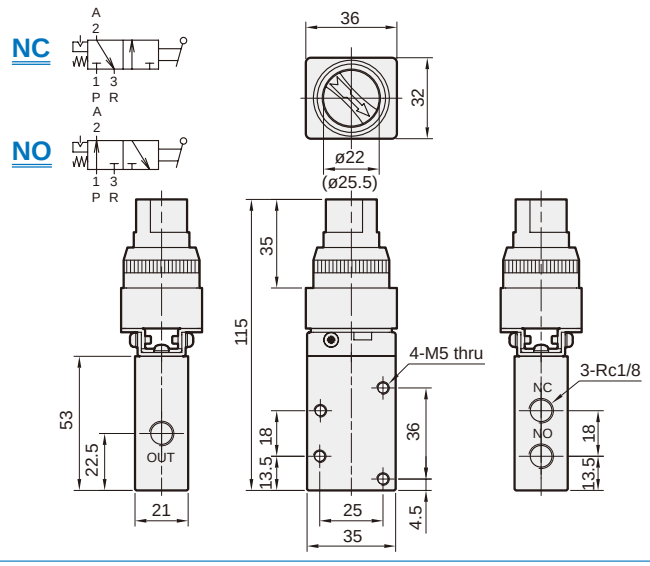
3EB-25/30



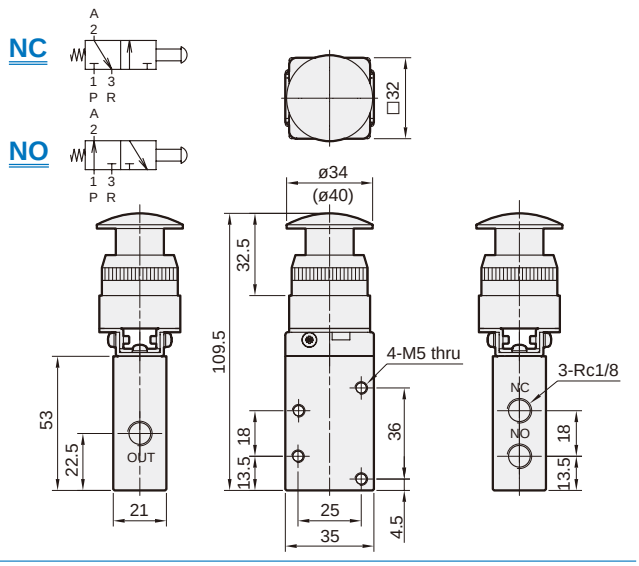
3LB-25/30



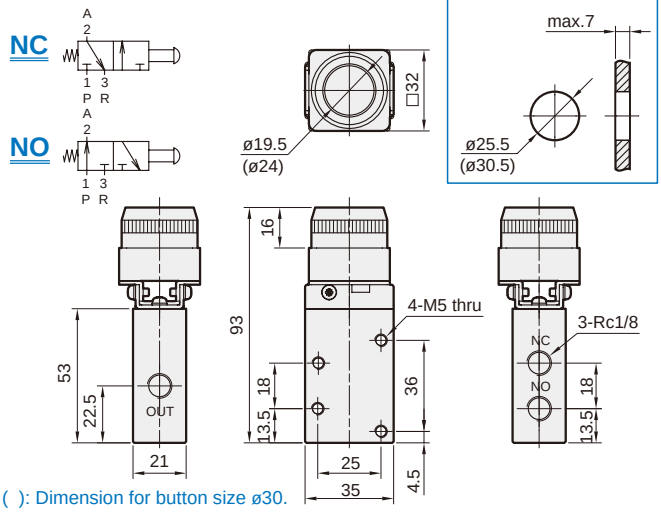
3TB-25/30



3PB-25/30

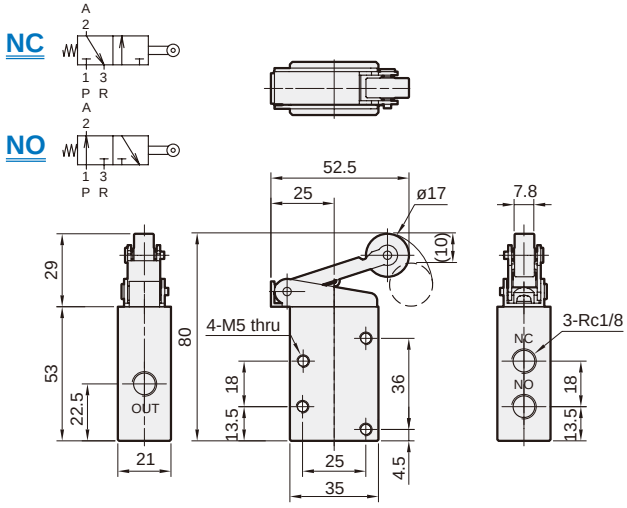


3PP-25/30



Panel mounting hole

3R1



( ): Dimension for button size ø30.

Specification

Model	Acting	Port size	Port no. / Position	Medium	Operating pressure range	Ambient temperature	Weight
ACT-401-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	380 g
ACT-401-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	363 g
ACT-401-02-3A	Automatic return type (Closed center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	385 g
ACT-401-03-3A	Automatic return type (Closed center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	368 g
ACT-401-02-3A1	Automatic return (Exhaust center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	385 g
ACT-401-03-3A1	Automatic return (Exhaust center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	368 g
ACT-402-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	357 g
ACT-402-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	340 g
ACT-403-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	587 g
ACT-403-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	570 g
ACT-405-02	Spring return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	370 g
ACT-405-03	Spring return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	353 g
ACT-406-02	Pilot return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	352 g
ACT-406-03	Pilot return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	334 g
ACT-407-02	Pilot return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	628 g
ACT-407-03	Pilot return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	606 g
ACT-410-02	Hand return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-410-03	Hand return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-410-02-3	Hand return type (Closed center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-410-03-3	Hand return type (Closed center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-410-02-31	Hand return (Exhaust center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-410-03-31	Hand return (Exhaust center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-411-02	Hand return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	346 g
ACT-411-03	Hand return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	330 g
ACT-411-02-3	Hand return type	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	620 g
ACT-411-03-3	Hand return type	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	603 g
ACT-411-02-3A	Automatic return type (Closed center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	658 g
ACT-411-03-3A	Automatic return type (Closed center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	640 g
ACT-411-02-3A1	Automatic return (Exhaust center)	Rc1/4	5/3	Air	0~0.9 MPa	-0~+60°C	658 g
ACT-411-03-3A1	Automatic return (Exhaust center)	Rc3/8	5/3	Air	0~0.9 MPa	-0~+60°C	640 g
ACT-412-02	Hand return type	Rc1/4	5/2	Air	0~0.9 MPa	-0~+60°C	342 g
ACT-412-03	Hand return type	Rc3/8	5/2	Air	0~0.9 MPa	-0~+60°C	325 g
ACT-301-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	318 g
ACT-302-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	296 g
ACT-303-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	520 g
ACT-305-02	Spring return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	305 g
ACT-306-02	Pilot return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	288 g
ACT-307-02	Pilot return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	564 g
ACT-310-02	Hand return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	282 g
ACT-311-02	Hand return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	555 g
ACT-312-02	Hand return type	Rc1/4	3/2	Air	0~0.9 MPa	-0~+60°C	270 g

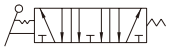
Model	No. of port	Port size	Medium	Operating pressure range	Ambient temperature	Weight
EPA-100 / 100A	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	43 g / 68 g
EPA-101 / 101A	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	70 g / 68 g
EPA-102	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	104 g
EPA-103	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	67 g
EPA-104	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	71 g
EPA-105	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	68 g
EPA-105L	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	104 g
EPA-106	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	61 g
EPA-107	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	54 g
EPA-108*	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	100 g
EPA-109	3	Rc1/8	Air	0~0.9 MPa	-5~+60°C (No freezing)	108 g

Hand valve
ACT-401

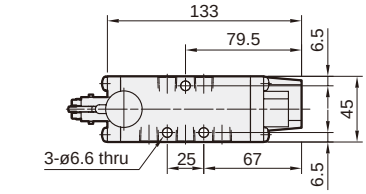
ACT-401-02 / 02-3A
ACT-401-03 / 03-3A



ACT-401-02-3A1
ACT-401-03-3A1





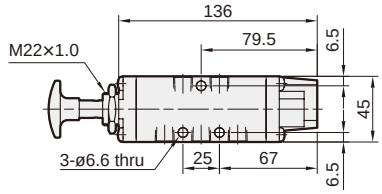


Plam valve
ACT-402

ACT-402-02
ACT-402-03





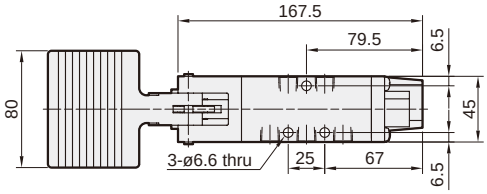


Pedal valve
ACT-403

ACT-403-02
ACT-403-03





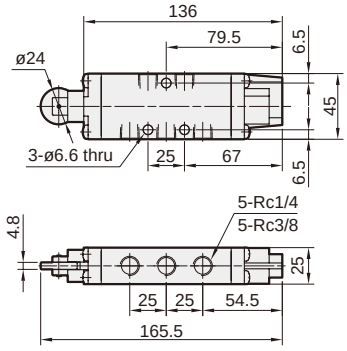


Roller plunger valve
ACT-405

ACT-405-02
ACT-405-03





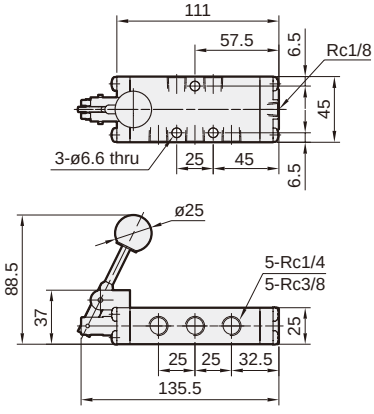


Hand valve
ACT-406

ACT-406-02
ACT-406-03





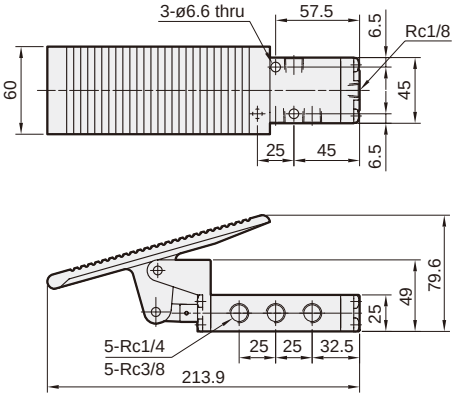


Treadle valve
ACT-407

ACT-407-02
ACT-407-03





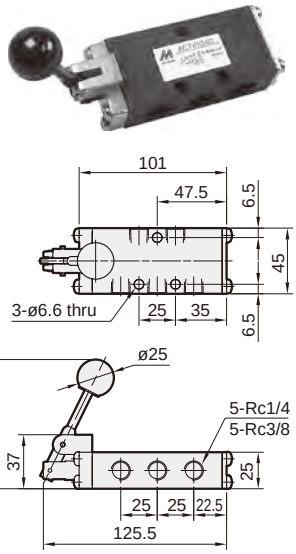


Hand valve
ACT-410

ACT-410-02 / 02-3
ACT-410-03 / 03-3

ACT-410-02-31
ACT-410-03-31

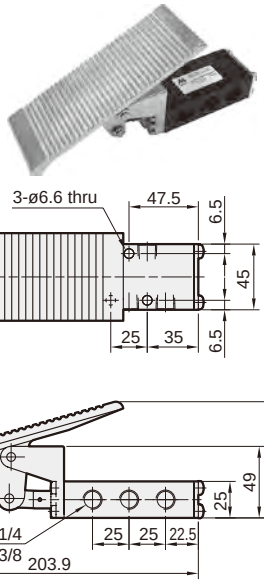




Treadle valve
ACT-411

ACT-411-02 / 02-3
ACT-411-03 / 03-3

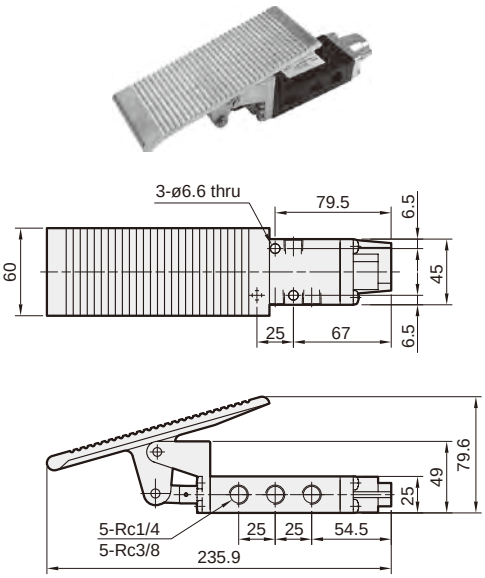




Treadle valve
ACT-411-A

ACT-411-02-3A / 3A1
ACT-411-03-3A / 3A1



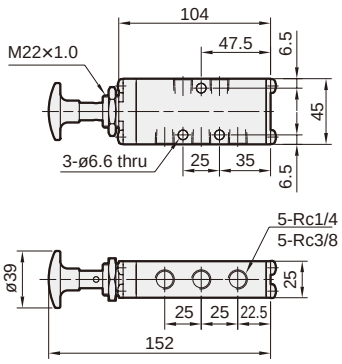


Plam valve
ACT-412

ACT-412-02
ACT-412-03

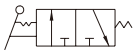




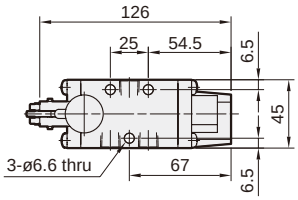


Hand valve
ACT-301

ACT-301-02

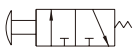




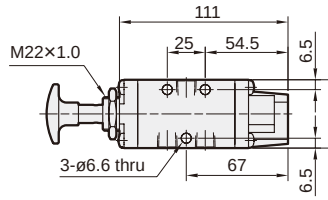


Plam valve
ACT-302

ACT-302-02

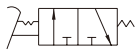




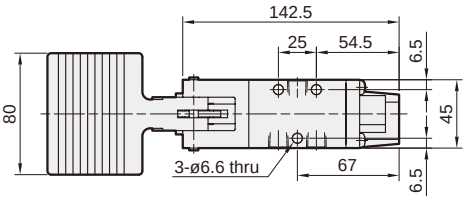


Treadle valve
ACT-303

ACT-303-02





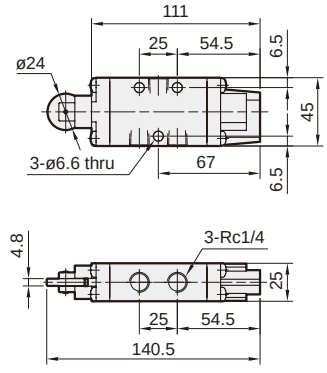


Roller plunger valve
ACT-305

ACT-305-02





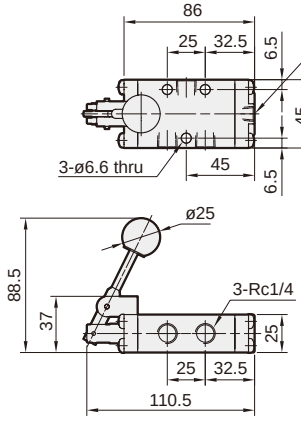


Hand valve
ACT-306

ACT-306-02





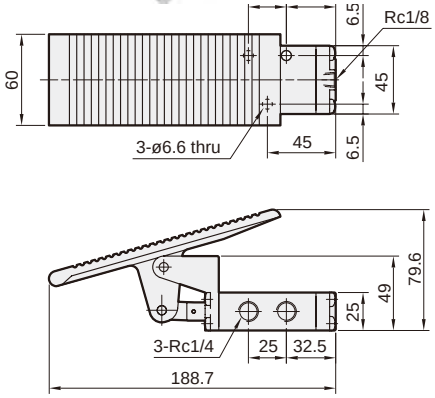


Treadle valve
ACT-307

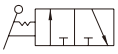
ACT-307-02



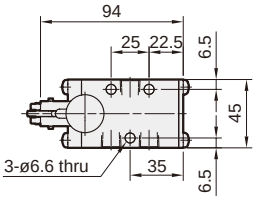


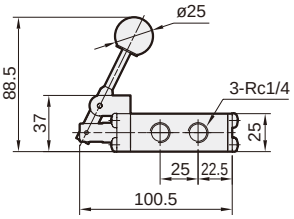


Hand valve
ACT-310
ACT-310-02

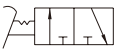




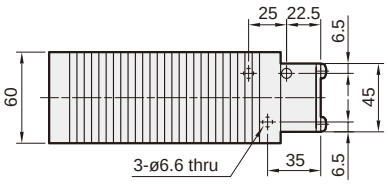


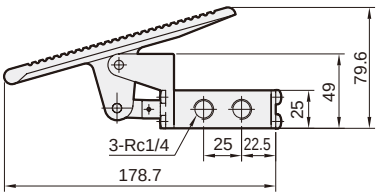


Treadle valve
ACT-311
ACT-311-02

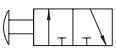




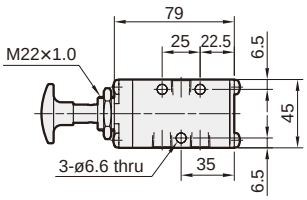


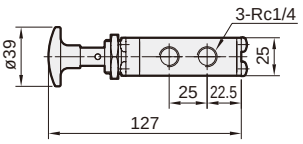


Plam valve
ACT-312
ACT-312-02



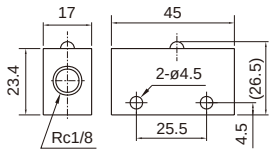


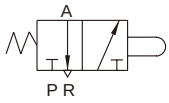




Pin plunger
EPA-100

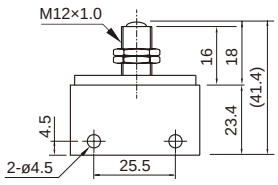


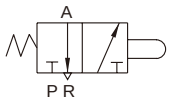




Ball actuator
EPA-100A

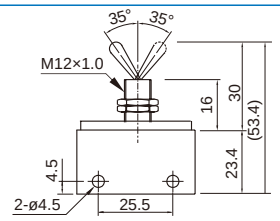


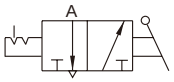




Retained toggle
EPA-101

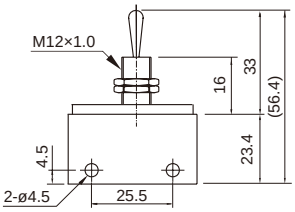


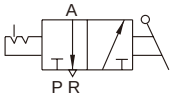




Toggle
EPA-101A

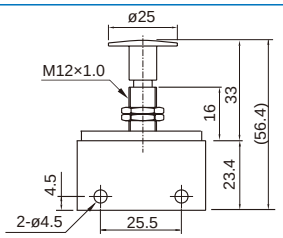


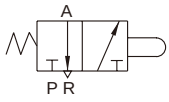




Palm button
EPA-102

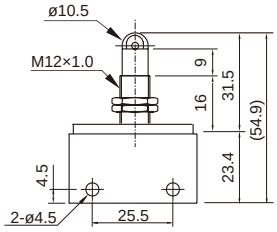


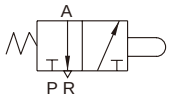




Roller plunger
EPA-103

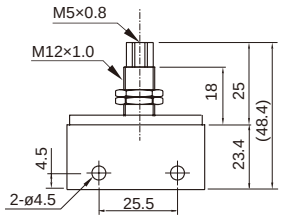


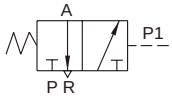




Pilot
EPA-104

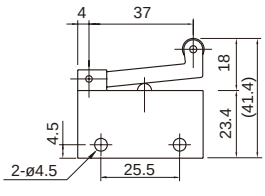


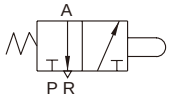




Roller lever
EPA-105

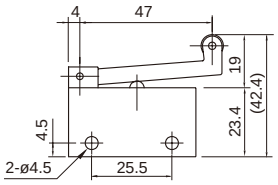


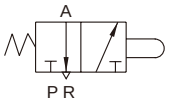




Roller lever
EPA-105L

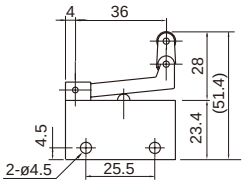


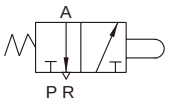




One way lever
EPA-106

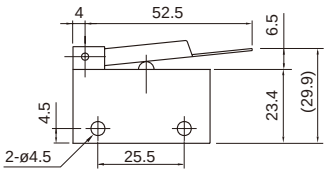


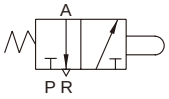




Plain lever
EPA-107



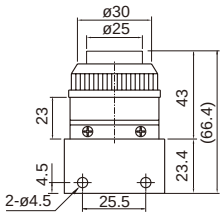


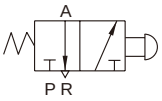


Push button
EPA-108B*

*B=black



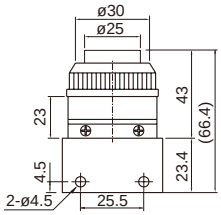


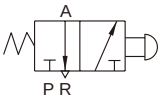


Push button
EPA-108G*

*G=green

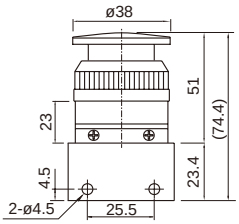


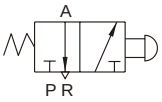




Palm actuator
EPA-108RA

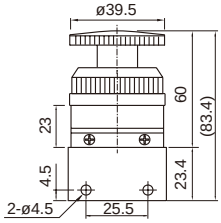


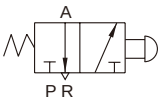




Palm latching actuator
EPA-108RA RESET

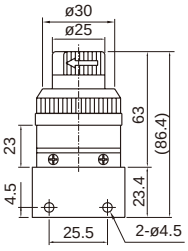


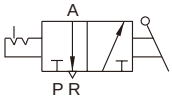




Selector
EPA-109

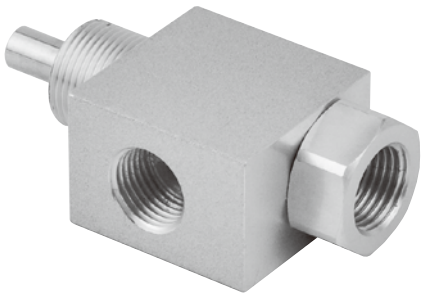






MVHF-2P/3P-NC

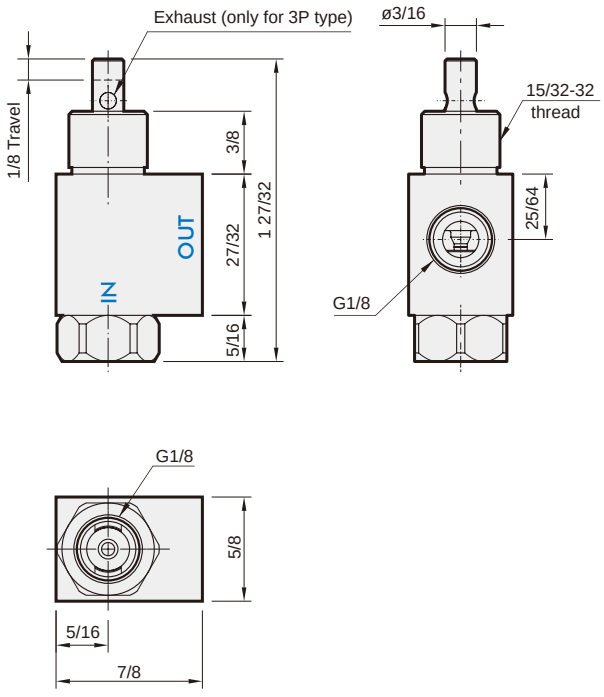
HAND **VALVE**



Specification

Type	Normally CLOSED 3-way poppet
Medium	Air
Stem travel	1/8"
Input pressure	150 psig max.
Effective orifice	7.2 mm^2
Force for full stem travel	38 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 *, Output: G1/8 *
Exhaust	Hole to atmosphere
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	65 g

* Port thread NPT. are also available.



MVHF-3P-NO

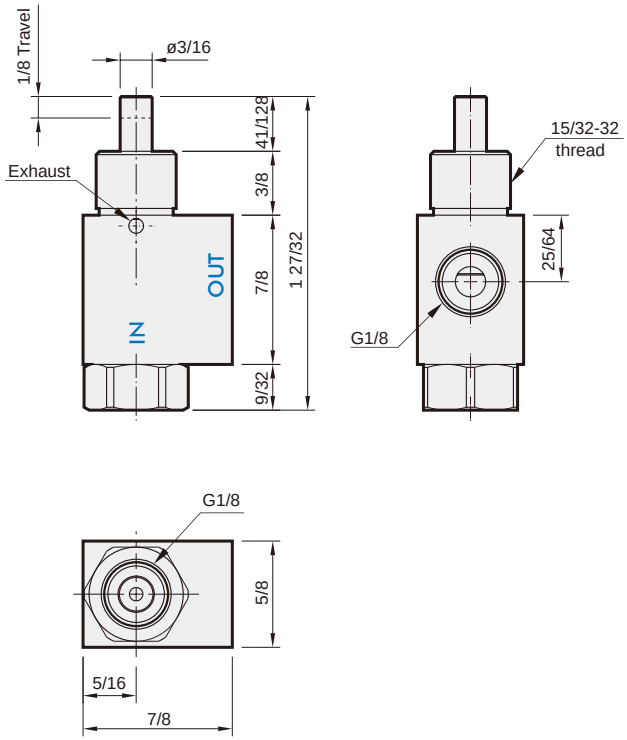
HAND **VALVE**



Specification

Type	Normally OPEN 3-way poppet
Medium	Air
Stem travel	1/8"
Input pressure	150 psig max.
Effective orifice	5.7 mm^2
Force for full stem travel	38 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 *, Output: G1/8 *
Exhaust	Hole to atmosphere
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	69 g

* Port thread NPT. are also available.



MVHF-3V

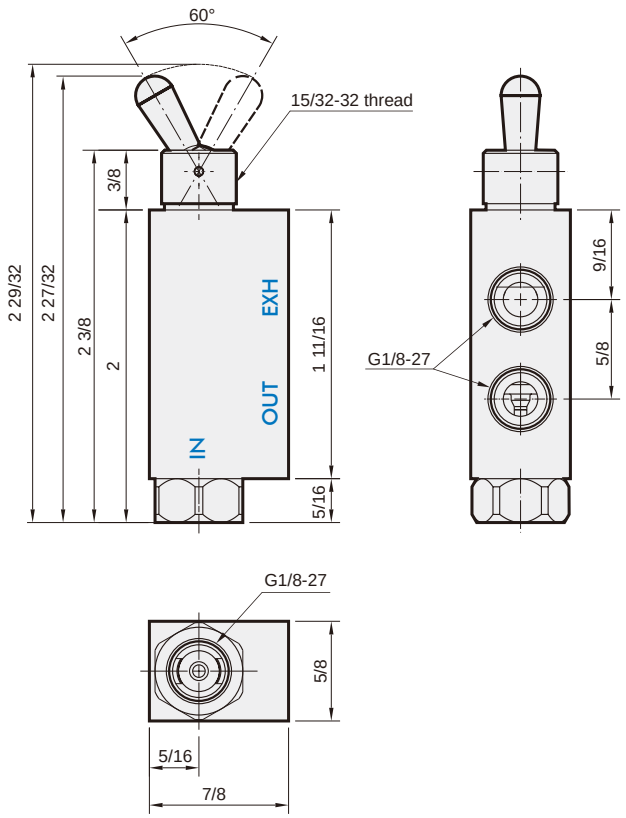
HAND **VALVE**



Specification

Type	Normally CLOSED 3-way poppet two position toggle valve
Medium	Air, water, oil
Arc of travel	60°
Input pressure	150 psig max.
Air flow	@ 50 psig 14 SCFM, @100 psig 25 SCFM
Force for full stem travel	2 1/2 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 * Output: G1/8 * Exhaust: G1/8 *
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	118 g

* Port thread NPT. are also available.



MVHF-5V

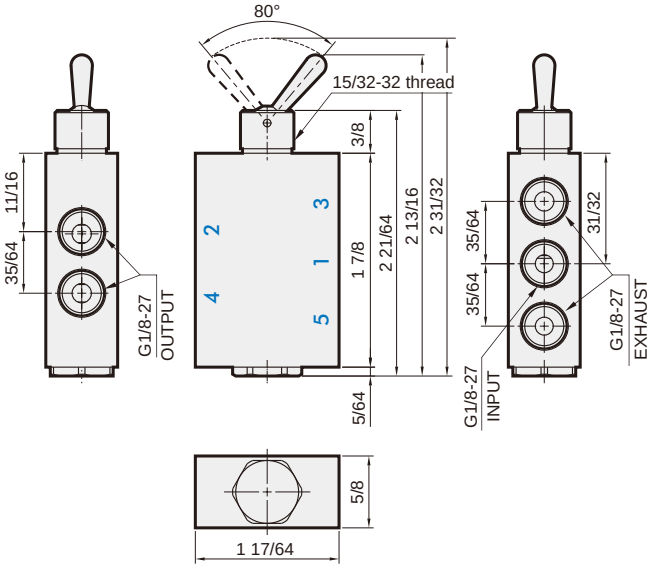
HAND **VALVE**



Specification

Type	4-way spool valve toggle actuated two position 5 ported
Medium	Air, water, oil
Arc of travel	80°
Input pressure	150 psig max.
Effective orifice	4.3 mm^2
Force for full stem travel	3 oz. nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 * Output: G1/8 * Exhaust: G1/8 *
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	172 g

* Port thread NPT. are also available.



MVHF-5P

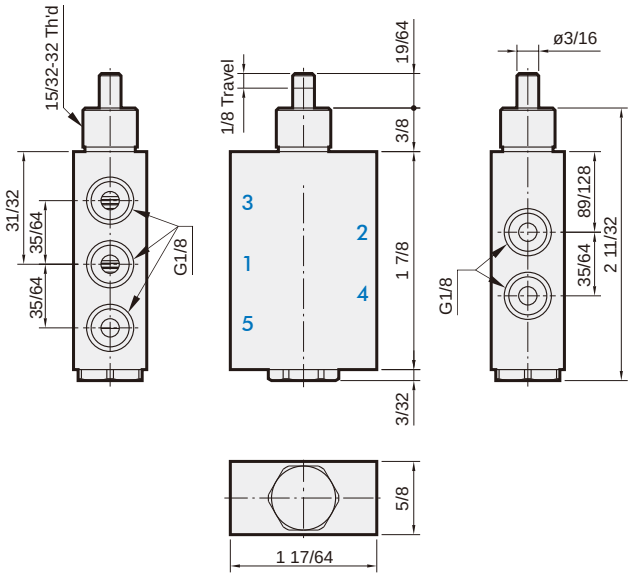
HAND **VALVE**



Specification

Model	MVHF-5P
Type	4-way spool valve plunger actuated spring return fully ported
Medium	Air, water, oil
Stem travel	1/8"
Input pressure	150 psig max.
Effective orifice	8.6 mm^2
Force for full stem travel	4 1/2 1b nominal
Temperature range	32°F~230°F
Ports	Input: G1/8 * Output: G1/8 * Exhaust: G1/8 *
Mounting	15/32-32 male thread nuts and lock washers furnished
Weight	171 g

* Port thread NPT. are also available.



MVHF-AP*

MINIATURE **PILOT ACTUATOR**
3/8" BORE

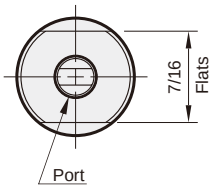


Specification

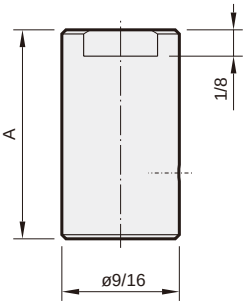
Model	MVHF-AP3, MVHF-AP6A
Type	Single action, spring return miniature air pilot actuator.
Input pressure	150 psig max
Construction	Body: aluminum alloy
	Springs: stainless steel
	Seals: buna N rubber
	Piston: aluminum
Temperature range	32°F~230°F
Force factor	.1
Ports	MVHF-AP3 → 10-32
	MVHF-AP6A → G1/8 *
Mounting	15/32-32 female thread to mount to miniature valves and components
Weight	22 g

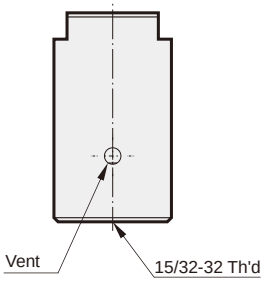
Minimun pressure required MPa (PSIG)			
MVHF-3P-NC	0.21 (30)	**MVHF-3P-NO**	0.21 (30)
MVHF-5P	0.29 (41)		

* Port thread NPT. are also available.



Code / Model	A
MVHF-AP3	1
MVHF-AP6	1 1/10





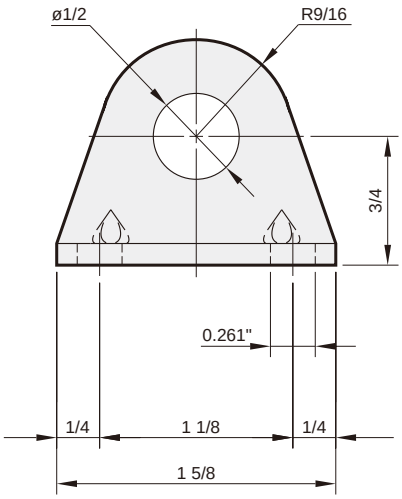
MVHF-LB

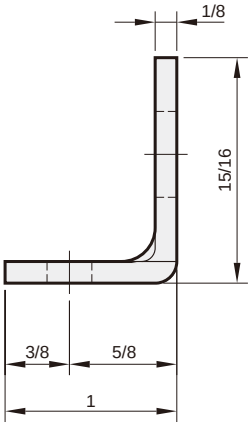
MOUNTING BRACKET



Specification

Model	MVHF-LB
Type	90° angle, heavy duty mounting bracket for clippard miniature valves.
Mounting	1/2" diameter hole for valve, two (2) 0.261" diameter holes for attaching bracket.
Construction	Stamped from 1/8" thick steel, zinc plated.
Weight	40 g





MVHF-PB*

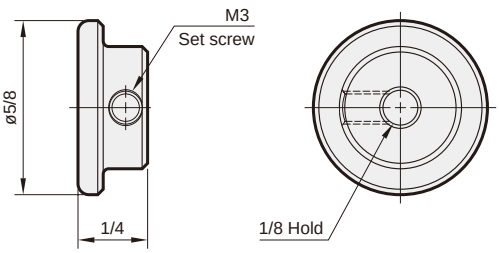
VALVE ACTUATORS **MANUAL PUSH BUTTON**



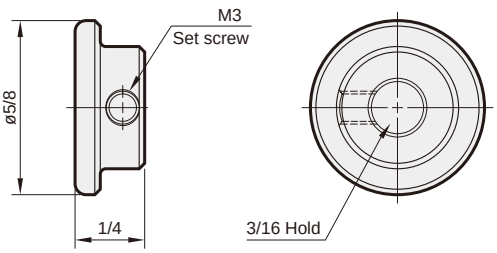
Specification

Model	MVHF-PB2	MVHF-PB5
Type	Round, solid brass prevents over travel of valve stem by providing a positive stop.	
Use	Mounts directly on valve stem for manual operation of valve. Prevents over travel of valve stem by providing a positive stop.	
Mounting	1/8"dia. mounting hole fits valve stems, locks in place by set screw. (Allen wrench furnished)	
Note	Individually packaged or bulk quantities available.	
Weight	7 g	6 g

MVHF-PB2



MVHF-PB5





Specification

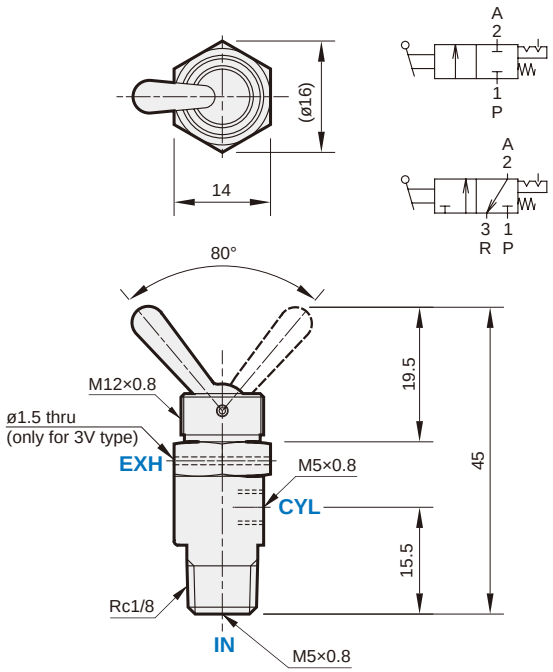
Model	MVHA-2*, 3*
Bore No.	M5
Port size	M5×0.8
No. of port	2 or 3
No.of position	2
Medium	Air
Operating pressure range	0~0.9 MPa
Effective orifice	1.8 mm^2
Ambient temperature	-5~+60°C (No freezing)
Weight	30 g

Order example

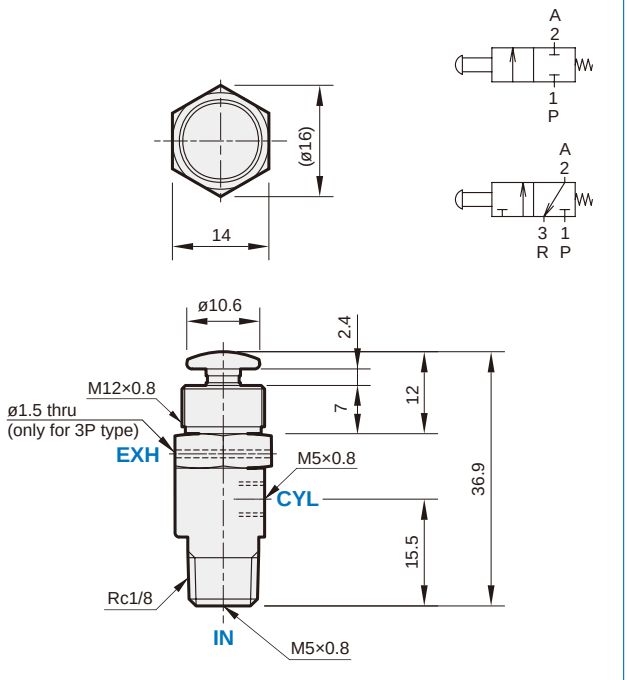
MVHA — 2V

- MODEL
- **2**: 2way (2 port) / **3**: 3way (3 port)
- **V**: V toggle / **P**: Push button

MVHA-2V/3V



MVHA-2P/3P





Specification

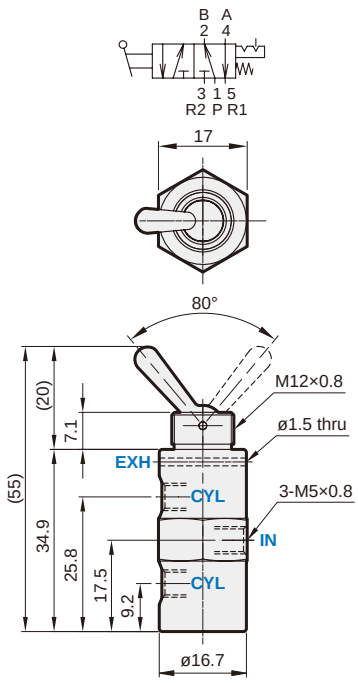
Model	MVHA-4V	MVHA-4P	MVHA-4PP
Bore No.	M5		
Port size	M5×0.8		
No. of port	5		
No.of position	2		
Medium	Air		
Operating pressure range	0~0.9 MPa		
Effective orifice	1.9 mm^2		
Ambient temperature	-5~+60°C (No freezing)		
Weight	62 g	61 g	66 g

Order example

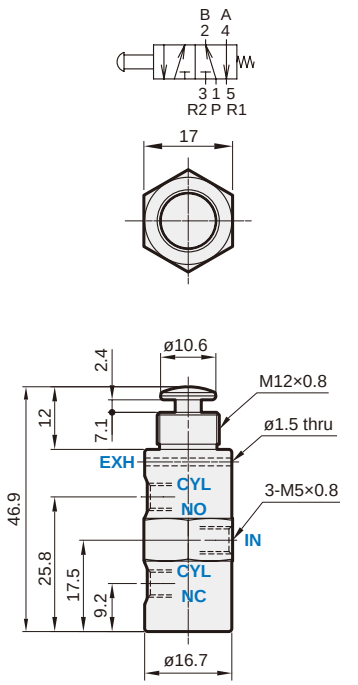
MVHA – 4V

- MODEL
- **4**: 4way (5 port)
- **V**: V toggle
  P: Push button
  PP: Double push button

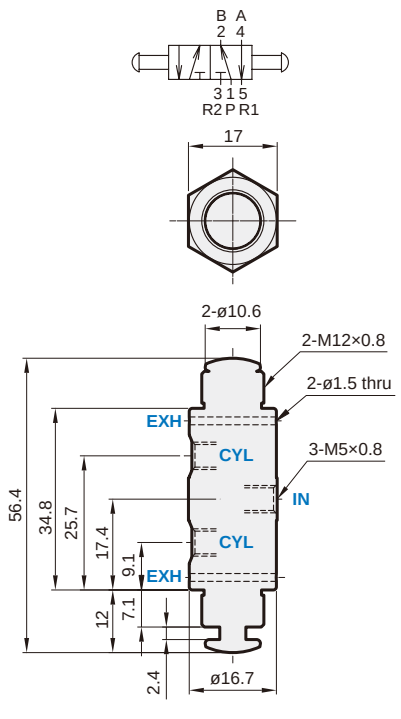
MVHA-4V

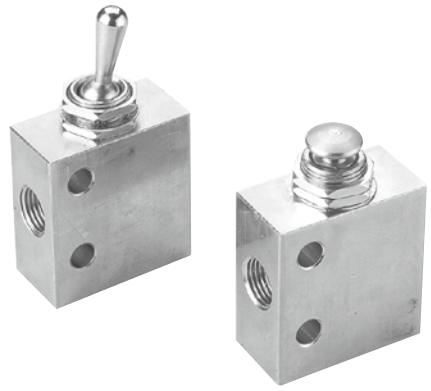


MVHA-4P



MVHA-4PP





Specification

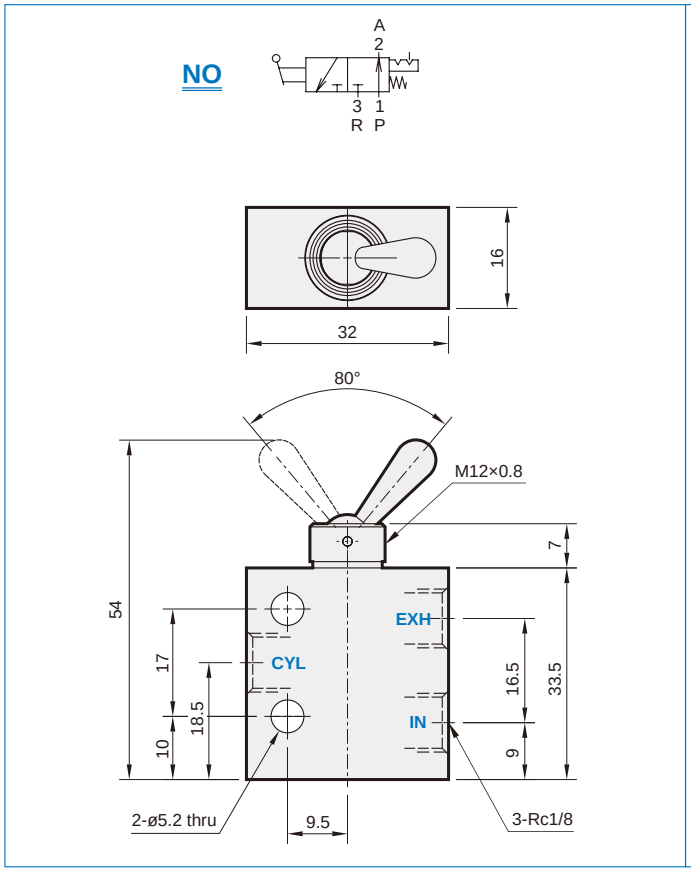
Model	MVHA-31V	MVHA-31P
Bore No.	6A	
Port size	Rc1/8	
No. of port	3	
No.of position	2	
Medium	Air	
Operating pressure range	0~0.9 MPa	
Effective orifice	4.5 mm^2	
Ambient temperature	-5~+60°C (No freezing)	
Weight	53 g	50 g

Order example

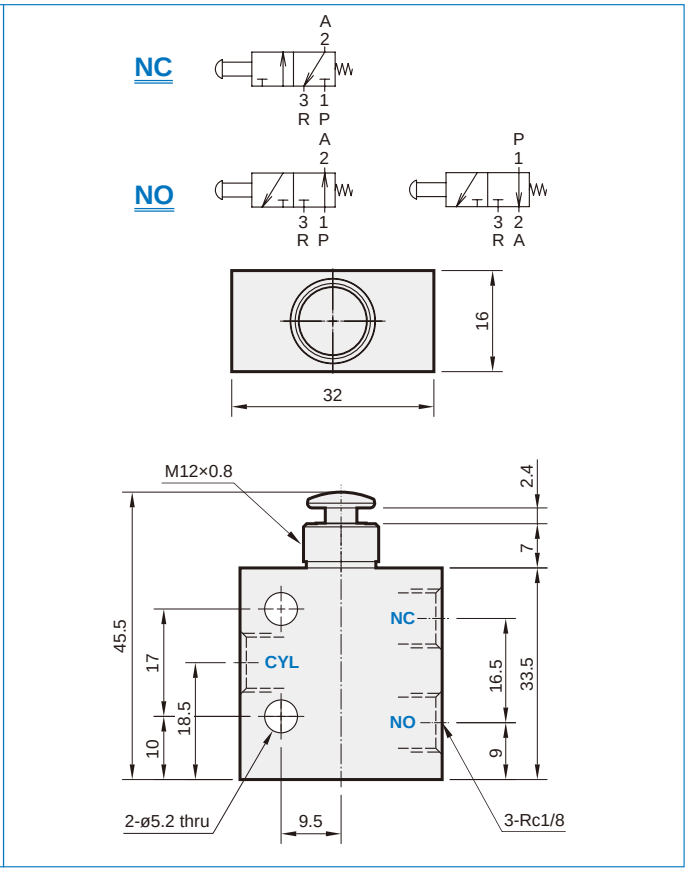
MVHA — 31V — G

- MODEL
- **3**: 3way (3 port)
- **V**: V toggle
  P: Push button
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

MVHA-31V



MVHA-31P





Specification

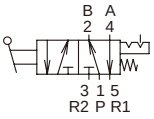
Model	MVHA-41V	MVHA-41P	MVHA-41PP
Bore No.	6A		
Port size	Rc1/8		
No. of port	5		
No.of position	2		
Medium	Air		
Operating pressure range	0~0.9 MPa		
Effective orifice	5.5 mm^2		
Ambient temperature	-5~+60°C (No freezing)		
Weight	64 g	58 g	76 g

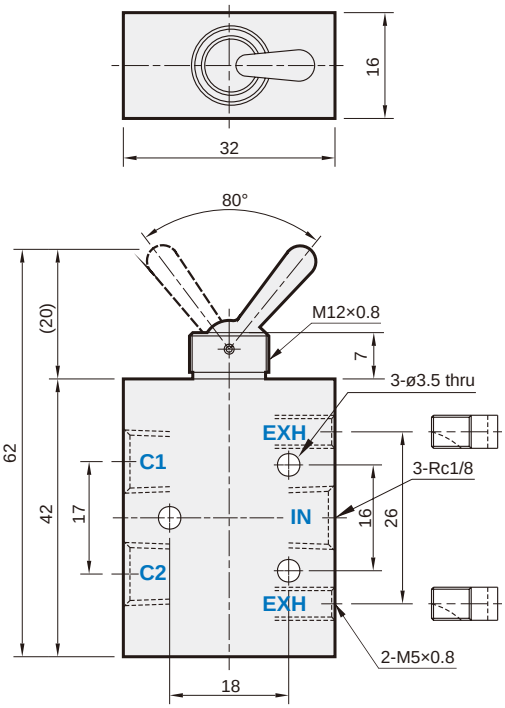
Order example

MVHA — 41V — G

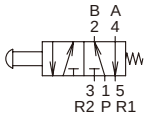
- MODEL
- **4**: 4way (5 port)
- **V**: V toggle
  P: Push button
  PP: Double push button
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

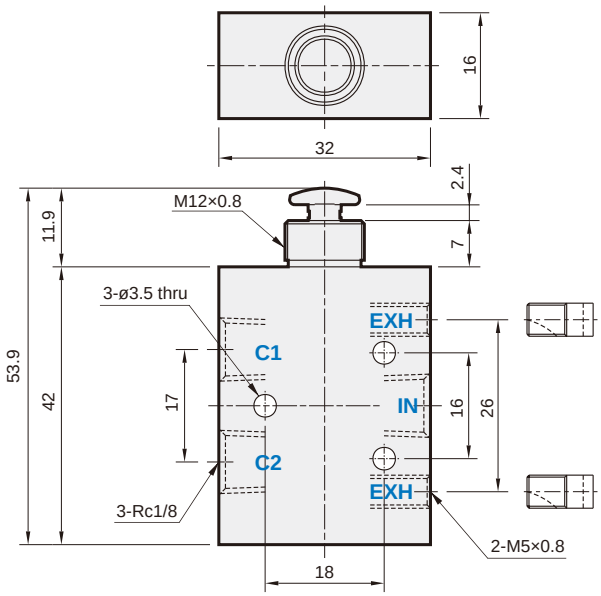
MVHA-41V



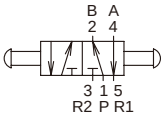


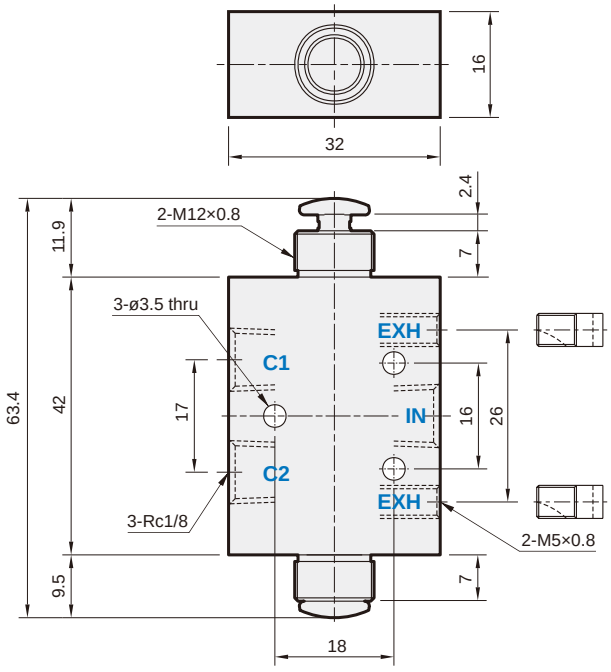
MVHA-41P





MVHA-41PP

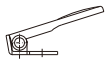
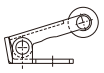
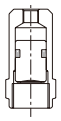




Order example

MVHA – 34T

MODEL

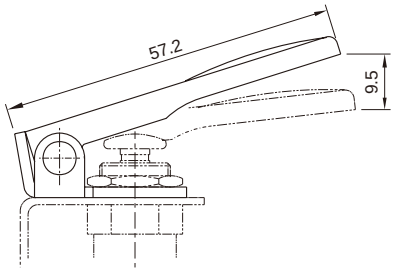
Model	34T	34C	34CW	34B	34A
Shape					
Weight	20 g	15 g	15 g	15 g	28 g

34T
Fingertip operator



The 34T Operator may be used with any TAC series push-button valve to provide easier actuation.

Material
Level : Nickel-plated steel

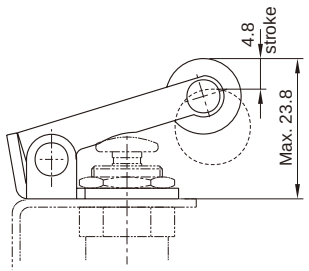


34C
Cam operator



The 34C Operator Cam-stroke is two times by the valve's push-stroke.
Adjustment of roller height is made through the use of a mounting bracket and Locknuts.

Material
Level : Nickel-plated steel
Roller : POM

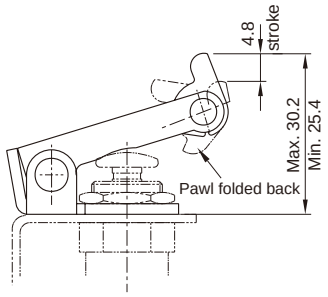


34CW
One-way cam operator



The 34CW Operator actuates valves when the pawl is contacted from lever side.
The pawl then folds out of the way in the opposite direction.

Material
Level : Nickel-plated steel
Pawl : POM

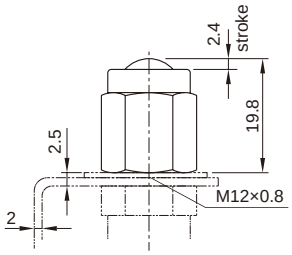


34B
Ball operator



The 34B Operator threads onto the collar of push-button valves.
The mounting bracket thickness plus the washer thickness properly spaces the operator to prevent prestroking of button.

Material
Body : Nickel-plated brass
Ball : Chrome steel

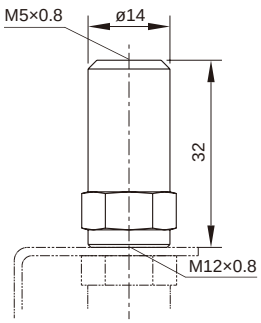


34A
Air pilot operator



The 34A Operator threads directly onto the collar of push-button valves.
The air pressure applied to the pilot port drives piston to actuates the valve's push-button.

Material
Body : Nickel-plated brass



MVHB-220 series

HAND LEVER VALVE



Specification

Model	MVHB-220-4TV MVHB-220-4TV-SP	MVHB-220-4TV* MVHB-220-4TV*-SP
Bore No. (Port size)	8A (Rc1/4)	
No. of port	5	
No.of position	2	3
Medium	Air	
Operating pressure range	0~0.8 MPa	
Effective orifice	18 mm^2	16 mm^2
Ambient temperature	-5~+60°C (No freezing)	
Weight	193 g	234 g

Order example

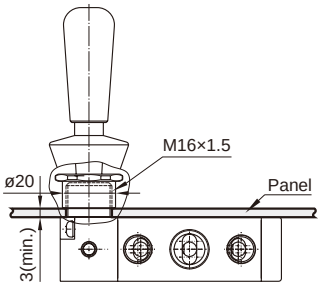
MVHB — 220 — 4TVC — SP — M — □ — G

- MODEL: MVHB
- BODY WIDTH: 220
- **4**: 4way (5 port)
- VALVE TYPE: 4TVC
  - Blank: 5/2
  - **C**: Closed center (5/3)
  - **P**: Pressure center(5/3)
  - **R**: Exhaust center (5/3)
- SPRING RETURN: SP
- Blank: Standard type
  M: Panel mounting
- *1,2 DUST COVER MATERIAL: M
  - Blank: NBR
  - **E**: EPDM
- PORT THREAD: G
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

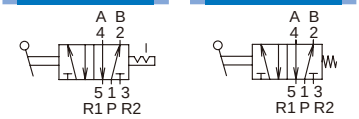
*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.
EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

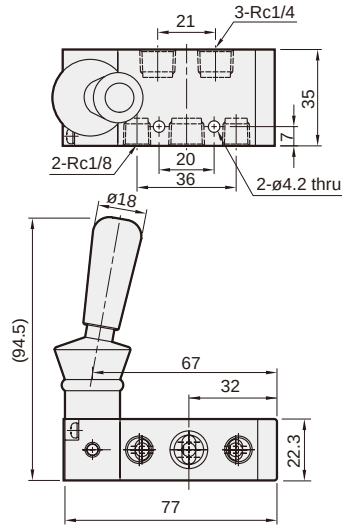
*2. Suitability of material please refer to page 2-3~5.

Panel mounting style

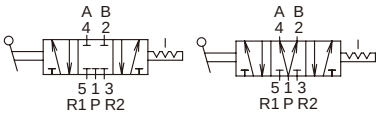


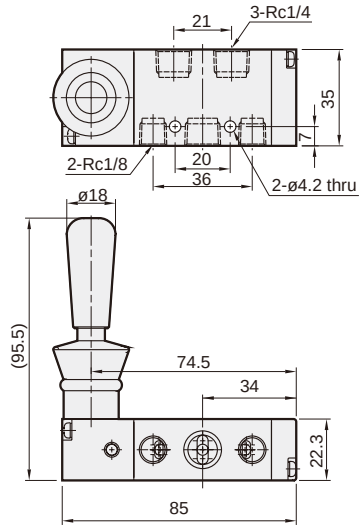
4TV / 4TV-SP



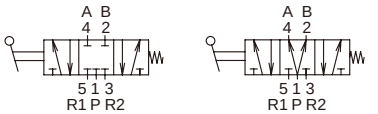


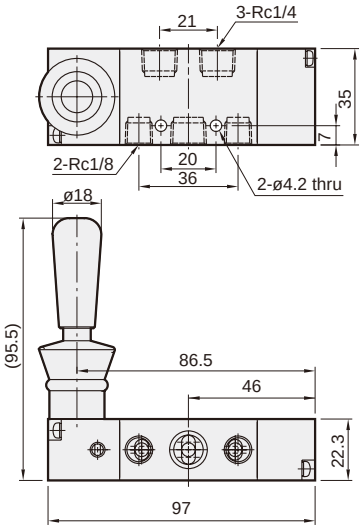
4TVC / 4TVP / 4TVR





4TVC-SP / 4TVP-SP / 4TVR-SP







Specification

Model	MVHB-260(V)-4TV MVHB-260(V)-4TV-SP	MVHB-260(V)-4TV* MVHB-260(V)-4TV*-SP
Bore No.	8A	
Port size	Rc1/4	
No. of port	5	
No.of position	2	3
Medium	Air	
Operating pressure range	0~0.8 MPa	
Effective orifice	18 mm^2	
Ambient temperature	-5~+60°C (No freezing)	
Weight	219 g	278 g

Order example

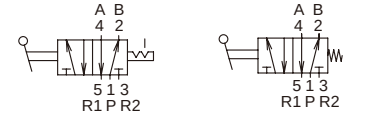
MVHB — 260V — 4TVC — SP — □ — G

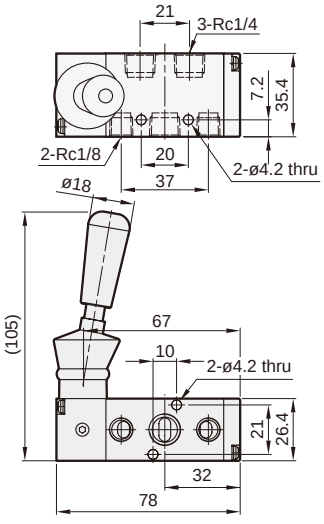
- MODEL
- BODY WIDTH
  - Blank: Standard type
  - **V**: Vertical type
  - * Vertical type can be used with MVSE-260 manifold (Refer to page 1-37).
- **4**: 4way (5 port)
- VALVE TYPE
  - Blank: 5/2
  - **C**: Closed center (5/3)
  - **P**: Pressure center(5/3)
  - **R**: Exhaust center (5/3)
- SPRING RETURN
- DUST COVER MATERIAL *1,2
  - Blank: NBR
  - **E**: EPDM
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.
EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

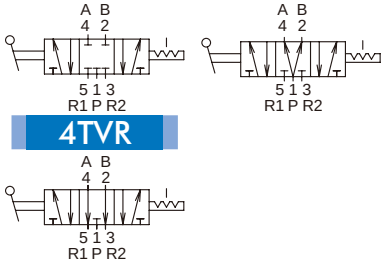
*2. Suitability of material please refer to page 2-3~5.

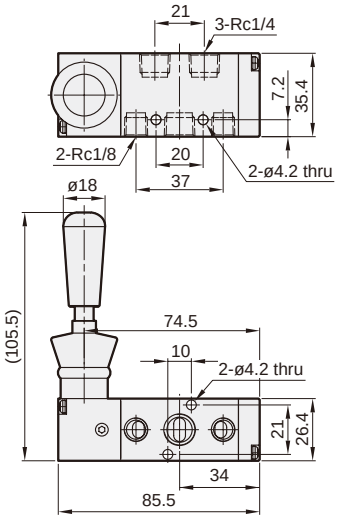
4TV / 4TV-SP



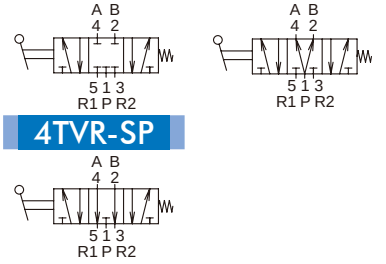


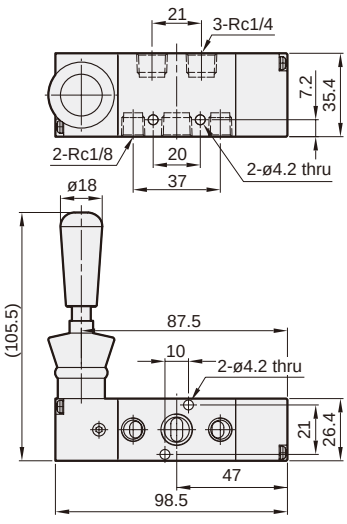
4TVC / 4TVP / 4TVR





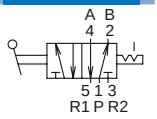
4TVC-SP / 4TVP-SP / 4TVR-SP



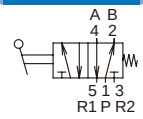


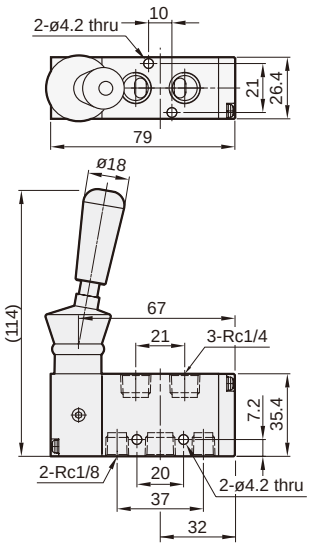
V

4TV



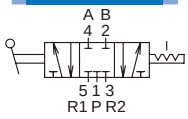
4TV-SP



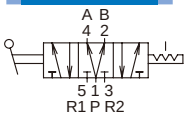


V

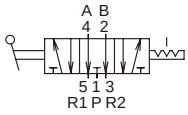
4TVC

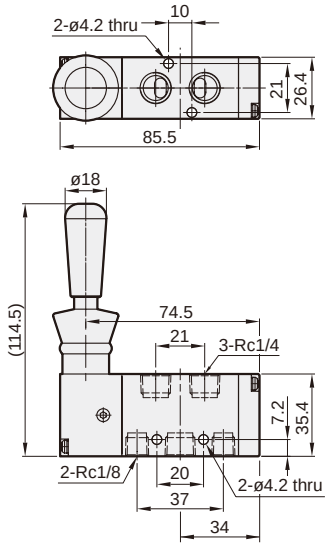


4TVP



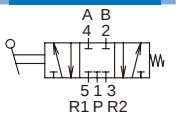
4TVR



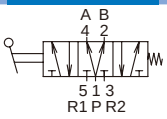


V

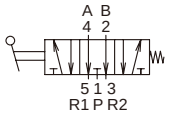
4TVC-SP

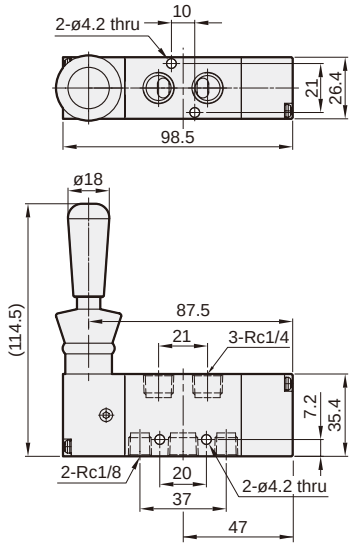


4TVP-SP



4TVR-SP





MVHB-300 series

HAND LEVER **VALVE**



Specification

Model	MVHB-300(V)-4TV MVHB-300(V)-4TV-SP	MVHB-300(V)-4TV* MVHB-300(V)-4TV*-SP
Bore No.	10A	
Port size	Rc3/8	
No. of port	5	
No.of position	2	3
Medium	Air	
Operating pressure range	0~1.2 MPa	
Effective orifice	34 mm^2	
Ambient temperature	-5~+60°C (No freezing)	
Weight	438 g	487 g

Order example

MVHB — 300V — 4TVC — SP — □ — G

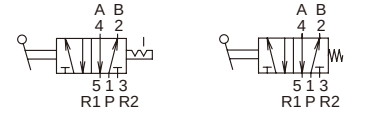
- MODEL
  - Blank: Standard type
  - **V**: Vertical type
  - * Vertical type can be used with MVSE-300 manifold (Refer to page 1-40).
- BODY WIDTH
- **4**: 4way (5 port)
- VALVE TYPE
  - Blank: 5/2
  - **C**: Closed center (5/3)
  - **P**: Pressure center(5/3)
  - **R**: Exhaust center (5/3)
- SPRING RETURN
- DUST COVER MATERIAL *1,2
  - Blank: NBR
  - **E**: EPDM
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

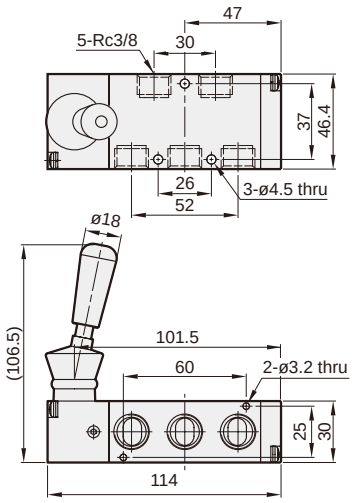
*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.

EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

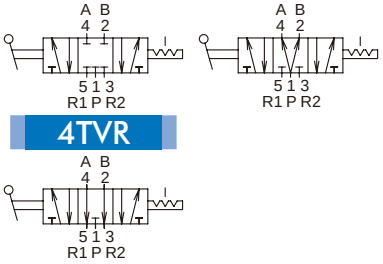
*2. Suitability of material please refer to page 2-3~5.

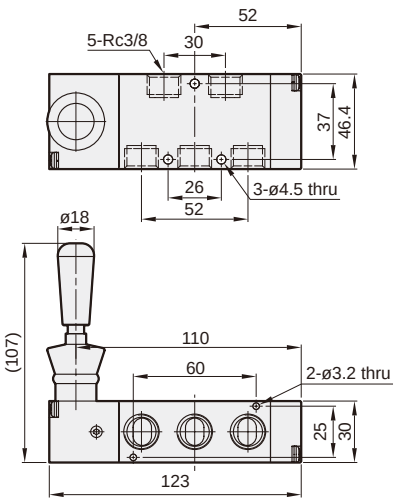
4TV / 4TV-SP



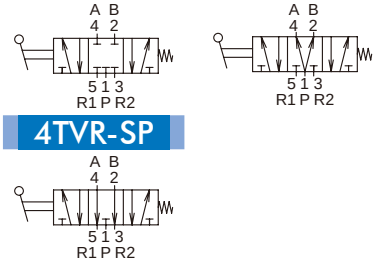


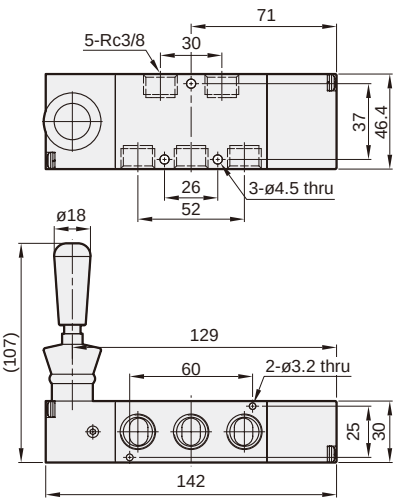
4TVC / 4TVP / 4TVR





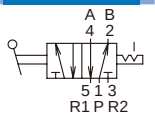
4TVC-SP / 4TVP-SP / 4TVR-SP



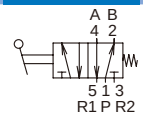


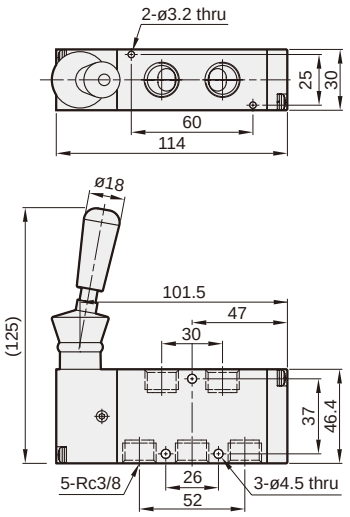
V

4TV



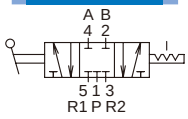
4TV-SP



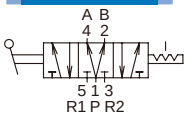


V

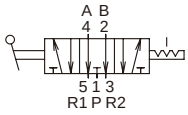
4TVC

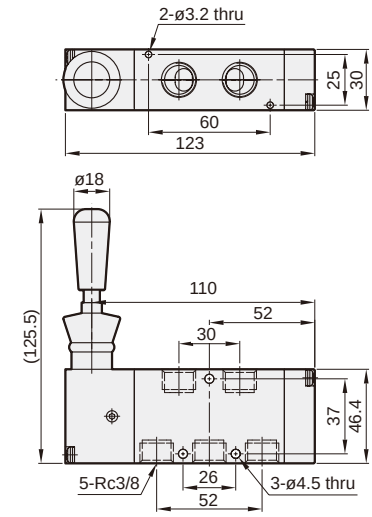


4TVP



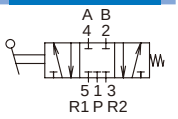
4TVR



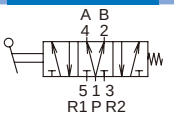


V

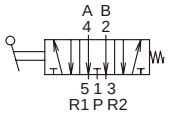
4TVC-SP

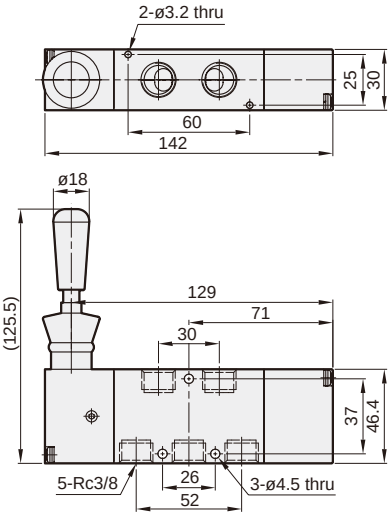


4TVP-SP



4TVR-SP





MVHB-500 series

HAND LEVER **VALVE**

mindman



Specification

Model	MVHB-500(V)-4TV MVHB-500(V)-4TV-SP	MVHB-500(V)-4TV* MVHB-500(V)-4TV*-SP
Bore No.	15A	
Port size	Rc1/2	
No. of port	5	
No.of position	2	3
Medium	Air	
Operating pressure range	0~1.2 MPa	
Effective orifice	41 mm^2	
Ambient temperature	-5~+60°C (No freezing)	
Weight	519 g	560 g

Order example

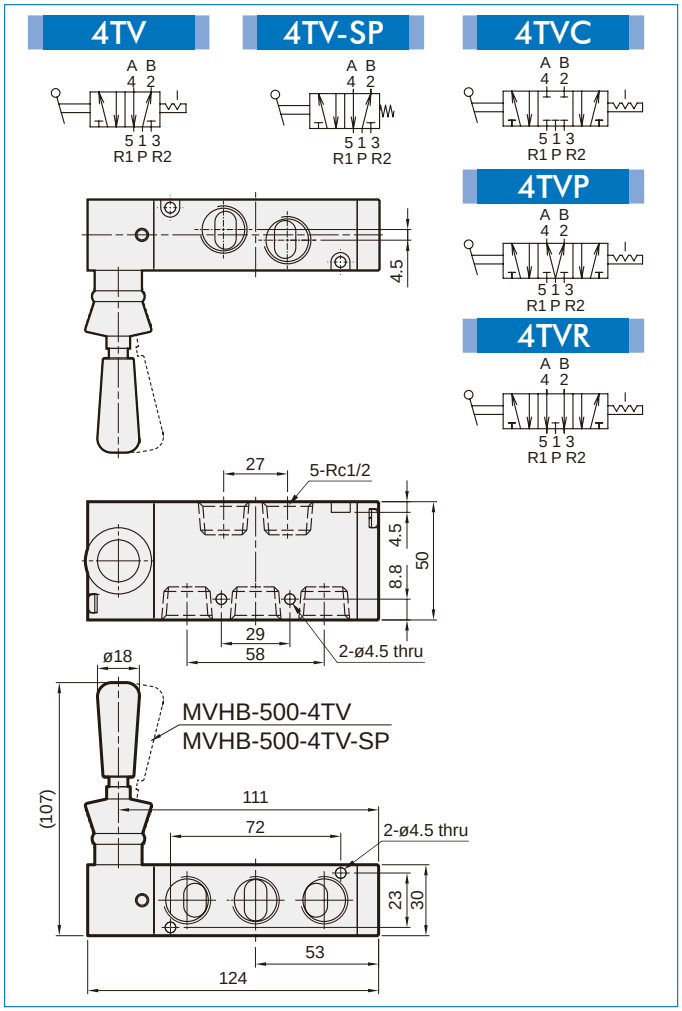
MVHB — 500V — 4TVC — SP — □ — G

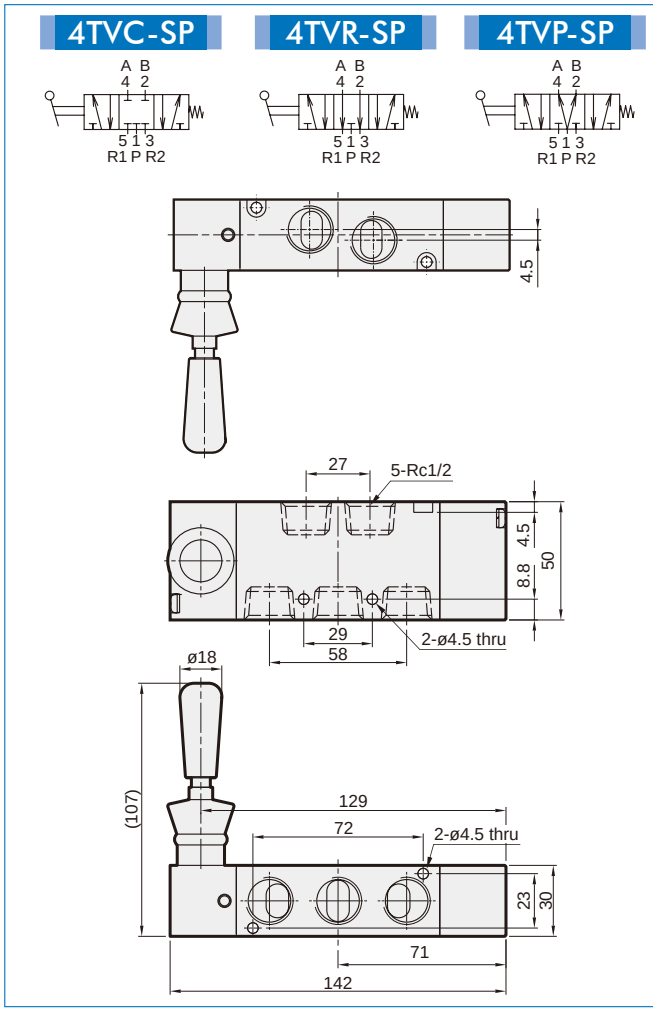
- **MODEL**
- **BODY WIDTH**
  - Blank: Standard type
  - **V**: Vertical type
  - * Vertical type can be used with MVSE-500 manifold (Refer to page 1-43).
- **4**: 4way (5 port)
- **VALVE TYPE**
  - Blank: 5/2
  - **C**: Closed center (5/3)
  - **P**: Pressure center(5/3)
  - **R**: Exhaust center (5/3)
- **SPRING RETURN**
- **DUST COVER MATERIAL** *1,2
  - Blank: NBR
  - **E**: EPDM
- **PORT THREAD**
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

*1. NBR: Good oil resistance and abrasion resistance, not suitable for using in polar solvents.

EPDM: Excellent water resistance and chemical resistance, not suitable for using oil place.

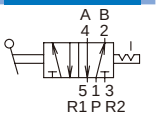
*2. Suitability of material please refer to page 2-3~5.



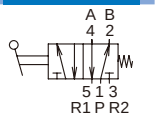


V

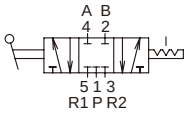
4TV



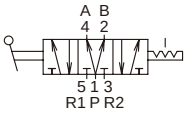
4TV-SP



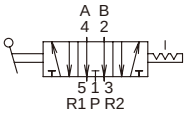
4TVC

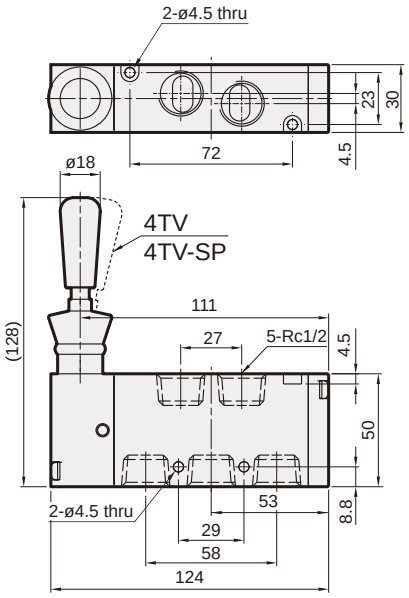


4TVP



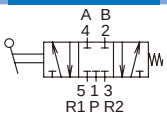
4TVR



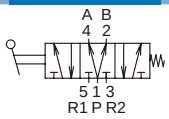


V

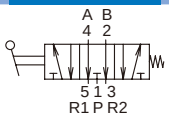
4TVC-SP

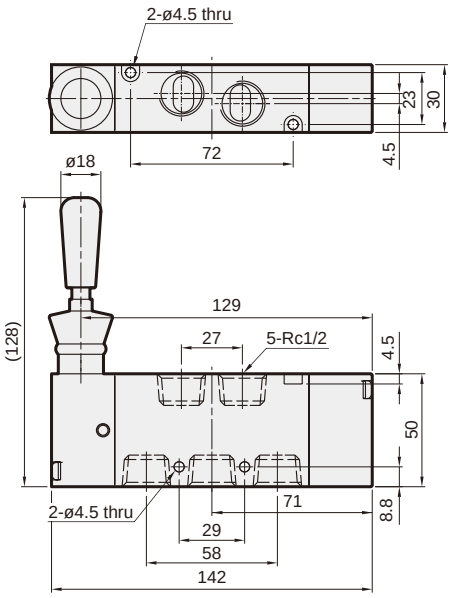


4TVP-SP



4TVR-SP







Specification

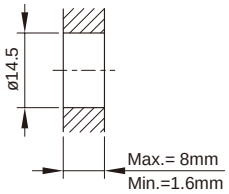
Model	MVHD-220-3P	MVHD-220-4P
Bore No.	8A	6A, 8A
Port size	Rc1/4	Rc1/8, Rc1/4
No. of port	3	5
No.of position	2	
Medium	Air	
Operating pressure range	0~0.8 MPa	
Effective orifice	18 mm^2	
Ambient temperature	-5~+50°C (No freezing)	
Weight	151 g	170 g

Order example

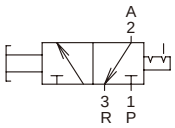
MVHD — 220 — 4P — NC — □ — SP — G

- MODEL
- BODY WIDTH
  - **3**: 3way (3 port)
  - **4**: 4way (5 port)
- ACTUATOR TYPE
  - **P**: Push-pull
- **NC**: Normally closed
  NO: Normally open
  (Only for **3P**)
- BORE SIZE
  Blank: Rc1/4
  6A: Rc1/8 (Only for **4P**)
- SPRING RETURN
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

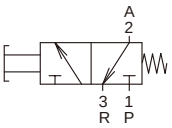
Panel mounting hole



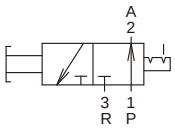
3P-NC



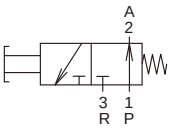
3P-NC-SP

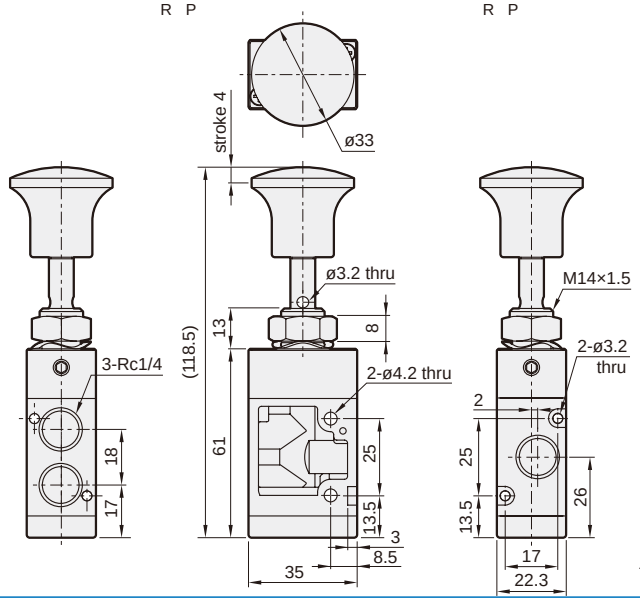


3P-NO

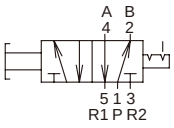


3P-NO-SP

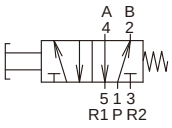


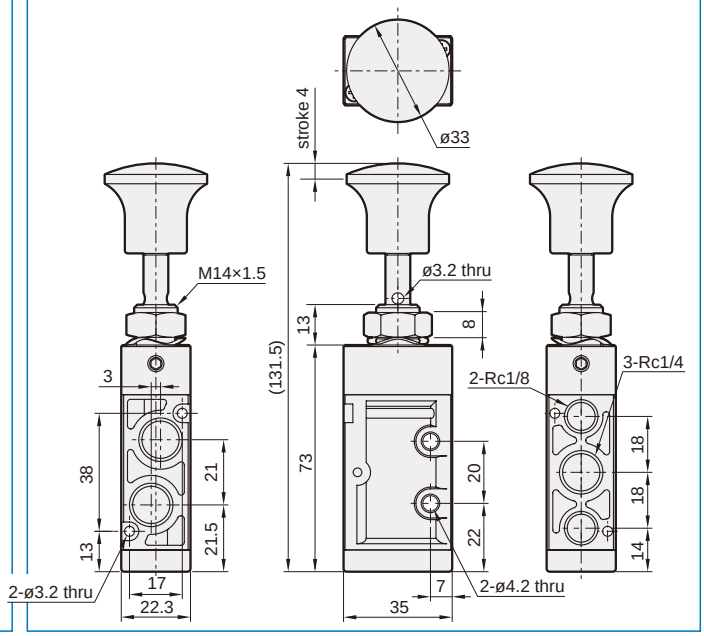


4P



4P-SP





MVHC series

ROTARY HAND LEVER **VALVE**

mindman



Specification

Model	MVHC-2**		MVHC-3**			MVHC-4**			
Bore No.	6A	8A	8A	10A	15A	8A	10A	15A	20A
No. of port	4								
Medium	Air								
Operating pressure range	0.05~1 MPa								
Effective orifice (mm^2)	7		26	29	33	41	59	64	71
Ambient temperature	-5~+60°C (No freezing)								
Option	Mounting nut								
Weight	280 g		420 g			1100 g			

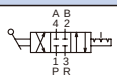
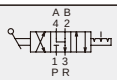
Bore size / Model	6A	8A	10A	15A	20A
	Rc1/8	Rc1/4	Rc3/8	Rc1/2	Rc3/4
MVHC-2**	—	—			
MVHC-3**		—	—	—	
MVHC-4**		—	—	—	—

Order example

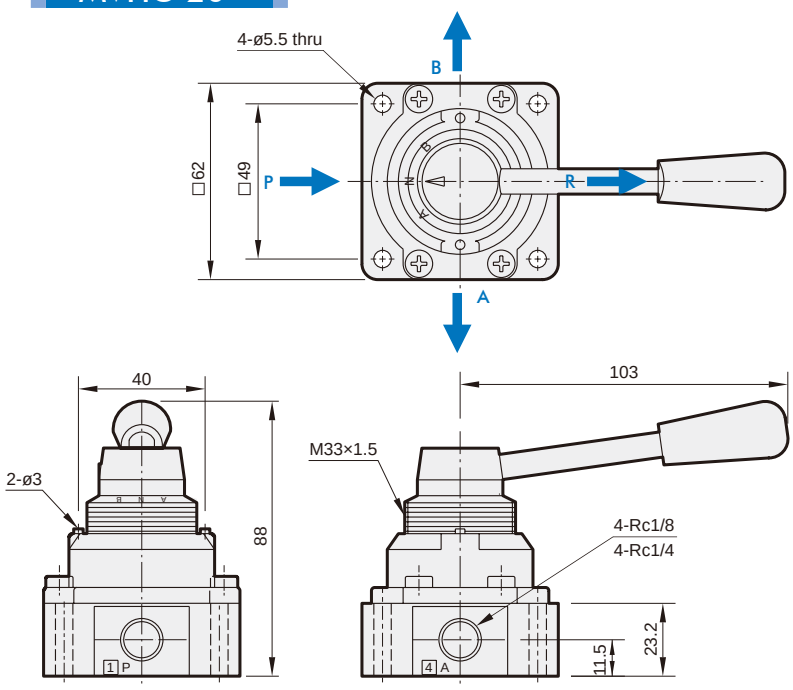
MVHC — 200 — 4H — 8A — □ — G

- MODEL
- BODY SIZE
- PORT POSITION
  - **0**: Side
  - **2**: Bottom (Only for 3,4 body size type)
- TYPE (*)
- **4**: 4way (4 port)
- BORE SIZE
  - **6A**: Rc1/8
  - **8A**: Rc1/4
  - **10A**: Rc3/8
  - **15A**: Rc1/2
  - **20A**: Rc3/4
- **M**: Mounting nut
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

* TYPE

Code	Symbol	Description
0		3 Position Close center
1		3 Position Exhaust center
2		2 Position

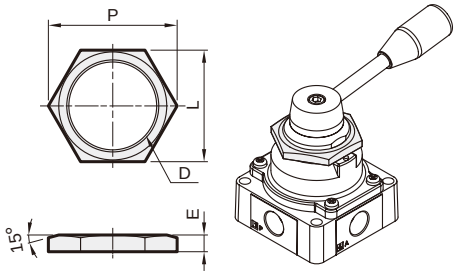
MVHC-20*



Order example of mounting nut

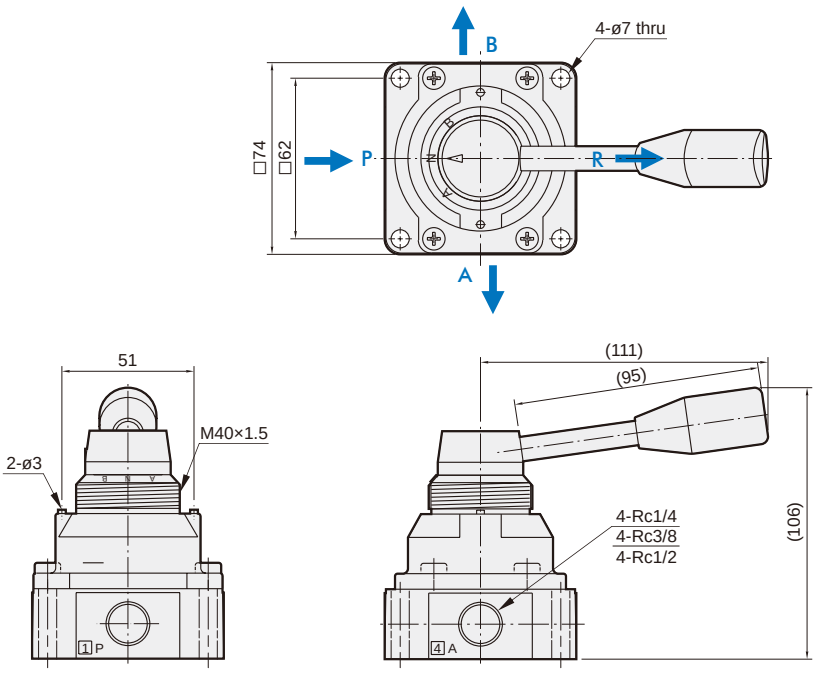
MVHC — 200 — M

BODY SIZE
200
300
400

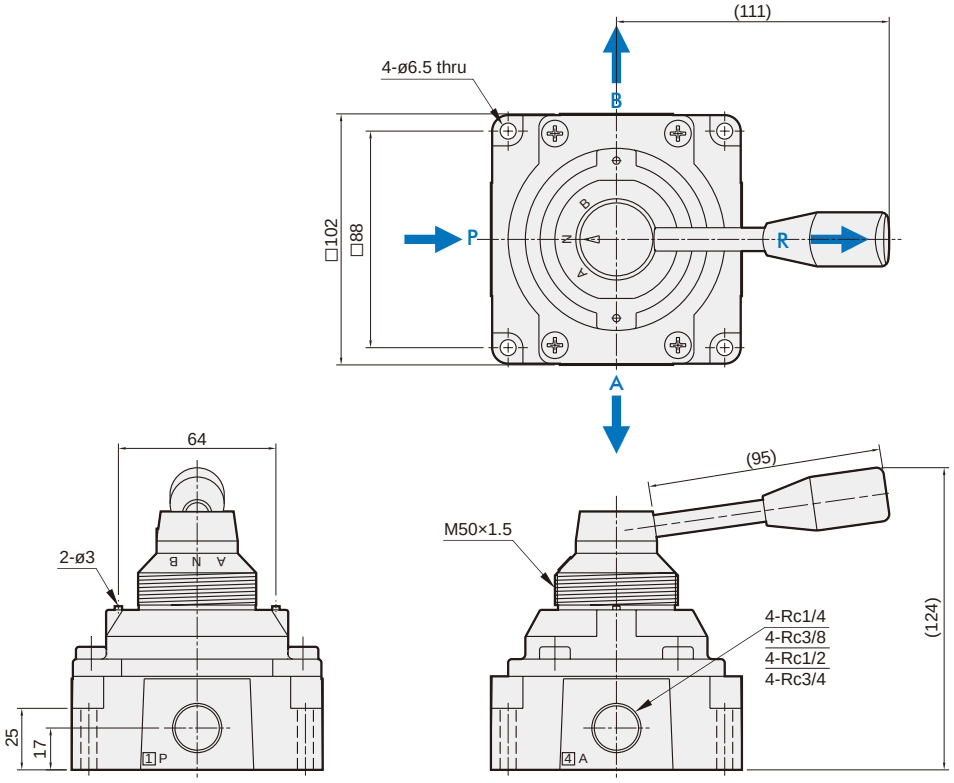


Model	D	E	L	P	Weight
MVHC-200-M	M33×1.5	6	41	46	26.5 g
MVHC-300-M	M40×1.5	6	50	57	41 g
MVHC-400-M	M50×1.5	8	55	63	40 g

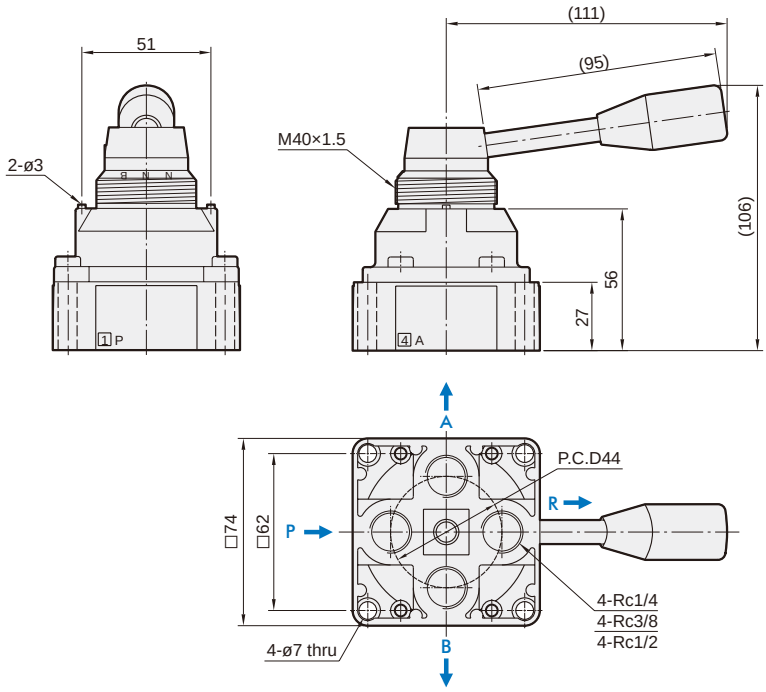
MVHC-30*



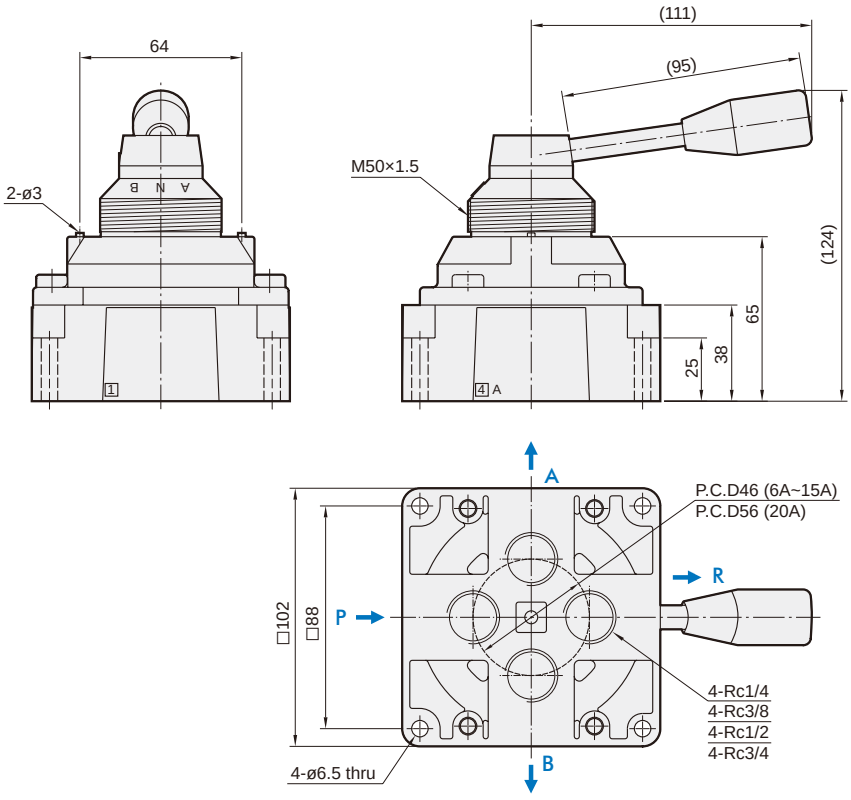
MVHC-40*



MVHC-32*



MVHC-42*





Specification

Model		MVHS			
Bore No.		8A	10A	15A	20A
Port size		R1/4	R3/8	R1/2	R3/4
Medium		Air			
Operating pressure range		0.05~1 MPa			
Effective orifice (mm^2)	P→A	30.4	32.3	63.5	85.4
	A→R	34.1	36.8	71.7	90.7
Ambient temperature		-5~+60°C (No freezing)			
Weight		40 g	54 g	132 g	148 g

Order example

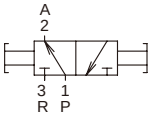
MVHS — 8A — G

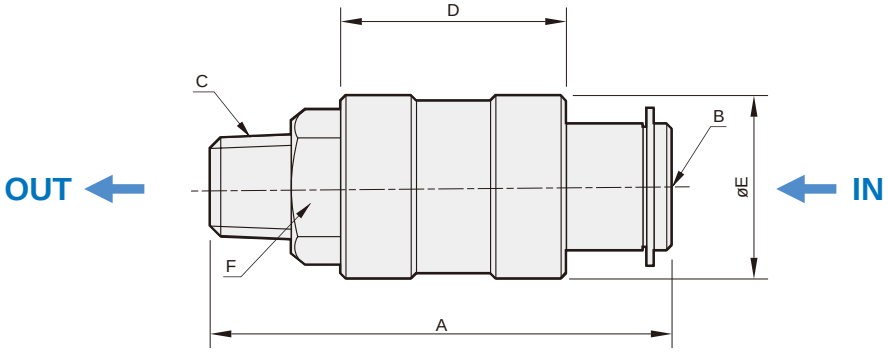
MODEL

8A: R1/4
10A: R3/8
15A: R1/2
20A: R3/4

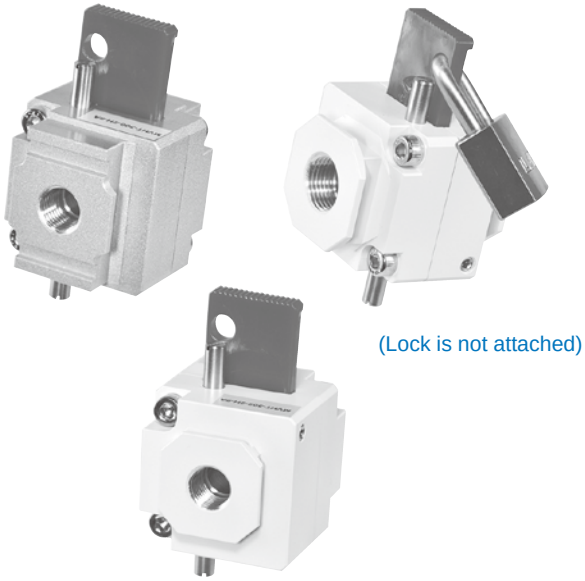
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

MVHS-*A





Code / Model	A	B	C	D	E	F
MVHS-8A	58	Rc1/4	R1/4	32	25.5	⬡19
MVHS-10A	57	Rc3/8	R3/8	32	31.5	⬡22
MVHS-15A	91	Rc1/2	R1/2	49	38.5	⬡27
MVHS-20A	91	Rc3/4	R3/4	49	42	⬡35



(Lock is not attached)

Specification

Model	MVHT-300		MVHT-302, MVHT-400		
Bore No.	8A	10A	8A	10A	15A
Port size	Rc1/4	Rc3/8	Rc1/4	Rc3/8	Rc1/2
No. of port	3(2)				
No. of position	2				
Medium	Air				
Operating pressure range	0~1.5 MPa				
Proof pressure	2 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	230 g		249 g, 220 g		

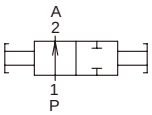
Order example

MVHT — 300 — 3H — 8A — 1 — G

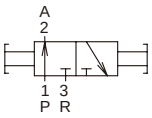
- MODEL
- MODEL for F.R.L
  - **300**: for MA**300 series
  - **302**: for MA**302 series
  - **400**: for MA**401, 403 series
- **2H**: 2way(2port)
  3H: 3way(3port)
  (Residual pressure release)
- **8A**: Rc1/4
  10A: Rc3/8
  15A: Rc1/2 (Only for MVHT-302 / 400)
- Apply to MVHT-400
  1: Silver (For air unit 401 series)
  3: Cool gray (For air unit 401-W, 403 series)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

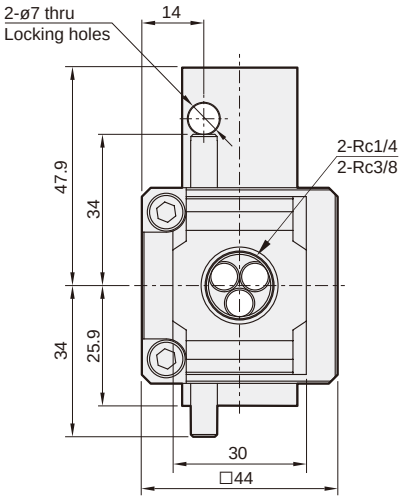
MVHT-300

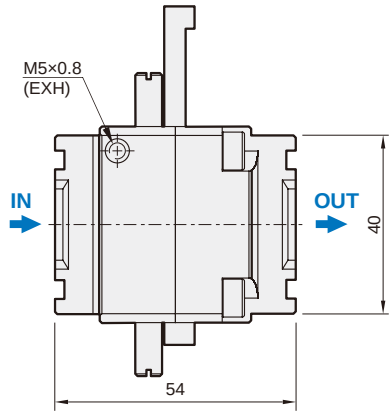
2H



3H

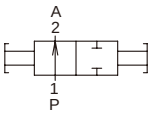




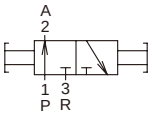


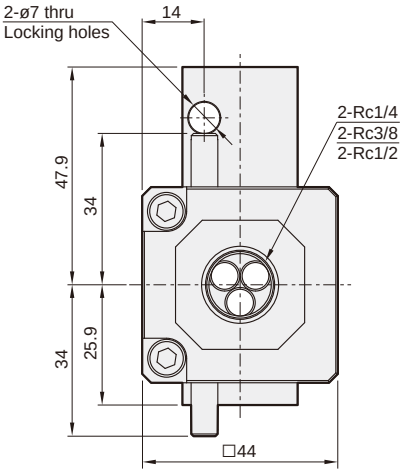
MVHT-302

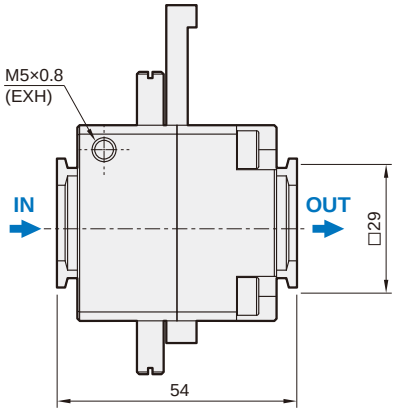
2H



3H

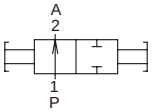




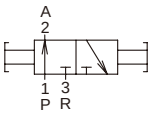


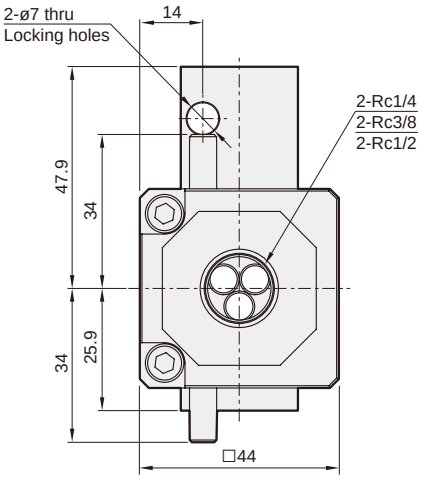
MVHT-400

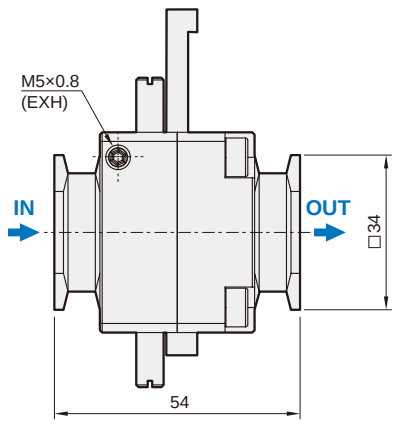
2H



3H







MVHR series

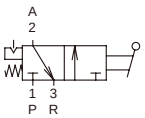
ON-OFF VALVE

mindman



(Lock is not attached)

Symbol

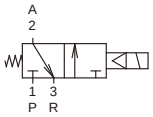


Specification – Manual type

Model	MVHR-300		MVHR-302 / 400		
Bore No.	8A	10A	8A	10A	15A
Port size	Rc1/4	Rc3/8	Rc1/4	Rc3/8	Rc1/2
No. of port	3				
No. of position	2				
Medium	Air				
Operating pressure range	0.1~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Weight	323g		304g / 311g		



Symbol



Specification – Solenoid type

Model	MVHR-300S		MVHR-302S / 400S		
Bore No.	8A	10A	8A	10A	15A
Port size	Rc1/4	Rc3/8	Rc1/4	Rc3/8	Rc1/2
No. of port	3				
No. of position	2				
Medium	Air				
Operating pressure range	0.15~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Voltage	AC110V, 220V (50/60)Hz, DC24V				
Power consumption	AC=4.8/4.4VA, 6/4.9VA, DC=2W				
Available voltage range	±10%				
Insulation class	F class				
Weight	397g		378g / 385g		

Order example

MVHR — 300□ — 3H — 8A — 1 — DC24 — □ — B — G

- MODEL
- CONTROL MODEL
  Blank: Manual type
  S: Solenoid type
- MODEL for F.R.L
  300: for MA**300 series
  302: for MA**302 series
  400: for MA**401, 403 series
- **3H**: 3way(3port)
  (Residual pressure release)
- **8A**: Rc1/4
  10A: Rc3/8
  15A: Rc1/2 (Only for MVHR-302 / 400)
- Apply to MVHR-400
  1: Silver (For air unit 401 series)
  3: Cool gray (For air unit 401-W, 403 series)
- VOLTAGE
  *Only for solenoid type
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V
- *Only for solenoid type
  Blank: DIN connector
  L: DIN connector with LED indicator
  E: Explosion protection (Table 1) (**E** type use black coil)
- BRACKET
  Blank: Without
  B: With bracket
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of bracket

MVHR — 302 — B

- BRACKET

* 300, 302 and 400 use the same bracket.

Table 1

Property for explosion-proof type

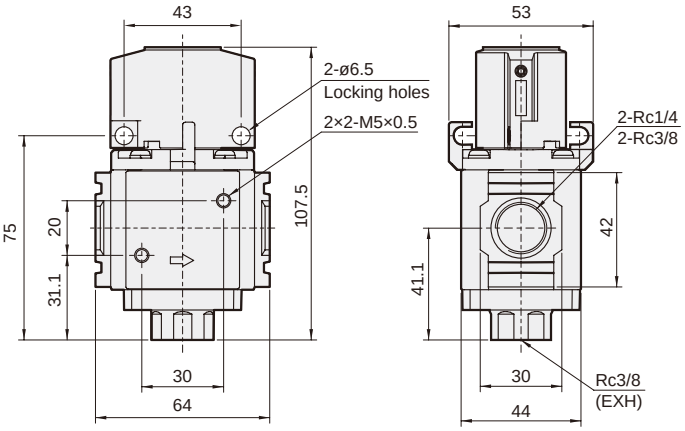
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

⚠ Precautions

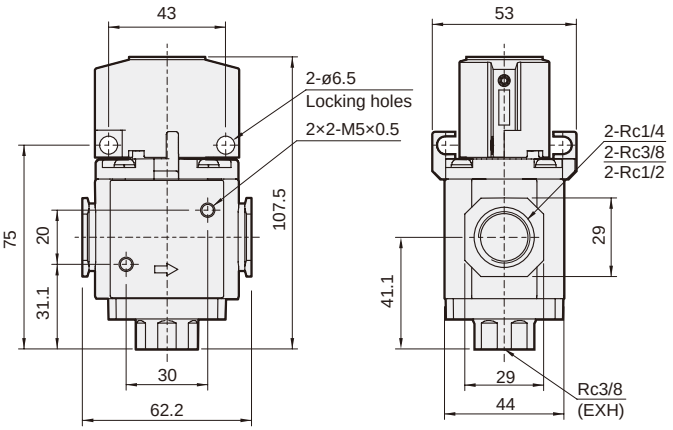
Please note during trial operation and maintenance.

1. When the A port is open to the atmosphere, do not switch the valve to prevent leakage and malfunction of the seal ring due to fluid flow.
2. Dust entering the valve body will cause malfunction or damage to the seal.
3. Please install a filter and oil mist separator on the inlet side (With a filtration of 5 micron or lower).
4. Be sure of cleaning the cutting fluid and foreign material in the pipe before connection to avoid malfunction.
5. The internal grease may flow out on the outlet side, so it is not recommended to use it in a completely oil-free environment in pipe.

MVHR-300

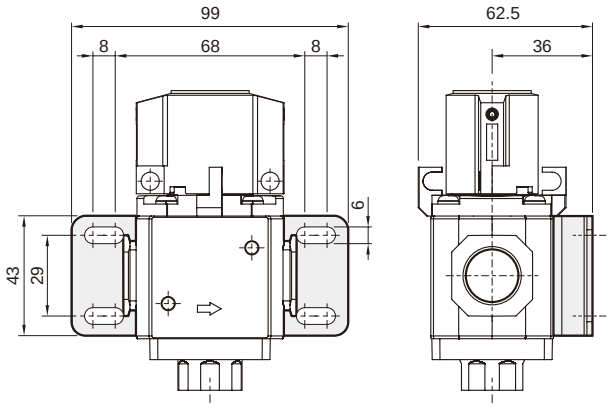


MVHR-302

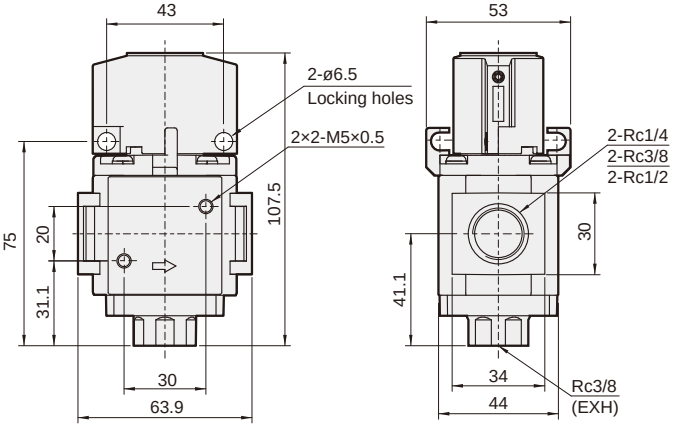


MVHR-*-B

Bracket



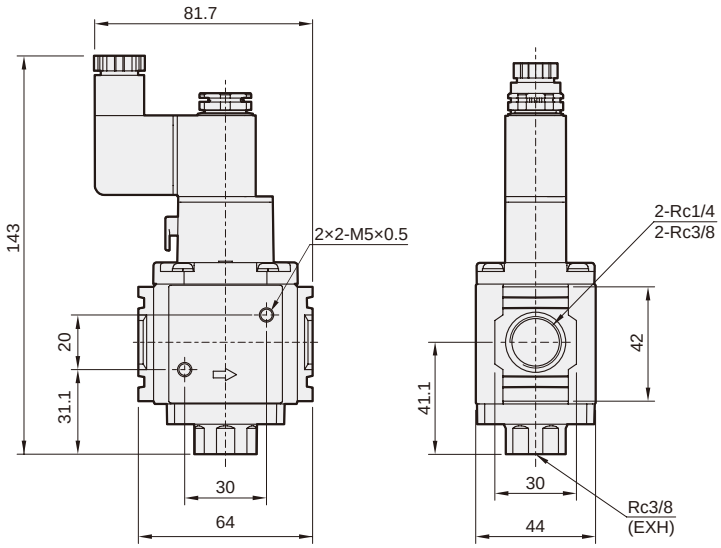
MVHR-400



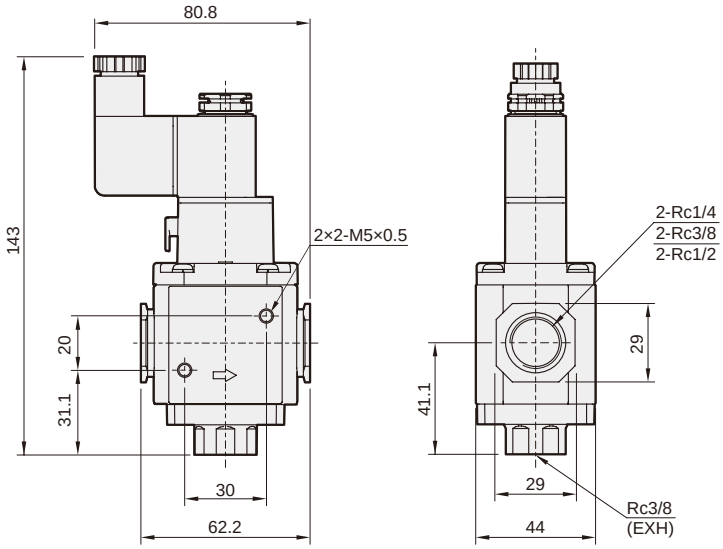
MVHR Dimensions – Solenoid type

ON-OFF VALVE

MVHR-300S

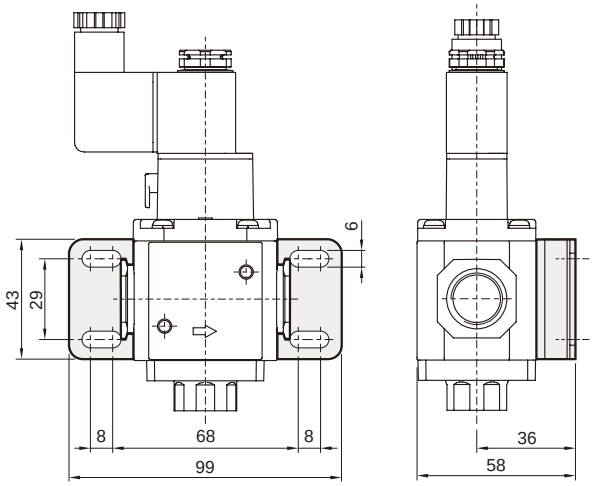


MVHR-302S

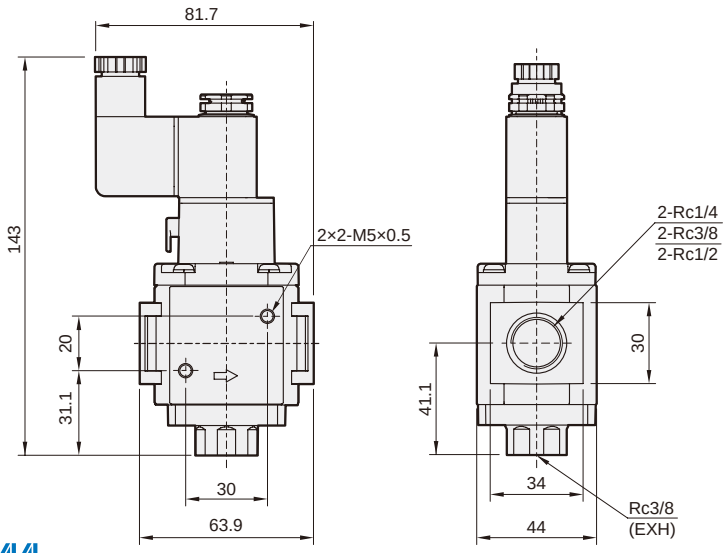


MVHR-*S-*-B

Bracket



MVHR-400S







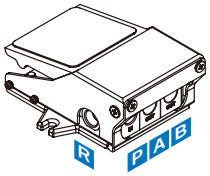
Specification

Model	MVFA-230	MVFA-231	MVFA-240
Bore No.	8A		
Port size	Rc1/4		
No. of port	3		4
No. of position	2		
Medium	Air		
Operating pressure range	0.2~0.7 MPa		
Proof pressure	1 MPa		
Effective orifice	8 mm^2		
Ambient temperature	-5~+60°C (No freezing)		
Weight (with protection)	684 (1426) g	739 (1481) g	774 (1516) g

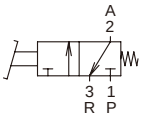
Order example

MVFA — 230 — 8A — PL — G

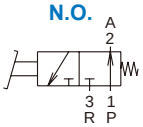
- MODEL
- **230**: 3/2 NC, **231**: 3/2 NO, **240**: 4/2
- **8A**: Rc1/4
- **P**: With protection, **L**: With lock
- PORT THREAD — Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



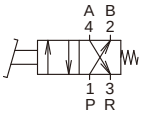
MVFA-230 N.C.



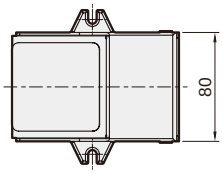
MVFA-231 N.O.

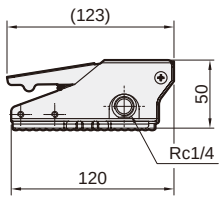


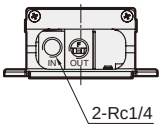
MVFA-240



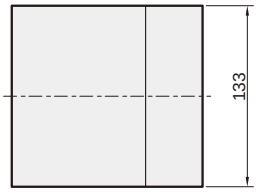
MVFA-230-8A-(L)
MVFA-231-8A-(L)

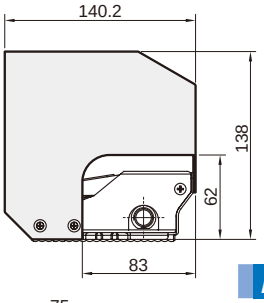


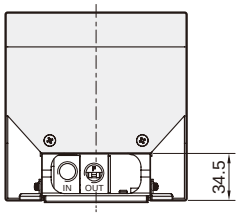




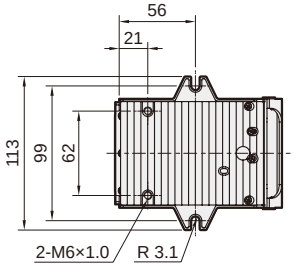
MVFA-230-8A-P(L)
MVFA-231-8A-P(L)

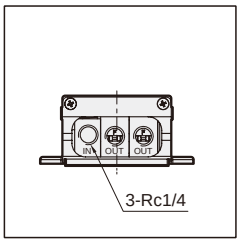




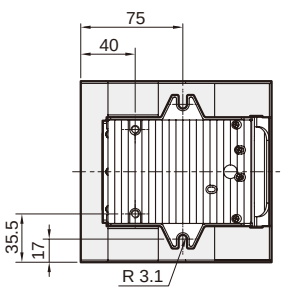


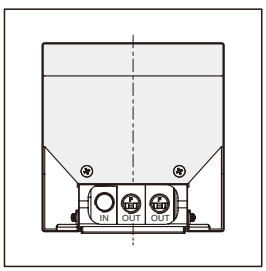
MVFA-240-8A-(L)





MVFA-240-8A-P(L)

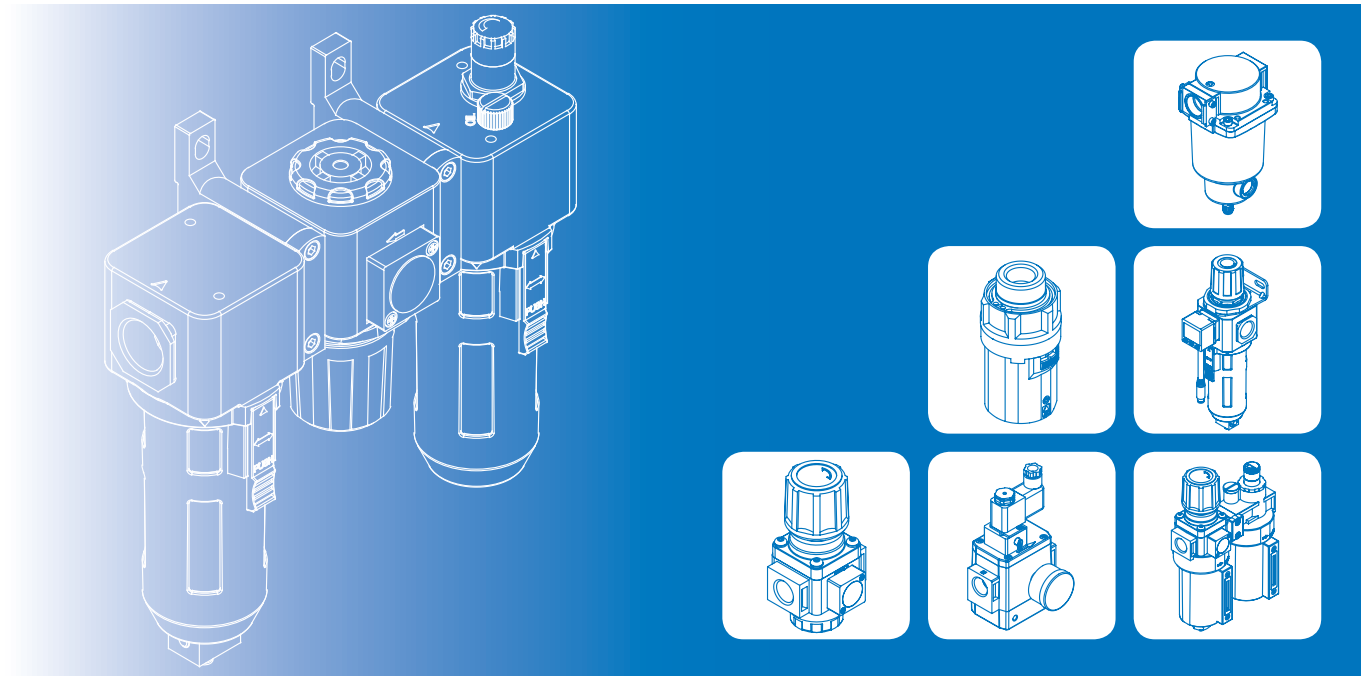




MEMO

NOTE

AIR UNITS



Selector Table 4-2

F.R.L. UNIT

MAC* MACP200 4-11
MACP300 4-13
MACP300L 4-14
MACP302 4-15
MACP400 4-18
MACP401 4-19
MACP402 4-22
MACP403 4-23
MACP501 4-25
MACC300 4-27
MACT200 4-28
MACT300 4-30
MACT300L 4-31
MACT302 4-32
MACT400 4-34
MACT401 4-35
MACT402 4-37
MACT403 4-38
MACT501 4-40

F.R. UNIT

MAFR MAFR100 4-42
MAFR200 4-43
MAFR300 4-45
MAFR300L 4-46
MAFR302 4-47
MAFR400 4-50
MAFR401 4-51
MAFR402 4-53
MAFR403 4-54
MAFR501 4-56

FILTER

MAF MAF200 4-58
MAF300 4-59
MAF300L 4-60
MAF302 4-61
MAF400 4-63
MAF401 4-64
MAF402 4-65
MAF403 4-66
MAF501 4-67
MAF900 4-69
MAF901 4-70

AUTO DRAINER

MAD MAD400 4-71
MAD401 4-72
MAD401H 4-73
MAD500 4-74
MAD501 4-75

AUTO DRAIN VALVE

FMRF FMRF300 4-76
MADV MADV400 4-76

FILTER ELEMENT

E* 4-77

FILTER for TURBINE TYPE

MWC MWC-1000/4000 4-78

PRESSURE REGULATOR

MAR MAR100 4-82
MAR200 4-83
MAR201 4-85
MAR300 4-87
MAR301 4-88
MAR302 4-89
MAR400 4-91
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MAR402 4-94
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HAND-HELD REGULATOR

MAR* MAR300LK 4-101

ELECTRO PNEUMATIC REGULATOR

MAER Feature 4-102
MAER200 New 4-105

PRECISION REGULATOR

MAIR Features 4-109
Cautions 4-110
MAIR100 4-111
MAIR200 4-113
MAIR300 New 4-115

LUBRICATOR

MAL MAL200 4-117
MAL300 4-118
MAL300L 4-119
MAL302 4-120
MAL400 4-121
MAL401 4-122
MAL402 4-123
MAL403 4-124
MAL501 4-125
MAL900 4-126

AIR / MIST / MICRO MIST FILTER

MA* Selector Table 4-127
MAF300LD/M 4-128
MAF302D/M 4-129
MAF401A/D/M 4-131
MAFF401AD/DM 4-133
MAFRF401 4-134
MATFR401 4-135
MAF501D/M 4-136

MAM* Feature 4-138
MAMG25/35/45/55 New 4-142
MAMB25/35/45/55 New 4-144
MAMD25/35/45/55 New 4-146
MAMM25/35/45/55 New 4-148
MAMF25/35/45/55 New 4-150

SOFT START-UP VALVE

MAVS MAVS 4-154

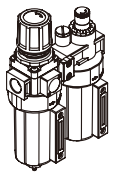
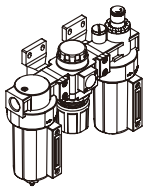
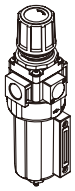
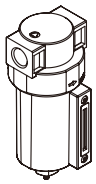
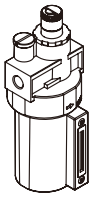
HIGH EFFICIENCY COMPRESSED AIR FILTER

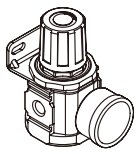
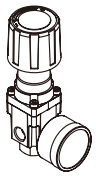
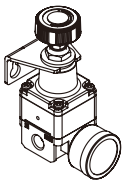
MJ* MJF/MJL 4-158

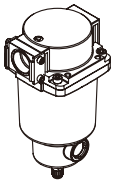
DIGITAL CONDENSATION REMOVAL TIMER

M** MBS/MCS/MBD 4-160

Family

Model	MACP	MACT	MAFR	MAF	MAL
Pictures					
100			●		
200	●	●	●	●	●
200L	●	●	●	●	●
300	●	●	●	●	●
300L	●	●	●	●	●
302	●	●	●	●	●
400	●	●	●	●	●
401	●	●	●	●	●
402	●	●	●	●	●
403	●	●	●	●	●
501	●	●	●	●	●
900				●	●
901				●	

Model	MAR	MAHR	MAIR
Pictures			
100	●		●
200	●	●	●
200L	●		
201	●		
300	●		●
300L	●		
301	●		
302	●		
400	●		
401	●		
402	●		
403	●		
501	●		
900	●		
901	●		

Model	MAM*
Pictures	
25	●
35	●
45	●
55	●

Selector table

● Standard type ◎ Option

Port size									Series	Drain type		
M5	6A	8A	10A	15A	20A	25A	40A	50A		Manual	Semi-automatic	Automatic
●									100		●	
	●	●							200		●	
	●	●							200L		●	
	●	●							201			
		●	●						300		●	
		●	●						300L		●	◎
		●	●						301			
		●	●	●					302		●	◎
		●	●	●					400		●	◎
		●	●	●					401		●	◎
			●	●	●				402		●	◎
		●	●	●					403		●	◎
					●	●			501		●	◎
							●		900	●		◎
								●	901	●		◎
		●	●						25		●	◎
			●	●					35		●	◎
				●	●				45		●	◎
					●	●			55		●	◎

Selector table

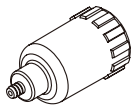
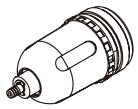
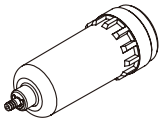
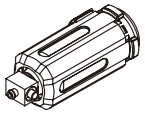
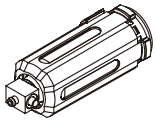
● Standard type ◎ Option

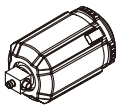
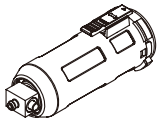
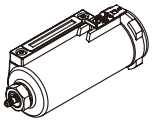
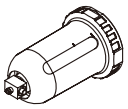
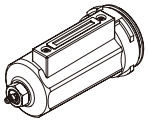
MAR Regulation (Adjustable pressure)						Series	MAF / MAM* Filter (Filter element)								
1K	2K	3K	4K	8.5K	15K		0.01 μ	0.3 μ	3 μ	5 μ	20 μ	40 μ	50 μ	Water separator	0.01 μ + Deodorization
				●		100				●		◎			
◎	◎	◎	◎	●		200				◎		●			
				●		200L				◎		●			
◎	◎	◎	◎	●		201									
				●		300	◎	◎		●		◎			
				●		300L	◎	◎		●		◎			
				●		301									
				●		302	◎	◎		●		◎		●	
				●		400				◎		●			
				●	◎	401	◎	◎		◎		●			
				●		402				◎	◎	●			
				●		403				◎		●			
				●		501	◎	◎				●			
				●		900							●		
				●		901							●		
						25	●	●	●					●	●
						35	●	●	●					●	●
						45	●	●	●					●	●
						55	●	●	●					●	●

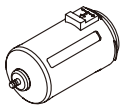
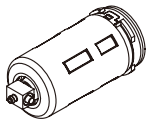
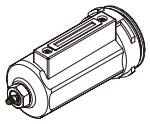
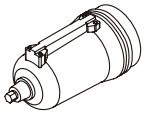
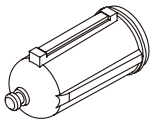
MAHR / MAIR Regulation (Adjustable pressure)					Series
2K	4K	8K	10K	27K	
			●	◎	MAHR200
●	●	●			MAIR100
●	●	●			MAIR200
●	●	●			MAIR300

Bowl assembly (MAFR, MAF series)

● Standard type ◎ Option

Series			100	200	200L	300	300L
Fig							
Order example			**BOWL–MAFR100**	**BOWL–MAF200–[1][2]**	**BOWL–MAF200L–[1]**	**BOWL–MAF300–[1][2]**	BOWL–MAF300L–[1][2][3]
Applicable model			MAFR100	MAFR200, MAF200	MAFR200L, MAF200L	MAFR300, MAF300	MAFR300L, MAF300L
[1] Bowl	PC	–	●	●	●	●	●
	Metal	M			◎		
	Nylon	N		◎	◎	◎	◎
[2] Bowl	None	–		◎		◎	◎
	Guard	U		●		●	●
[3] Drain valve		–	●	●	●	●	●
		D2					◎

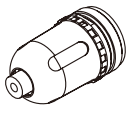
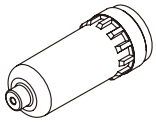
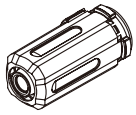
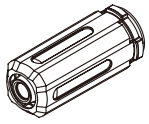
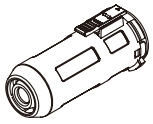
Series			300	302		400	401
Fig							
Order example			**BOWL–MACC300–[2]**	BOWL–MAF302–[1][2][3]	BOWL–MAF302–M[3]	BOWL–MAF400–[1][2][3]	BOWL–MAF401(-W)–[3]
Applicable model			MACC300	MAFR302, MAF302		MAFR400, MAF400	MAFR401(-W), MAF401(-W)
[1] Bowl	PC	–	●	●		●	
	Metal	M			●		●
	Nylon	N		◎		◎	
[2] Bowl	None	–	◎	◎		◎	
	Guard	U	●	●		●	
[3] Drain valve		–	●	●	●	●	●
		D2		◎	◎	◎	◎
		D3				◎	◎
		D4				◎	◎

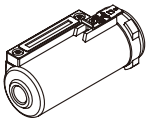
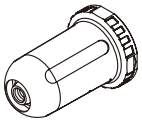
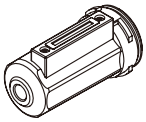
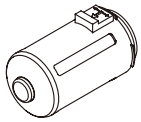
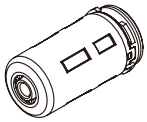
Series			402	403	501	900	901
Fig							
Order example			BOWL–MAF402–[2][3]	BOWL–MAF403–[1][2][3]	BOWL–MAF401-W–[3]	BOWL–MAF900–[3]	BOWL–MAF901–[3]
Applicable model			MAFR402, MAF402	MAFR403, MAF403 / MAFR501, MAF501	MAFR501-M, MAF501-M	MAF900	MAF901
[1] Bowl	PC	–	●	●			
	Metal	M			●	●	●
	Nylon	N		◎			
[2] Bowl	None	–	◎	◎			
	Guard	U	●	●			
[3] Drain valve		–	●	●	●	●	●
		D2		◎	◎		
		D3			◎		
		D4		◎	◎		
		D6	◎				
		D7				◎	◎

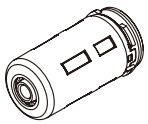
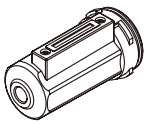
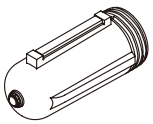
*Order example: **BOWL–MAF400–NUD2** (N: Nylon, U: Bowl guard, D2: Auto drain valve)

Bowl assembly (MAL series)

● Standard type ◎ Option

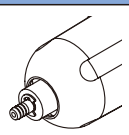
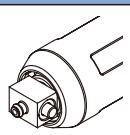
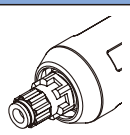
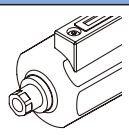
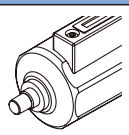
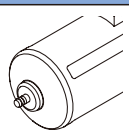
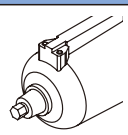
Series			200	200L	300	300L	302
Fig							
Order example			BOWL–MAL200–1 2	BOWL–MAL200L–1	BOWL–MAL300–1 2	BOWL–MAL300L–1 2	BOWL–MAL302–1 2
Applicable model			MAL200	MAL200L	MAL300	MAL300L	MAL302
1 Bowl	PC	–	●	●	●	●	●
	Metal	M		◎			
	Nylon	N	◎	◎	◎	◎	◎
2 Bowl	None	–	◎		◎	◎	◎
	Guard	U	●		●	●	●

Series			302	400	401	402	403
Fig							
Order example			BOWL–MAL302–M	BOWL–MAL400–1 2	BOWL–MAL401(-W)	BOWL–MAL402–2	BOWL–MAL403–1 2
Applicable model			MAL302-M	MAL400	MAL401(-W)	MAL402	MAL403
1 Bowl	PC	–		●		●	●
	Metal	M	●		●		
	Nylon	N		◎			◎
2 Bowl	None	–		◎		◎	◎
	Guard	U		●		●	●

Series			501		900
Fig					
Order example			BOWL–MAL403–1 2	BOWL–MAL401–W	BOWL–MAL900
Applicable model			MAL501	MAL501-M	MAL900
1 Bowl	PC	–	●		
	Metal	M		●	●
	Nylon	N	◎		
2 Bowl	None	–	◎		
	Guard	U	●		

*Order example: **BOWL–MAL302-NU** (N: Nylon, U: Bowl guard)

Drain valve (for MAFR, MAF series)

Auto drain valve	Blank		D2	D3	D4	D6	D7
Fig							
Description	Semi-auto drain		FMRF300	MADV400-WA (Female thread)	MADV400-WB (Male thread)	YD401	SN-2636-01

Bowl material (Caution for safety)

Effects of atmosphere of organic solvents and chemicals, and where these elements are likely to adhere to the equipment. Chemical data for substances causing degradation (Reference)

Type	Chemical name	Application examples	Material	
			Polycarbonate	Nylon
Acid	Hydrochloric acid, Chromic acid Sulfuric acid, Phosphoric acid	Acid washing liquid for metals	△	×
Alkaline	Sodium hydroxide (Caustic soda) Calcium hydroxide (Slack lime) Potash, Ammonia water Carbonate of soda	Degreasing of metals Industrial salts Water-soluble cutting oil	×	○
Inorganic salts	Sodium sulfide, Potassium nitrate Sulfate of soda	—	×	△
Chlorine solvents	Carbon tetrachloride, Chloroform Ethylene chloride, Methylene chloride	Cleansing liquid for metals Printing ink, Dilution	×	△
Aromatic series	Benzene, Toluene, Paint thinner	Coatings, Dry cleaning	×	△
Ketone	Acetone, Cyclohexane Methyl ethyl ketone	Photographic film Dry cleaning, Textile industries	×	×
Alcohol	Ethyl alcohol, IPA, Methyl alcohol	Anti-freeze, Adhesives	△	×
Oil	Gasoline, Kerosene	—	×	○
Ester	Dimethyl phthalate Diethyl phthalate, Acetic acid	Synthetic oil Anti-rust additives	×	○
Ether	Methyl ether, Ethyl ether	Brake oil additives	×	○
Amino	Methyl amino	Cutting oil, Brake oil additives Rubber accelerant	×	×
Others	Thread-lock fluid, Seawater, Leak tester	—	×	△
○ : Essentially safe △ : Some effects may occur. × : Effects will occur.				

* When the above factors are present, or there is some doubt, use a metal bowl for safety.

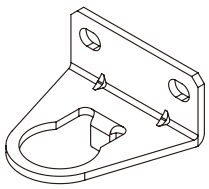
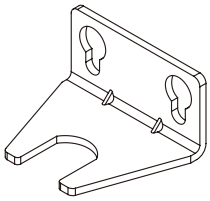
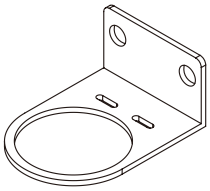
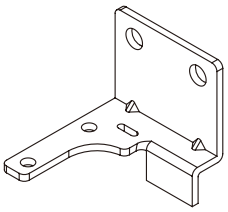
MAL lubrication (Caution for safety)

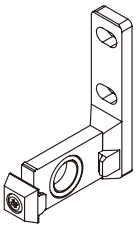
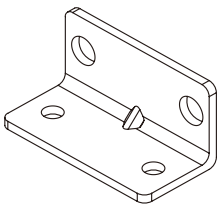
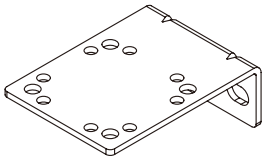
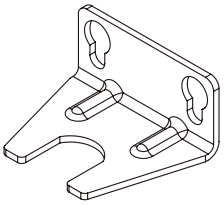
When supplying lubrication, use class 1 turbine oil (with no additive) ISO VG32, or class 2 turbine oil ISO VG32 in the following table. Without continued lubrication during manufacturing, malfunctions could occur. If turbine oil is used, refer to the Material Safety Data sheet (SDS) of the turbine oil. (Reference)

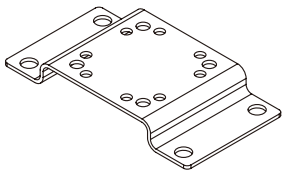
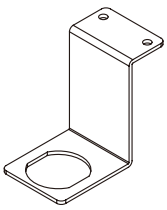
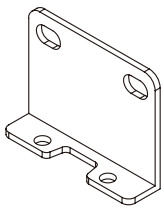
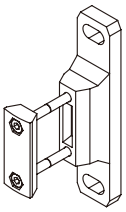
Lubricant brands	Manufacturer	Viscosity Grades
Super turbine oil 32	Idemitsu Kosan	ISO VG32
Mobil DTE LIGHT	Exxon Mobil Corporation	ISO VG32
Mobil rarus 424	Exxon Mobil Corporation	ISO VG32
GII 32	Formosa Petrochemical Corporation	ISO VG32
Turbo T 32	Royal Dutch Shell	ISO VG32
R32	CPC Corporation	ISO VG32

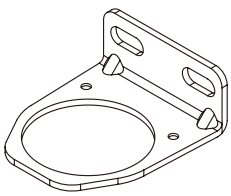
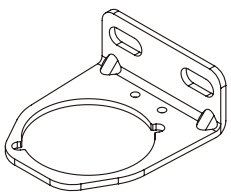
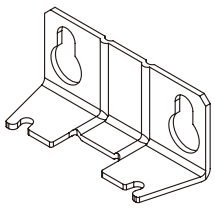
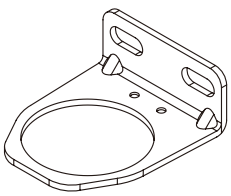
* Do not add additives. This may affect the operation of the product.
* The name of the lubricant manufacturer and the lubricant brand may change. Please contact each of the companies for details.

Bracket

Order example	B1-MAR100	B1-MAIR100	B1-MAR200	B1-MAL200 (*)
Pictures				
Applicable model	MAR100, MAFR100	MAIR100	MACP200, MACT200 MAFR200, MAR200 MAR201	MAL200

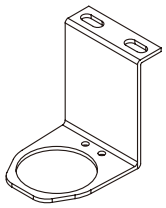
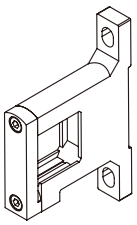
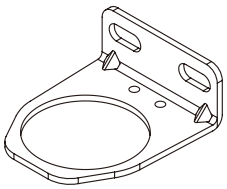
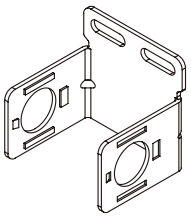
Order example	BL-MACP200	B1-MAF200 (*)	B1-MAER200	B1-MAIR200
Pictures				
Applicable model	MACP200, MACT200	MAF200	MAER200	MAIR200

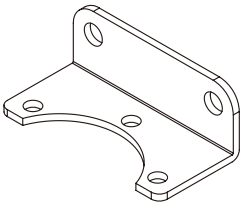
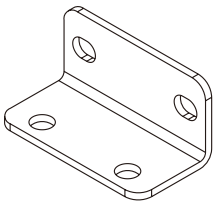
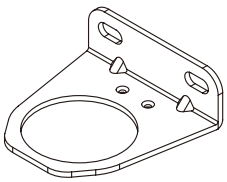
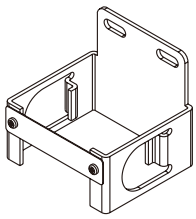
Order example	B2-MAER200	B3-MAR200	B1-MACC300	BT-MACP300
Pictures				
Applicable model	MAER200	MAFR200, MAR200 MAR201	MACC300	MACP300, MACT300 MACP300L, MACT300L

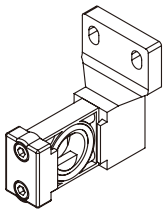
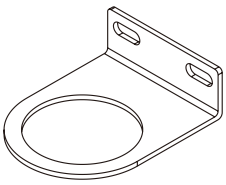
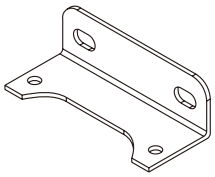
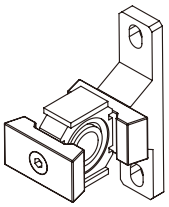
Order example	B1-MAR300	B1-MAF300 (*)	B1-MAIR300	B1-MAR301
Pictures				
Applicable model	MAR300	MAL300, MAF300 MAL300L, MAF300L	MAIR300	MAFR300, MAFR300L MAR301

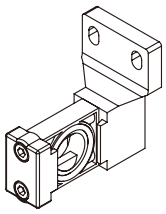
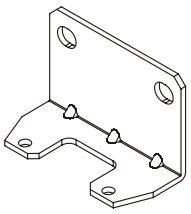
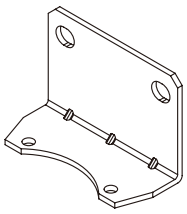
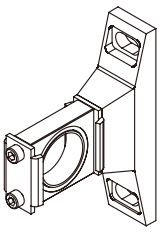
* Order **B1−MAL200**, **B1−MAF200**, **B1−MAF300** please note that the body need have the fixed threaded holes collocating with bracket.

Bracket

Order example	B3-MAR301	BT-MACP302	B1-MAR302	B2-MAF302
Pictures				
Applicable model	MAFR300(L), MAR301	MACP302, MACT302 MAIR200, MAER200	MAFR302, MAR302	MAL302, MAF302

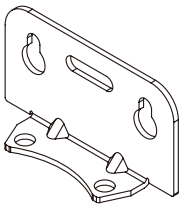
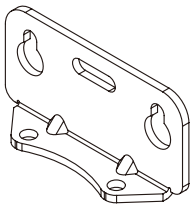
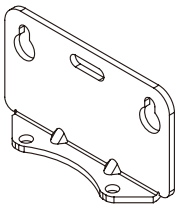
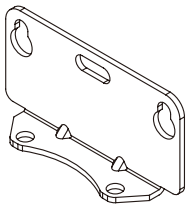
Order example	B1-MAR400	B1-MAF400	B1-MAR401	B2-MAF401
Pictures				
Applicable model	MACP400, MACT400 MAFR400, MAR400	MAF400, MAL400	MAFR401, MAR401 MAFR403, MAR403	MAF401, MAL401 MAF403, MAL403

Order example	BL-MACP401	B1-MAR402	B1-MAF402 (*)	BT-MACP402
Pictures				
Applicable model	MACP401, MACT401	MAFR402, MAR402	MAF402, MAL402	MACP402, MACT402

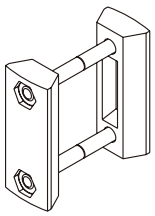
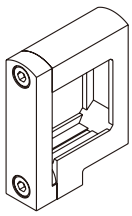
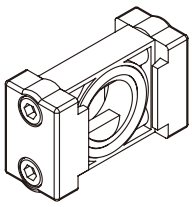
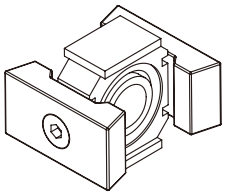
Order example	BL-MACP403	B1-MAR501	B1-MAF501	BT-MACP501
Pictures				
Applicable model	MACP401-W, MACT401-W MACP403, MACT403, MAIR300	MAR501, MAFR501	MAF501, MAL501	MACP501, MACT501

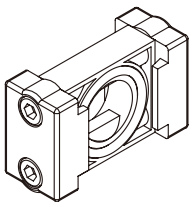
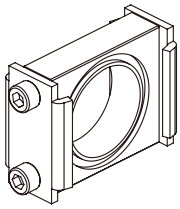
* Order **B1−MAF402** please note that the body need have the fixed threaded holes collocating with bracket.

Bracket

Order example	B1-MAMG25	B1-MAMG35	B1-MAMG45	B1-MAMG55
Pictures				
Applicable model	MAM*25	MAM*35	MAM*45	MAM*55

Joiner set

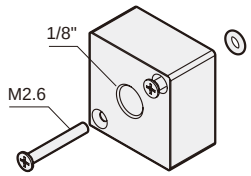
Order example	BS-MACP300	BS-MACP302	BS-MACP401	BS-MACP402
Pictures				
Applicable model	MACP300, MACT300 MACP300L, MACT300L	MACP302, MACT302 MAIR200, MAER200	MACP401, MACT401	MACP402, MACT402

Order example	BS-MACP403	BS-MACP501
Pictures		
Applicable model	MACP401-W, MACT401-W MACP403, MACT403, MAM*25, MAM*35	MACP501, MACT501 MAM*45, MAM*55

Gauge adapter set

*Order example: **A–MAR302–NPT**

● Standard type ◎ Option



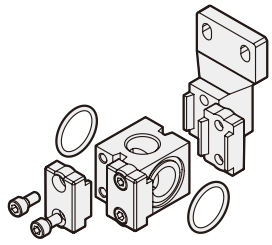
Applicable model	Order example	Port thread	
		—	NPT
		Rc thread	NPT thread
MAR302, MAFR302	**A—MAR302—□**	●	◎
MAR401, MAFR401	**A—MAR401—□**	●	◎
MAR401-W, MAFR401-W MAR403, MAFR403 MAR501, MAFR501	**A—MAR302—□** (Shared with 302)	●	◎

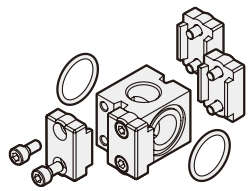
* Recommended tightening torque is between 1.5 to 2.5 Nm for the female thread (1/8") and 0.3 to 0.5Nm for the screws(M2.6).

T type module mounting bracket

*Order example : **T8–MACP302–G**

● Standard type ◎ Option



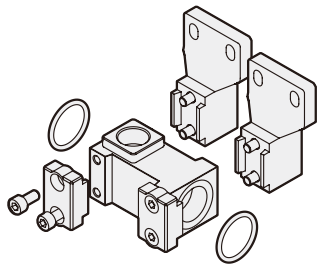


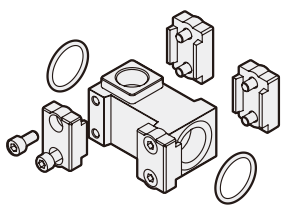
Applicable model	Order example	Port size		Port thread	
		T8,T10	T15	—	G, NPT
		1/4, 3/8	1/2	Rc thread	G,NPT thread
MACP300, MACT300	**T8/T10—MACP300—□**	◎		●	◎
MACP300L, MACT300L	**T8/T10—MACP300—□**	◎		●	◎
MACP302, MACT302	**T8/T10/T15—MACP302—□**	◎	◎	●	◎
MACP401, MACT401	**T8/T10/T15—MACP401—□**	◎	◎	●	◎
MACP401-W, MACT401-W MACP403, MACT403	**T8/T10/T15—MACP403—□**				
MACP501, MACT501	**T8/T10/T15—MACP501—□**	◎	◎	●	◎
MAM*25, MAM*35	**T8/T10/T15—MAMG25—□**	◎	◎	●	◎
MAM*45, MAM*55	**T8/T10/T15—MAMG45—□**	◎	◎	●	◎

Check valve

*Order example : **K8–MACP401–G**

● Standard type ◎ Option





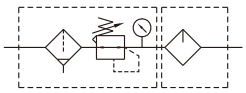
Applicable model	Order example	Port size	Port thread	
		K8,K10	—	G, NPT
		1/4, 3/8	Rc thread	G,NPT thread
MACP302, MACT302	**K8/K10—MACP302—□**	◎	●	◎
MACP401, MACT401	**K8/K10—MACP401—□**			
MACP401-W, MACT401-W MACP403, MACT403	**K8/K10—MACP403—□**			
MAM*25, MAM*35	**K8/K10—MAMG25—□**			



MACP200L



Symbol



Specification

Model	MACP200	
Components	MAFR200, MAL200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 40μm, Option: 5μm	
Lubricating oil capacity	20c.c, 35c.c (MACP200L)	
Min. flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-40), L-type bracket	
Weight	432 g, 380 g (MACP200L)	

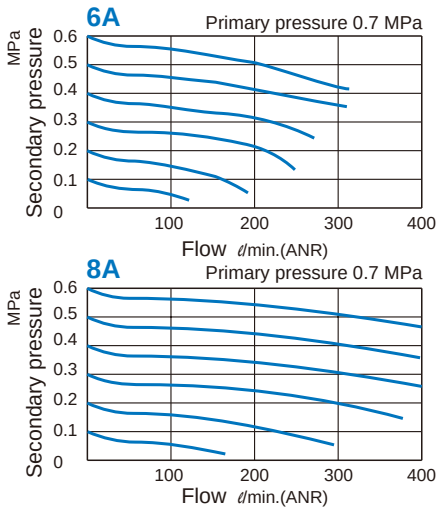
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

MACP200L – 6A – □ – □ – □ – □

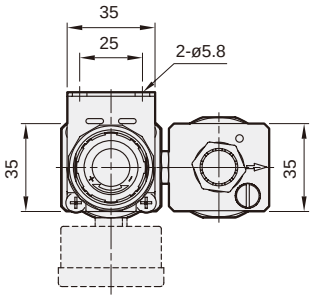
- MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- Blank: PC bowl
  - **M**: Metal bowl (*)
  - **N**: Nylon bowl
  - * Only for 200L.
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- BRACKET
  - Blank: L type
  - **B**: T type
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

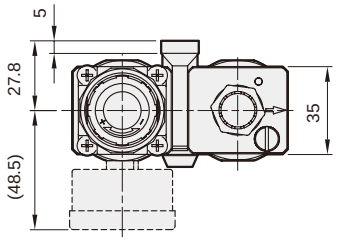
Flow feature

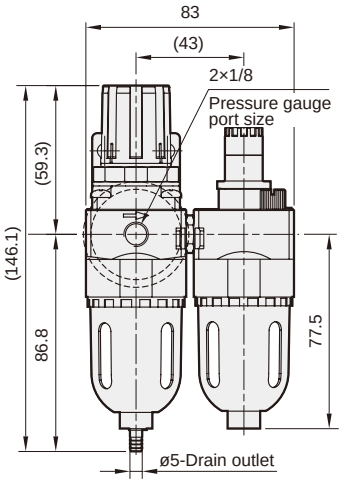


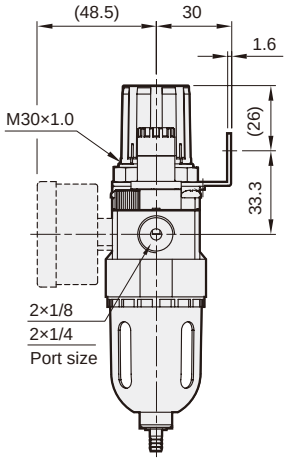
MACP200-B

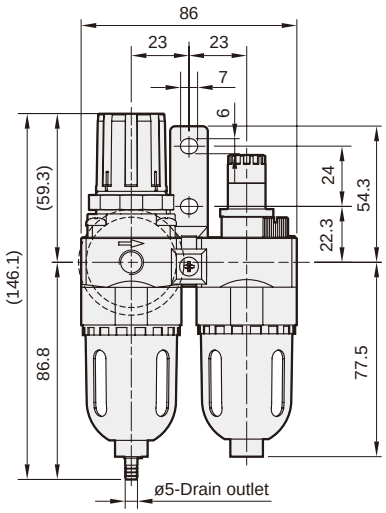
T type bracket





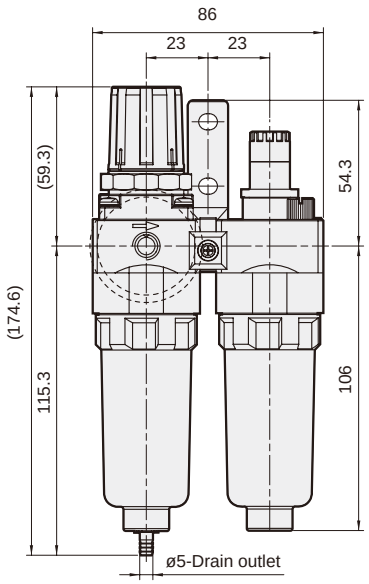






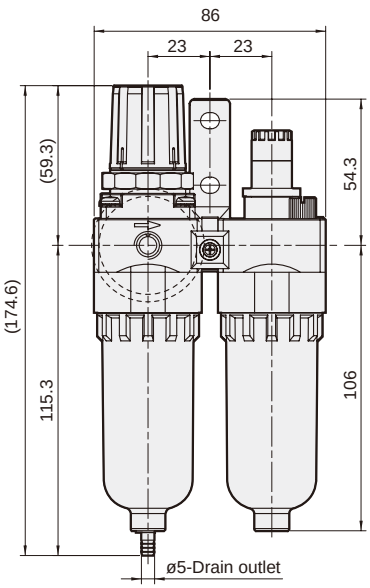
MACP200L-M-B

Metal bowl + T type bracket



MACP200L-B

T type bracket



MACP300 series

AIR UNIT (F.R.L.UNIT)

mindman

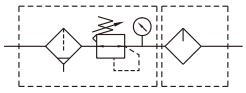


Specification

Model	MACP300	
Components	MAFR300, MAL300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Lubricating oil capacity	55c.c	
Min. flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), T-type bracket	
Weight	724 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Symbol



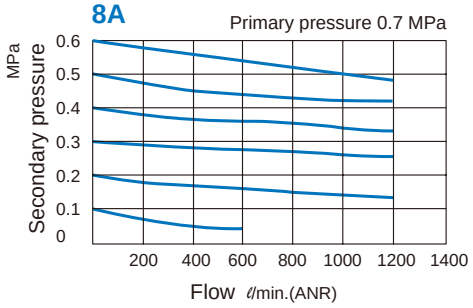
Order example

MACP300 – 8A – □ – □ – □ – □

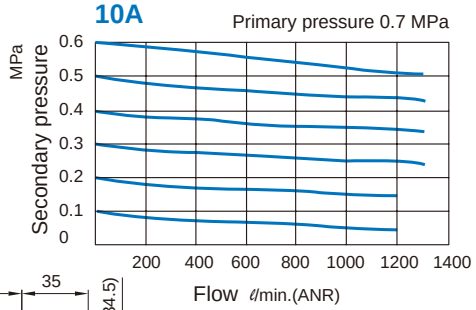
- MODEL
- PORT SIZE — **8A**: 1/4, **10A**: 3/8
- Blank: PC bowl, **N**: Nylon bowl
- FILTER ELEMENT — Blank: 5μm, **40u**: 40μm
- (Option) Module mounting bracket — **T8**: 1/4, **T10**: 3/8
- PORT THREAD — Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Flow feature

8A

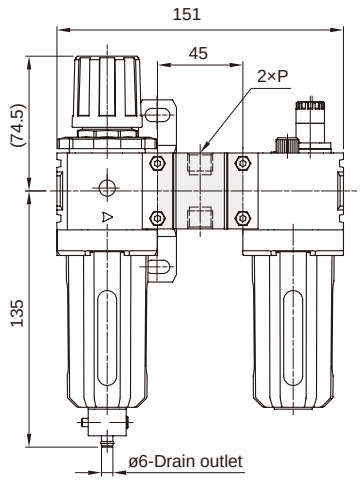


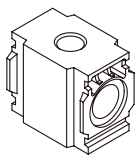
10A



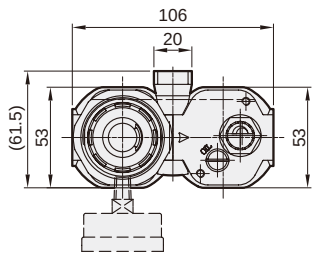
MACP300-T*

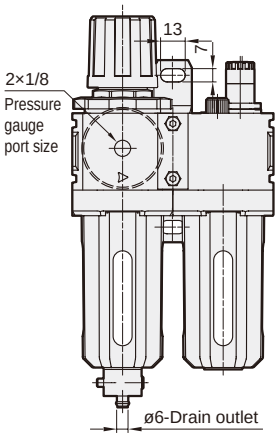
Module mounting bracket

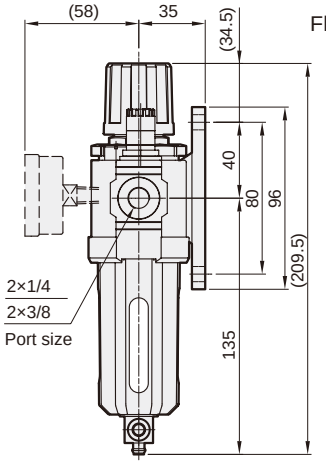




Port / Bracket	P
T8	1/4
T10	3/8







MACP300L series

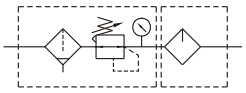
AIR UNIT (F.R.L.UNIT)



Features

Longer case for adapting high efficient auto drain valve.

Symbol



Specification

Model	MACP300L	
Components	MAFR300L, MAL300L	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Lubricating oil capacity	65c.c	
Min. flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), T-type bracket	
Weight	739 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

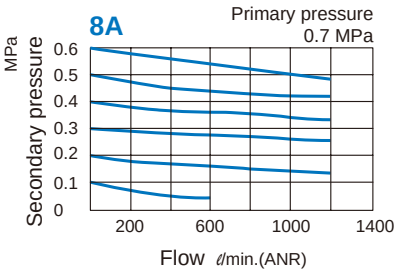
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

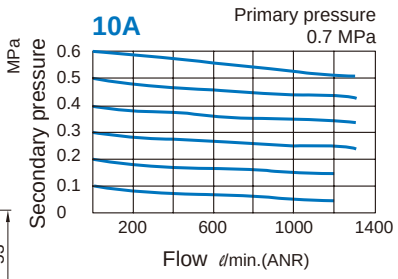
Order example

MACP300L – 8A – ND – □ – □ – □

- MODEL
- PORT SIZE: **8A**: 1/4; **10A**: 3/8
- BOWL: Blank: PC bowl; **N**: Nylon bowl
- FILTER ELEMENT: Blank: 5μm; **40u**: 40μm
- (Option) Module mounting bracket: **T8**: 1/4; **T10**: 3/8
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread
- Blank: Semi-auto drain; **D**: Auto drain valve (FMRF300)

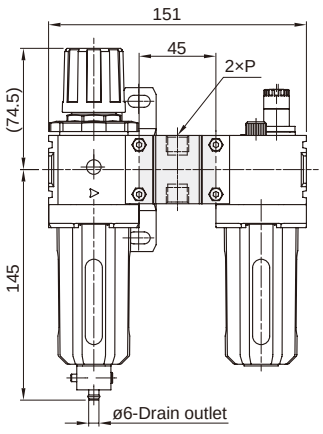
Flow feature

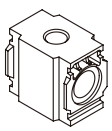




MACP300L-T*

Module mounting bracket

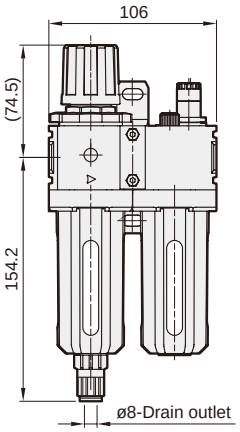


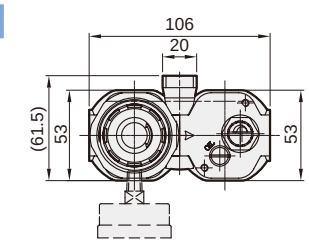


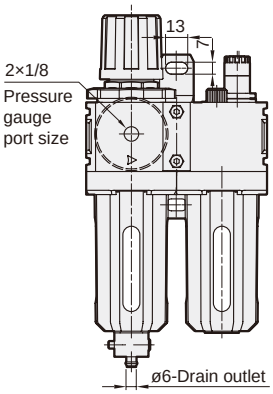
Port / Bracket	P
T8	1/4
T10	3/8

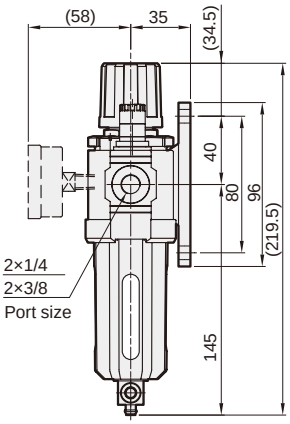
MACP300L-D

Auto drain valve









MACP302 series

AIR UNIT (F.R.L.UNIT)

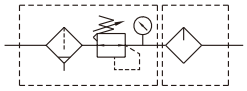
mindman





Option: **MP41**

Symbol



Specification

Model	MACP302		
Components	MAFR302, MAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Lubricating oil capacity	65c.c		
Min. flow for oil drip	50 ℓ/min	60 ℓ/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge(PG-20),T-type bracket		
Weight	845 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MACP302 – 8A – NC□ – E1 – □ – T8– □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
  - * Refer to page 5-13 for MP41.
- FILTER ELEMENT
  - Blank: 5μm
  - **40u**: 40μm
- (Option) BY-PASS PORT SIZE

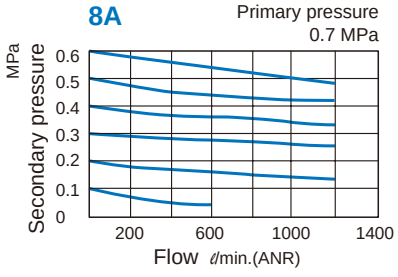
T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

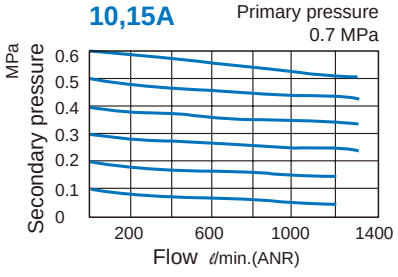
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature



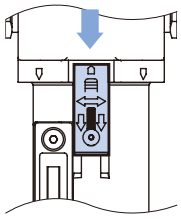


⚠ Caution

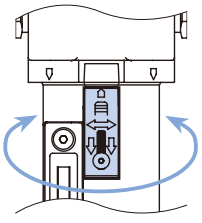
Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

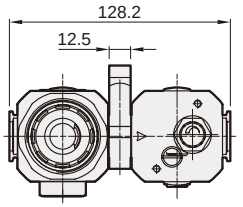
1.Sliding plate down

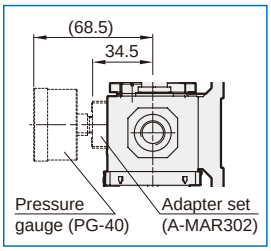


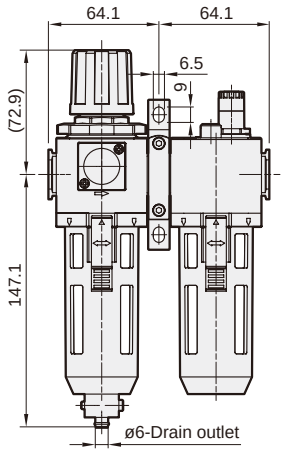
2. Rotating the bowl

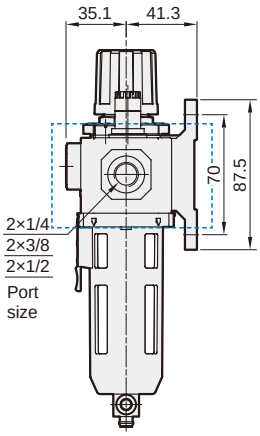


Accessories



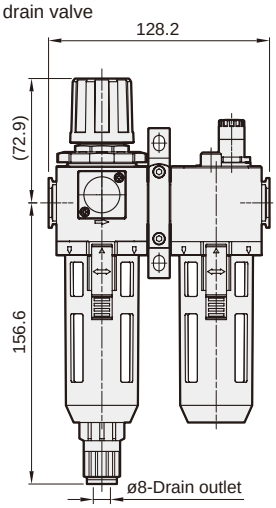






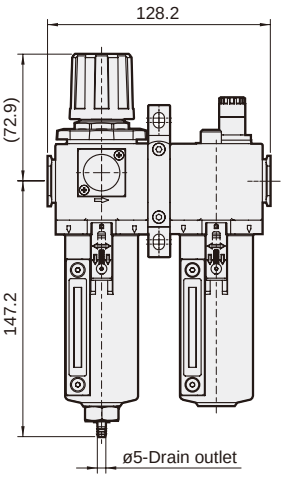
MACP302-D

Auto drain valve



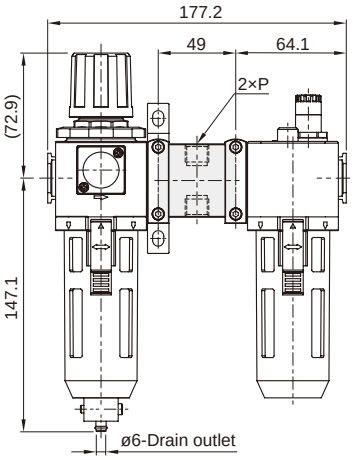
MACP302-M

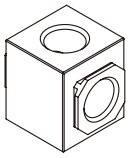
Metal bowl



MACP302-T*

T type bracket

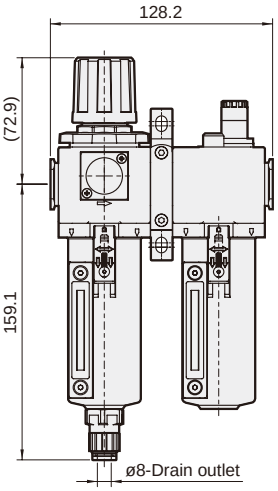




Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

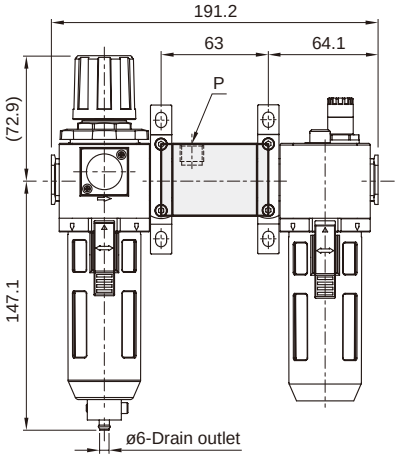
MACP302-MD

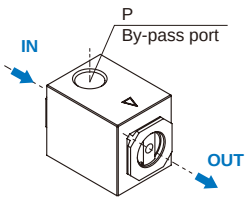
Metal bowl + Auto drain valve



MACP302-K*

Check valve





* Threads for **IN** and **OUT** ports are not machined.

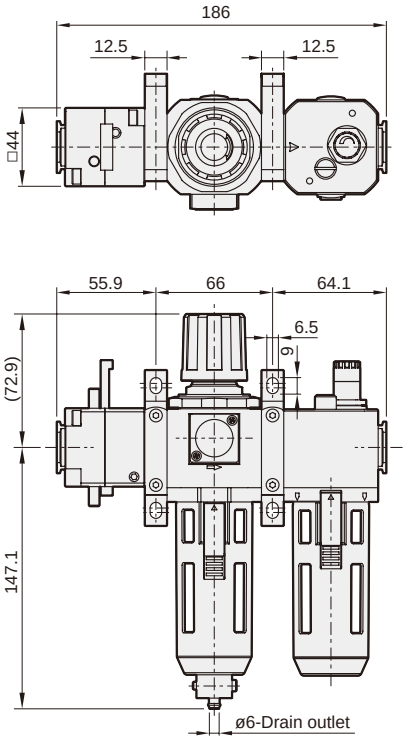
Port / Check valve	P
K8	1/4
K10	3/8

MACP302-HT With shutoff valve

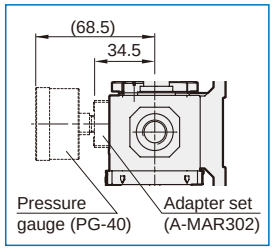
AIR UNIT (F.R.L.UNIT)

mindman





Accessories



Order example

MACP302 – 8A – NC□ – E1 – □ – HT– □

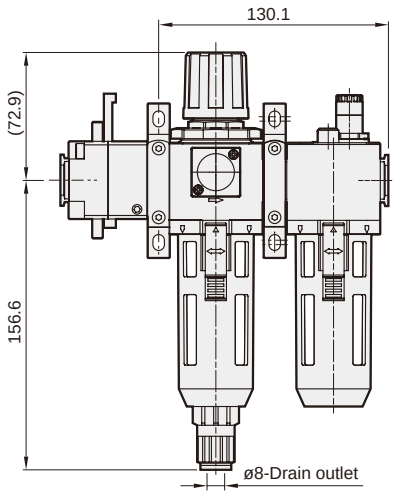
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
  - * Refer to page 5-13 for MP41.
- FILTER ELEMENT
  - Blank: 5μm
  - **40u**: 40μm
- SHUTOFF VALVE
  - **HT**: MVHT-302-3H
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

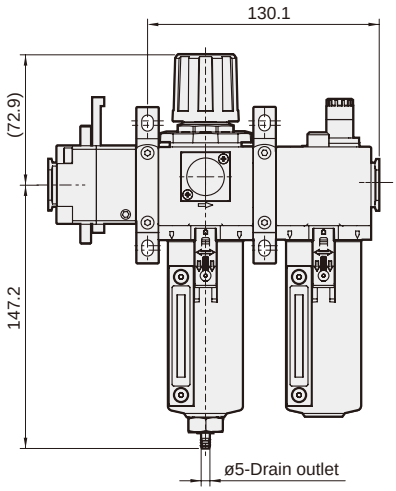
MACP302-D

Auto drain valve



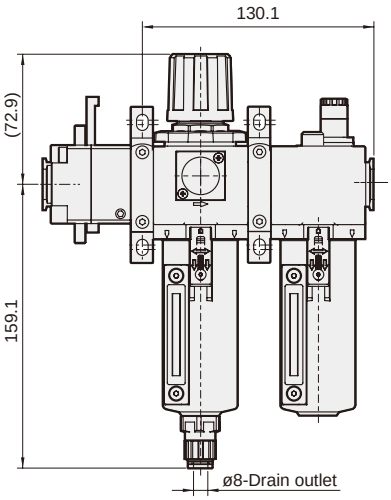
MACP302-M

Metal bowl



MACP302-MD

Metal bowl + Auto drain valve

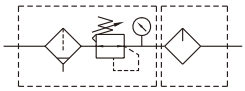


MACP400 series

AIR UNIT (F.R.L.UNIT)



Symbol



Specification

Model	MACP400		
Components	MAFR400, MAL400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	100 ℓ/min	200 ℓ/min	400 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-50), bracket		
Weight	2300 g		

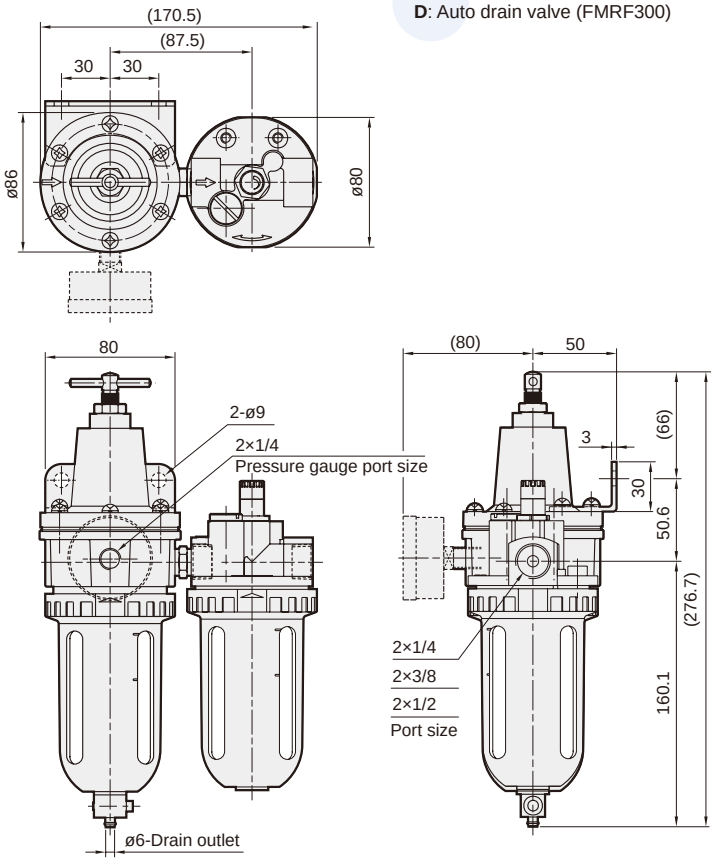
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

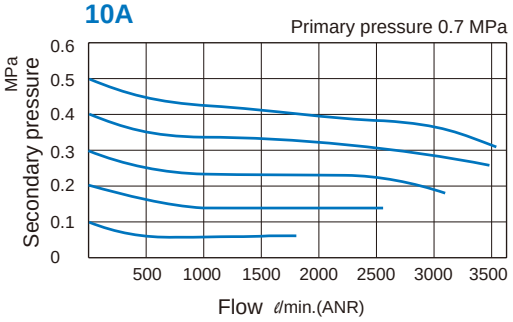
MACP400 – 8A – ND – □ – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- Blank: Semi-auto drain, **D**: Auto drain valve (FMRF300)

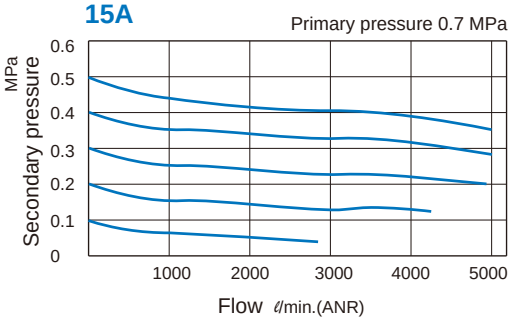


Flow feature

10A



15A



MACP401 series

AIR UNIT (F.R.L.UNIT)





Option: **MP41**

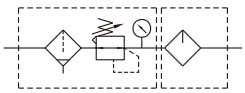
Specification

Model	MACP401		
Components	MAFR401, MAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa High pressure type: 0.1~1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1518 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MACP401– 8A – □ – HA□P – E1 – □ – T8 – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

(Option) **PRESSURE SWITCH**
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD
* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option) **BY-PASS PORT SIZE**

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

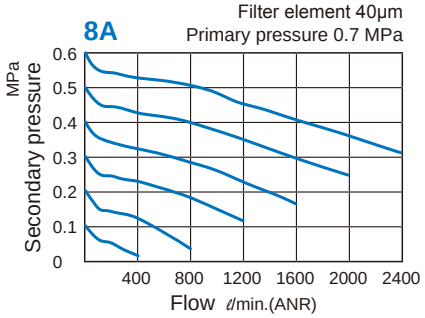
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

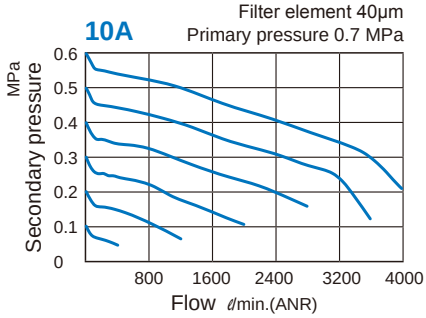
(Option) ACCESSORIES

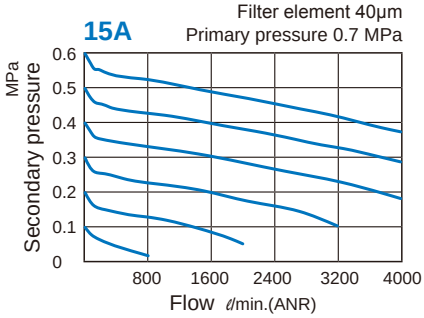
Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	–

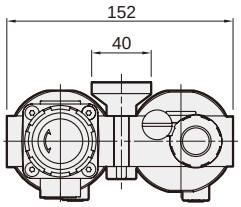
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

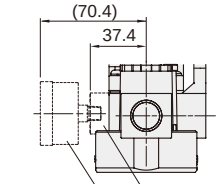


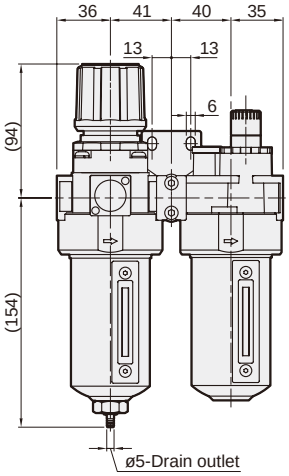


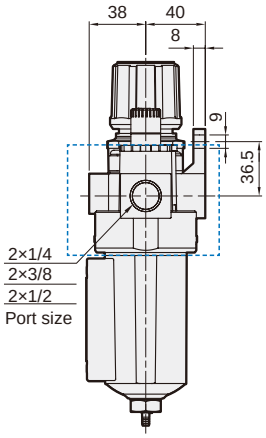




Accessories

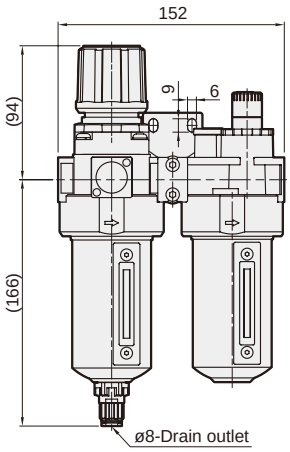






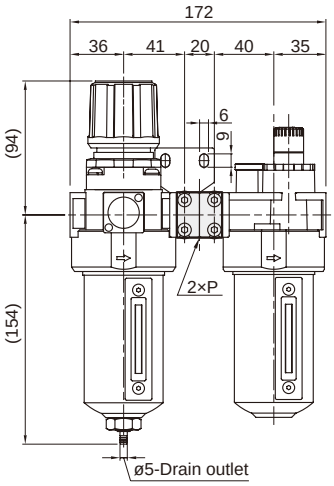
MACP401-D

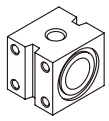
Auto drain valve



MACP401-T*

T type bracket

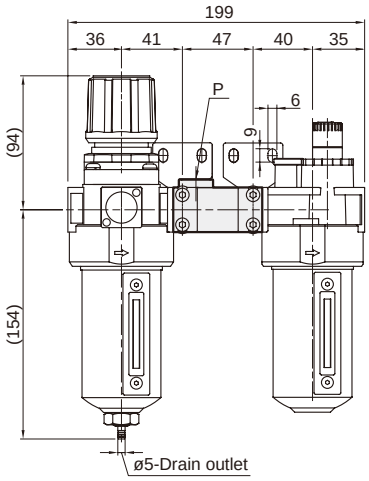


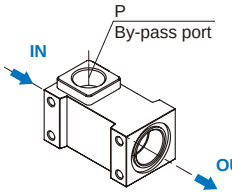


Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP401-K*

Check valve



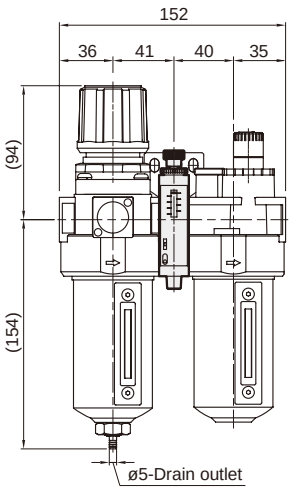


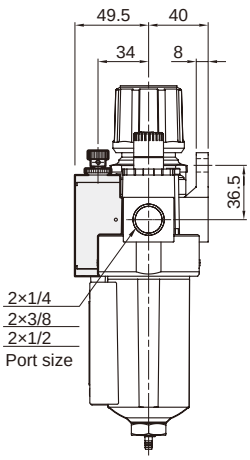
Port / Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

MACP401-P

MPS Series
pneumatic pressure switch

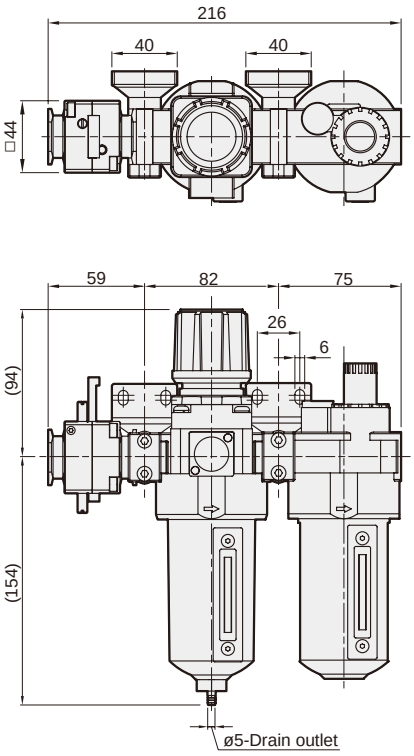




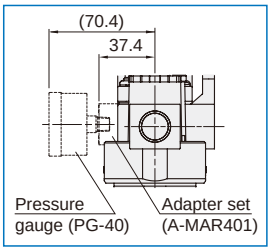
MACP401-HT With shutoff valve

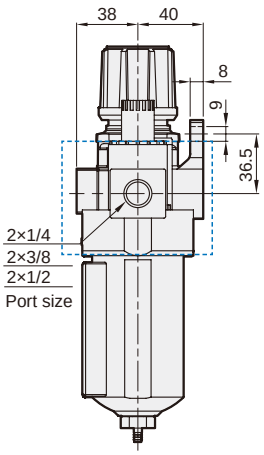
AIR UNIT (F.R.L.UNIT)





Accessories





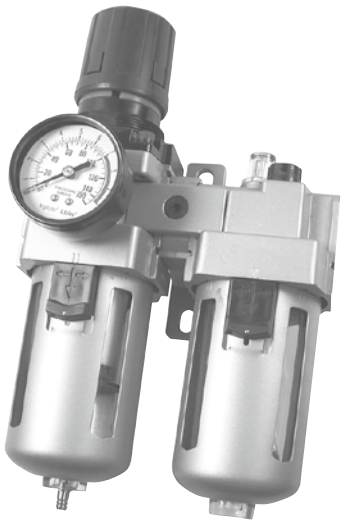
Order example

MACP401– 8A – □ – HA□P – E1 – □ – HT – □

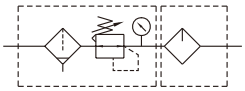
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- EXTERIOR COLOR
  - Blank: Black & silver
  - **W**: Gray & white
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
  - * Refer to page 5-13 for MP41.
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- SHUTOFF VALVE
  - **HT**: MVHT-400-3H
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	–

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).



Symbol



Specification

Model	MACP402		
Components	MAFR402, MAL402		
Bore No.	10A	15A	20A
Port size	3/8	1/2	3/4
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5,20μm		
Lubricating oil capacity	180c.c		
Min. flow for oil drip	200 ℓ/min		
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-50), bracket		
Weight	1846 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

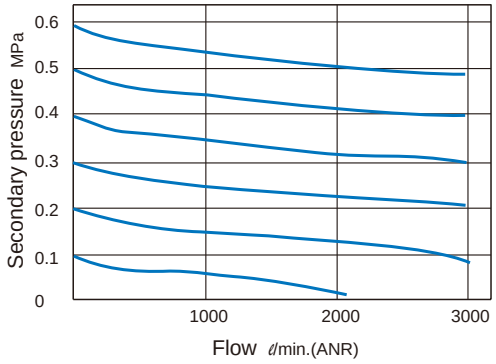
Order example

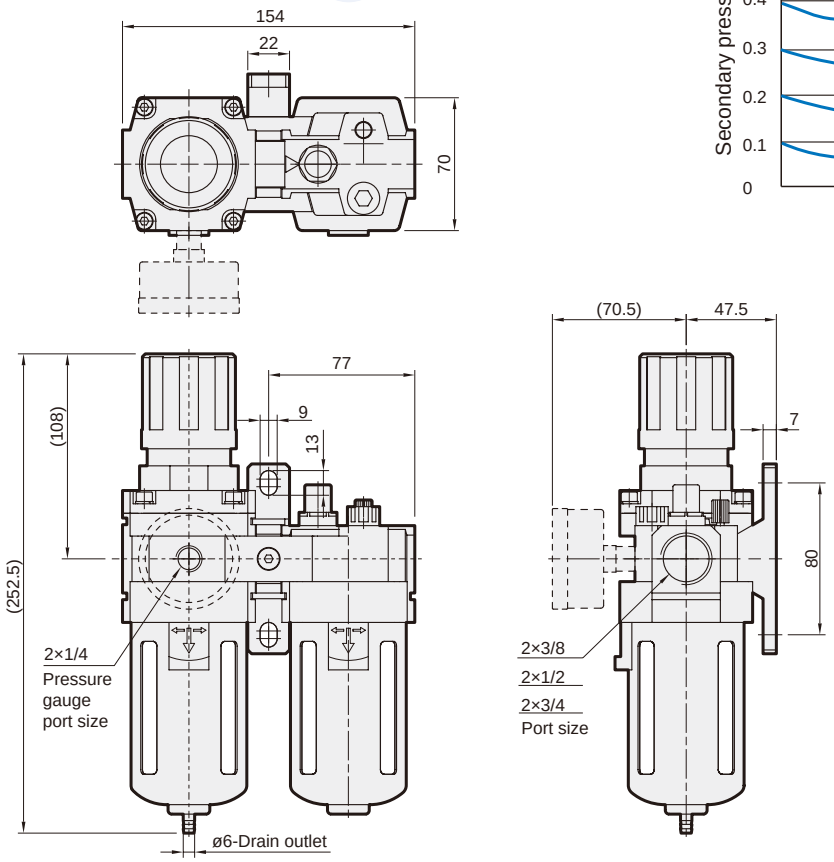
MACP402 – 20A – D – □ – □

- MODEL
- PORT SIZE
  - **10A**: 3/8
  - **15A**: 1/2
  - **20A**: 3/4
- Blank: Semi-auto drain
  D: Auto drain valve (YD401)
- FILTER ELEMENT
  - **Blank**: 40μm
  - **5u**: 5μm
  - **20u**: 20μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Flow feature

10A, 15A, 20A Primary pressure 0.7 MPa





MACP403 series

AIR UNIT (F.R.L.UNIT)





Option: **MP41**

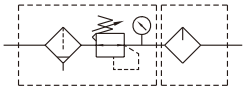
Specification

Model	MACP403		
Components	MAFR403, MAL403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1100 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MACP403 – 8A – NC□P – E1 – □ – T8 – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

(Option) **PRESSURE SWITCH**
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD
* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option) **BY-PASS PORT SIZE**

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

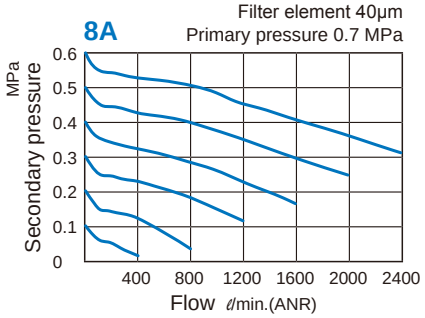
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

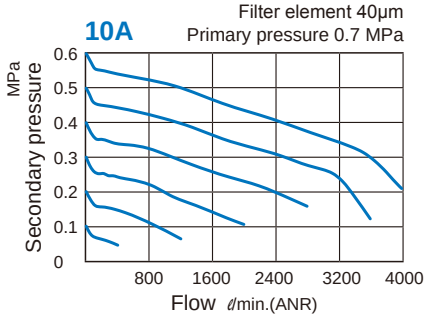
(Option) ACCESSORIES

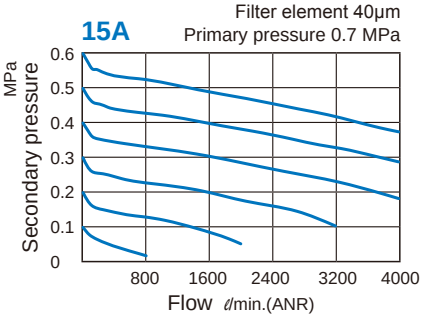
Bowl	Pressure gauge	Drain valve	Pressure switch
Blank: PC bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

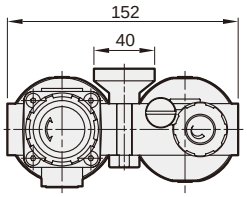
Flow feature

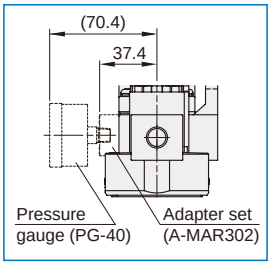


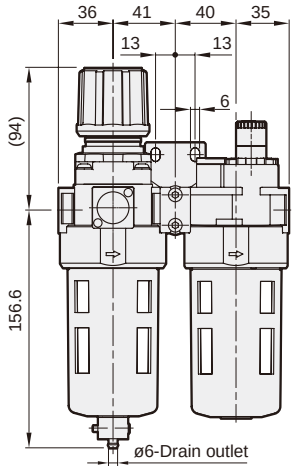


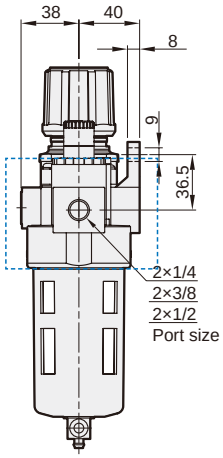


Accessories



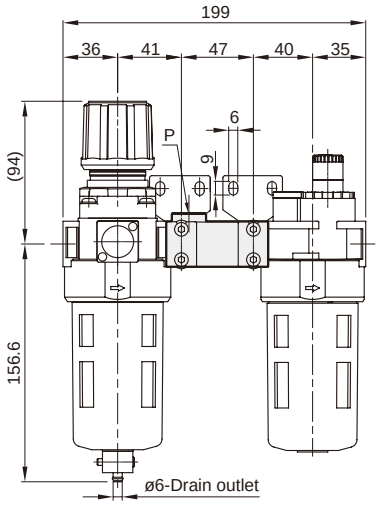


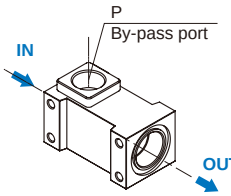




MACP403-K*

Check valve



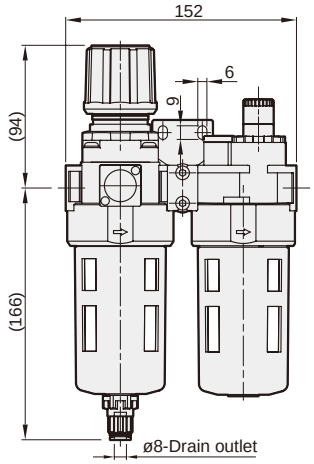


Port / Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

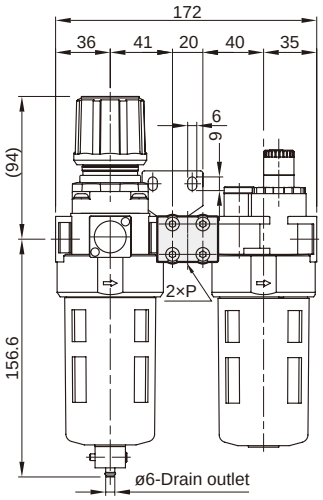
MACP403-D

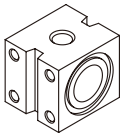
Auto drain valve



MACP403-T*

T type bracket

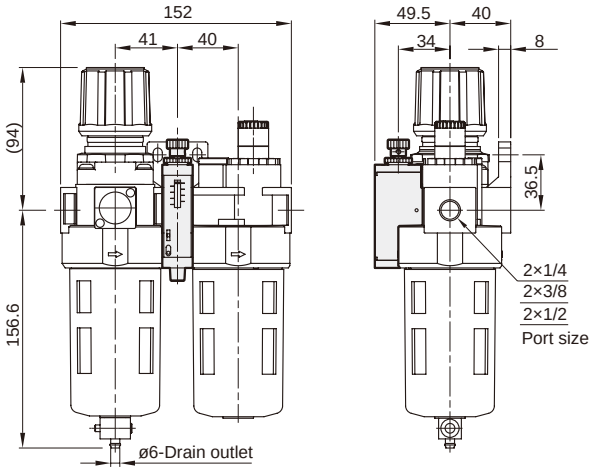




Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP403-P

MPS Series
pneumatic pressure switch



MACP501 series

AIR UNIT (F.R.L.UNIT)

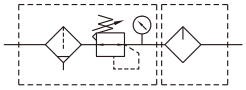
mindman





Option: **MP41**

Symbol



Specification

Model	MACP501	
Components	MAFR501, MAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	40μm	
Lubricating oil capacity	200c.c	
Min. flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-20), bracket	
Weight	Nylon bowl, PC bowl: 3480 g	
	Metal bowl: 3720 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

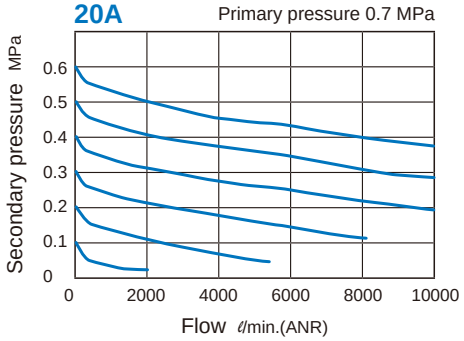
MACP501 – 20A – MC□ – E1 – T8 – □

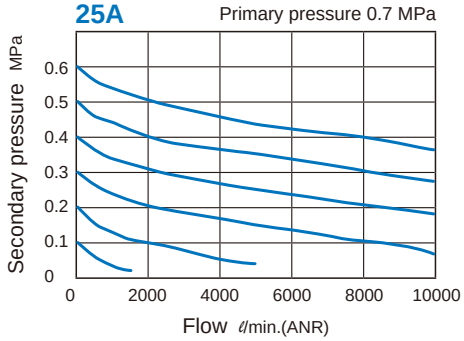
- MODEL
- PORT SIZE
  - **20A**: 3/4
  - **25A**: 1
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
  - * Refer to page 5-13 for MP41.
- (Option) Module mounting bracket
  - **T8**: 1/4
  - **T10**: 3/8
  - **T15**: 1/2
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

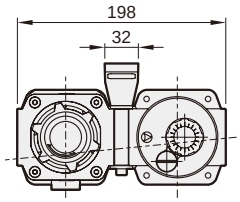
Bowl	Pressure gauge	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

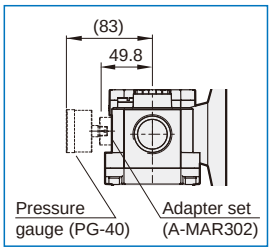
Flow feature

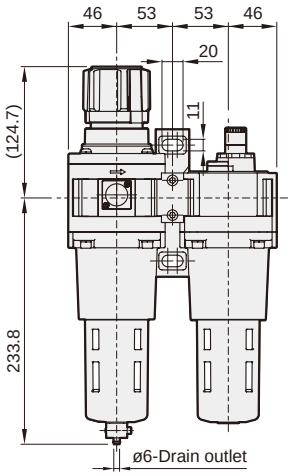


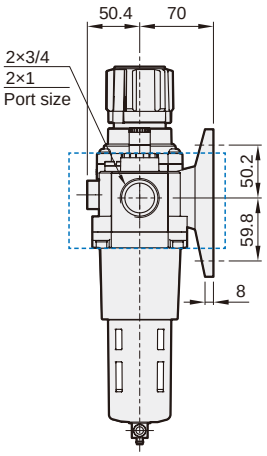




Accessories

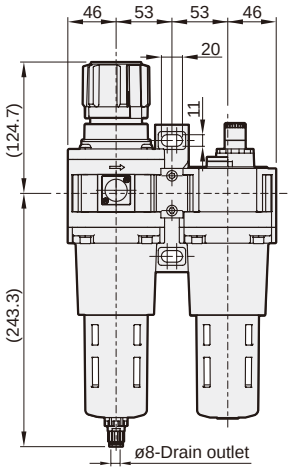






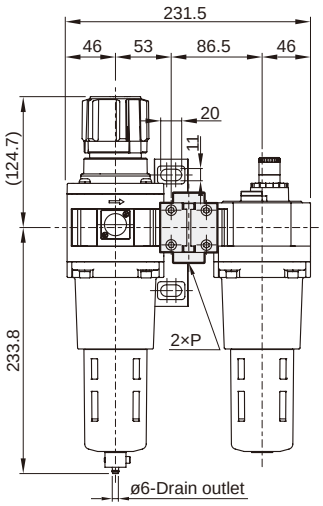
MACP501-D

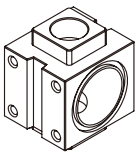
Auto drain valve



MACP501-T*

T type bracket

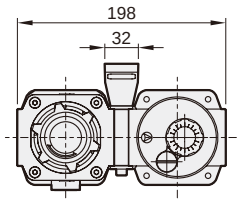


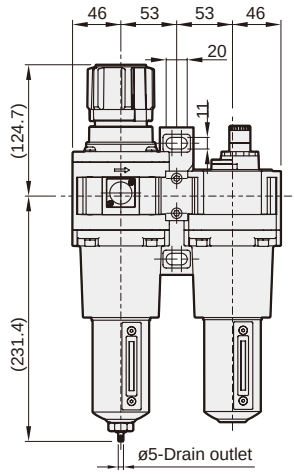


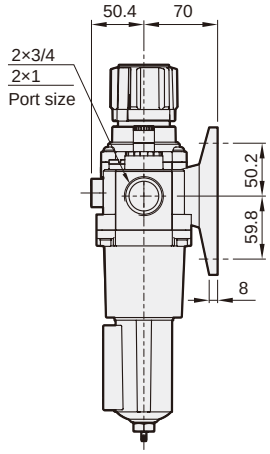
Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP501-M

Metal bowl

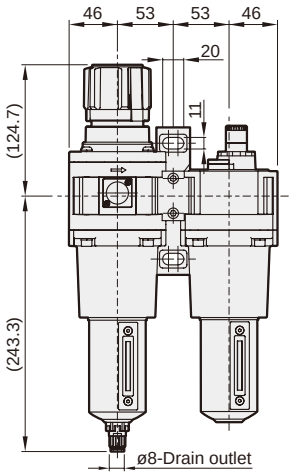


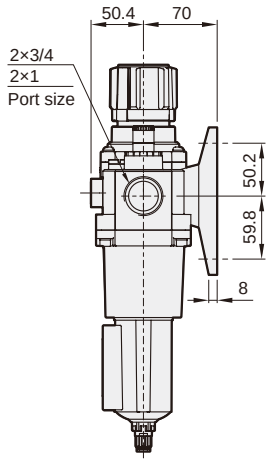




MACP501-MD

Metal bowl + auto drain valve



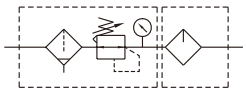


MACC300 series

AIR UNIT (F.R.L.UNIT)



Symbol



Specification

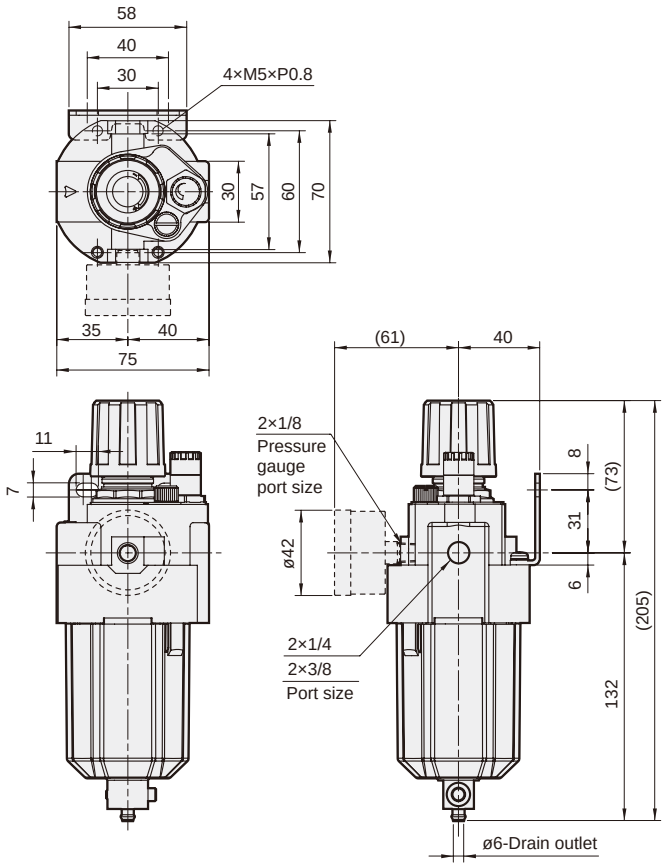
Model	MACC300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Effective orifice	28mm^2	30mm^2
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Lubricating oil capacity	50c.c	
Min. flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), L-type bracket	
Weight	660 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

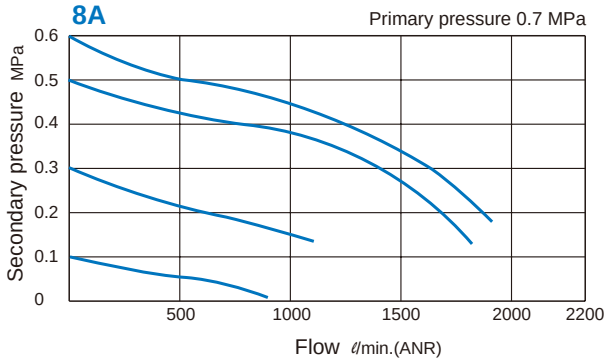
Order example

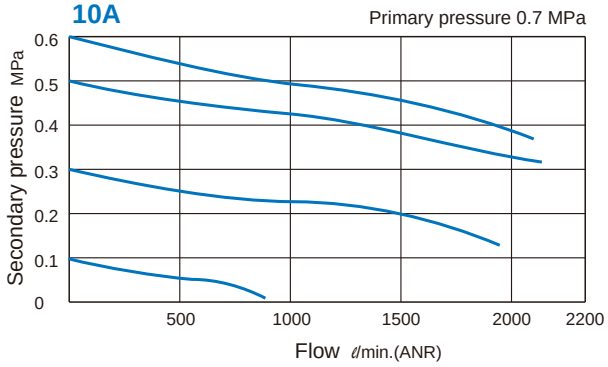
MACC300 – 8A – □ – □

- MODEL
- PORT SIZE — **8A**: 1/4, **10A**: 3/8
- FILTER ELEMENT — Blank: 5μm, **40u**: 40μm
- PORT THREAD — Blank: Rc thread, **G**: G thread, **NPT**: NPT thread



Flow feature



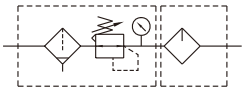




MACT200L



Symbol



Specification

Model	MACT200	
Components	MAF200, MAR201, MAL200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 40μm, Option: 5μm	
Lubricating oil capacity	20c.c, 35c.c (MACT200L)	
Min. flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), L-type bracket	
Weight	505 g, 465 g (MACT200L)	

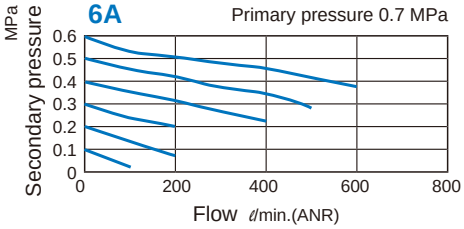
* Standard unit contains auto-drain function when operating pressure below 0.05 MPa.

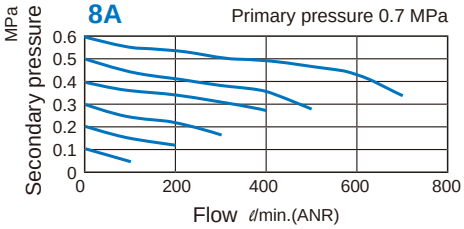
Order example

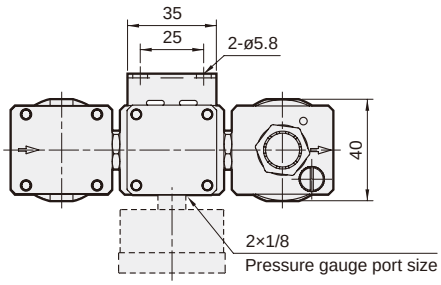
MACT200L – 8A – □ – □ – B – □

- MACT200L – MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- 8A – PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- □ – Blank: PC bowl / **M**: Metal bowl (*) / **N**: Nylon bowl
  - * Only for 200L.
- □ – FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- B – BRACKET
  - Blank: L type
  - **B**: T type
- □ – PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Flow feature

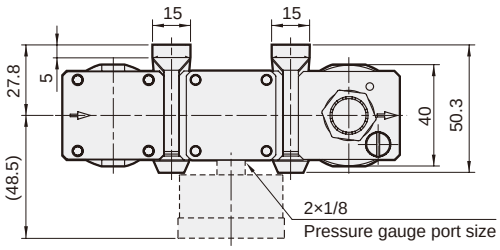


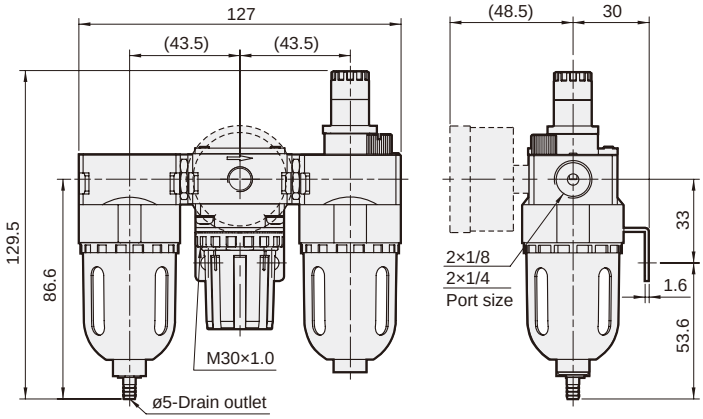


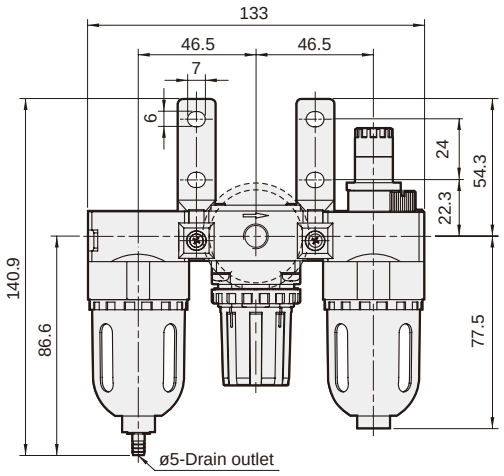


MACT200-B

T type bracket

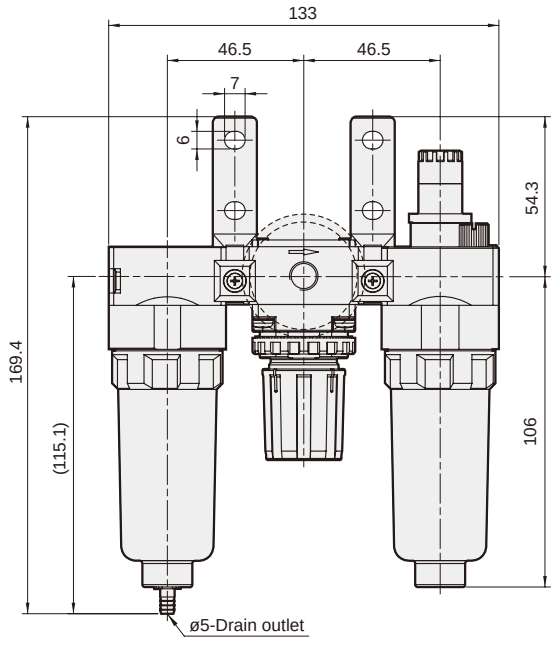






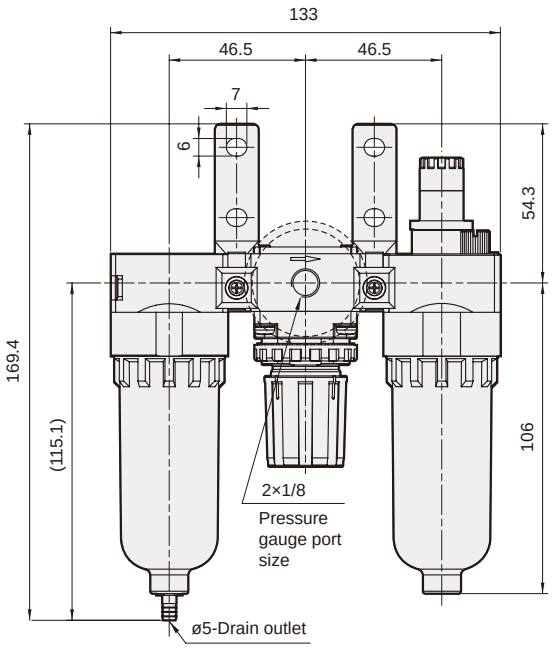
MACT200L-M-B

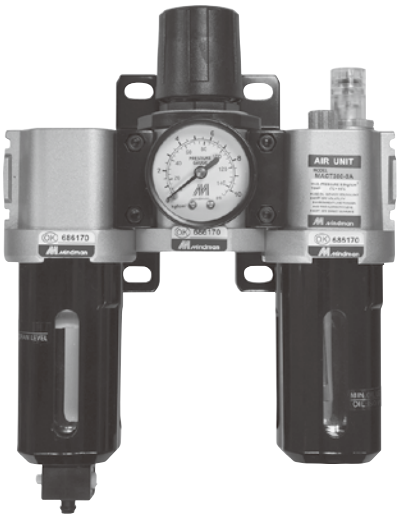
Metal bowl + T type bracket



MACT200L-B

T type bracket



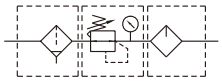


Specification

Model	MACT300	
Components	MAF300, MAR301, MAL300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Effective orifice	32mm^2	34mm^2
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Lubricating oil capacity	55c.c	
Min. flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), T-type bracket	
Weight	944 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Symbol



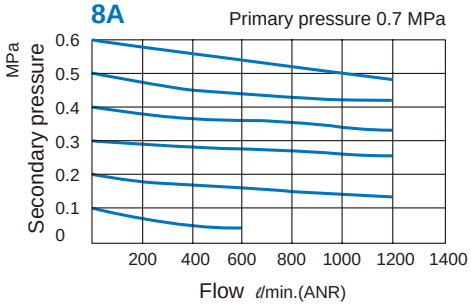
Order example

MACT300 – 8A – □ – □ – □ – □

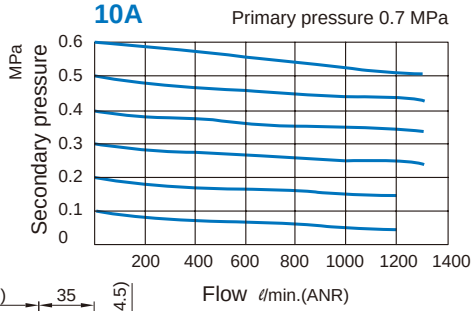
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- FILTER ELEMENT: Blank: 5μm, **40u**: 40μm
- (Option) Module mounting bracket: **T8**: 1/4, **T10**: 3/8
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Flow feature

8A

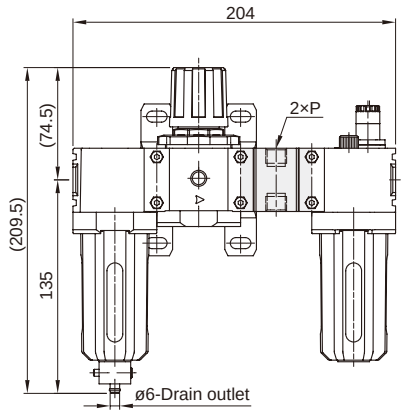


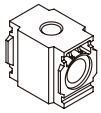
10A



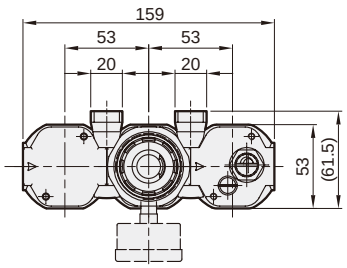
MACT300-T*

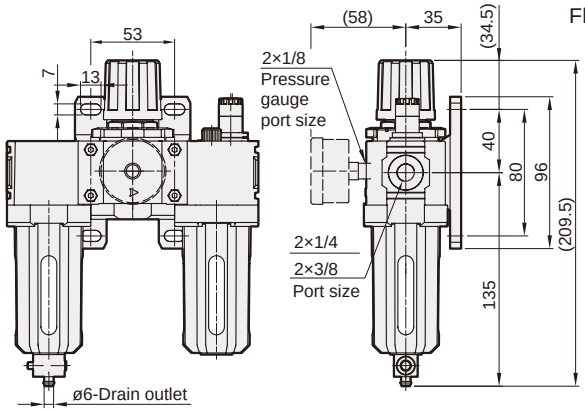
Module mounting bracket





Port / Bracket	P
T8	1/4
T10	3/8





MACT300L series

AIR UNIT (F.R.L.UNIT)



Specification

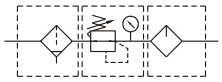
Model	MACT300	
Components	MAF300L, MAR301, MAL300L	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Effective orifice	32mm^2	34mm^2
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Lubricating oil capacity	65c.c	
Min. flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge(PG-40), T-type bracket	
Weight	959 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Features

Longer case for adapting
high efficient auto drain valve.

Symbol

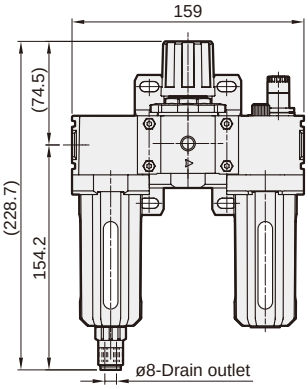


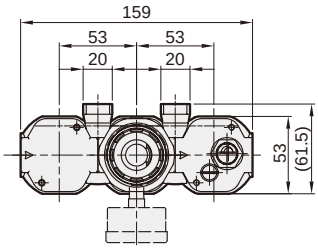
Order example

MACT300L – 8A – ND – □ – T8 – □

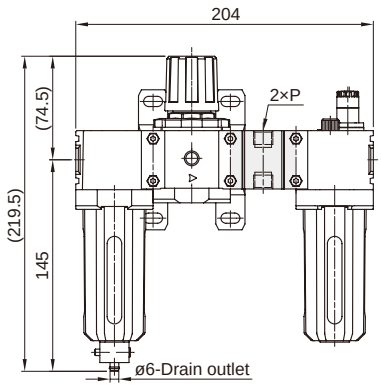
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- Blank: Semi-auto drain, **D**: Auto drain valve (FMRF300)
- FILTER ELEMENT: Blank: 5μm, **40u**: 40μm
- (Option) Module mounting bracket: **T8**: 1/4, **T10**: 3/8
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

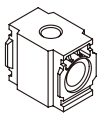
MACT300L-D Auto drain valve



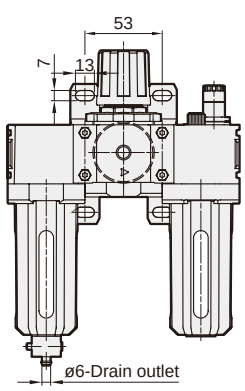


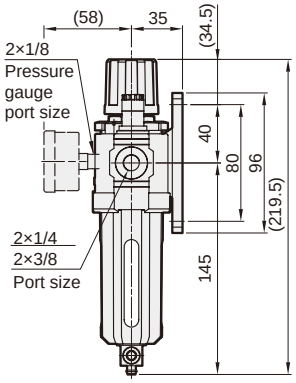
MACT300L-T* Module mounting bracket





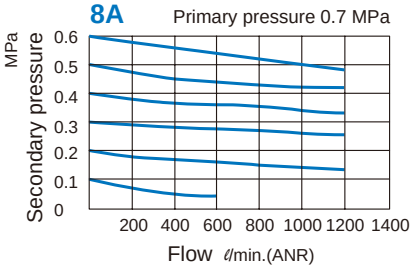
Port / Bracket	P
T8	1/4
T10	3/8



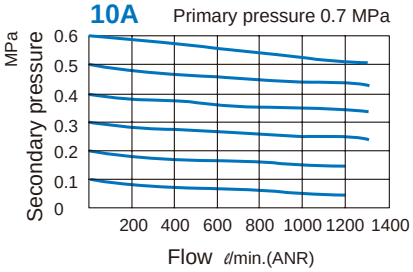


Flow feature

8A Primary pressure 0.7 MPa



10A Primary pressure 0.7 MPa



MACT302 series

AIR UNIT (F.R.L.UNIT)





Option: **MP41**

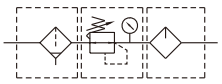
Specification

Model	MACT302		
Components	MAF302, MAR302, MAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Effective orifice	32mm^2	34mm^2	
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Lubricating oil capacity	65c.c		
Min. flow for oil drip	50 l/min	60 l/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), T-type bracket		
Weight	1115 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MACT302 – 8A – NC□ – E1 – □ – T8– □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

(Option) PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD
* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 5μm
40u: 40μm

(Option) BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

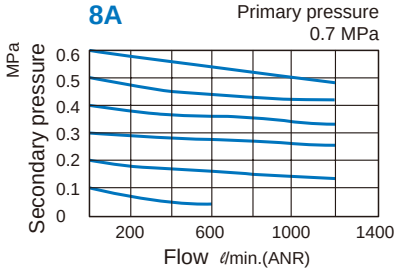
(Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

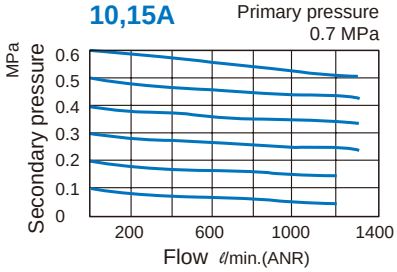
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

8A Primary pressure 0.7 MPa



10,15A Primary pressure 0.7 MPa

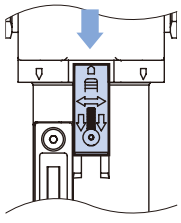


Caution

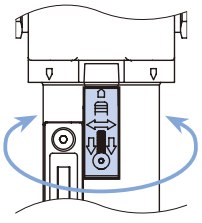
Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1.Sliding plate down

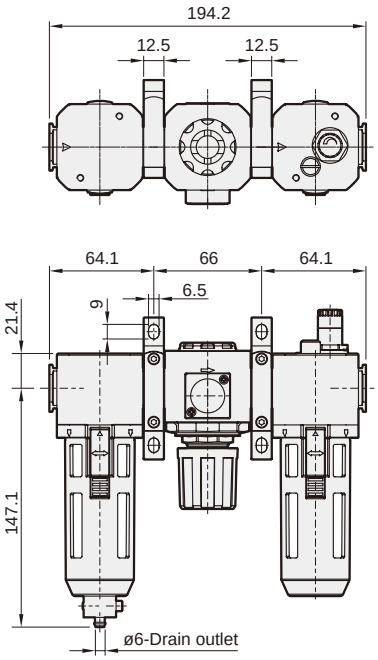


2. Rotating the bowl

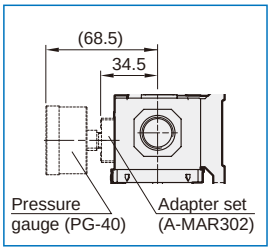


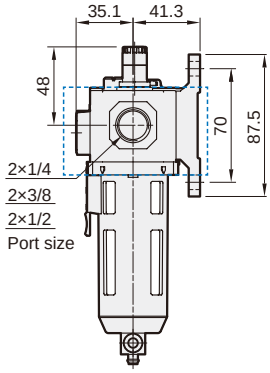
MACT302 Dimensions

AIR UNIT (F.R.L.UNIT)



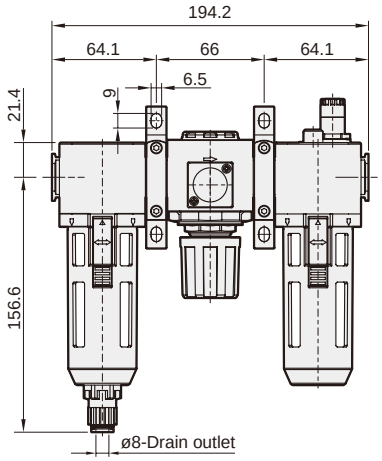
Accessories





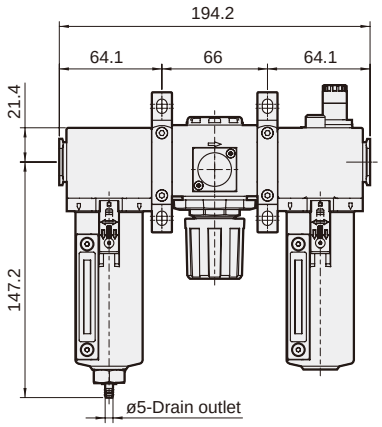
MACT302-D

Auto drain valve



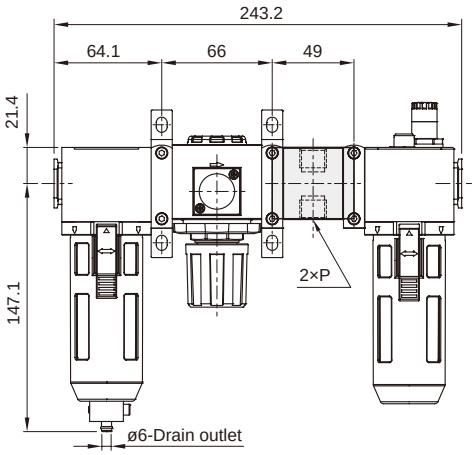
MACT302-M

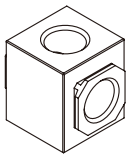
Metal bowl



MACT302-T*

T type bracket

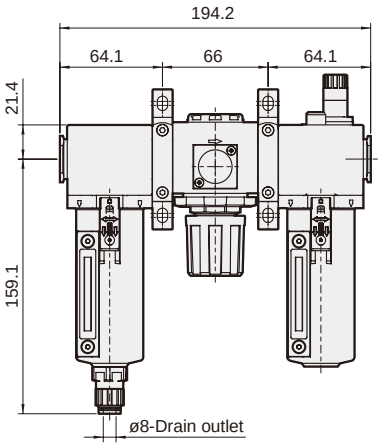




Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

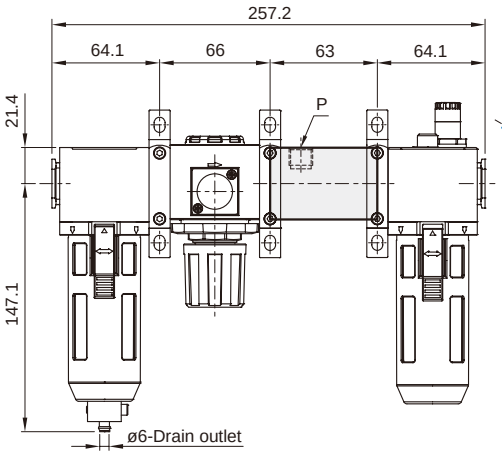
MACT302-MD

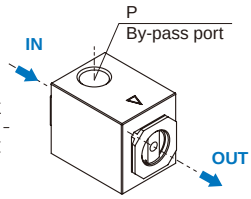
Metal bowl + Auto drain valve



MACT302-K*

Check valve





* Threads for **IN** and **OUT** ports are not machined.

Port / Check valve	P
K8	1/4
K10	3/8

MACT400 series

AIR UNIT (F.R.L.UNIT)



Specification

Model	MACT400		
Components	MAF400, MAR400, MAL400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Effective orifice	24mm^2	35mm^2	40mm^2
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	100 ℓ/min	200 ℓ/min	400 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-50), bracket		
Weight	2000 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

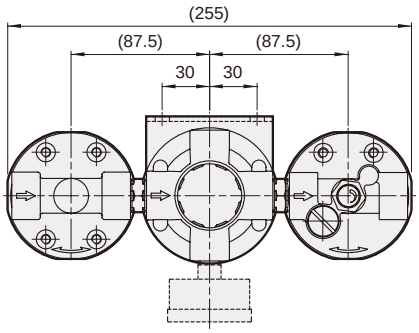
Symbol

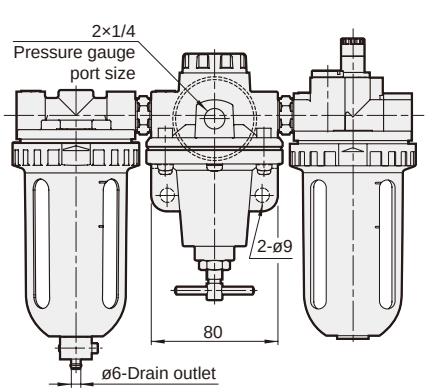


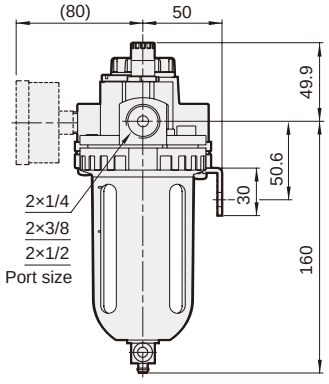
Order example

MACT400 – 8A – ND – □ – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- Blank: Semi-auto drain, **D**: Auto drain valve (FMRF300)

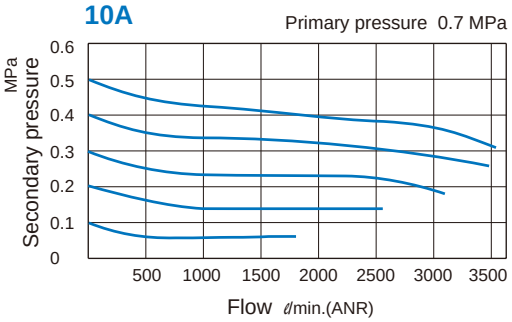




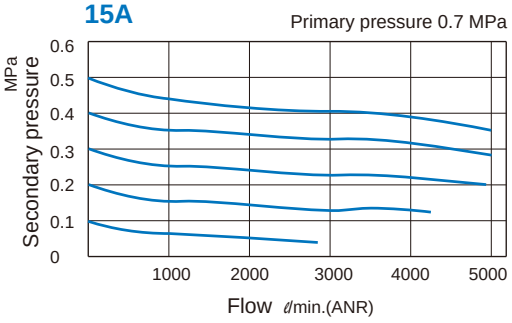


Flow feature

10A



15A



MACT401 series

AIR UNIT (F.R.L.UNIT)





Option: **MP41**

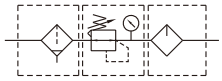
Specification

Model	MACT401		
Components	MAF401, MAR401, MAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard: 0.1~0.85 MPa High pressure: 0.1~1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1812 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MACT401 – 8A – □ – HA□P – E1 – □ – T8 – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

(Option) PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD
* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option) BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

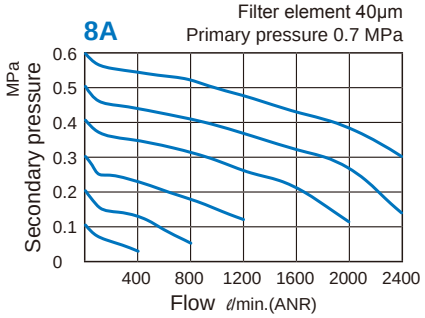
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

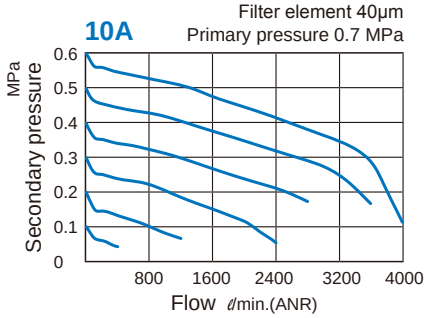
(Option) ACCESSORIES

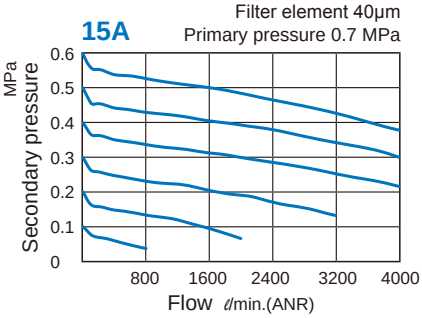
Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	–

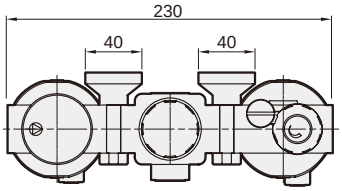
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

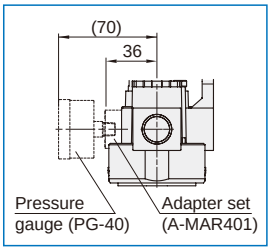


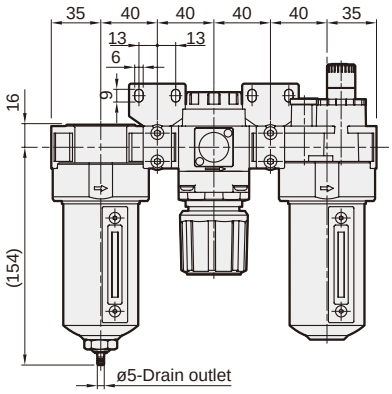


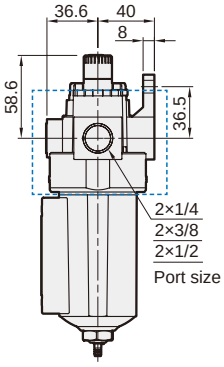




Accessories

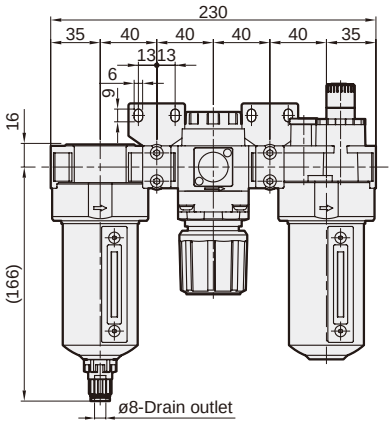






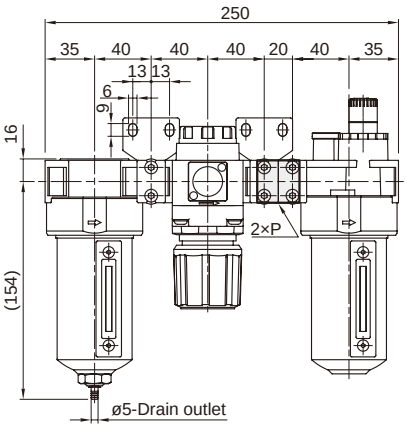
MACT401-D

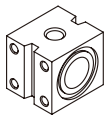
Auto drain valve



MACT401-T*

T type bracket

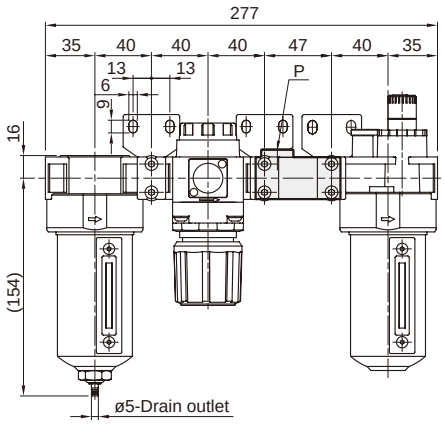


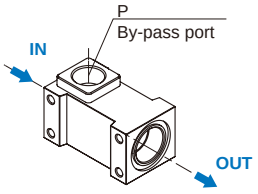


Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACT401-K*

Check valve



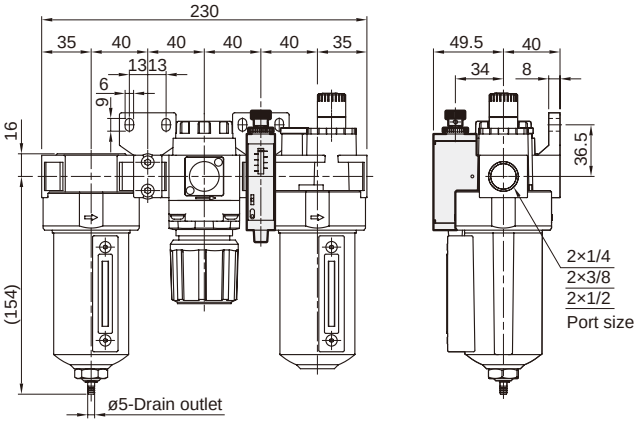


Port / Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

MACT401-P

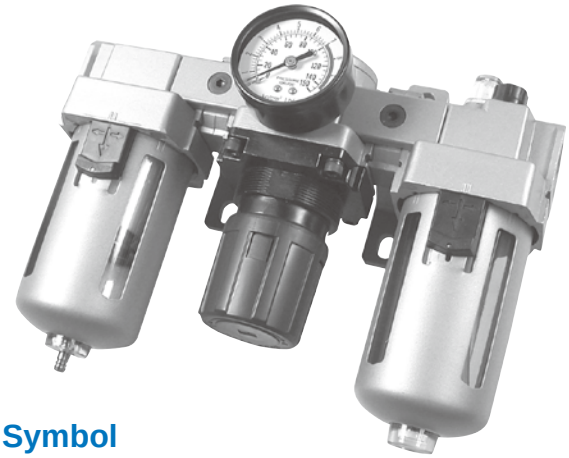
MPS Series
pneumatic pressure switch



MACT402 series

AIR UNIT (F.R.L.UNIT)

mindman

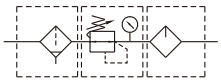


Specification

Model	MACT402		
Components	MAF402, MAR402, MAL402		
Bore No.	10A	15A	20A
Port size	3/8	1/2	3/4
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5,20μm		
Lubricating oil capacity	180c.c		
Min. flow for oil drip	200 ℓ/min		
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-50), bracket		
Weight	2392 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Symbol

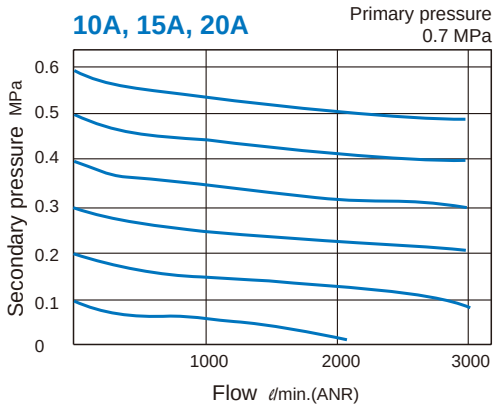


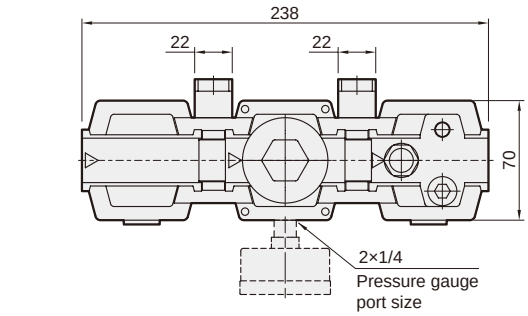
Order example

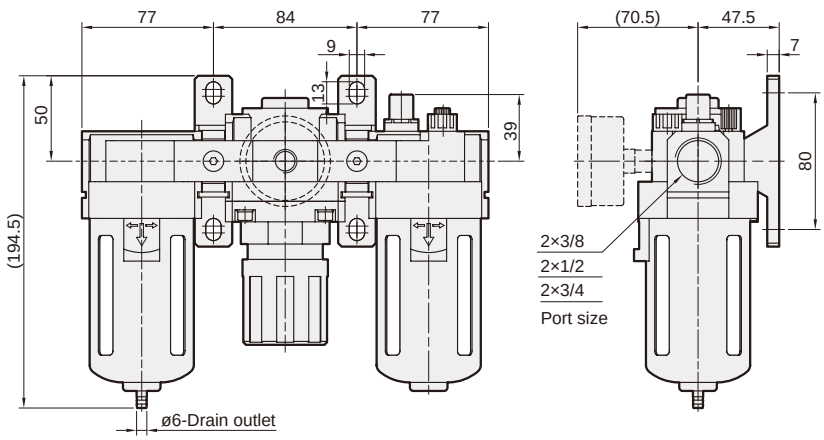
MACT402 – 20A – D – □ – □

- MODEL
- PORT SIZE: **10A**: 3/8, **15A**: 1/2, **20A**: 3/4
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm, **20u**: 20μm
- Blank: Semi-auto drain, **D**: Auto drain valve (YD401)
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Flow feature











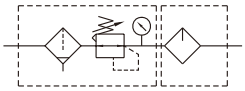
Option: **MP41**

Specification

Model	MACT403		
Components	MAF403, MAR403, MAL403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1345 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MACT403 – 8A – NC□P – E1 – □ – T8 – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

(Option) PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD
* Refer to page 5-13 for MP41.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option) BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

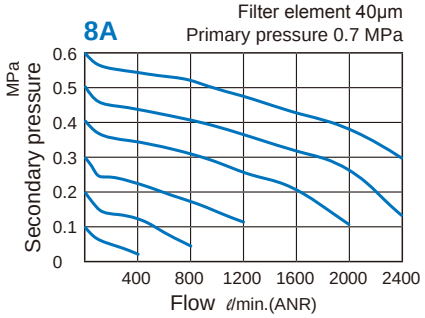
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

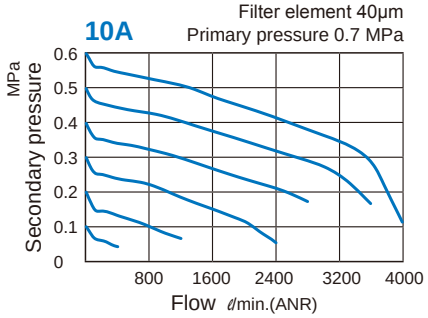
(Option) ACCESSORIES

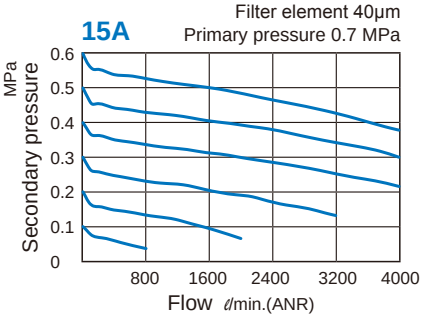
Bowl	Pressure gauge	Drain valve	Pressure switch
Blank: PC bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)

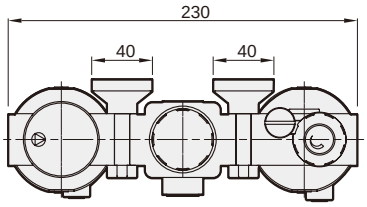
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

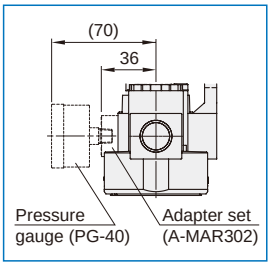


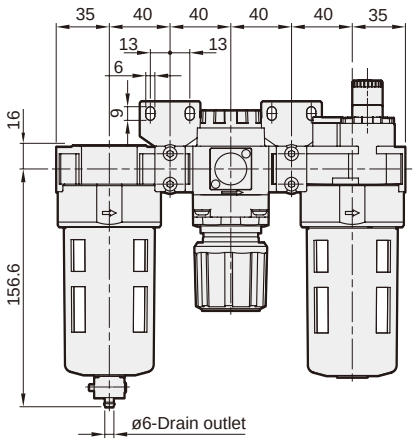


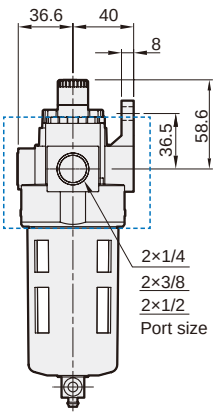




Accessories

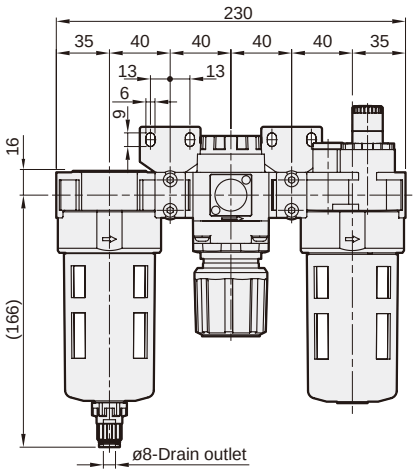






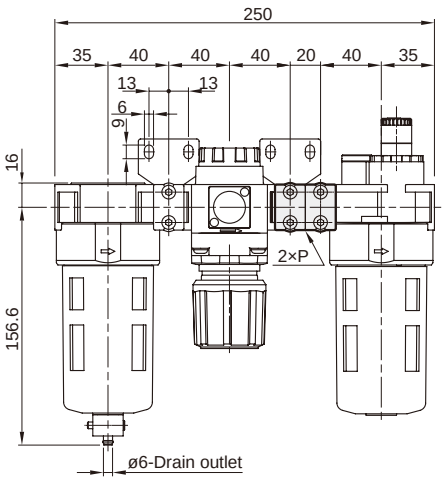
MACT403-D

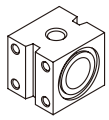
Auto drain valve



MACT403-T*

T type bracket

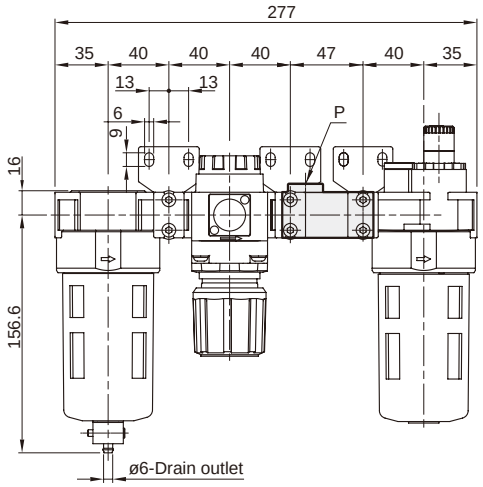


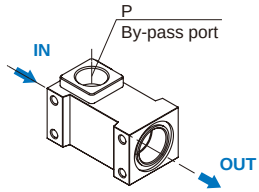


Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACT403-K*

Check valve



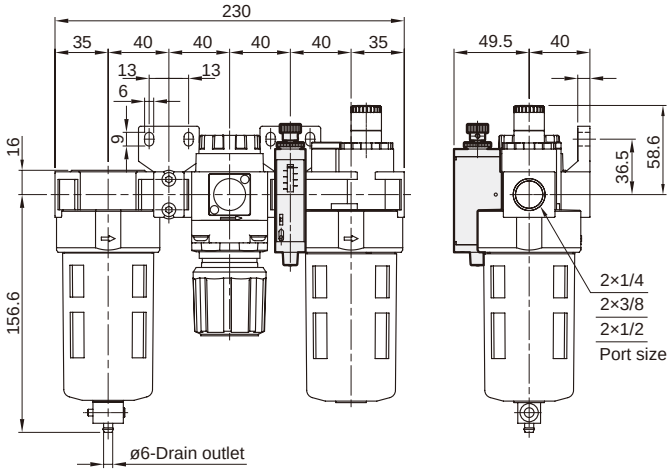


Port / Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

MACT403-P

MPS Series
pneumatic pressure switch



MACT501 series

AIR UNIT (F.R.L.UNIT)





Option: **MP41**

Specification

Model	MACP501	
Components	MAF501, MAR501, MAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	40μm	
Lubricating oil capacity	200c.c	
Min. flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-20), bracket	
Weight	Nylon bowl, PC bowl: 4200 g	
	Metal bowl: 4440 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MACT501 – 20A – MC□ – E1 – T8 – □

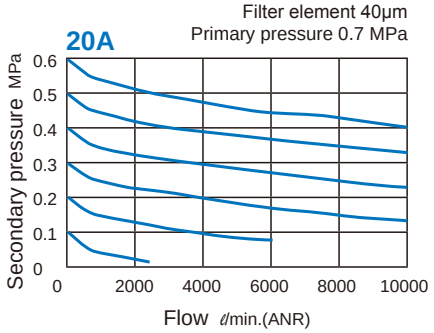
- MODEL
- PORT SIZE
  - **20A**: 3/4
  - **25A**: 1
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
- (Option) Module mounting bracket
  - **T8**: 1/4
  - **T10**: 3/8
  - **T15**: 1/2
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

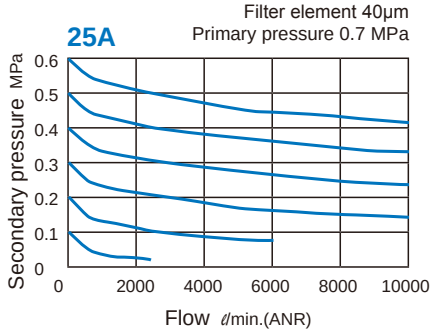
* Refer to page 5-13 for MP41.

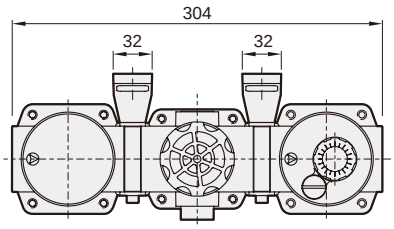
Bowl	Pressure gauge	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

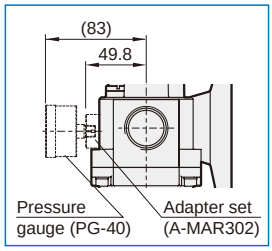
Flow feature





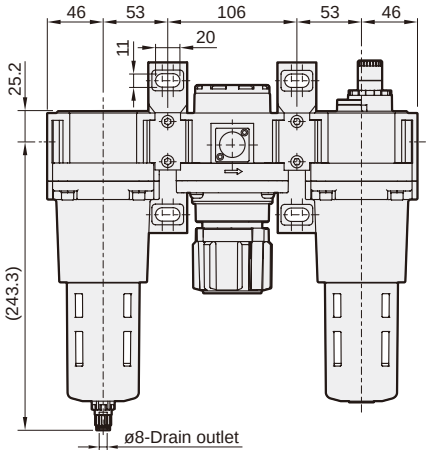


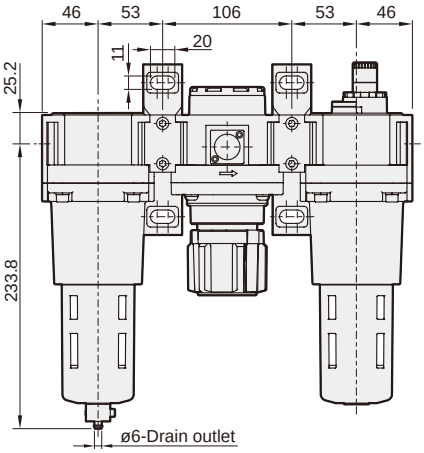
Accessories

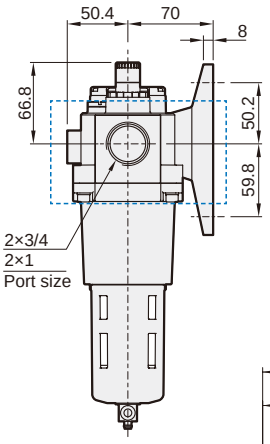


MACT501-D

Auto drain valve

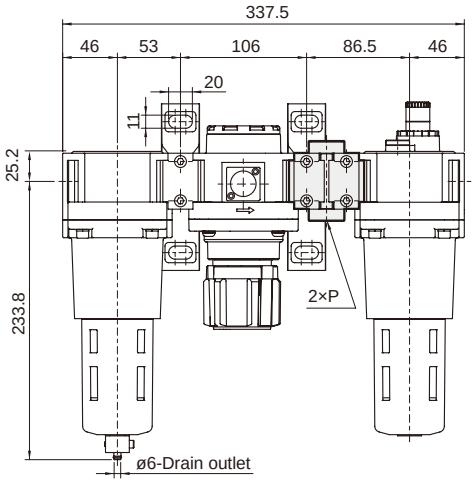


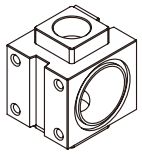




MACT501-T*

T type bracket

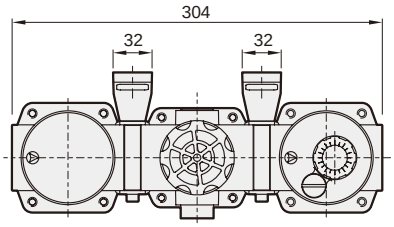




Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

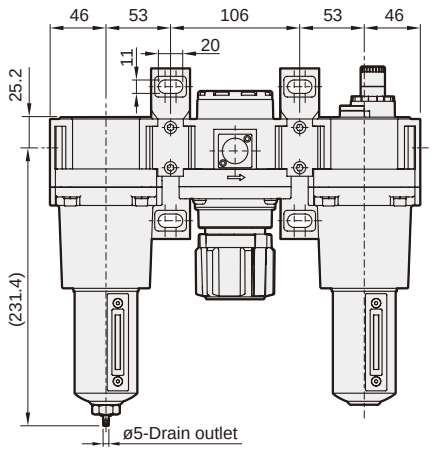
MACT501-M

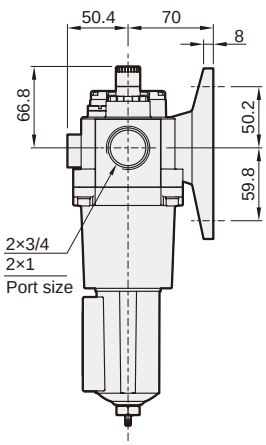
Metal bowl

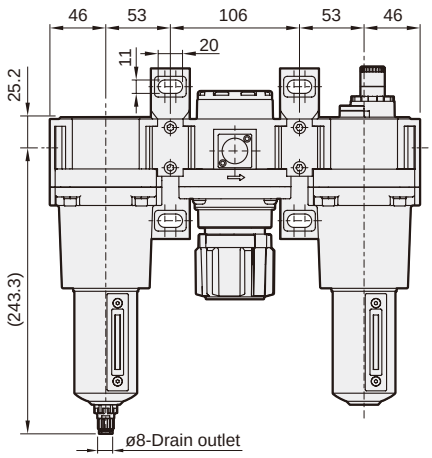


MACT501-MD

Metal bowl + auto drain valve

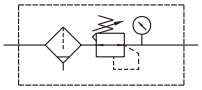








Symbol



Specification

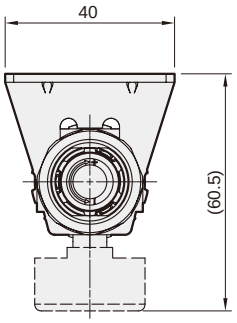
Model	MAFR100
Port size	M5×0.8
Medium	Air
Operating perssure range (*)	0.05~1 MPa
Proof pressure	1.5 MPa
Regulated pressure range	0.05~0.7 MPa
Ambient temperature	– 5~+60°C (No freez ing)
Filter element	Standard: 5μm, Option: 40μm
Drain capacity	3.5 cm^3
Attachment	Pressure gauge (PG-25), bracket
Weight	130 g

*Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

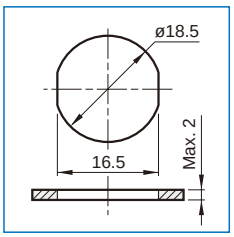
Order example

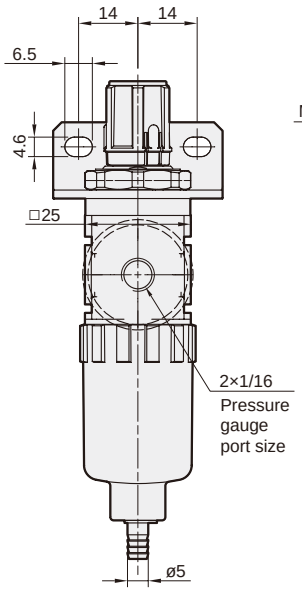
MAFR100 — M5 — □

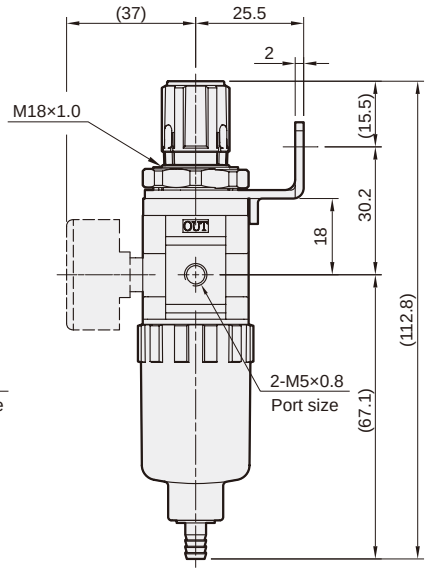
- MODEL
- PORT SIZE
- FILTER ELEMENT
  - Blank: 5μm
  - **40u**: 40μm



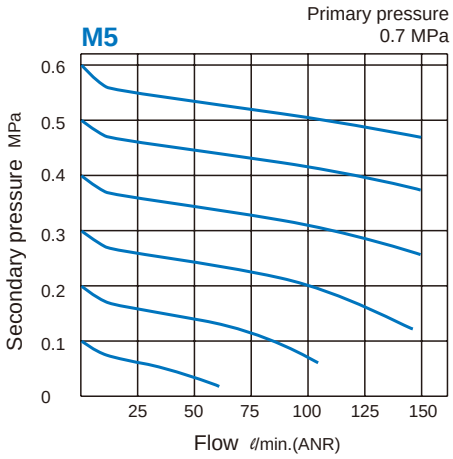
Panel mounting hole







Flow feature

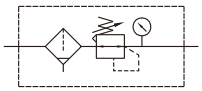




MAFR200L



Symbol



Specification

Model	MAFR200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	Standard: 0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 40μm, Option: 5 μm	
Drain capacity	9.5 cm^3, 25 cm^3 (MAFR200L)	
Attachment	Pressure gauge (PG-40), L-type bracket	
Weight	257 g, 226 g (MAFR200L)	

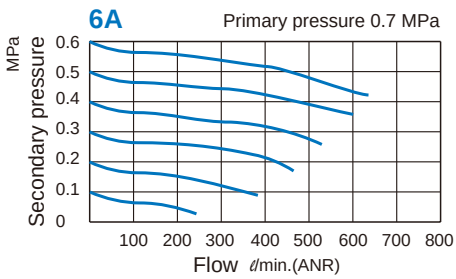
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

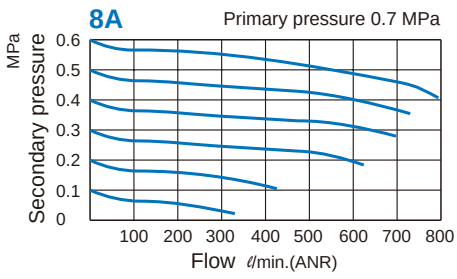
Order example

MAFR200L – 6A – 1K – □ – □ – □ – □

- **MODEL**
  - Blank: Standard type
  - **L**: Longer case, no case guard
- **PORT SIZE**
  - **6A**: 1/8
  - **8A**: 1/4
- **ADJUSTABLE PRESS. RANGE**
  - Blank: 0.05~0.85 MPa
  - **1K**: 0.05~0.1 MPa
  - **2K**: 0.05~0.2 MPa
  - **3K**: 0.05~0.3 MPa
  - **4K**: 0.05~0.4 MPa
- **BOWL**
  - Blank: PC bowl
  - **M**: Metal bowl (*)
  - **N**: Nylon bowl
  - * Only for 200L.
- **FILTER ELEMENT**
  - Blank: 40μm
  - **5u**: 5μm
- **BRACKET**
  - Blank: L type
  - **B3**: Z type
- **PORT THREAD**
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

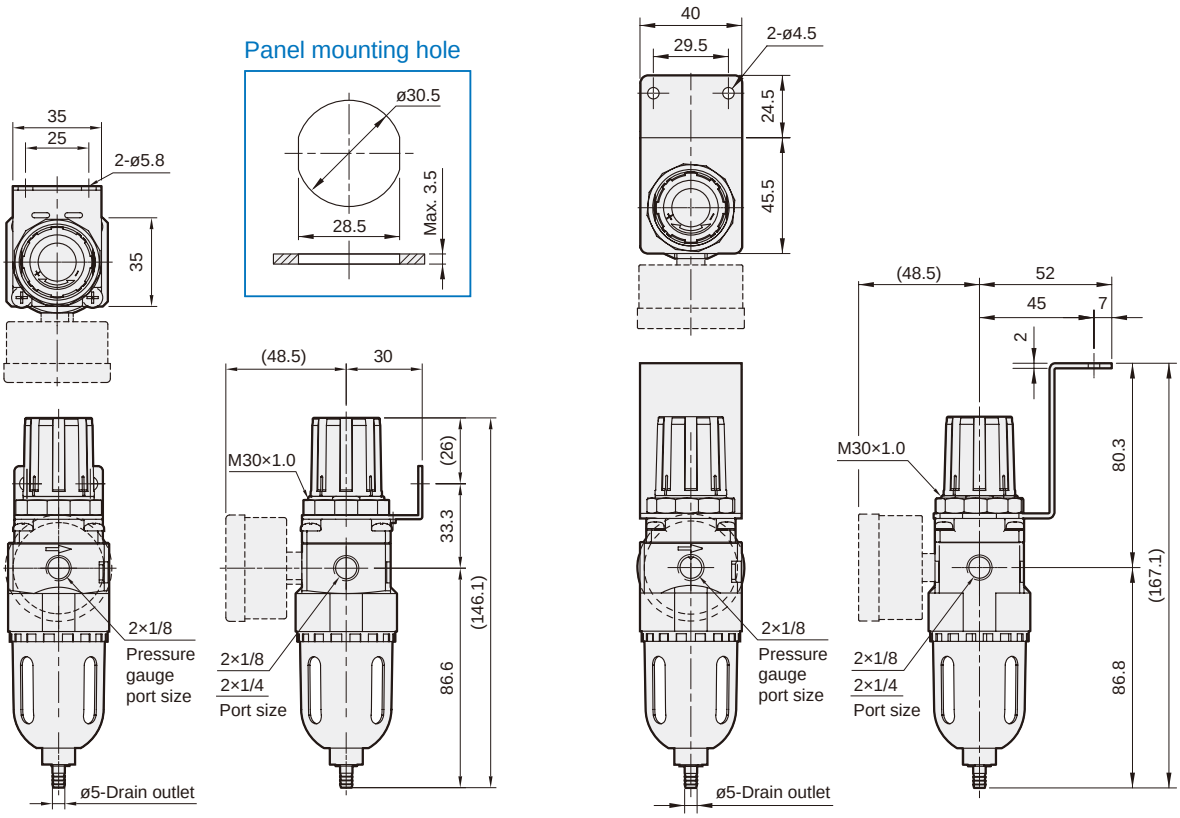
Flow feature





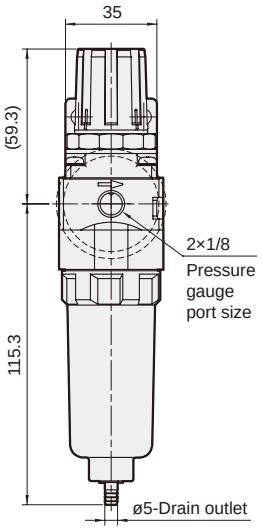
MAFR200-B3

Z type bracket



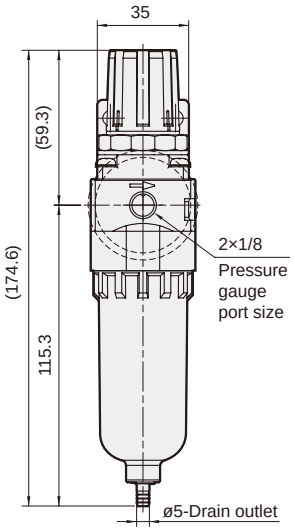
MAFR200L-M

Metal bowl + L type bracket



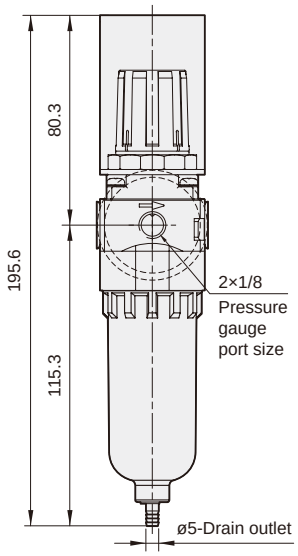
MAFR200L

L type bracket



MAFR200L-B3

Z type bracket



MAFR300 series

AIR UNIT (F.R.UNIT)

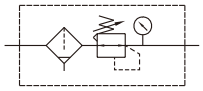


Specification

Model	MAFR300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40 μm	
Drain capacity	30 cm^3	
Attachment	Pressure gauge (PG-40), L-type bracket	
Weight	445g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Symbol



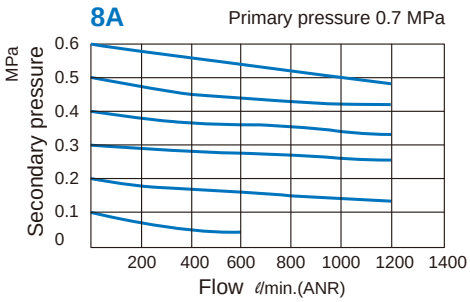
Order example

MAFR300 – 8A – □ – □ – □ – □

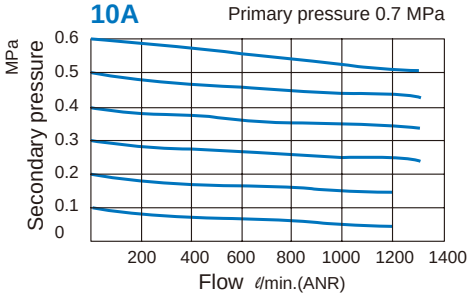
MODEL	PORT SIZE	BOWL	FILTER ELEMENT	BRACKET	PORT THREAD
	8A: 1/4 **10A**: 3/8	Blank: PC bowl **N**: Nylon bowl	Blank: 5μm **40u**: 40μm	Blank: L type **B3**: Z type	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Flow feature

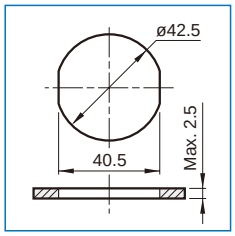
8A

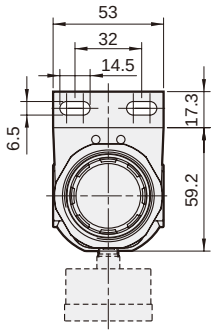


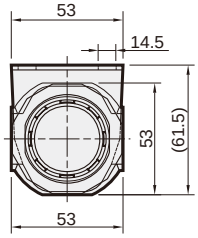
10A



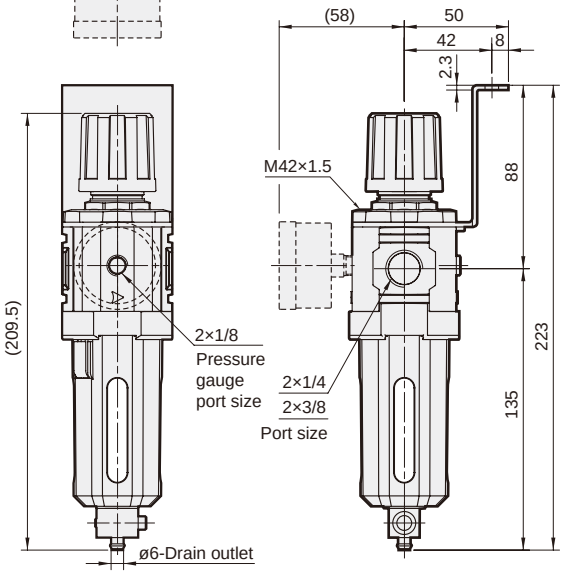
Panel mounting hole



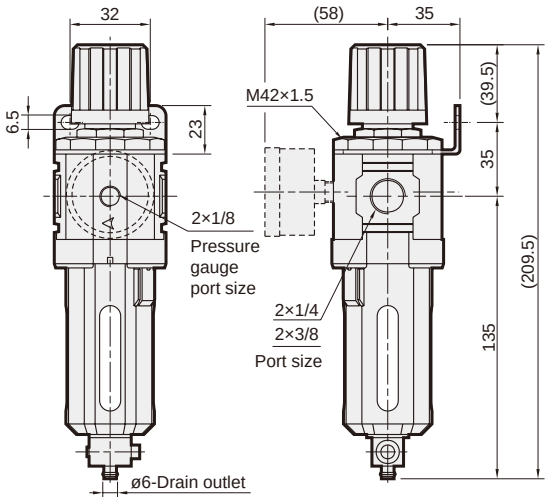




Z type bracket



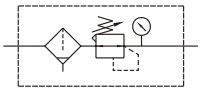
L type bracket





- Longer case for adapting high efficient auto drain valve.

Symbol



Specification

Model	MAFR300L	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40 μm	
Drain capacity	40 cm^3	
Attachment	Pressure gauge (PG-40), L-type bracket	
Weight	452 g	

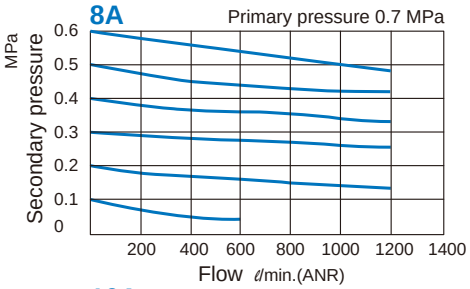
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

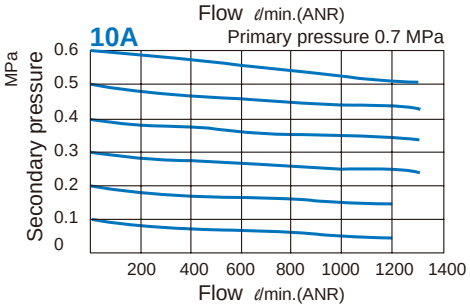
Order example

MAFR300L – 8A – ND – □ – □ – □

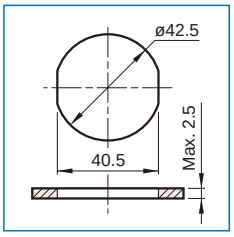
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- Blank: Semi-auto drain, **D**: Auto drain valve (FMRF300)
- FILTER ELEMENT: Blank: 5μm, **40u**: 40μm
- BRACKET: Blank: L type, **B3**: Z type
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

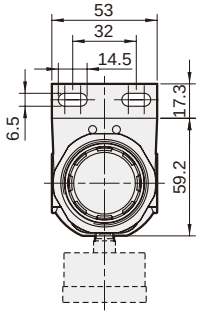
Flow feature

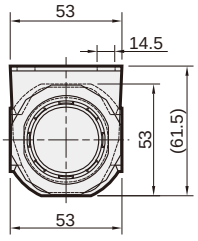




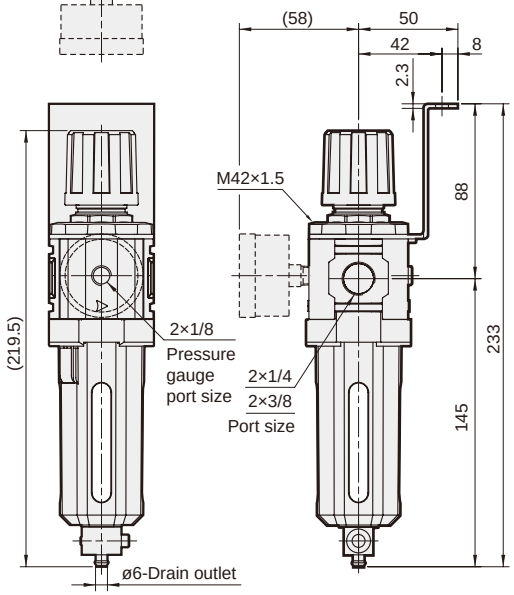
Panel mounting hole



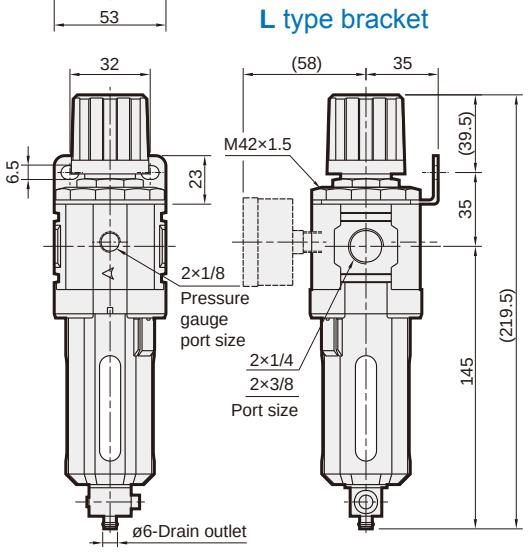




Z type bracket

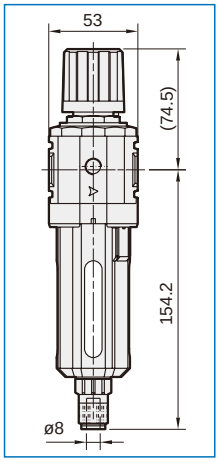


L type bracket



MAFR300L-D

Auto drain valve

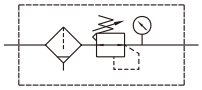






Option: **MP41**

Symbol



Specification

Model	MAFR302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Drain capacity	35 cm^3		
Attachment	Pressure gauge (PG-20), bracket		
Weight	490 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

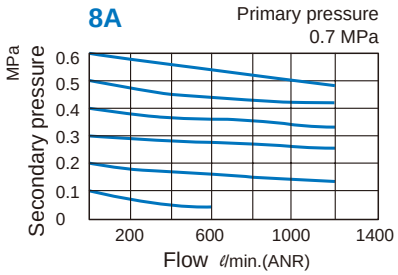
MAFR302 – 8A – NC□ – E1 – □ – HT – □

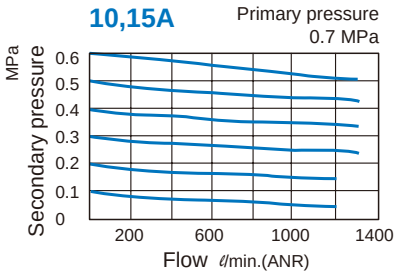
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
  - * Refer to page 5-13 for MP41.
- FILTER ELEMENT
  - Blank: 5μm
  - **40u**: 40μm
- (Option) SHUTOFF VALVE
  - **HT**: MVHT-302-3H
  - * Refer to page 4-46.
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

Bowl	Pressure gauge	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature



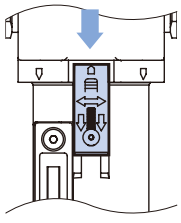


⚠ Caution

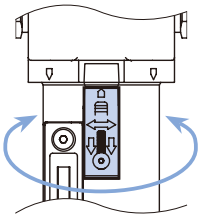
Metal bowl

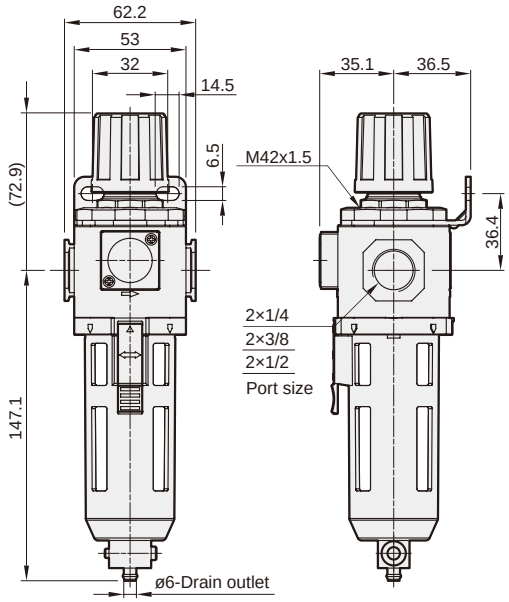
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1.Sliding plate down

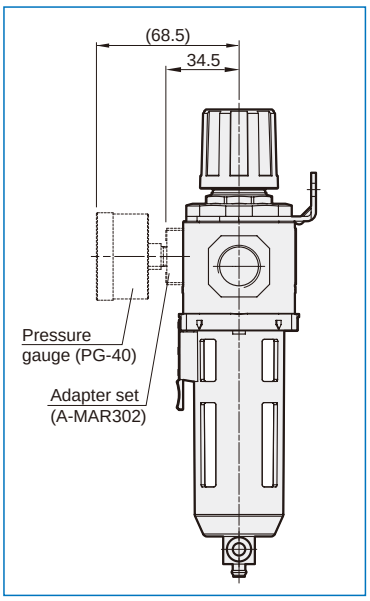


2. Rotating the bowl

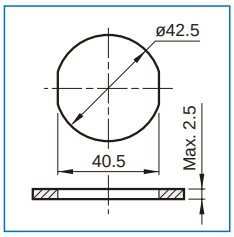




Accessories

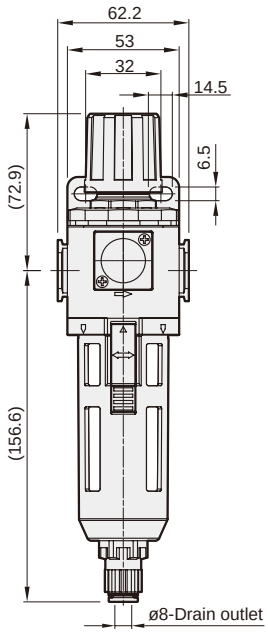


Panel mounting hole



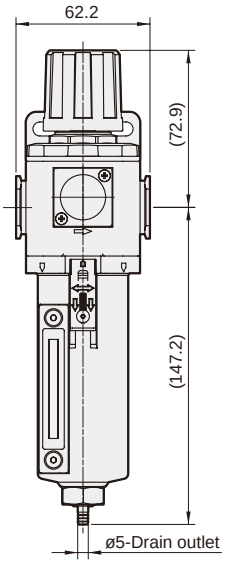
MAFR302-D

Auto drain valve



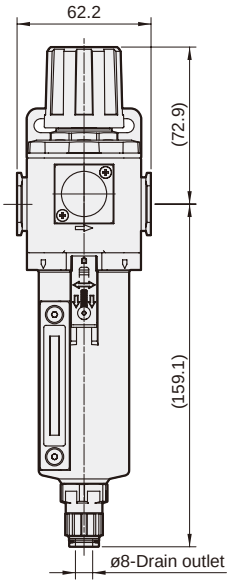
MAFR302-M

Metal bowl



MAFR302-MD

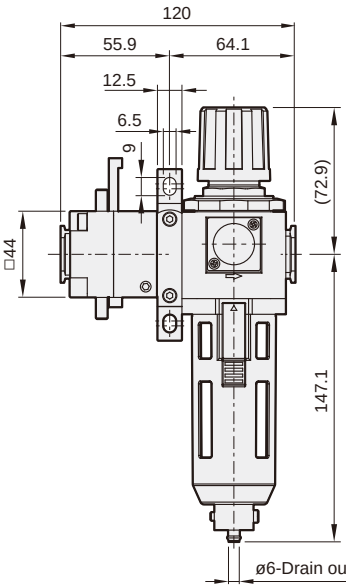
Metal bowl + Auto drain valve

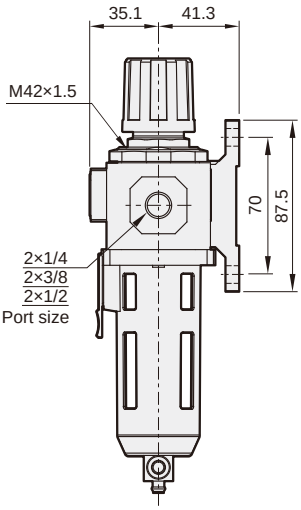


MAFR302-HT with shutoff valve

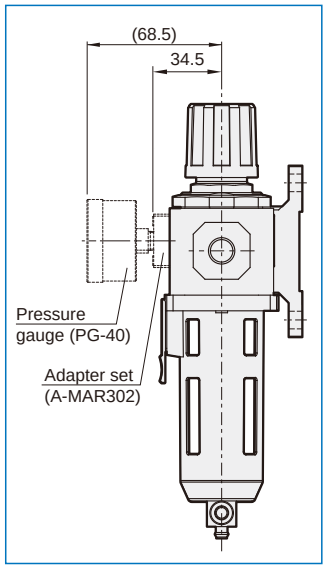
AIR UNIT (F.R.UNIT)





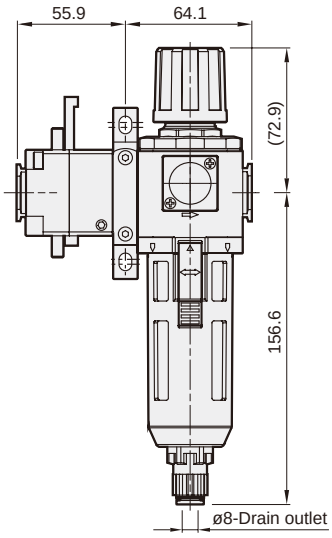


Accessories



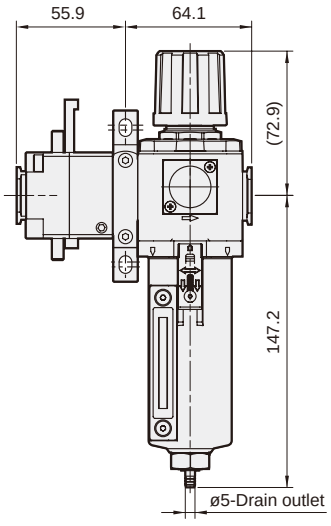
MAFR302-D-HT

Auto drain valve



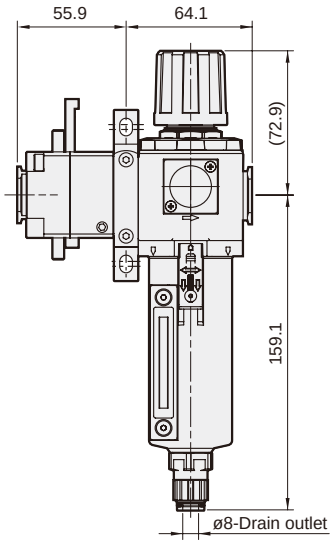
MAFR302-M-HT

Metal bowl



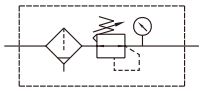
MAFR302-MD-HT

Metal bowl + Auto drain valve





Symbol



Specification

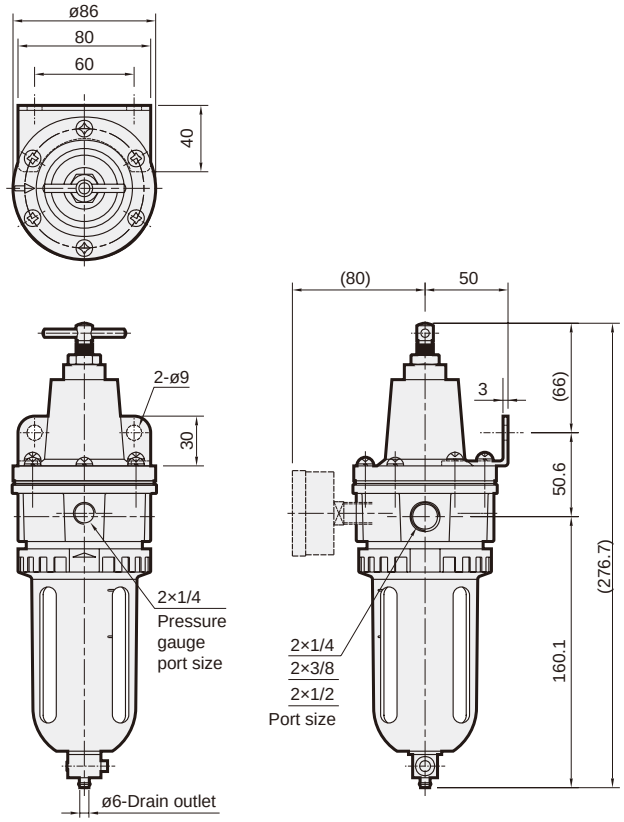
Model	MAFR400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	100 cm^3		
Attachment	Pressure gauge (PG-50), bracket		
Weight	1350 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

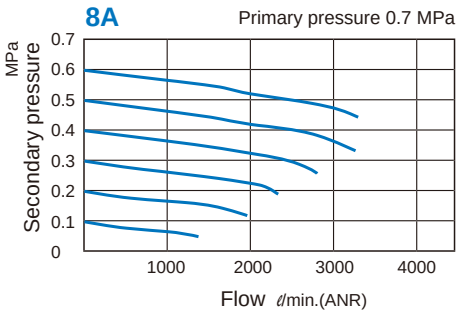
Order example

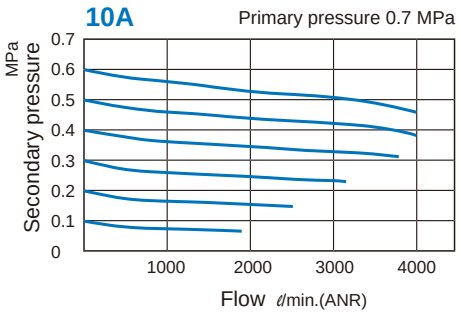
MAFR400 – 8A – ND – □ – □

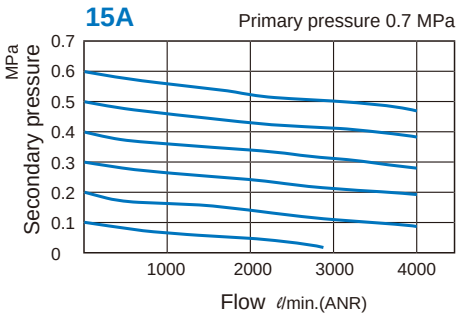
- MODEL
- PORT SIZE: **8A**: 1/4; **10A**: 3/8; **15A**: 1/2
- BOWL: Blank: PC bowl; **N**: Nylon bowl
- Blank: Semi-auto drain; **D**: Auto drain valve (FMRF300)
- FILTER ELEMENT: Blank: 40μm; **5u**: 5μm
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread



Flow feature







MAFR401 series

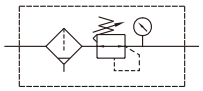
AIR UNIT (F.R.UNIT)





Option: **MP41**

Symbol



Specification

Model	MAFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	70 cm^3		
Attachment	Pressure gauge(PG-20),L-type bracket		
Weight	800 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

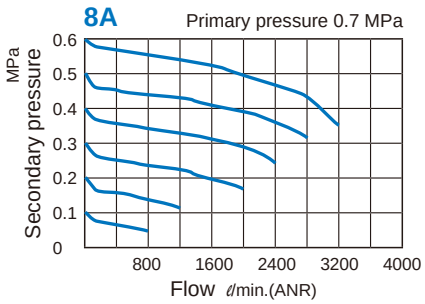
MAFR401 – 8A – □ – HA□P – E1 – □ – HT – □

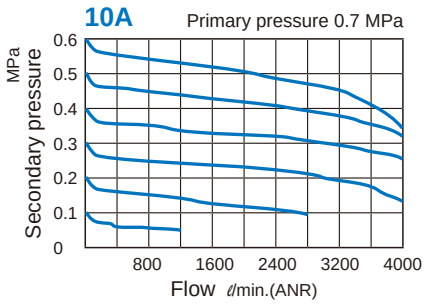
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- EXTERIOR COLOR: Blank: Black & silver, **W**: Gray & white
- (Option) PRESSURE SWITCH: **E1**: MP41P-022, **E2**: MP41P-022-QD, **E5**: MP41P-042, **E6**: MP41P-042-QD
  * Refer to page 5-13 for MP41.
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- (Option) SHUTOFF VALVE: **HT**: MVHT-400-3H
  * Refer to page 4-49.
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- (Option) ACCESSORIES

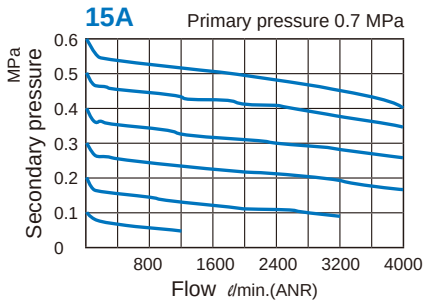
Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain	–

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).

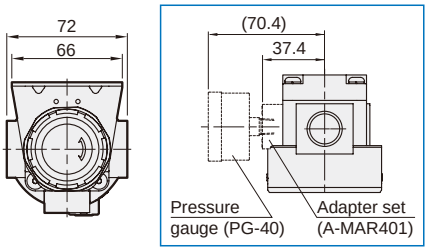
Flow feature

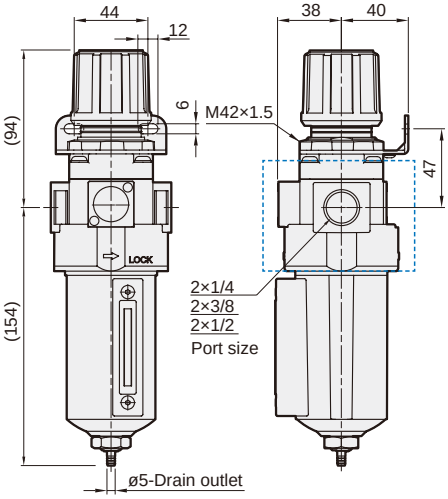






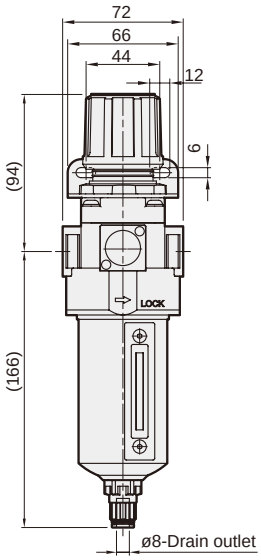
Accessories





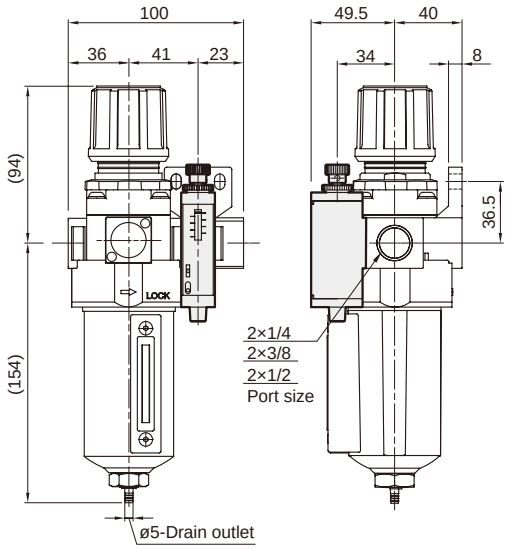
MAFR401-D

Auto drain valve

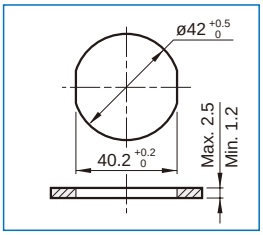


MAFR401-P

MPS Series
pneumatic pressure switch



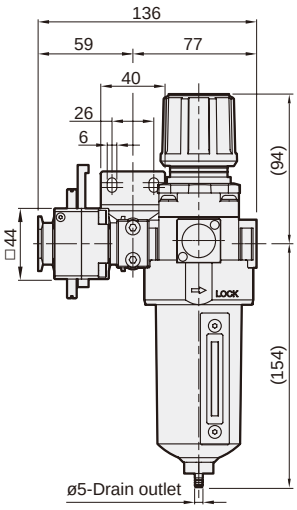
Panel mounting hole

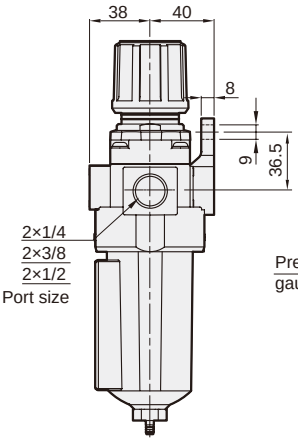


MAFR401-HT

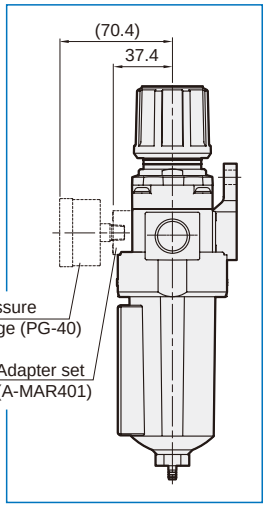
With shutoff valve (MVHT-400)







Accessories

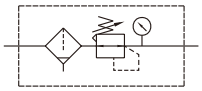


MAFR402 series

AIR UNIT (F.R.UNIT)



Symbol



Specification

Model	MAFR402		
Bore No.	10A	15A	20A
Port size	3/8	1/2	3/4
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm Option: 5,20μm		
Attachment	Pressure gauge, bracket		
Weight	1186 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

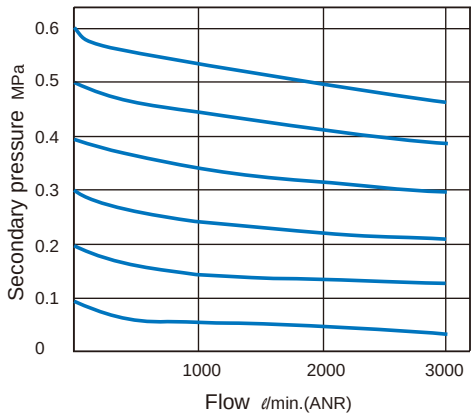
MAFR402 – 15A – D – □ – □

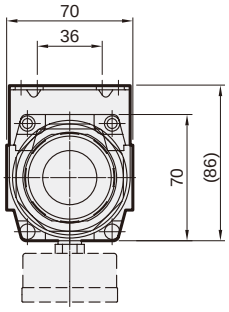
- MODEL
- PORT SIZE: **10A**: 3/8; **15A**: 1/2; **20A**: 3/4
- FILTER ELEMENT: Blank: 40μm; **5u**: 5μm; **20u**: 20μm
- Blank: Semi-auto drain; **D**: Auto drain valve (YD401)
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

Flow feature

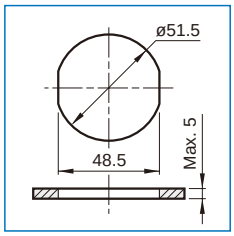
10A, 15A, 20A

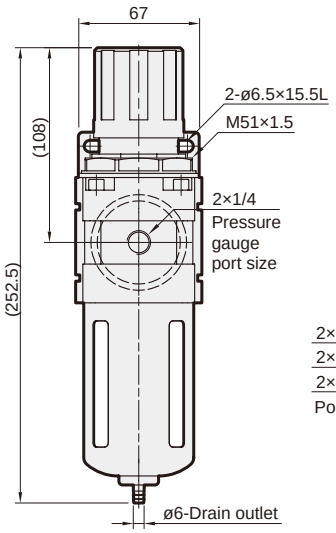
Primary pressure 0.7 MPa

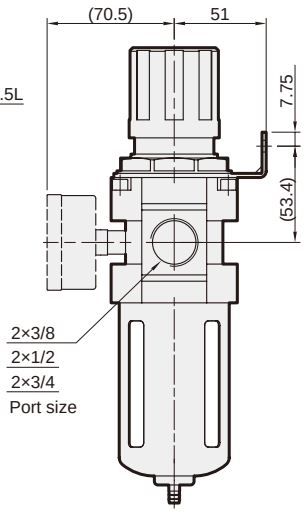




Panel mounting hole





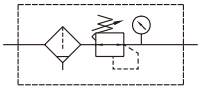






Option: **MP41**

Symbol



Specification

Model	MAFR403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	75 cm^3		
Attachment	Pressure gauge(PG-20), L-type bracket		
Weight	620 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

MAFR403 – 8A – NC□P – E1 – □ – □

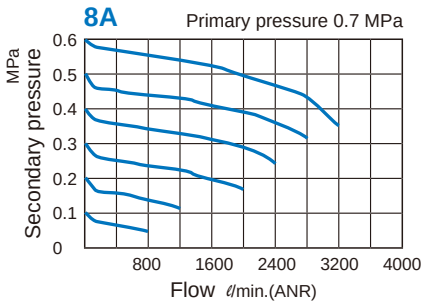
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

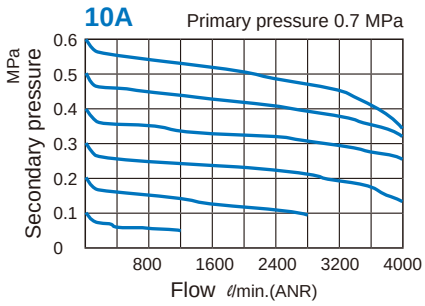
* Refer to page 5-13 for MP41.

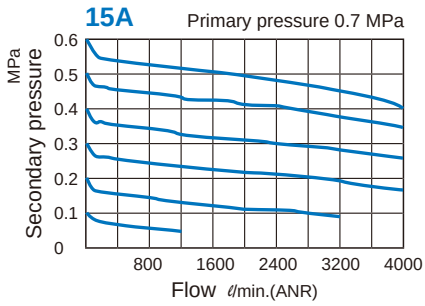
Bowl	Pressure gauge	Drain valve	Pressure switch
Blank: PC bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**P**: Pressure switch (MPS series)

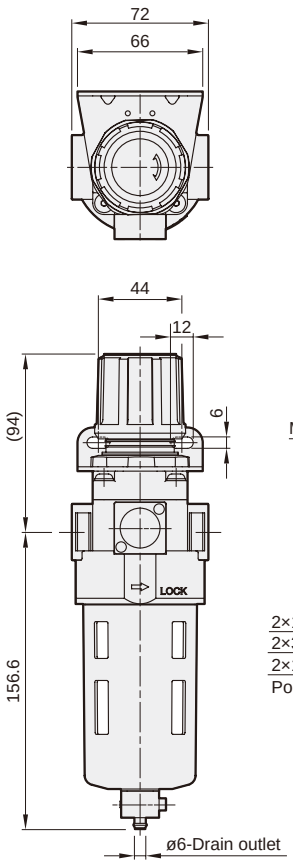
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

Flow feature

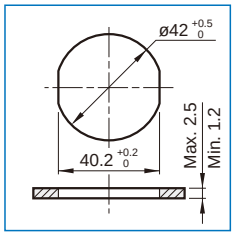


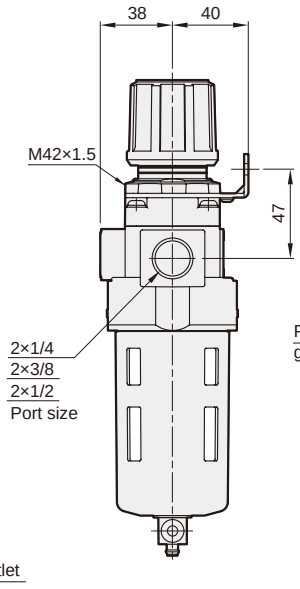




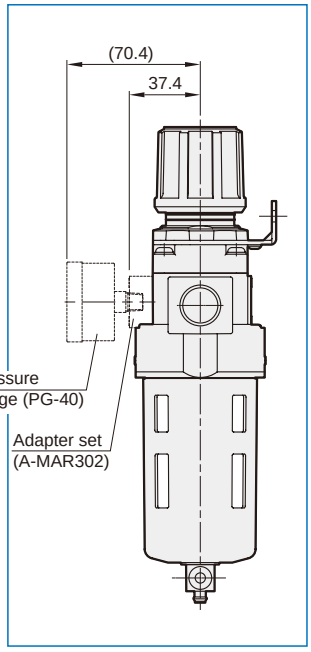


Panel mounting hole



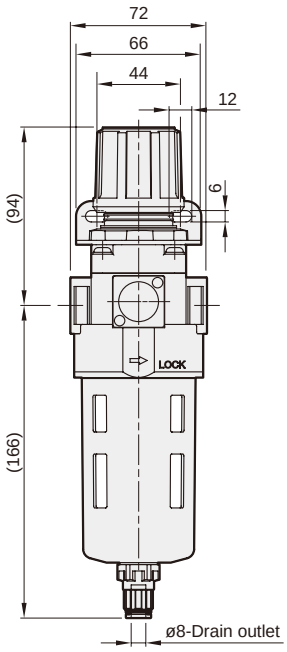


Accessories



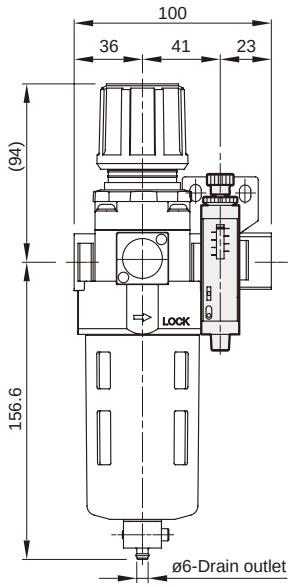
MAFR403-D

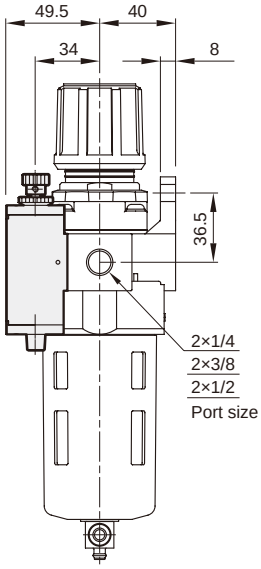
Auto drain valve



MAFR403-P

MPS Series
pneumatic pressure switch



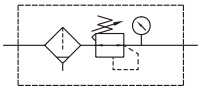






Option: **MP41**

Symbol



Specification

Model	MAFR501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating perssure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Regulated pressure range	0.1~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	40μm	
Drain capacity	PC, Nylon bowl: 75 cm^3	
	Metal bowl: 70 cm^3	
Attachment	Pressure gauge(PG-20), L-type bracket	
Weight	PC, Nylon bowl: 1940 g	
	Metal bowl: 2060 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

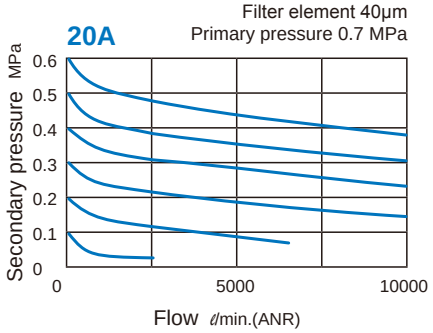
MAFR501 – 20A – MC□J – E1 – □

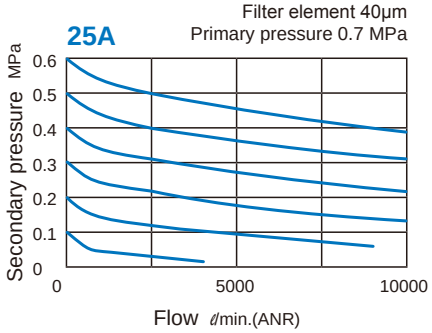
- MODEL
- PORT SIZE
  - **20A**: 3/4
  - **25A**: 1
- (Option) PRESSURE SWITCH
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD
  - * Refer to page 5-13 for MP41.
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- (Option) ACCESSORIES

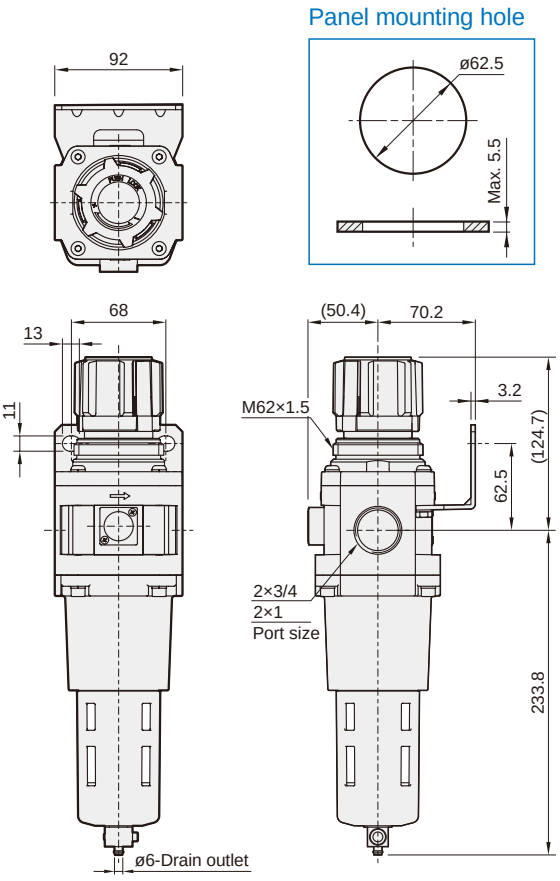
Bowl	Pressure gauge	Drain valve	Panel nuts
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	**J**: Panel nuts

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

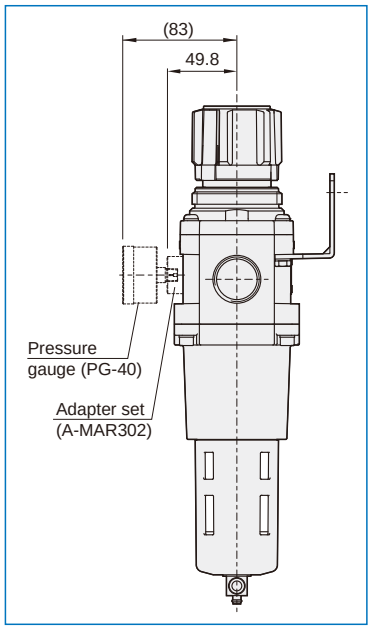
Flow feature



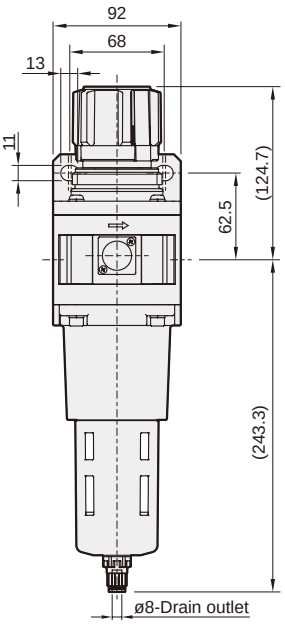




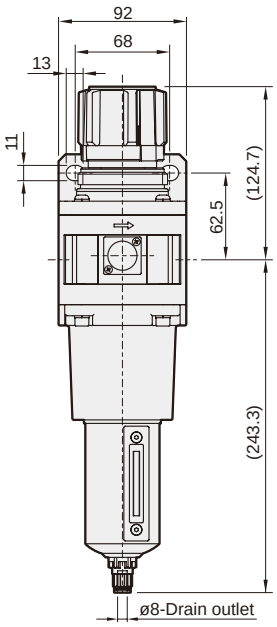
Accessories



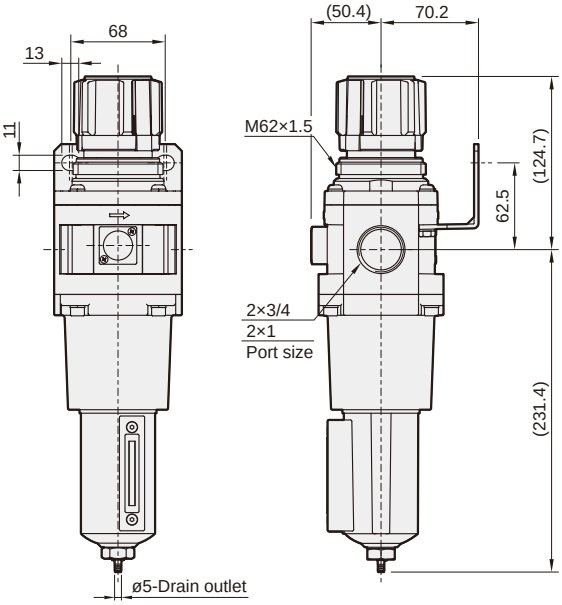
MAFR501-D
Auto drain valve



MAFR501-MD
Metal bowl + auto drain valve



MAFR501-M
Metal bowl

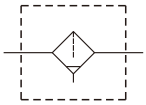




MAF200L



Symbol



Specification

Model	MAF200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 40μm, Option: 5μm	
Drain capacity	9.5 cm^3, 25 cm^3 (MAF200L)	
Weight	187 g, 155 g (MAF200L)	

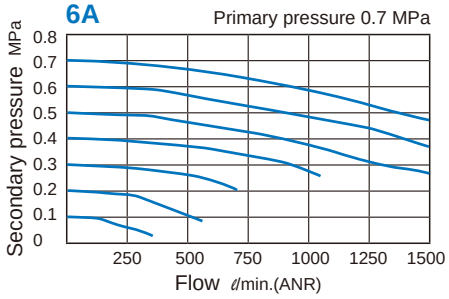
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

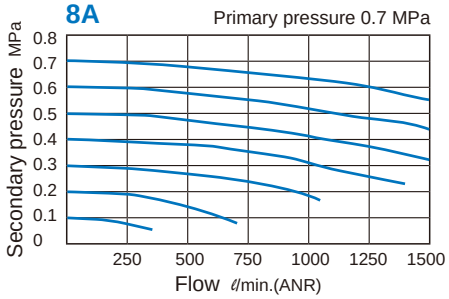
Order example

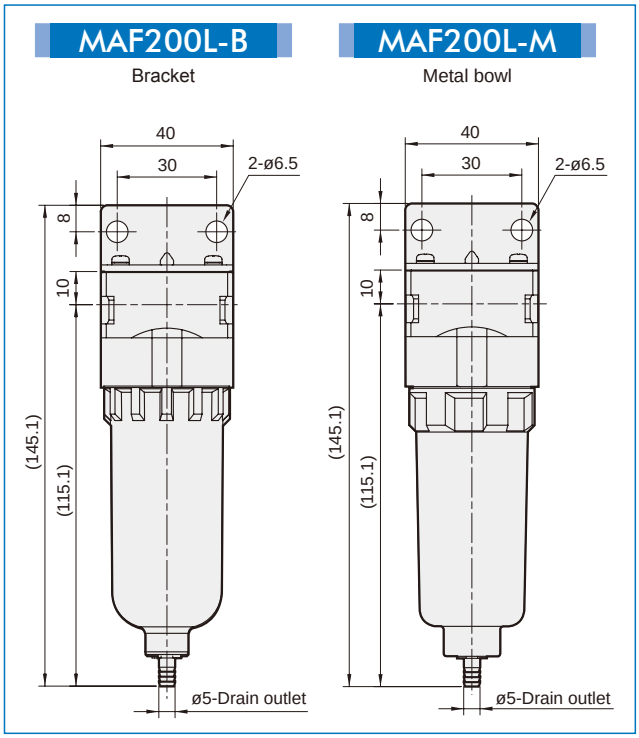
MAF200L – 6A – □ – □ – B – □

- **MODEL**
  - Blank: Standard type
  - **L**: Longer case, no case guard
- **PORT SIZE**
  - **6A**: 1/8
  - **8A**: 1/4
- **FILTER ELEMENT**
  - Blank: 40μm
  - **5u**: 5μm
- **BRACKET**
  - Blank: Without
  - **B**: Bracket
- **PORT THREAD**
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- Blank: PC bowl
  - **M**: Metal bowl (*)
  - **N**: Nylon bowl
  - * Only for 200L.

Flow feature

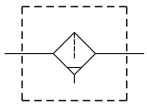








Symbol



Specification

Model	MAF300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Drain capacity	30 cm^3	
Weight	300 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

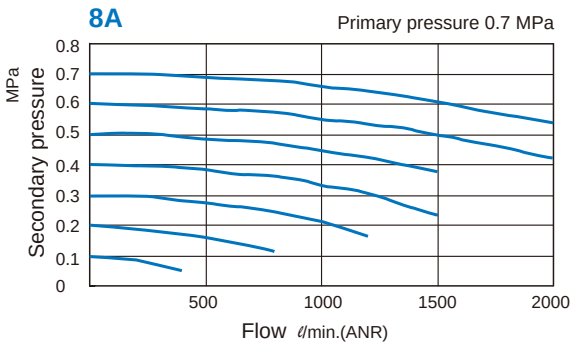
Order example

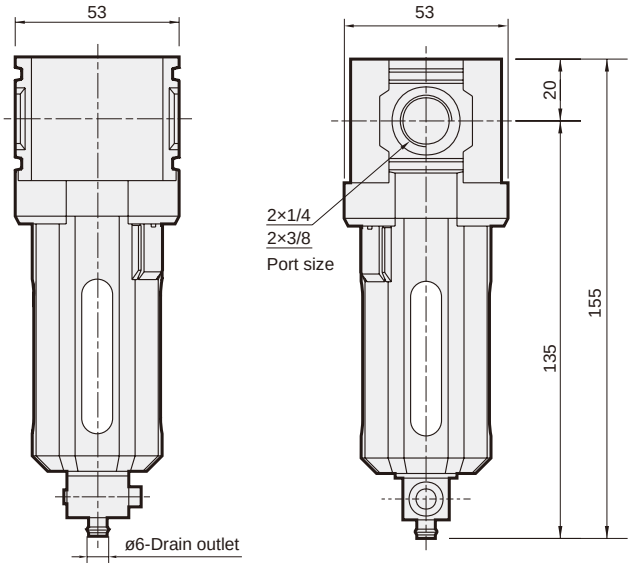
MAF300 – 8A – □ – □ – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8
- Blank: PC bowl, **N**: Nylon bowl
- FILTER ELEMENT: Blank: 5μm, **40u**: 40μm
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

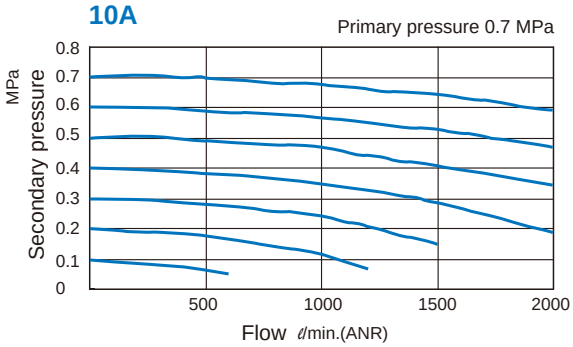
Flow feature

8A





10A



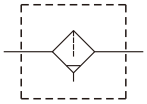
MAF300L series

AIR UNIT (FILTER)

mindman



Symbol



- Longer case for adapting high efficient auto drain valve.

Specification

Model	MAF300L	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating perssure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	Standard: 5μm, Option: 40μm	
Drain capacity	40 cm^3	
Weight	267 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

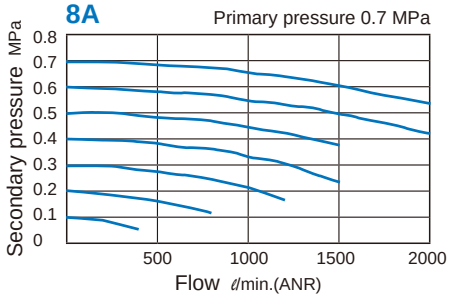
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

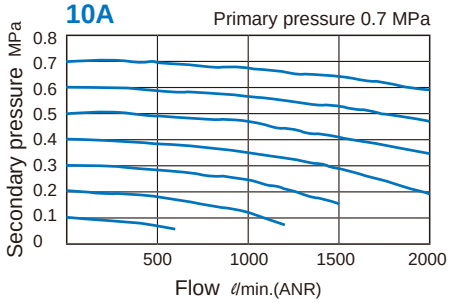
Order example

MAF300L – 8A – ND – □ – □

MODEL	PORT SIZE	BOWL		FILTER ELEMENT	PORT THREAD
	8A: 1/4 **10A**: 3/8	Blank: PC bowl **N**: Nylon bowl	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)	Blank: 5μm **40u**: 40μm	Blank: Rc thread **G**: G thread **NPT**: NPT thread

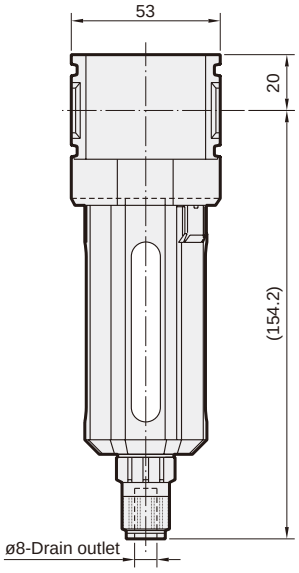
Flow feature

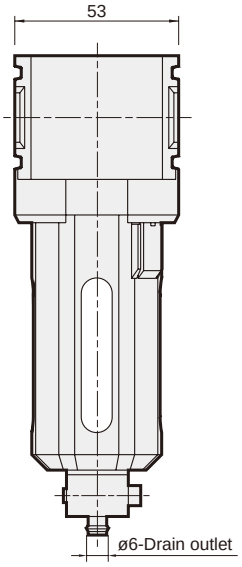


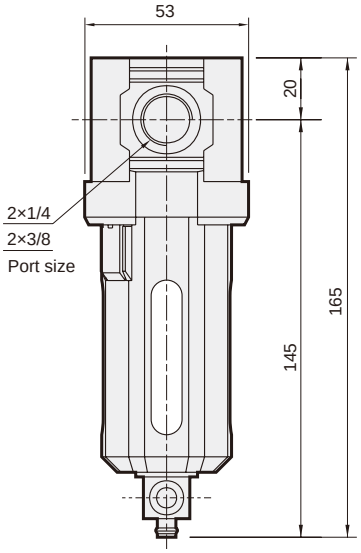


MAF300L-D

Auto drain valve







MAF302 series

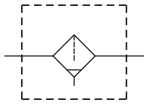
AIR UNIT (FILTER / WATER SEPARATOR)

mindman

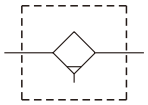


Symbol

Filter



Water separator



Specification

Model	MAF302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*1)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Drain capacity	35 cm^3		

Filter	MAF302	
Filter element	Standard: 5μm, Option: 40μm	
Weight	335 g	
Water separator	**MAF302G**	
Water droplet removal ratio (*2)	99±1%	
Rated flow l/min(ANR) (*3)	550	1280
Weight	345 g	

*1. Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.
*2. This shows the water droplet removal ratio at the rated flow.
*3. Input pressure: 0.7 MPa. When fluid flows exceeding the rated flow, the accumulated condensate may be pulled up and may flow out to outlet side.

Order example

MAF302G – 8A – ND – □ – □ – □

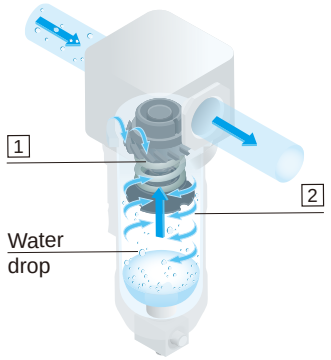
- MODEL
  - Blank: Filter
  - **G**: Water separator (Removal ratio 99%±1)
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- BOWL
  - Blank: PC bowl
  - **M**: Metal bowl
  - **N**: Nylon bowl
- (*) FILTER ELEMENT
  - Blank: 5μm
  - **40u**: 40μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- Blank: Semi-auto drain
  D: Auto drain valve (FMRF300)
- Blank: Without bracket
  B: C type bracket

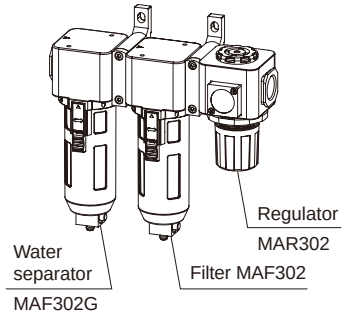
* There is not filter element in MAF302G series.

Water separator features

1.Water droplets are removed by centrifugal force.
This product can remove water droplets in the compressed air, but cannot remove moisture content (water vapor).

2. Filter element is not needed. Water droplet removal ratio: 99%

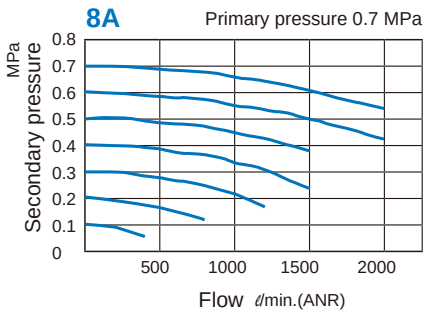


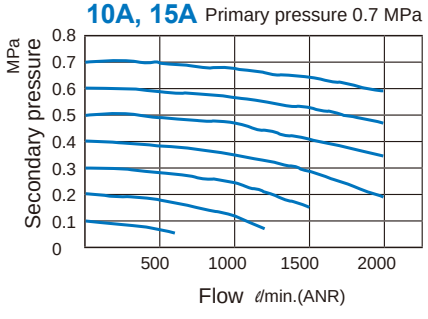


Assembly example

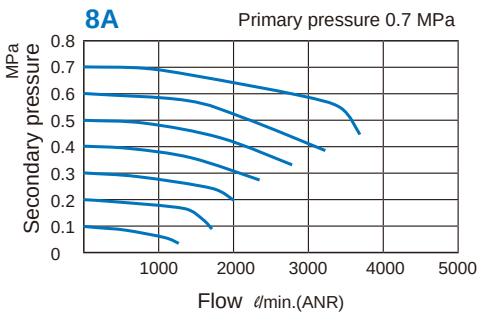
Flow feature

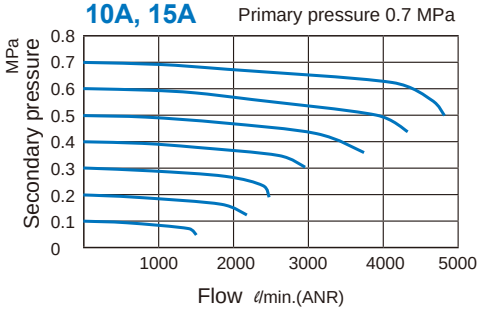
MAF302 (Filter)

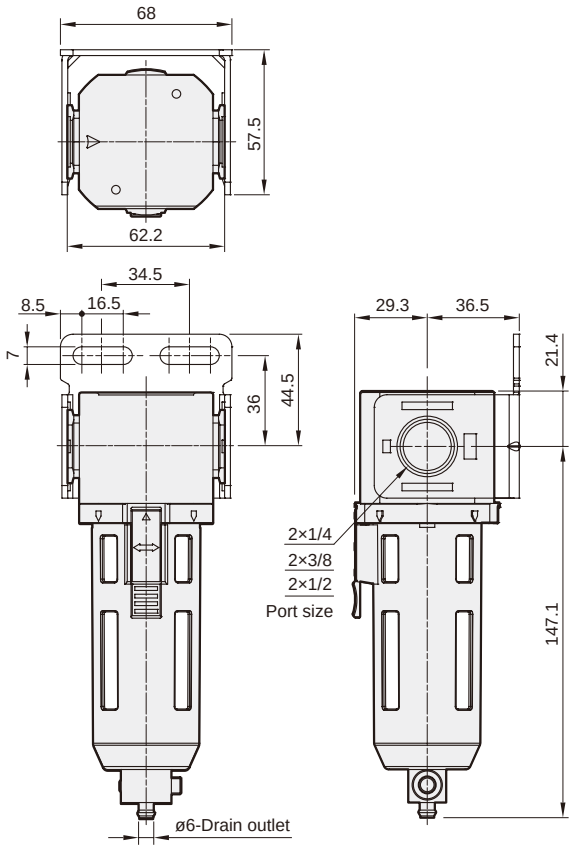




MAF302G (Water separator)

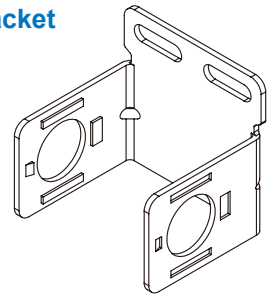






Option accessories

C type bracket

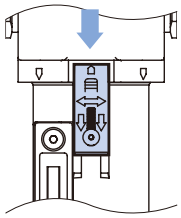


Caution

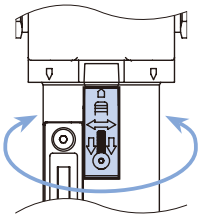
Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1.Sliding plate down

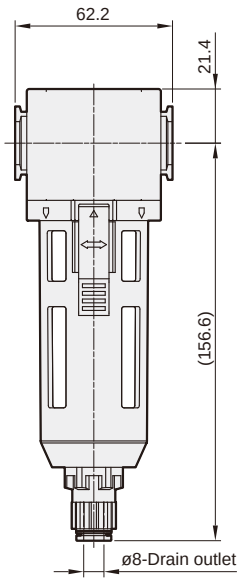


2. Rotating the bowl



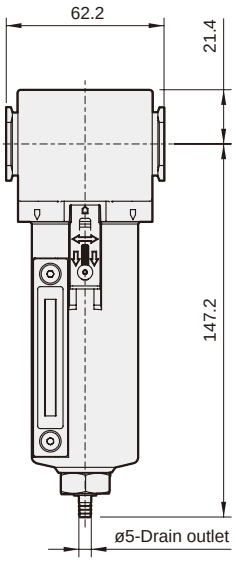
MAF302-D

Auto drain valve



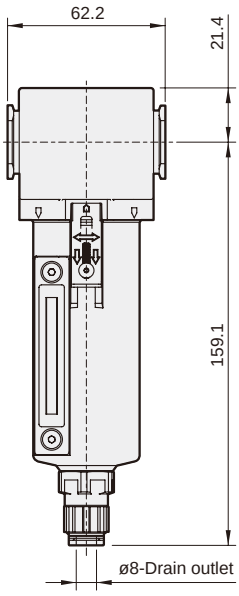
MAF302-M

Metal bowl



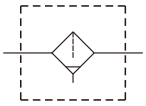
MAF302-MD

Metal bowl + Auto drain valve





Symbol



Specification

Model	MAF400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*1.2)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	100 cm^3		
Max. flow rate(*3) ℓ/min(ANR)	1500	2000	2200
Weight	550 g		

*1. Sandard unit contains semi-auto-drain function when operating ressure below 0.05 MPa.

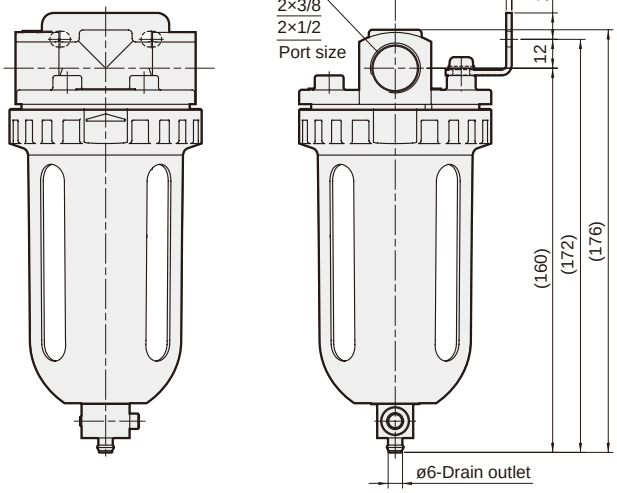
*2. Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

*3. Flow is at pressure P=0.7 MPa with pressure drop Δ P=0.03 MPa.

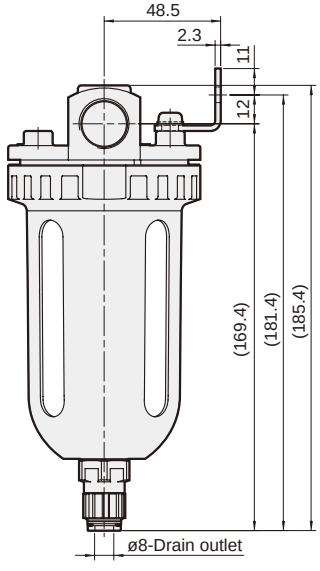
Order example

MAF400 – 8A – ND – □ – B – □

- MODEL: MAF400
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- Blank: Semi-auto drain, **D**: Auto drain valve (FMRF300)
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- Blank: Without, **B**: Bracket
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

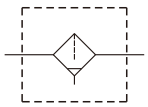


MAF400-D
Auto drain valve





Symbol



Specification

Model	MAF401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*1.2)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	70 cm^3		
Max. flow rate(*3) ℓ/min(ANR)	1500	2000	2500
Weight	480 g		

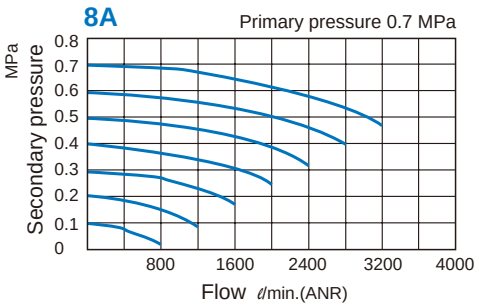
*1. Sandard unit contains semi-auto-drain function when operating ressure below 0.05 MPa.
*2. Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.
*3. Flow is at pressure P=0.7 MPa with pressure drop △ P=0.03 MPa.

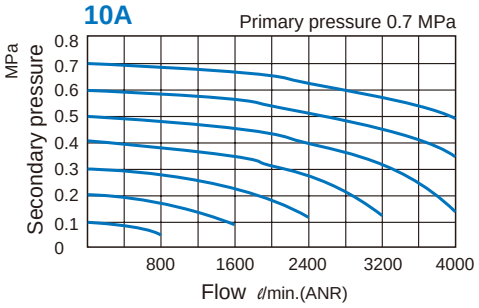
Order example

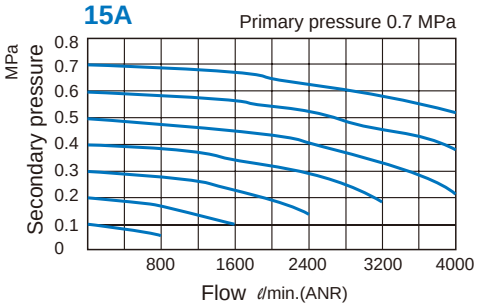
MAF401 – 8A – □ – D – □ – □ – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- EXTERIOR COLOR
  - Blank: Black & silver
  - **W**: Gray & white
- Blank: Semi-auto drain
  - **D**: Auto drain valve (FMRF300)
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- Blank: Without bracket
  - **B**: C type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

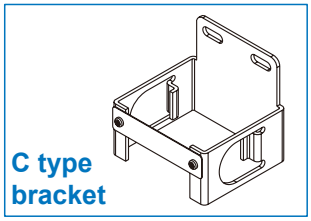
Flow feature

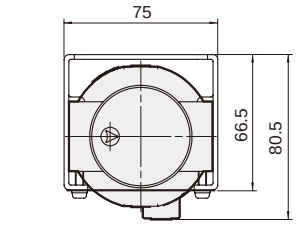


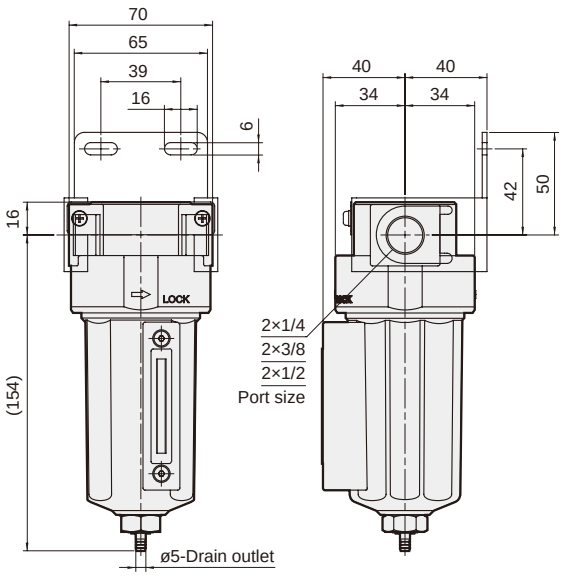


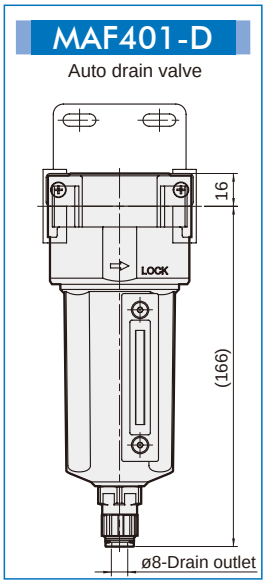


Option accessories



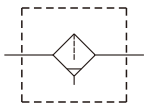








Symbol



Specification

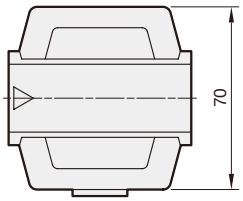
Model	MAF402		
Bore No.	10A	15A	20A
Port size	3/8	1/2	3/4
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5, 20μm		
Weight	454 g		

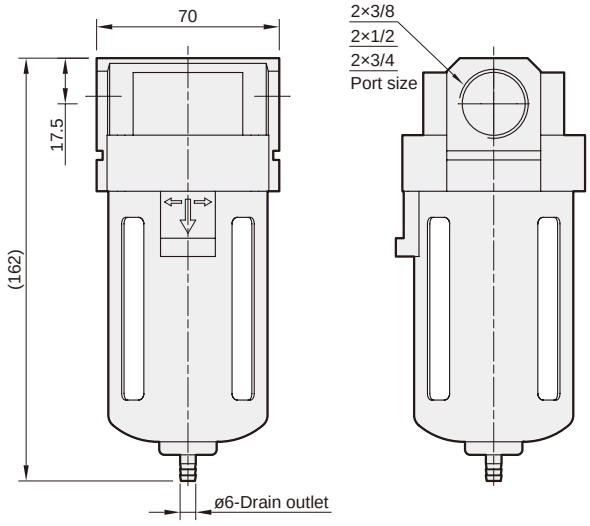
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

MAF402 – 15A – D – □ – □

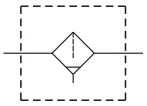
- MODEL
- PORT SIZE
  - **10A**: 3/8
  - **15A**: 1/2
  - **20A**: 3/4
- Blank: Semi-auto drain
  D: Auto drain valve (YD401)
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
  - **20u**: 20μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread







Symbol



Specification

Model	MAF403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	75 cm^3		
Weight	345 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

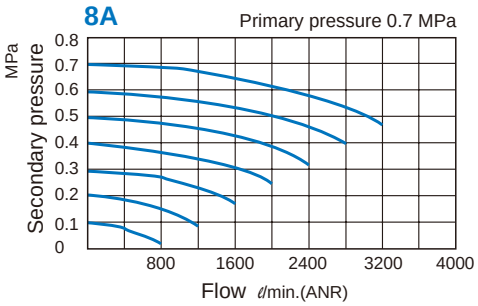
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

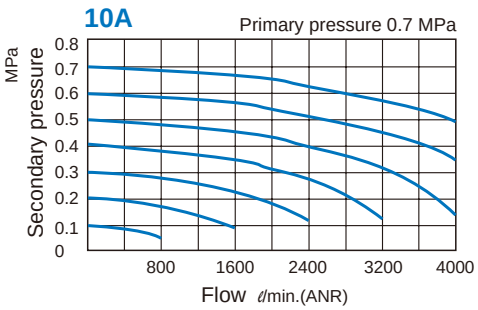
Order example

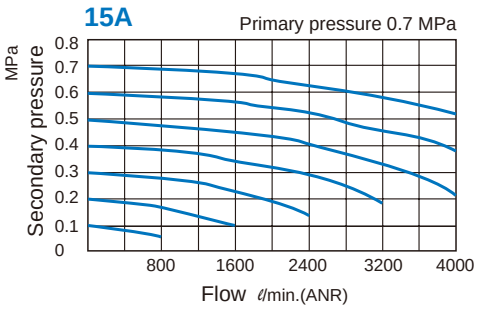
MAF403 – 8A – ND – □ – □ – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- Blank: Semi-auto drain
  D: Auto drain valve (FMRF300)
- Blank: Without bracket
  B: C type bracket

Flow feature

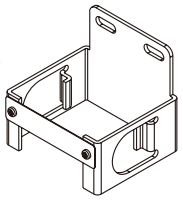


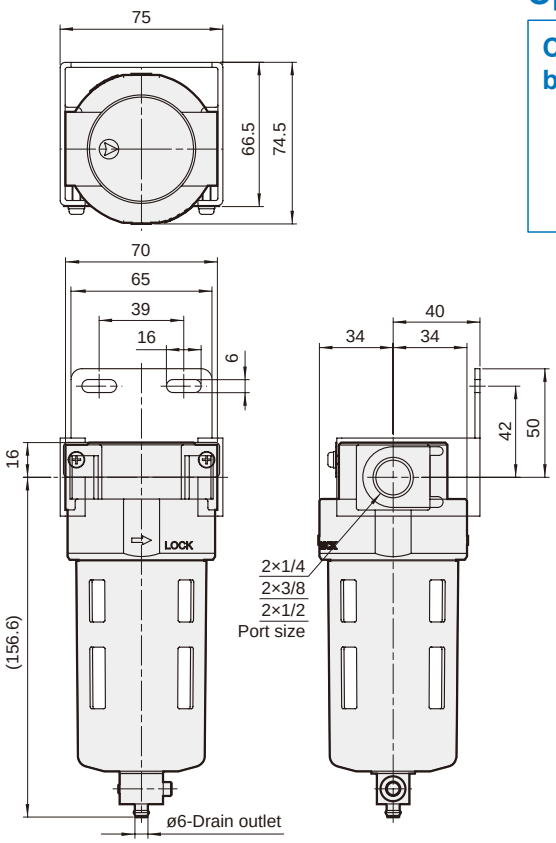




Option accessories

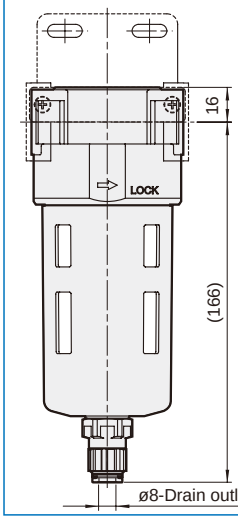
C type bracket





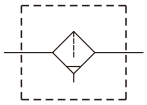
MAF403-D

Auto drain valve





Symbol



Specification

Model	MAF501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating perssure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	40 μm	
Drain capacity	Nylon bowl, PC bowl: 75 cm^3	
	Metal bowl: 70 cm^3	
Weight	Nylon bowl, PC bowl: 1180g	
	Metal bowl: 1300g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

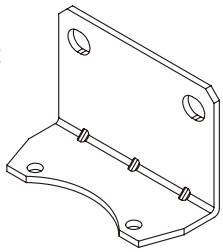
Order example

MAF501 – 20A – □□ – B – □

- MODEL
- PORT SIZE
  - **20A**: 3/4
  - **25A**: 1
- BOWL
  - Blank: PC bowl
  - **M**: Metal bowl
  - **N**: Nylon bowl
- OPTION
  - Blank: Semi-auto drain
  - **D**: Auto drain valve (FMRF300)
- Blank: Without bracket
  B: L type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

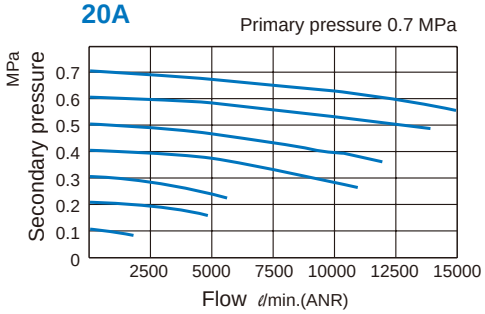
Option accessories

L type bracket

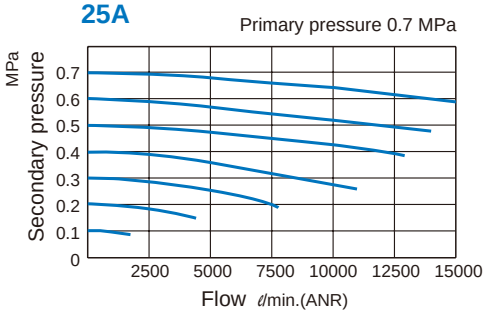


Flow feature

20A

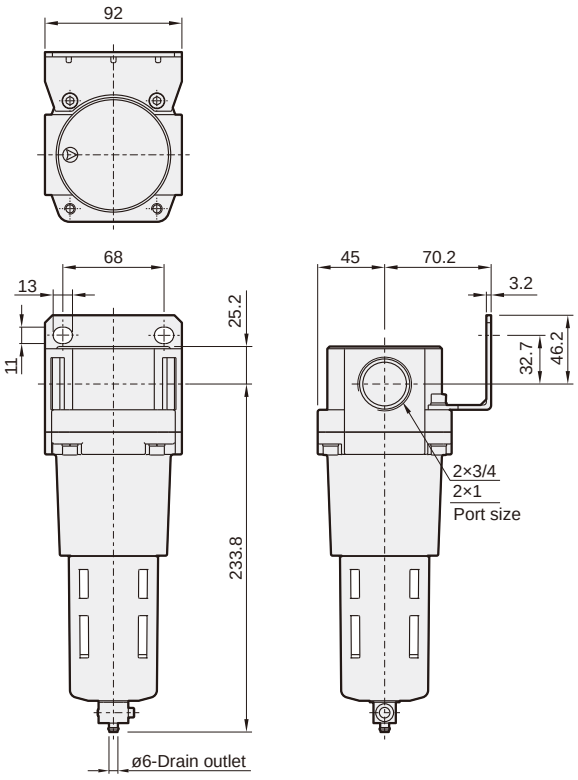


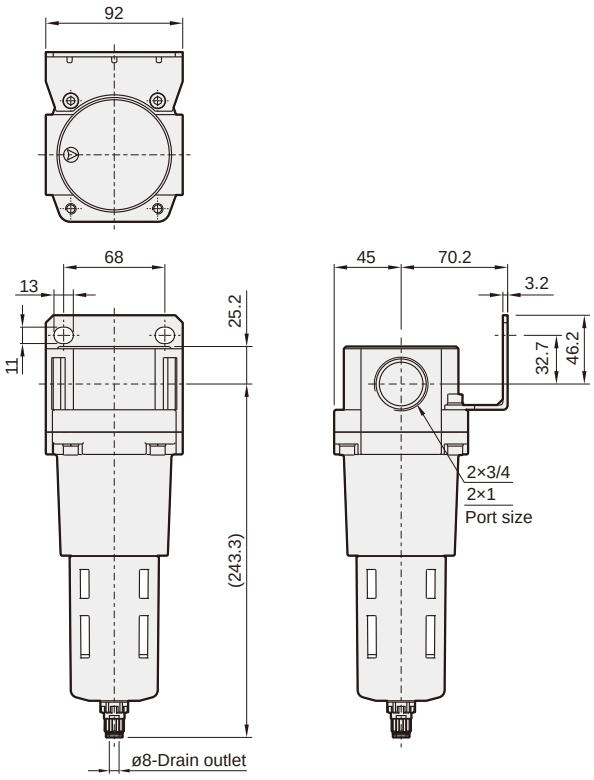
25A



MAF501-D

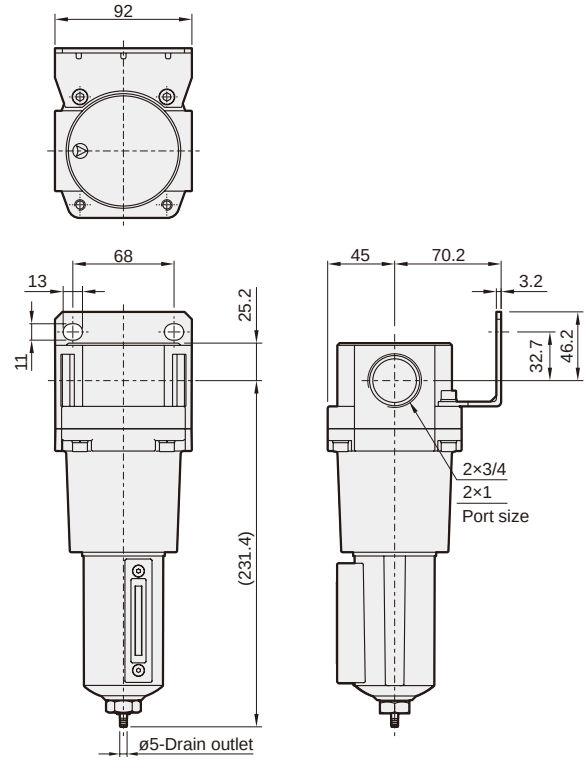
Auto drain valve





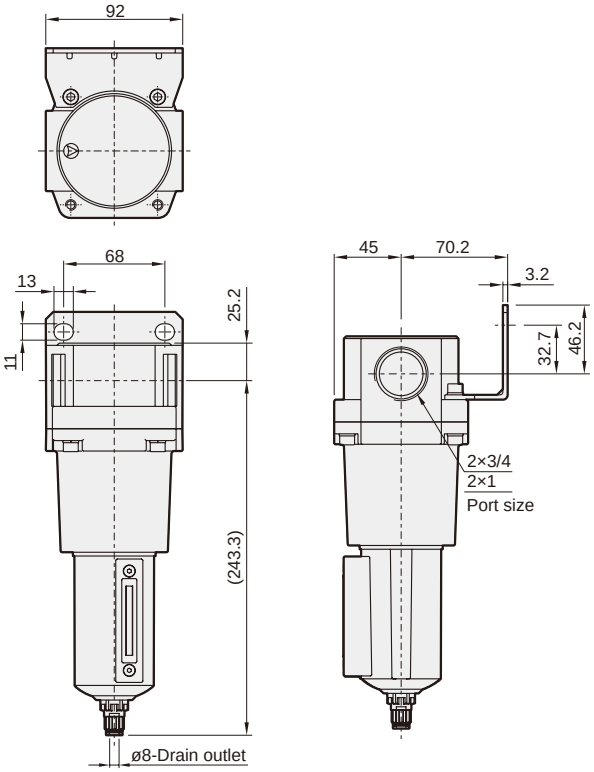
MAF501-M

Metal bowl



MAF501-MD

Metal bowl + auto drain valve



MAF900 series

AIR UNIT (FILITER)

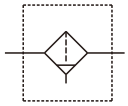
mindman



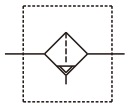
- Removing upto 99% of the liquid water.
- Design of the filter elements gives both surface and depth filtration for cleaner air.
- Ideally suited for header lines and large flow rated tools and cylinder operations.

Symbol

Manual drain



Auto drain



Specification

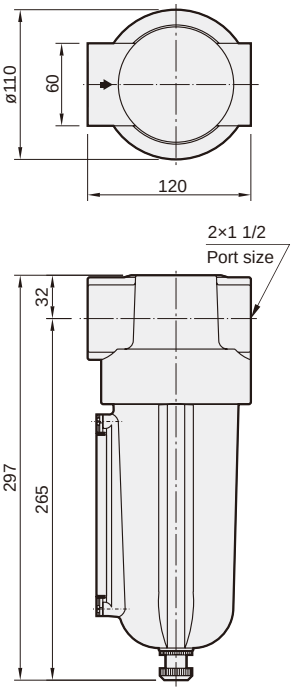
Model	MAF900
Bore No.	40A
Port size	1 1/2
Medium	Air
Operating perssure range (*1)	0.05~1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Filter element	Standard: 50μm
Standard nominal flow rate (*2)	20000 ℓ/min
Weight	2035 g

*1. Choose auto-drain, the pressure range is 0.15~1.75 MPa.
*2. Flow is at pressure P= 0.6 MPa with pressure drop △ P=0.1 MPa.

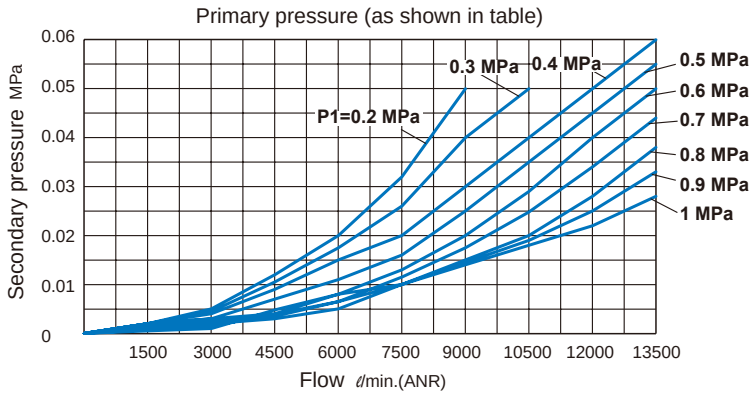
Order example

MAF900 – 40A – D – S – □

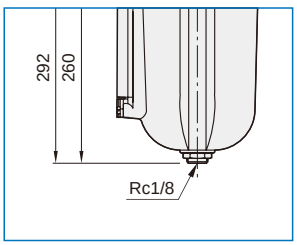
- MODEL
- PORT SIZE
  40A: 1 1/2
- Blank: Manual drain
  D: Auto drain
- MATERIAL OF FILTER ELEMENT
  Blank: Plastic
  S: Sintered bronze
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread



Flow feature



Auto drain



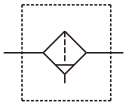
MAF901 series

AIR UNIT (FILITER)

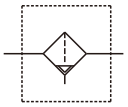


Symbol

Manual drain



Auto drain



- MAF901 with high water removal efficiency and minimal pressure drop are used for removal of liquids and solid contaminants to protect air tools and equipment.
- Ideally suited for header lines and very high flow applications.

Specification

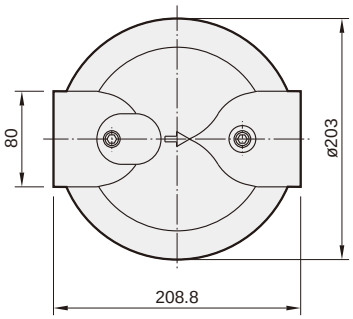
Model	MAF901
Bore No.	50A
Port size	2
Medium	Air
Operating perssure range (*1)	0.05~1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Filter element	Standard: 50μm
Standard nominal flow rate (*2)	63000 ℓ/min
Weight	6930 g

*1. Choose auto-drain, the pressure range is 0.15~1.75 MPa.
*2. Flow is at pressure P= 0.6 MPa with pressure drop △ P=0.1 MPa.

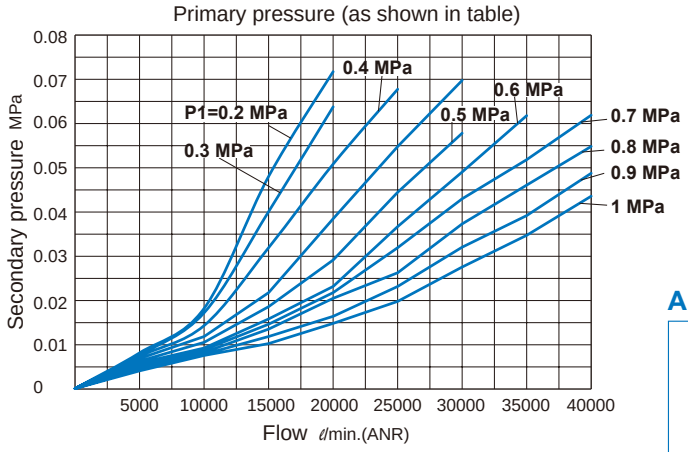
Order example

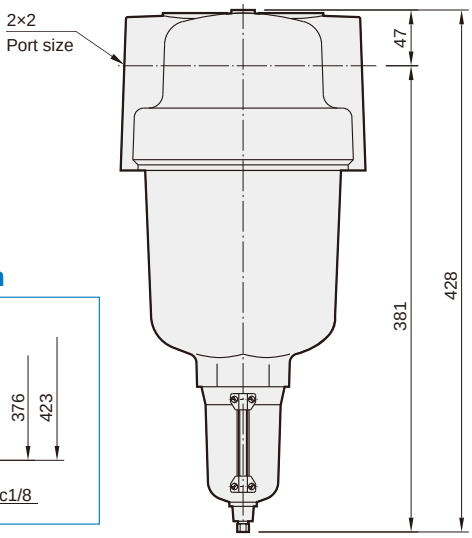
MAF901 – 50A – D – □

- MODEL
- PORT SIZE
  50A: 2
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
- Blank: Manual drain
  D: Auto drain

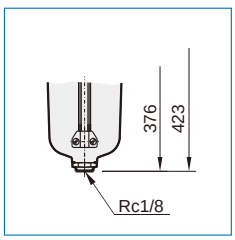


Flow feature





Auto drain

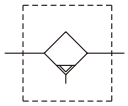


MAD400 series

AUTO DRAINER



Symbol



Specification

Model	MAD400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.15~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Weight	480 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

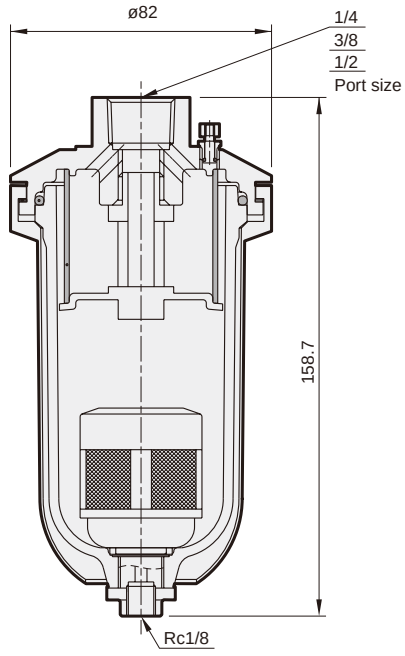
Order example

MAD400 – 8A – D3 – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- AUTO DRAIN VALVE
  - Blank: Male thread (MADV400-WB)
  - **D3**: Female thread (MADV400-WA)
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

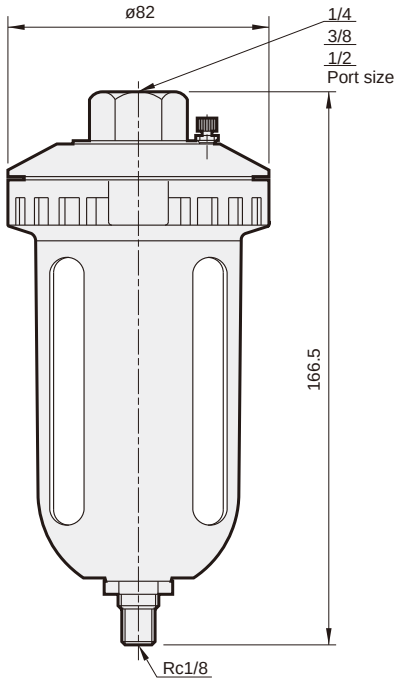
MAD400-D3

Female thread (MADV400-WA)



MAD400

Male thread (MADV400-WB)

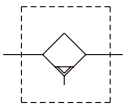


MAD401 series

AUTO DRAINER



Symbol



Features

- Max. operating pressure: 1.3 MPa

Specification

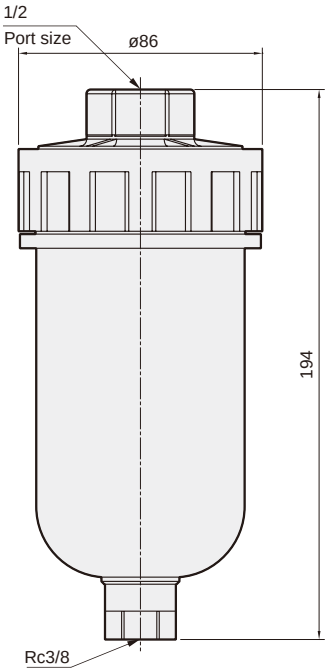
Model	MAD401
Bore No.	15A
Port size	1/2
Medium	Air
Operating perssure range (*)	0.1~1.3 MPa
Proof pressure	1.7 MPa
Ambient temperature	– 5~+80°C (No freezing)
Weight	745 g

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

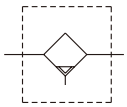
MAD401 – 15A – □

- MODEL
- PORT SIZE
  15A: 1/2
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread





Symbol



Features

- Max. operating pressure: 1.3 MPa

Specification

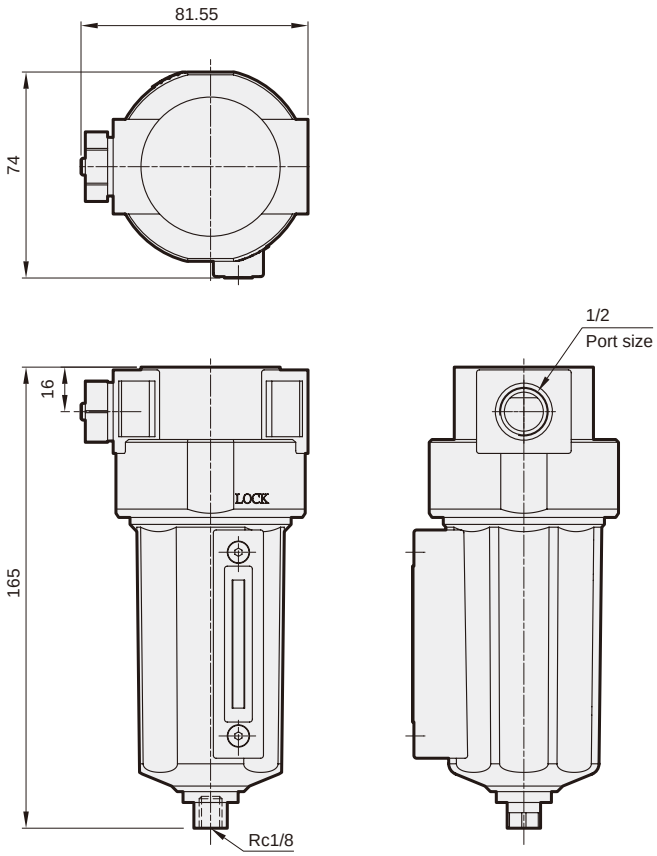
Model	MAD401H
Bore No.	15A
Port size	1/2
Medium	Air
Operating perssure range (*)	0.1~1.3 MPa
Proof pressure	2.0 MPa
Ambient temperature	– 5~+60°C (No freezing)
Weight	519 g

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

MAD401H – 15A – □ – □

- MODEL
- PORT SIZE
  15A: 1/2
- EXTERIOR COLOR
  Blank: Black & silver
  W: Gray & white
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread



MAD500 series

AUTO DRAINER



Specification

Model	MAD500	MAD500M
Dimensions	High 18cm (7"), Diameter 10cm(4")	
Inlet	Rc1/2	
Outlet	Rc3/8	
Operating perssure range	0.13~1.3 MPa	
Ambient temperature	2~60°C (36~104°F)	
Weight	780 g	
Discharge per operation	60cc per on time. Max. operation 25 times per minute.	

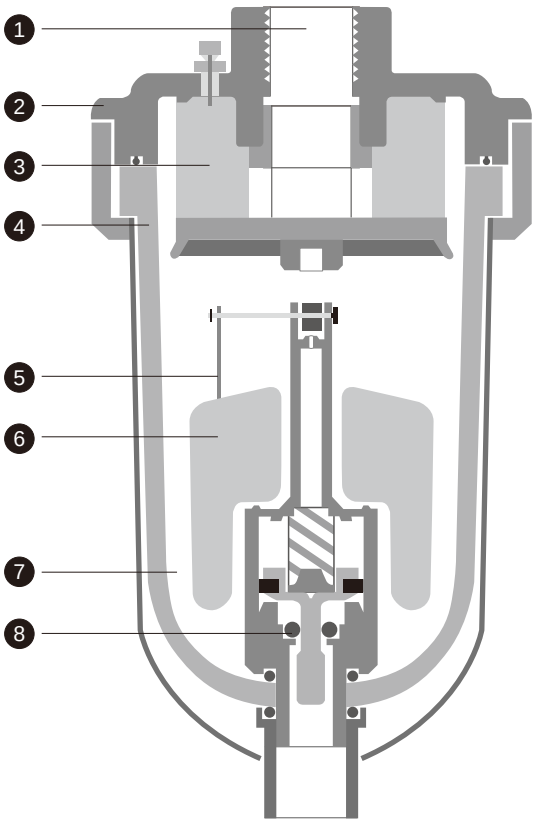
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

* Port thread G. NPT. are also available.

MAD500 – M

- MAD500 – MODEL
- M – FILTER BOWL MATERIAL
  - Blank: Polycarbonate (PC)
  - **M**: Alumium Alloy



Improve the quality of compressed air

Modern plants use large quantity of compressed air to operate many precise automatic machines. With air pollution getting worse in the environment, polluted air from plants and automobiles have increase in a great deal. As the result, the quality of compressed air is degraded due to the dust, oil mist within plants and the increased temperature of the environment The addition of expensive drying equipment and precise filter can block some water and impurity, But can not block acid chemicals in polluted air such as sulfur dioxide ($S0_2$), tiny oil mist and dust that are smaller than 0.01micron from entering the compressed air system.

After years of accumulation, these harmful materials can reduce the efficiency and service life of the drying equipment and filter systems. Furthermore, they can corrode the compressed air pipeline and some parts to affect the operation of automatic machines. The only way to prevent these is to use the excellent compressed air automatic drain valve to drain water, oil mist, rust and acid chemicals out of the compressed air system. It will increase the quality of compressed air, smooth the machine operation and increase the production efficiency.

❶ With large diameter sized entrance and path for particles and rust to pass through, no accumulation will occur in dead corners.

❷ Aluminum alloy casting with special anti-corrosion treatment and then coated with high quality baking varnish can withstand acid and alkali without any corrosion occurring.

❸ Large volume filtered dirt storing compartment can filter and store more rust and dirt than other common automatic drain valve.

❹ Water collecting bowl, made of optical class transparent plastic material, will not rupture.

❺ Implanted stainless rod for float will never slip off.

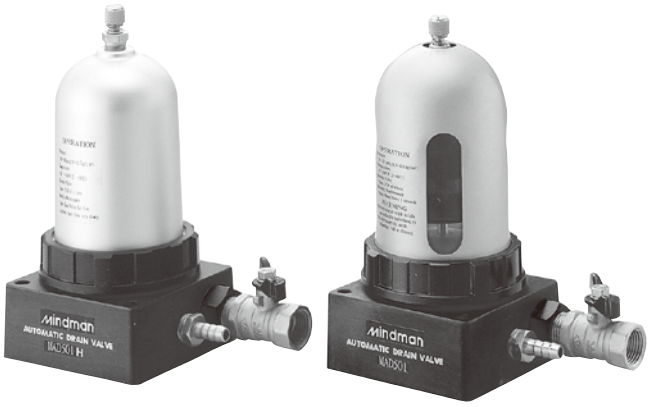
❻ Large size float has more buoyancy and is more sensitive to control.

❼ Large size water collecting bowl can store and drain more water thus reduce the draining time and increase the service life of automatic drain valve.

❽ Leakage proof ring, made of high quality VITON rubber, can endure abrasion without leakage. Its service time is ten times longer than NBR rubber.

MAD501 series

AUTO DRAINER



- Clean compressed air, extends the life of pneumatic equipment.
- No electricity required.
- Easy installation not limited by space.

Specification

Model	MAD501	MAD501H
Inlet	Rc1/2	
Manual outlet	Rc1/2	
Automatic outlet	Rc3/8, 5/16"HOSE	
Operating perssure range	0.13~0.88 MPa	0.3~1.27 MPa
Ambient temperature	+2~+60°C	
Min. equipment requirement	180 l/min (about 1 HP)	250 l/min (about 2 HP)
Max. condensate discharge rate	15 gal/hour (57 l/min)	12 gal/hour (46 l/min)
Bowl	Polycarbonate (PC)	Aluminium
Dimensions	160mm×100mm×200mm	
Weight	1.3 kg	1.4 kg

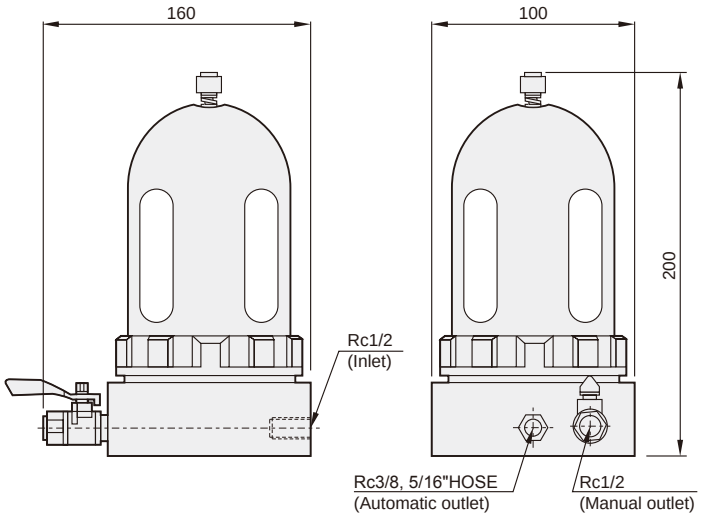
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

Order example

* Port thread G. NPT. are also available.

MAD501 – H

- MAD501 – MODEL
- H – FILTER BOWL MATERIAL
  - Blank: Polycarbonate (PC)
  - **H**: Alumium Alloy



Continuous elimination of water

MAD501(H) automatic drain valve features an advanced design. Through the hose connections, Condensate, oil and sludge are eliminated from the compressed air equipment. The continuous-duty drainer constantly collects contaminants until these are eliminated "on demand" thus keeping a compressed air system clean. When installing the drainer, one is not limited by height nor position; uniquely, it can by installed in any ideal place or position. Since it needs only air pressure to operate, no electrical or outside controlling mechanisms are required. It rapidly and accurately eliminates water and other contaminants.

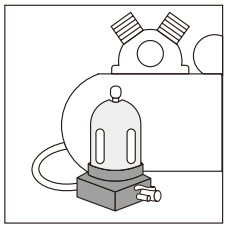
Solid, liquid and gas separation

The specially designed structure of the **MAD501(H)** separates solid, liquid and air. Since the controlling mechanisms are located in the air section, the moving parts are not affected by water, oil, or sludge-producing years of trouble-free draining.

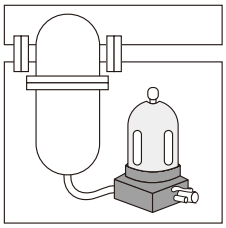
An integral part of the MAD501(H)'s design is the large cylindrical filter and manual valve (located in the base). Here, solids such as rust and pipe scale collect. In order to eliminate this waste, one need not stop the unit or use any tools; conversely, by briefly opening the manual valve, waste is immediately purged from the unit.

Finally, the liquid water and oil collect in the lower chamber (away from the controlling mechanisms) until purged either automatically or by opening the manual valve.

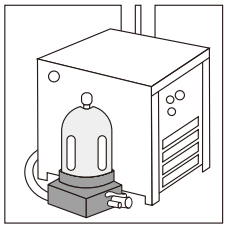
Applications



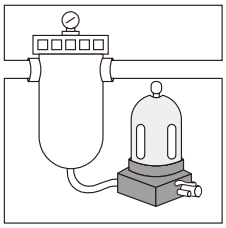
Air compressor



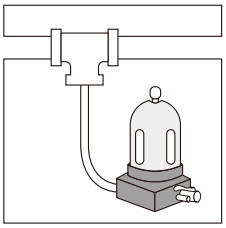
Separator



Air dryer



Air filter

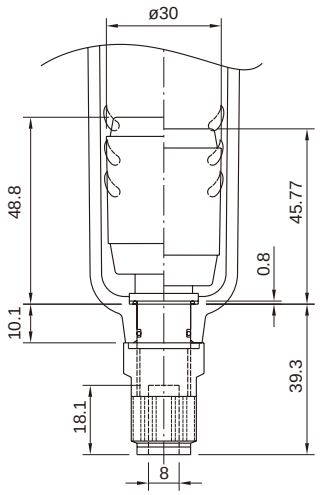


Drop leg

FMRF300 / MADV400 series

AUTO **DRAIN VALVE**





Specification

Model	FMRF300
Operating pressure range	0.15~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	– 5~+60°C (No freezing)

Order example

FMRF300 – AD – U

for AIR UNIT
MA**300 / 302 series
MA**400 series
MA**401 / 403 series
MA**501 series
* Ordered with filter together.



Specification

Model	MADV400
Operating pressure range	0.05~1.3 MPa
Proof pressure	2.0 MPa
Ambient temperature	– 5~+60°C (No freezing)

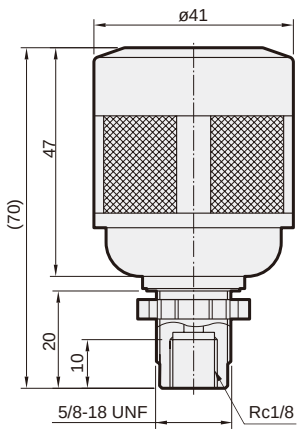
Order example

MADV400 – WB

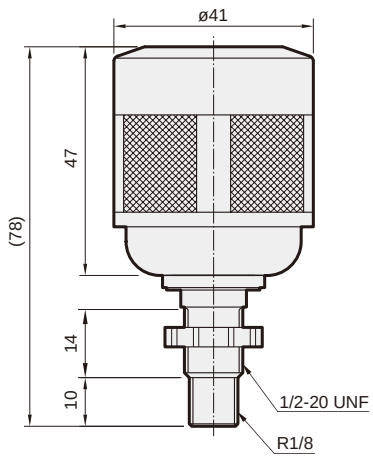
MODEL

TYPE
WA
WB

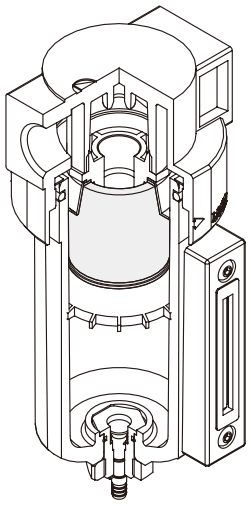
WA



WB







Order example

E40 – 200

- E40 – FILTER ELEMENT
- 200 – SERIES

The table of the symbol

Applicable model						Symbol for order		
series	MACC	MACT	MACP	MAFR	MAF	E5: 5μ	E20: 20μ	E40: 40μ
100				●		E5-100	–	E40-100
200		●	●	●	●	E5-200	–	E40-200
300	●	●	●	●	●	E5-300	–	E40-300
300L		●	●	●	●	E5-300	–	E40-300
302		●	●	●	●	E5-300	–	E40-300
400			●	●		E5-R400	–	E40-R400
400		●			●	E5-400	–	E40-400
401		●	●	●	●	E5-401	–	E40-401
402		●	●	●	●	E5-402	E20-402	E40-402
403		●	●	●	●	E5-401	–	E40-401
501		●			●	–	–	E40-501
501			●	●		–	–	E40-R501

EX: If order the 5u element of MACT300, the order symbol is E5-300.

Applicable model	Symbol for order		
	E001: 0.01μ	E03: 0.3μ	E5: 5μ
MAF300LD	–	E03-300L	–
MAF300LM	E001-300L	–	–
MAF302D, MAF401D	–	E03-302	–
MAF302M, MAF401M	E001-302	–	–
MAFF401AD, MAFRF401	–	E03-302	E5-401
MAFF401DM	E001-302	E03-302	–
MATFR401	E001-302	E03-302	E5-401
MAF501D	–	E03-501	–
MAF501M	E001-501	–	–

MWC series

FILTER FOR TURBINE TYPE



Features

- Water removal rate remove as much as 99.99% of the water.
- Cost space saving save 80% cost.
- No power supply since no electricity is used, no wiring work is necessary. Installation is very easy.
- Compact design easily installed in wide variety of mechanical systems, due to space-saving design.

Specification

Model	MWC-1000	MWC-4000
Port size	3/8	1
External dimension (mm)	ø85×382	ø130×501
Max. operating pressure	1 MPa	
Max. air flow (*)	940 Nℓ/min	4,000 Nℓ/min
Option	Bracket	
Weight	1.6 kg	4.3 kg

* Pressure is at 0.7 MPa.

Order example of filter

MWC – 1000 – □ – NPT

- MODEL
- FLOW CODE
  1000
  4000
- BRACKET
  Blank: Without bracket
  BT: With bracket
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Order example of bracket

BT – MWC – 1000

- BRACKET
- FLOW CODE
  1000
  4000

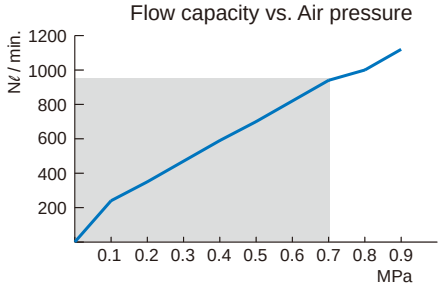
* NPT, G: Using converting sockets (Attachment).

Pressure loss / flow capacity

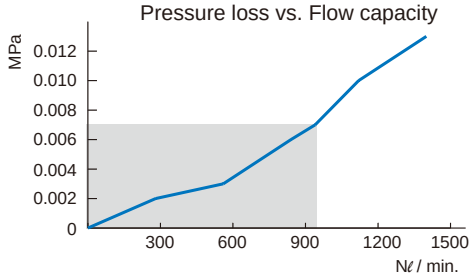
The pressure loss is less than 1%

MWC-1000

Flow capacity vs. Air pressure

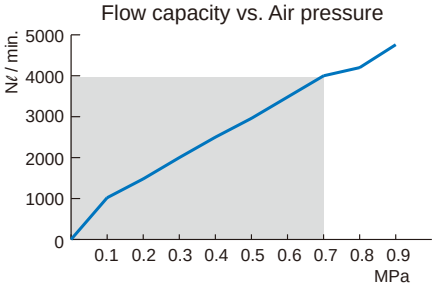


Pressure loss vs. Flow capacity

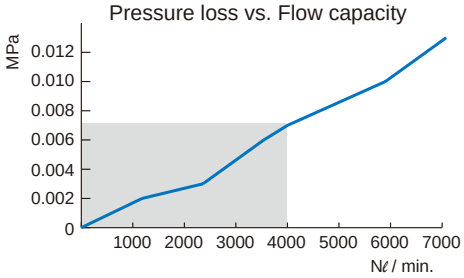


MWC-4000

Flow capacity vs. Air pressure

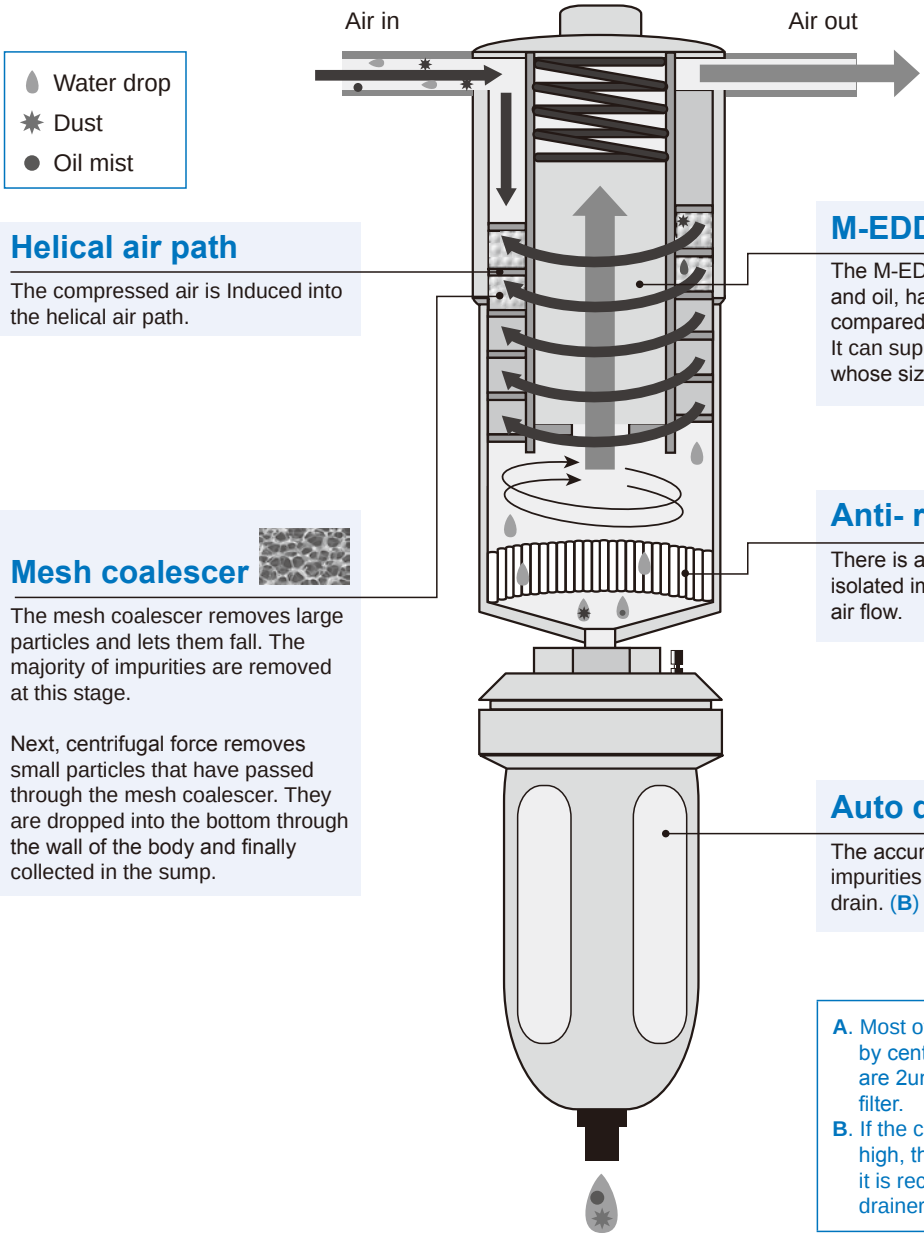


Pressure loss vs. Flow capacity



* This product must be operated within the condition designated by blue areas in the graphs.

Compact and high efficiency



Helical air path

The compressed air is Induced into the helical air path.

Mesh coalescer

The mesh coalescer removes large particles and lets them fall. The majority of impurities are removed at this stage.

Next, centrifugal force removes small particles that have passed through the mesh coalescer. They are dropped into the bottom through the wall of the body and finally collected in the sump.

M-EDDY filter

The M-EDDY filter which absorbs both mist and oil, has four times filtration capacity compared to the regular filters.
It can supply clean air free of mist particles whose size is more than 1μm. (A)

Anti- rolling up mechanism

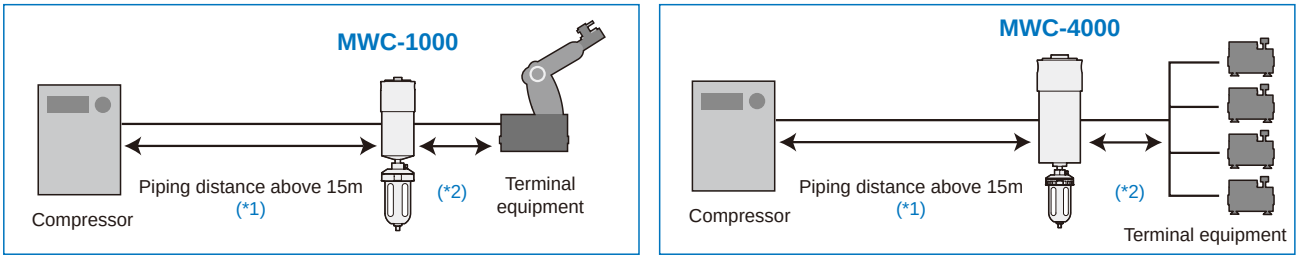
There is a built-in mechanism that keeps isolated impurities from coming back to the air flow.

Auto drain

The accumulation of oil, sewage and other impurities in the bowl are automatically drain. (B)

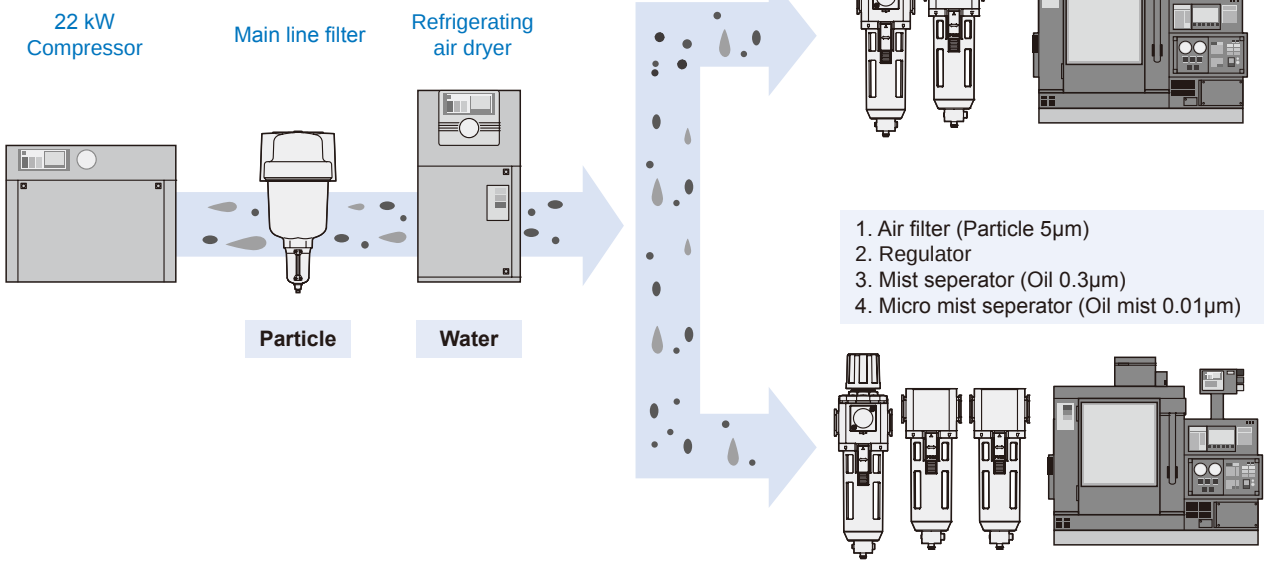
A. Most of the impurities will be separated by centrifugal force, and the particles size are 2um ~ 5um, even without M-EDDY filter.
B. If the concentration of oil or impurity is too high, the automatic drainer may be failure, it is recommended to install manual drainer.

Application examples

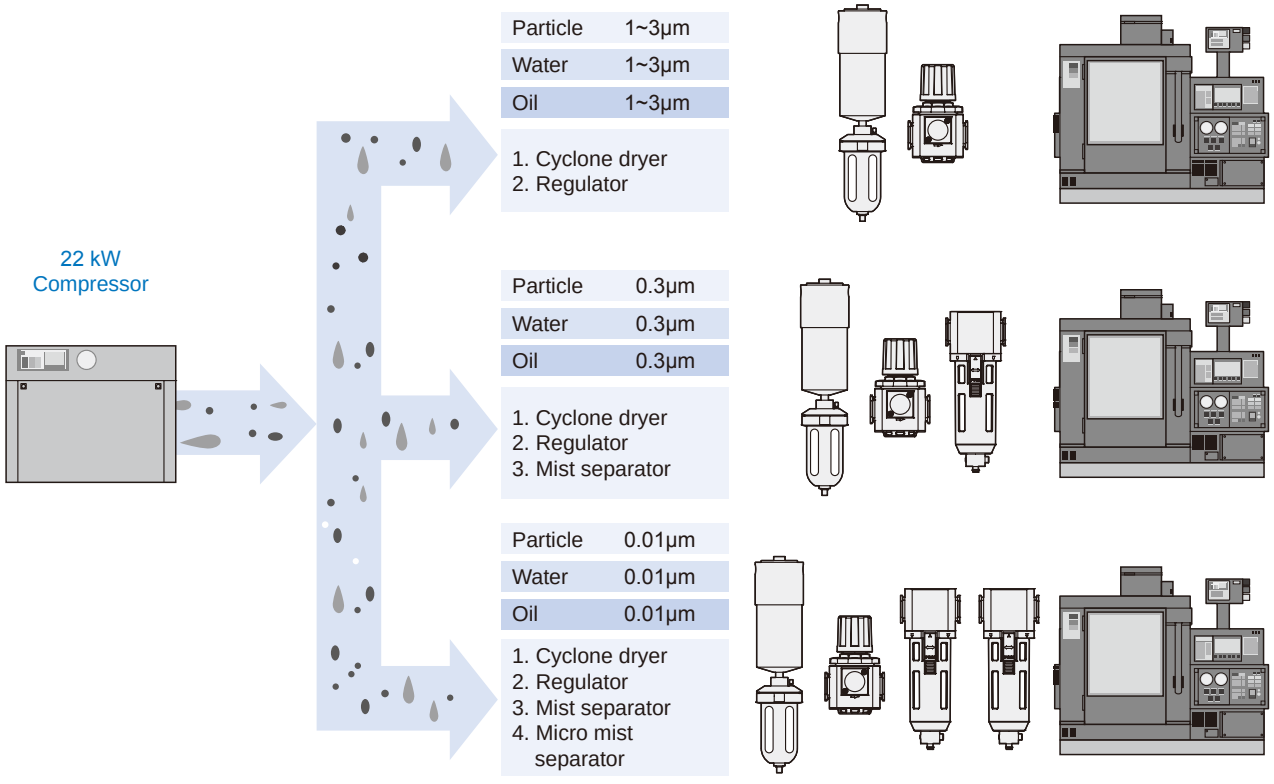


*1. Should be installed as far as possible from the compressor.
*2. Should be installed as closer as possible to the terminal equipments.

Usual air system



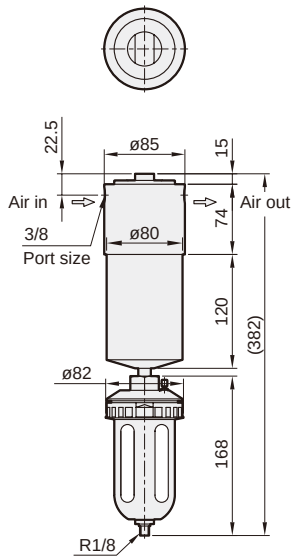
Cyclone dryer system



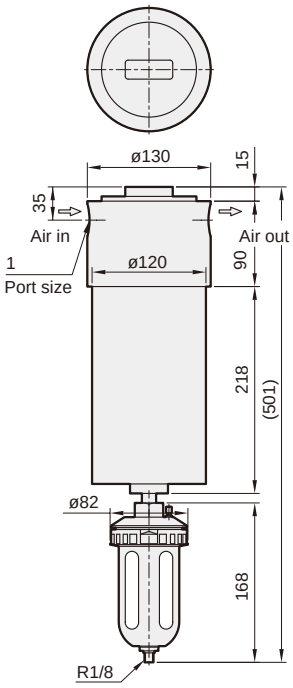
Dimensions

MWC-1000

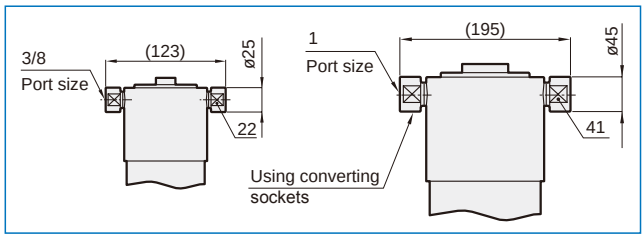
Rc thread



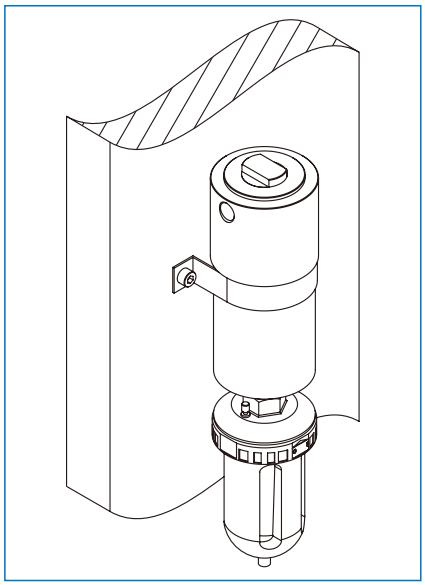
MWC-4000



G & NPT thread

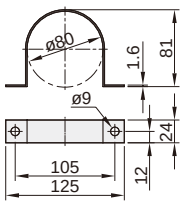


Installation diagram

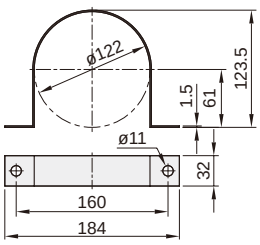


Bracket

BT-MWC-1000

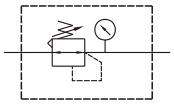


BT-MWC-4000





Symbol



Specification

Model	MAR100
Port size	M5×0.8
Medium	Air
Max. operating pressure	1 MPa
Proof pressure	1.5 MPa
Regulated pressure range	0.05~0.7 MPa
Repeatability	±10% F.S.
Ambient temperature	– 5~+60°C (No freezing)
Flow rate (*)	90 ℓ/min
Attachment	Pressure gauge (PG-25), bracket
Weight	100g

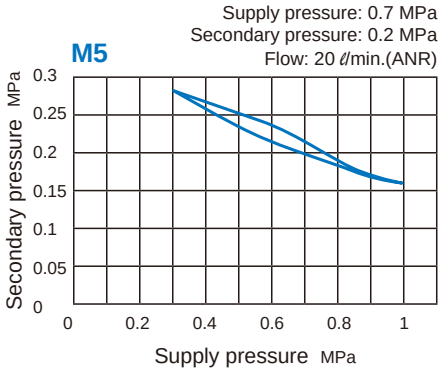
* Measured at primary pressure 0.7 MPa, secondary pressure 0.6 MPa and pressure drop 0.1 MPa.

Order example

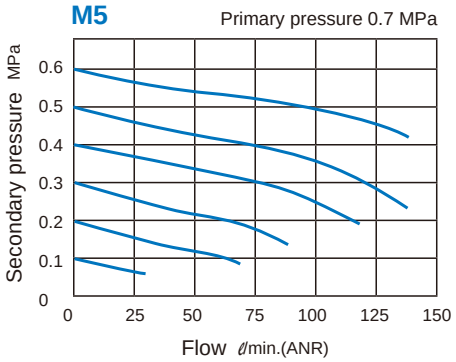
MAR100 — M5 — B — C

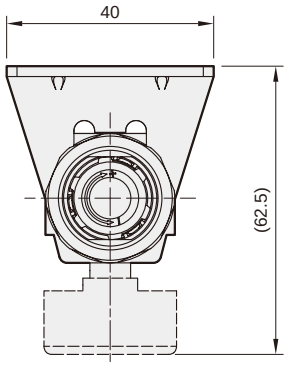
- MAR100 — MODEL
- M5 — PORT SIZE
- B — BRACKET
- C — PRESSURE GAUGE

Pressure characteristics

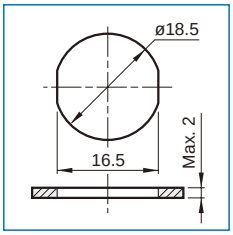


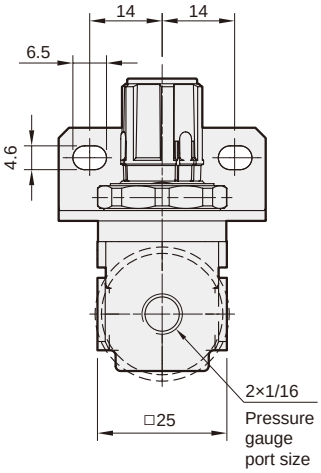
Flow feature

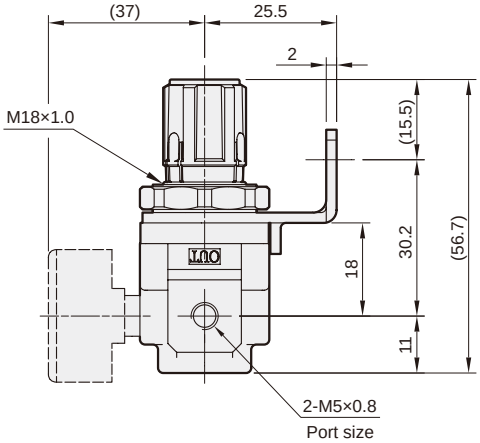




Panel mounting hole







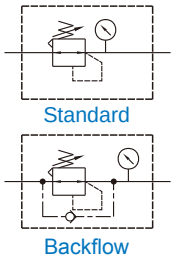
MAR200 series

PRESSURE REGULATOR

mindman



Symbol



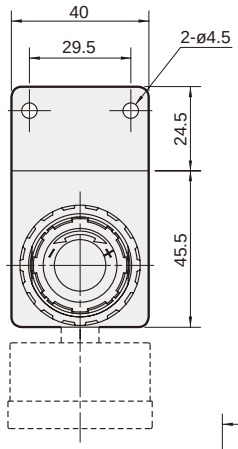
Specification

Model	MAR200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	Standard type: 0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Attachment	L-type bracket	
Option	Pressure gauge (PG-40), Z-type bracket	
Weight	190 g	

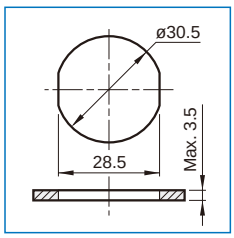
Order example

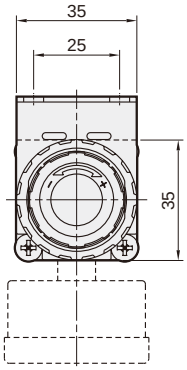
MAR200 K — 6A — □ — 1K — C — □ — □

- MODEL
- K: Blank: Standard; **K**: Backflow function
- PORT SIZE: **6A**: 1/8; **8A**: 1/4
- EXHAUST MECHANISM: Blank: Relieving type; **Q**: Non-relieving type
- ADJUSTABLE PRESS. RANGE: Blank: 0.05~0.85 MPa; **1K**: 0.05~0.1 MPa; **2K**: 0.05~0.2 MPa; **3K**: 0.05~0.3 MPa; **4K**: 0.05~0.4 MPa
- BRACKET: Blank: L type; **B3**: Z type
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread
- Blank: Without pressure gauge; **C**: Pressure gauge (PG-40)



Panel mounting hole



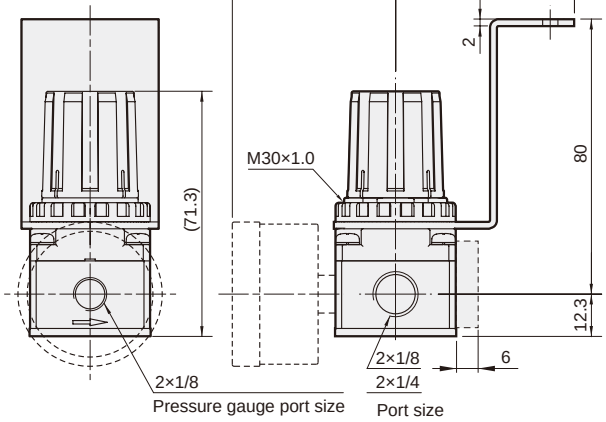


* The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.

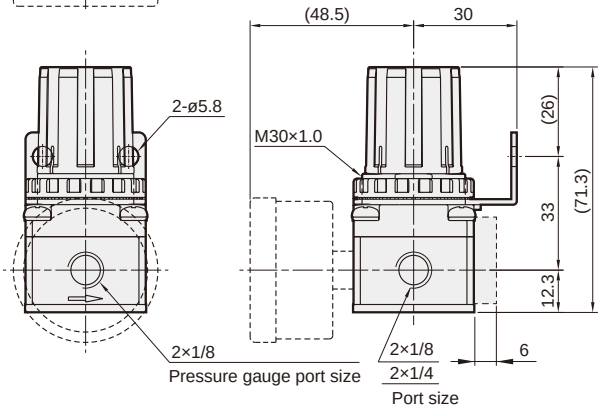
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

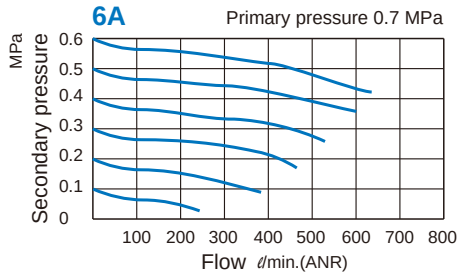
Z type bracket

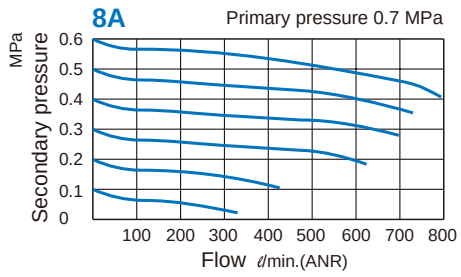


L type bracket



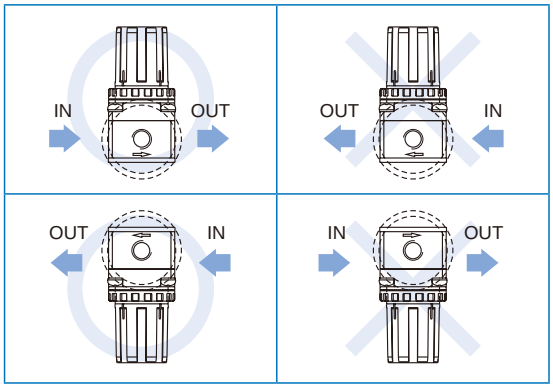
Flow feature



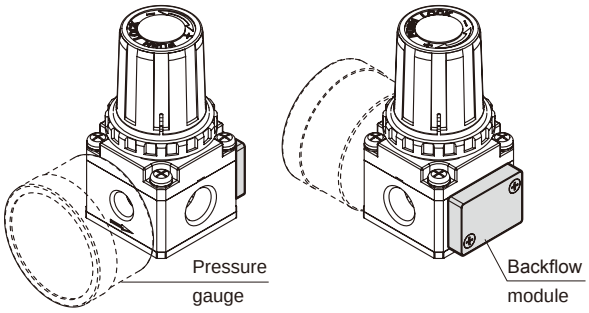


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

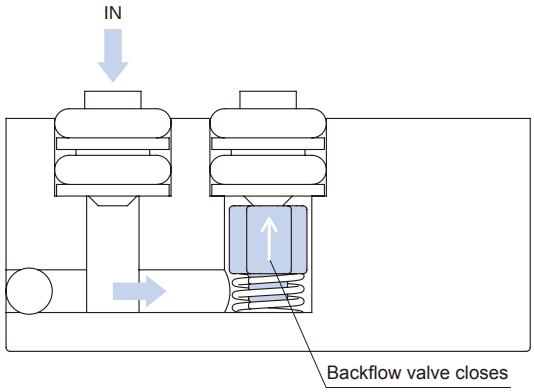


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

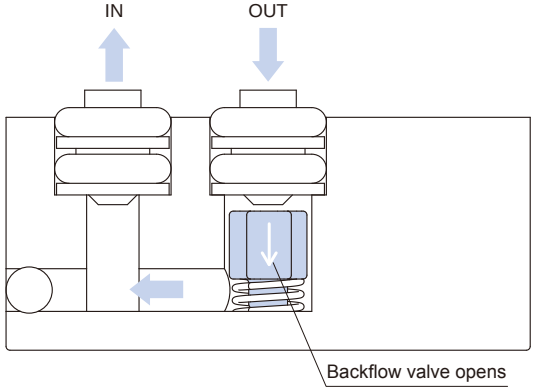
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



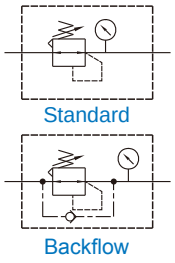
MAR201 series

PRESSURE REGULATOR

mindman



Symbol



Specification

Model	MAR201	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	Standard type: 0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Attachment	L type bracket	
Option	Pressure gauge (PG-40), Z-type bracket	
Weight	190 g	

Order example

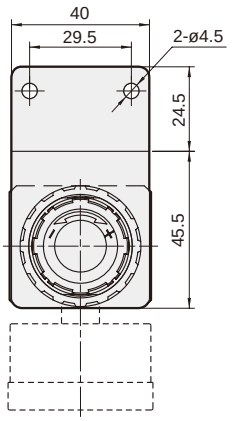
MAR201 K — 6A — □ — 1K — C — □ — □

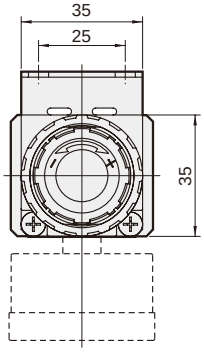
- MODEL
- K: Backflow function (Blank: Standard)
- PORT SIZE — **6A**: 1/8, **8A**: 1/4
- EXHAUST MECHANISM — Blank: Relieving type, **Q**: Non-relieving type
- ADJUSTABLE PRESS. RANGE — Blank: 0.05~0.85 MPa, **1K**: 0.05~0.1 MPa, **2K**: 0.05~0.2 MPa, **3K**: 0.05~0.3 MPa, **4K**: 0.05~0.4 MPa
- BRACKET — Blank: L type, **B3**: Z type
- PORT THREAD — Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- Blank: Without pressure gauge, **C**: Pressure gauge (PG-40)

* The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.

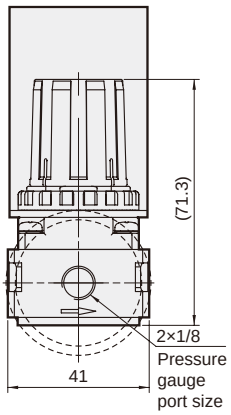
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

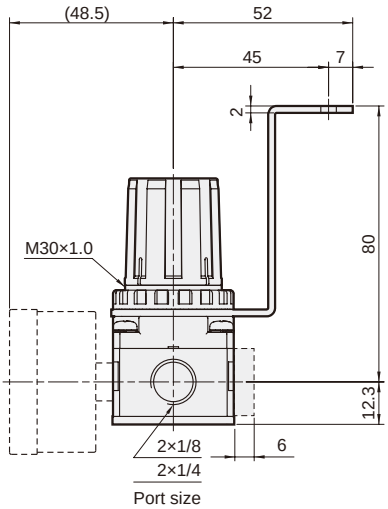
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

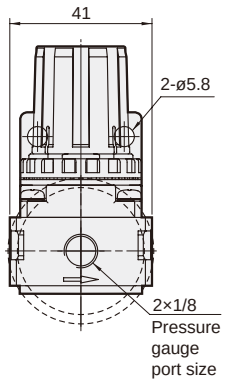




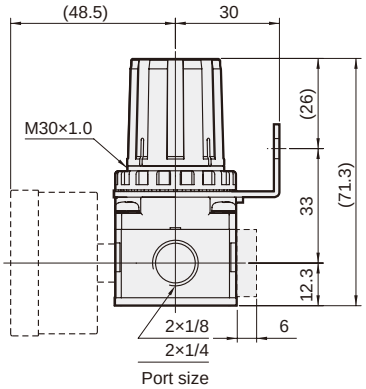
Z type bracket



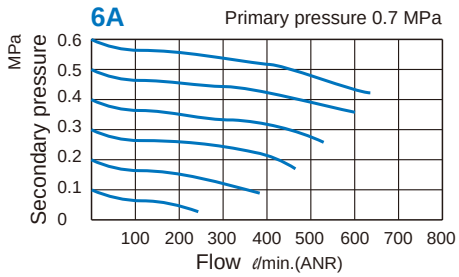


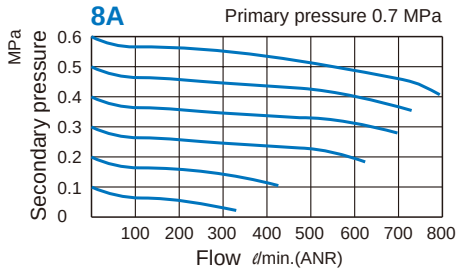


L type bracket



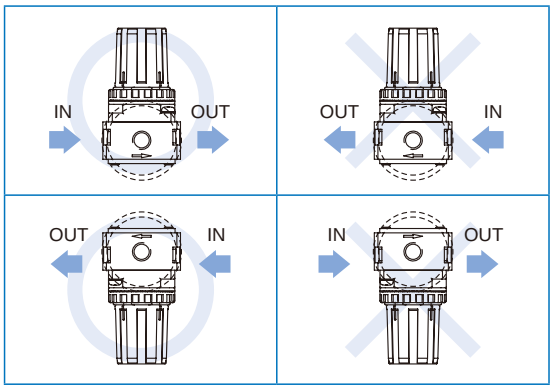
Flow feature



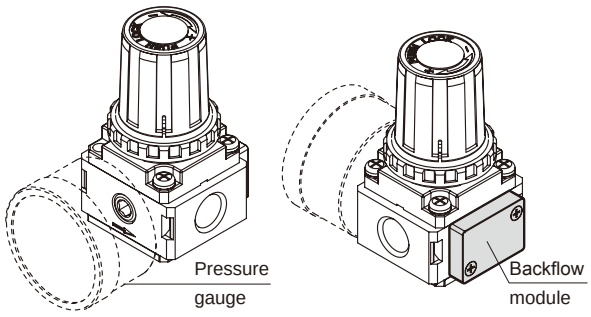


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

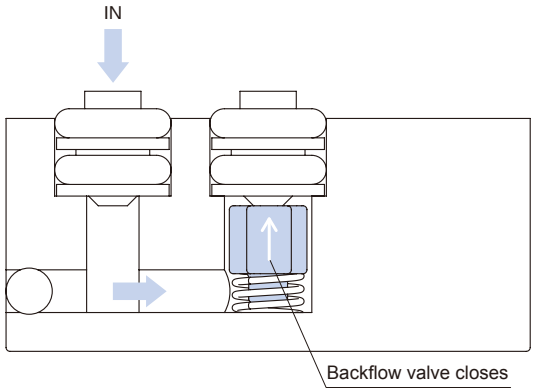


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

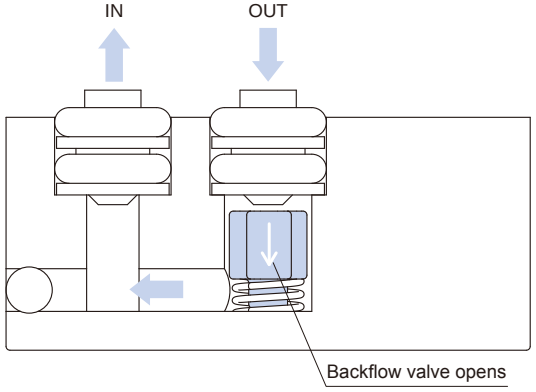
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



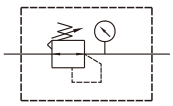
MAR300 series

PRESSURE REGULATOR

mindman



Symbol



Specification

Model	MAR300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Attachment	L type bracket	
Option	Pressure gauge (PG-40)	
Weight	250 g	

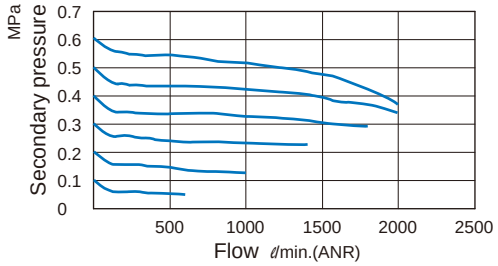
Order example

MAR300 — 8A — C — □

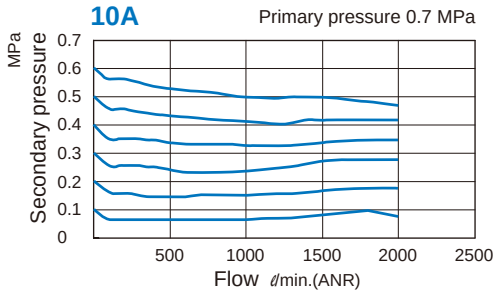
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- Blank: Without pressure gauge
  C: Pressure gauge (PG-40)

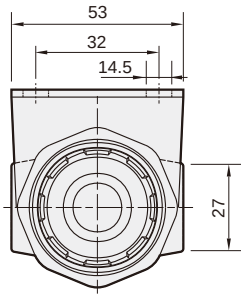
Flow feature

8A Primary pressure 0.7 MPa

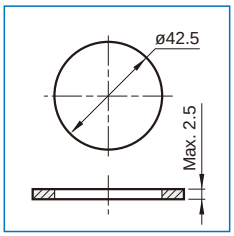


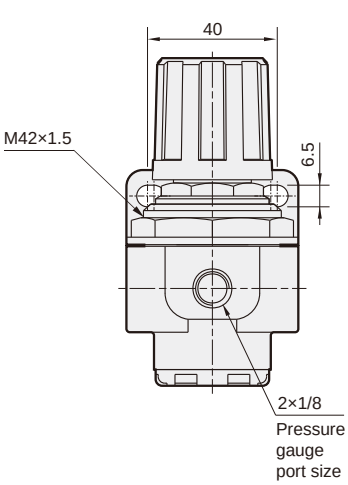
10A Primary pressure 0.7 MPa

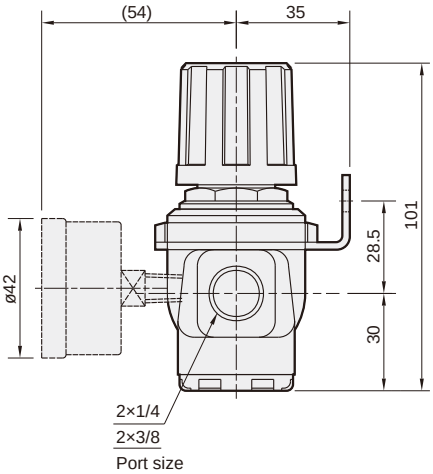




Panel mounting hole

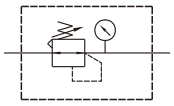








Symbol



Specification

Model	MAR301	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Attachment	L type bracket	
Option	Pressure gauge (PG-40), Z-type bracket	
Weight	250 g	

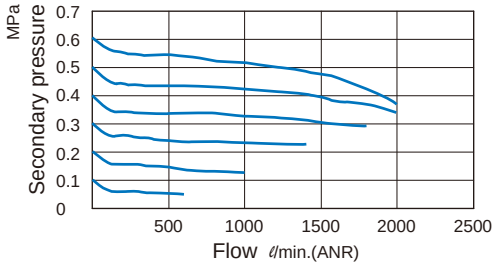
Order example

MAR301 — 8A — C — □ — □

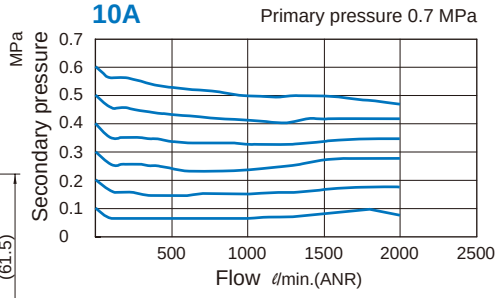
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- Blank: Without pressure gauge
  C: Pressure gauge (PG-40)
- BRACKET
  Blank: L type
  B3: Z type
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

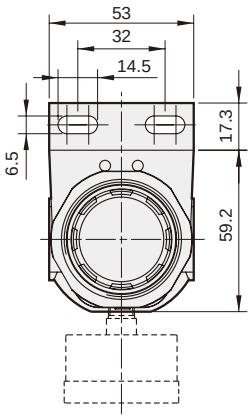
Flow feature

8A Primary pressure 0.7 MPa

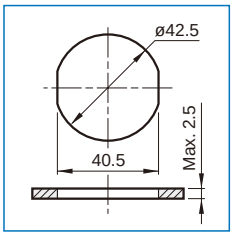


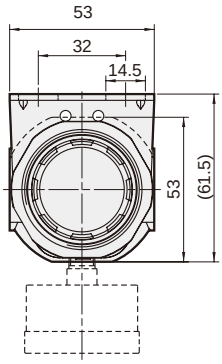
10A Primary pressure 0.7 MPa



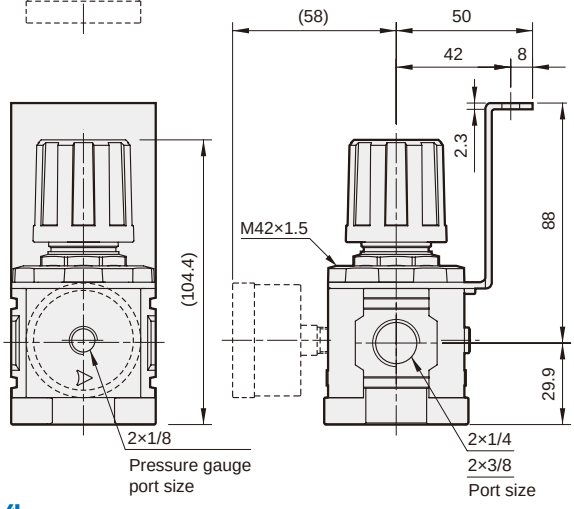


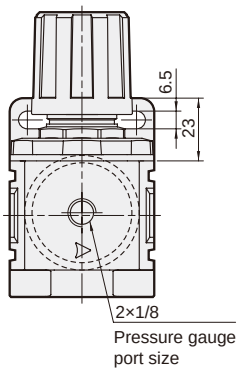
Panel mounting hole



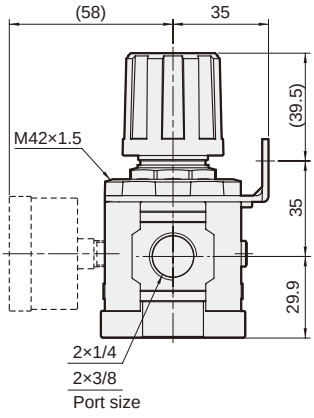


Z type bracket





L type bracket



MAR302 series

PRESSURE REGULATOR

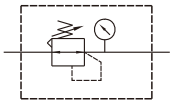
mindman



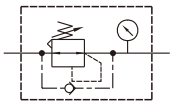


Option: **MP41**

Symbol



Standard



Backflow

Specification

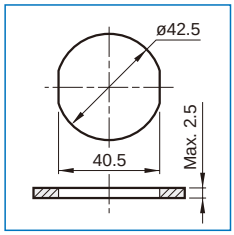
Model	MAR302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), Bracket		
Weight	270 g		

Order example

MAR302 K – 8A – □ – □ – E1 – □

- MODEL
- Blank: Standard
  K: Backflow function
- EXHAUST MECHANISM
  Blank: Relieving type
  Q: Non-relieving type
- BORE SIZE
  8A: 1/4
  10A: 3/8
  15A: 1/2
- Blank: Standard type (PG-20)
  C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302)
  A: Gauge adapter set (A-MAR302)
- (Option) PRESSURE SWITCH
  E1: MP41P-022
  E2: MP41P-022-QD
  E5: MP41P-042
  E6: MP41P-042-QD
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Panel mounting hole



* The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.

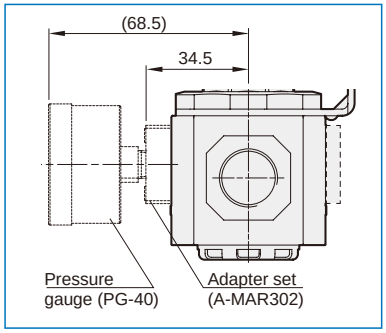
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

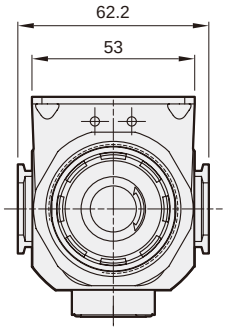
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

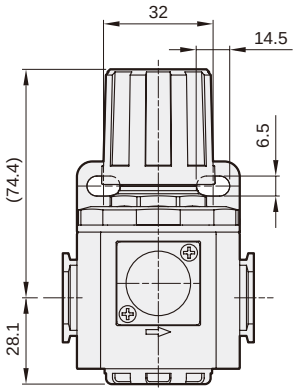
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

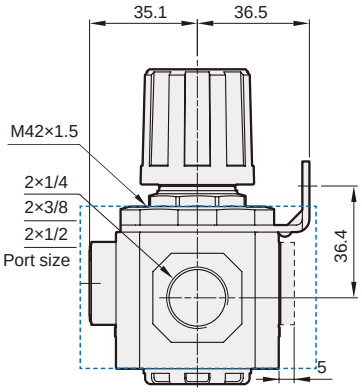
* Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

Accessories



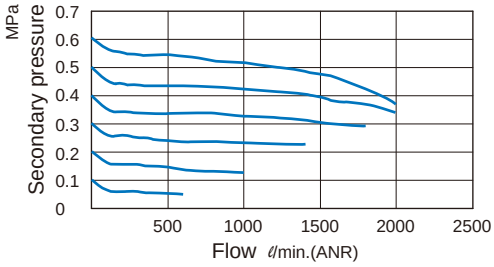




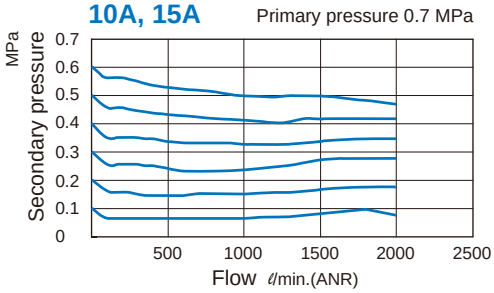


Flow feature

8A Primary pressure 0.7 MPa

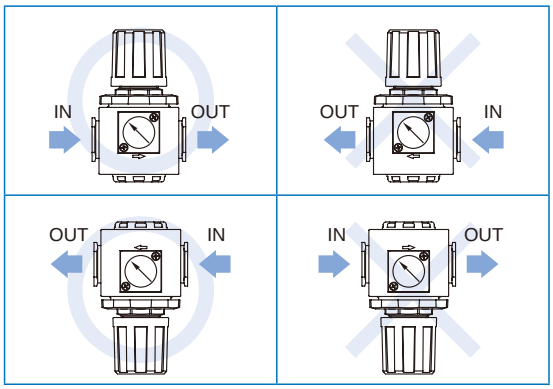


10A, 15A Primary pressure 0.7 MPa

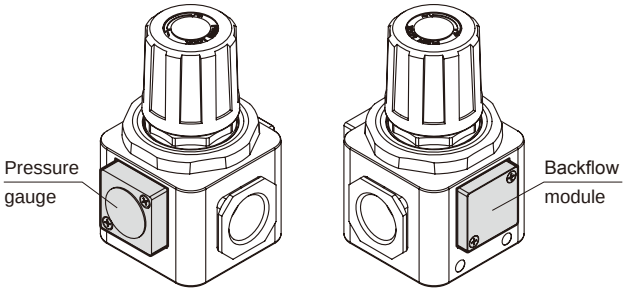


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

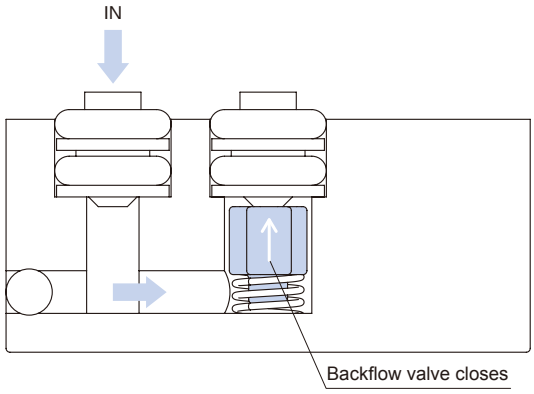


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

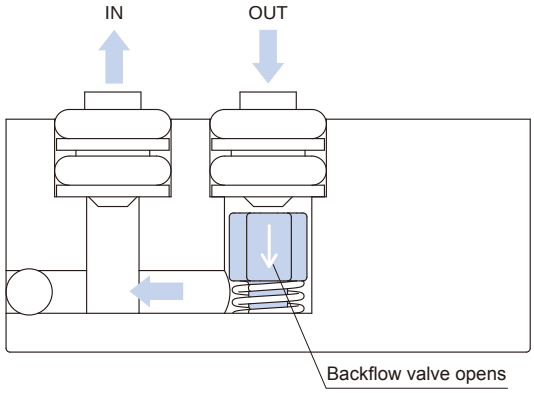
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source

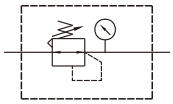


MAR400 series

PRESSURE REGULATOR



Symbol



Specification

Model	MAR400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-50), bracket		
Weight	1000 g		

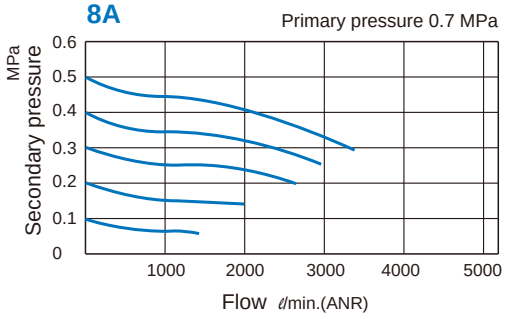
Order example

MAR400 — 8A — □

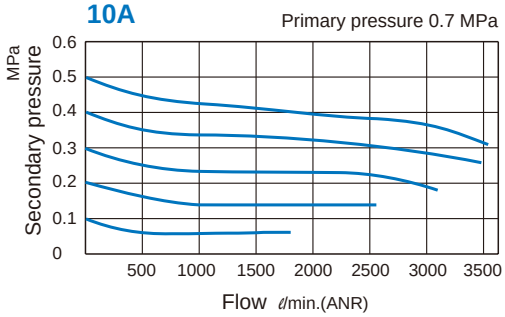
MODEL	PORT SIZE	PORT THREAD
	8A: 1/4 **10A**: 3/8 **15A**: 1/2	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Flow feature

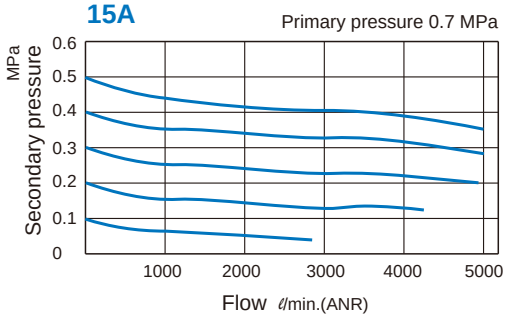
8A

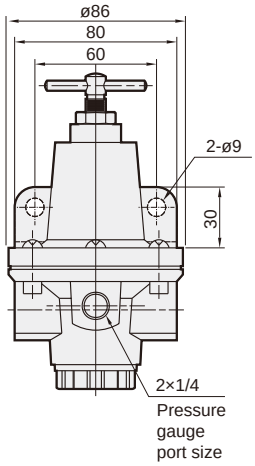


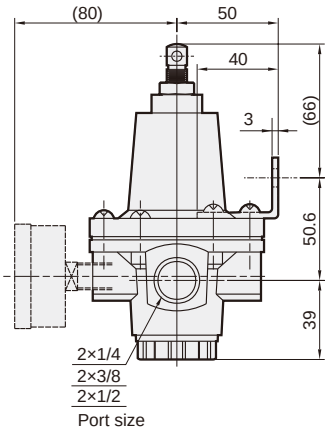
10A



15A





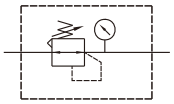




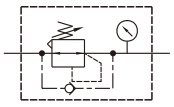


Option: **MP41**

Symbol



Standard



Backflow

Specification

Model	MAR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	450 g		

Order example

MAR401 K – 8A – □ – □ – HAP – E1 – □

- MODEL: Blank: Standard; **K**: Backflow function
- PORT SIZE: **8A**: 1/4; **10A**: 3/8; **15A**: 1/2
- EXTERIOR COLOR: Blank: Black& silver; **W**: Gray& white
- EXHAUST MECHANISM: Blank: Relieving type; **Q**: Non-relieving type
- (Option) PRESSURE SWITCH: **E1**: MP41P-022; **E2**: MP41P-022-QD; **E5**: MP41P-042; **E6**: MP41P-042-QD
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

* The backflow module can not be exchange with gauge.
When choosing the flow direction is left to right, the knob is up.

* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

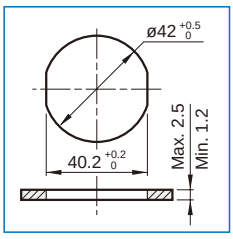
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

(Option) ACCESSORIES

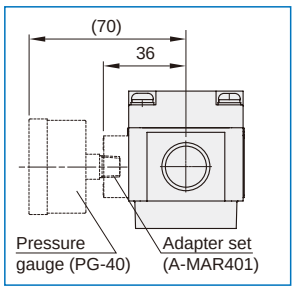
Type	Pressure gauge	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	**P**: Pressure switch (MPS series)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	–

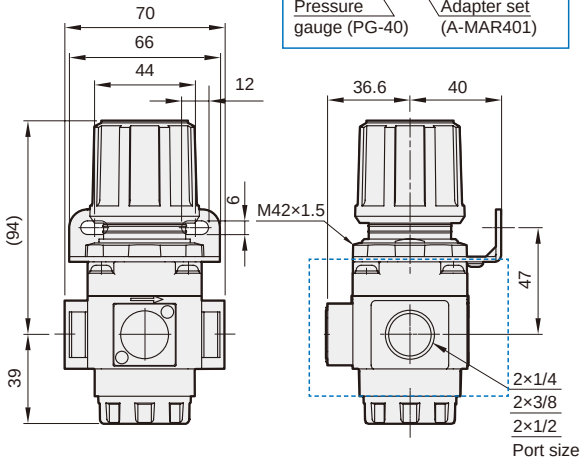
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).
* Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

Panel mounting hole



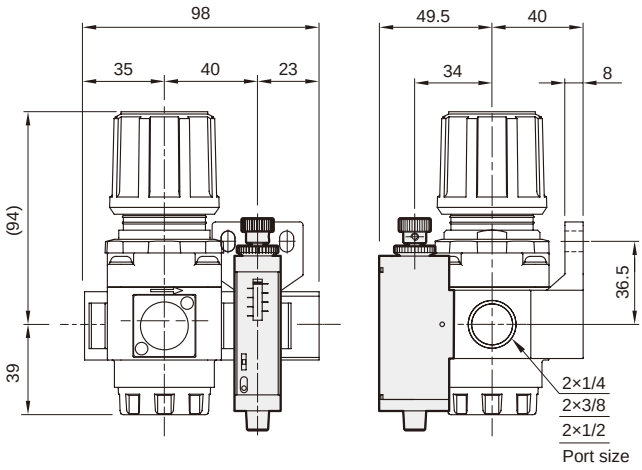
Accessories



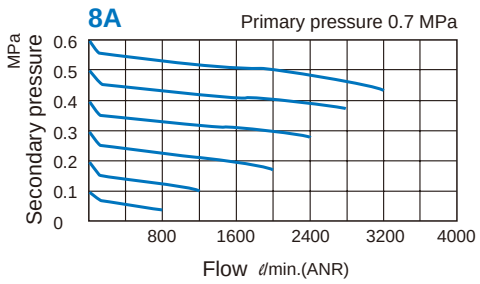


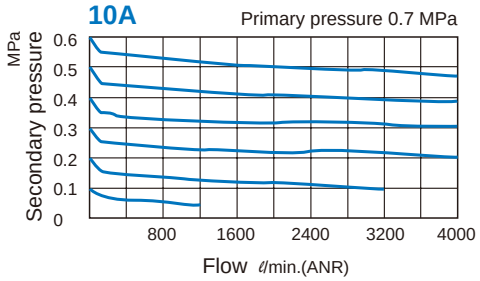
MAR401-P

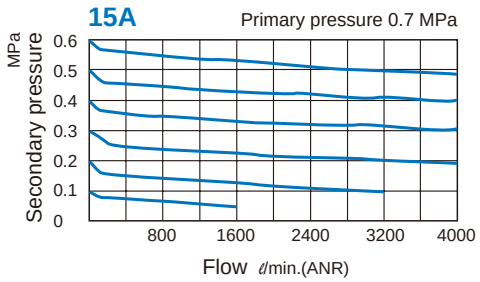
MPS Series
pneumatic pressure switch



Flow feature

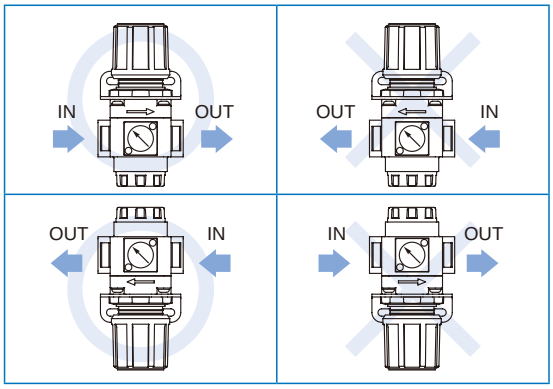




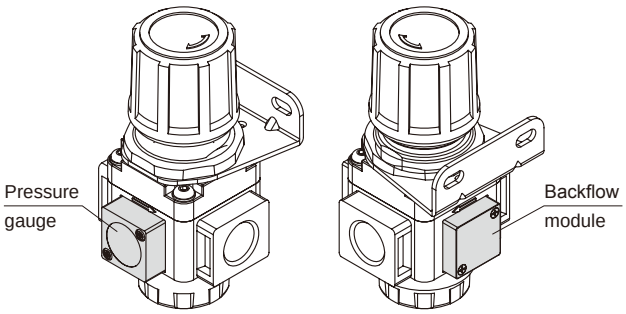


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

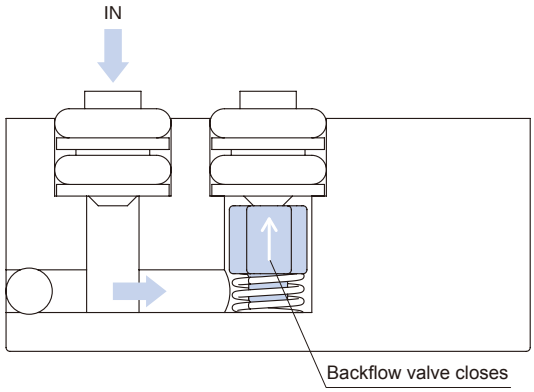


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

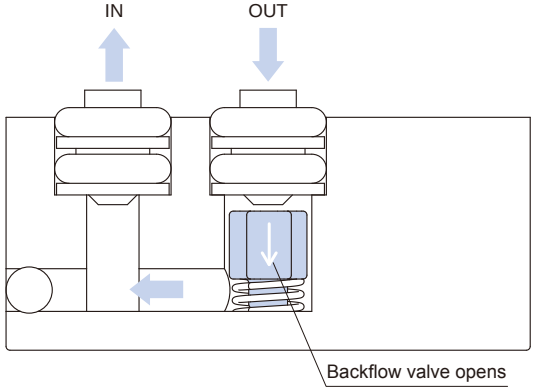
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply

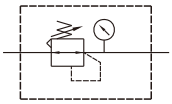


Cut off air source





Symbol



Specification

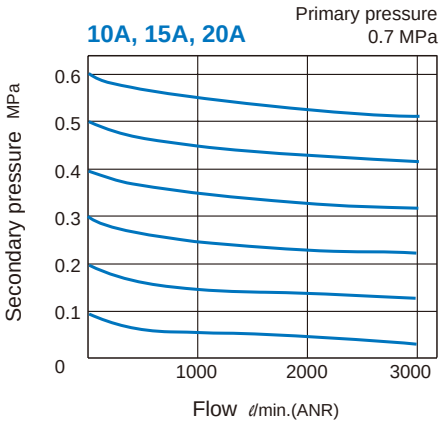
Model	MAR402		
Bore No.	10A	15A	20A
Port size	3/8	1/2	3/4
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Pressure gauge, L type bracket		
Weight	974 g		

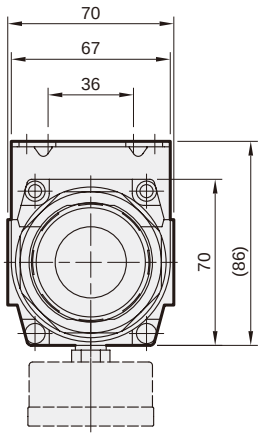
Order example

MAR402 — 15A — □

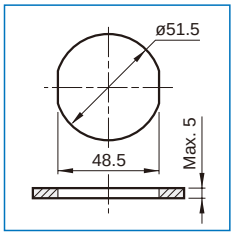
MODEL	PORT SIZE	PORT THREAD
	10A: 3/8 **15A**: 1/2 **20A**: 3/4	Blank: Rc thread **G**: G thread **NPT**: NPT thread

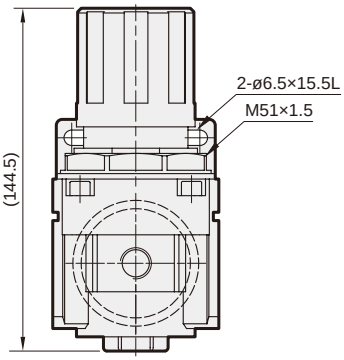
Flow feature

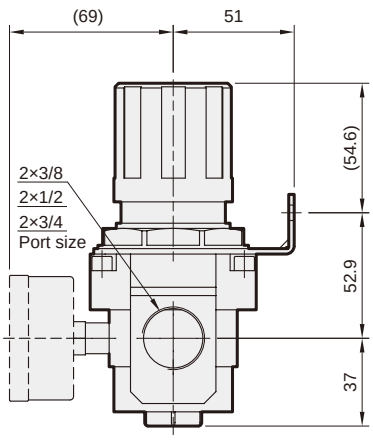




Panel mounting hole

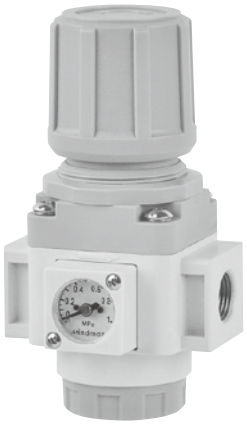






MAR403 series

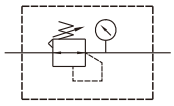
PRESSURE REGULATOR



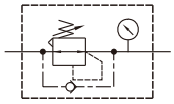


Option: **MP41**

Symbol



Standard



Backflow

Specification

Model	MAR403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.1~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	450 g		

Order example

MAR403 K – 8A – □ – □ – E1 – □

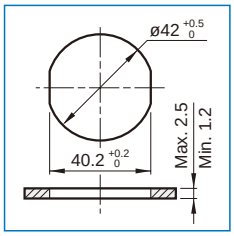
- MODEL
- Blank: Standard
  K: Backflow function
- PORT SIZE
  8A: 1/4
  10A: 3/8
  15A: 1/2
- EXHAUST MECHANISM
  Blank: Relieving type
  Q: Non-relieving type
- (Option) PRESSURE SWITCH
  E1: MP41P-022
  E2: MP41P-022-QD
  E5: MP41P-042
  E6: MP41P-042-QD
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

(Option) ACCESSORIES

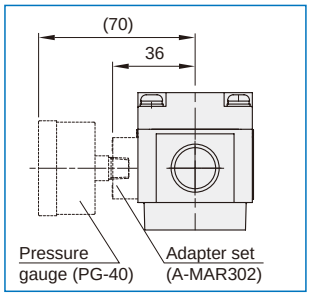
Pressure gauge	Pressure switch
Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	**P**: Pressure switch (MPS series)

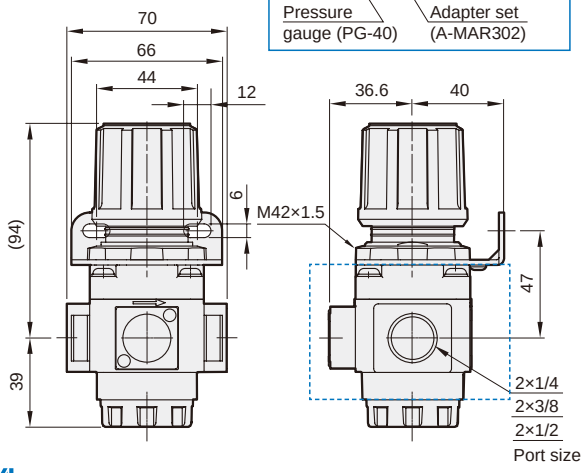
* The backflow module can not be exchange with gauge. When choosing the flow direction is left to right, the knob is up.
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

Panel mounting hole



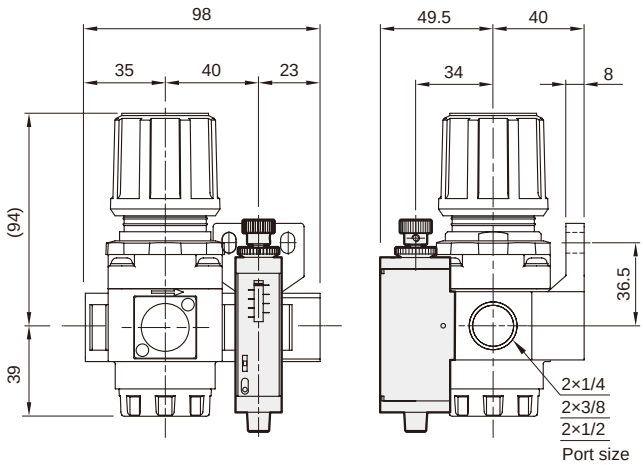
Accessories



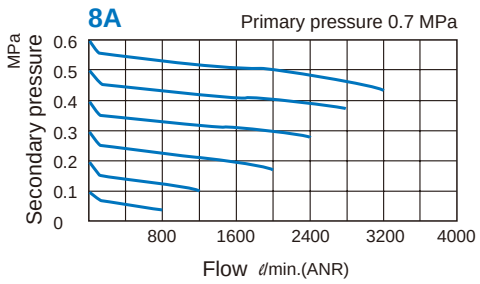


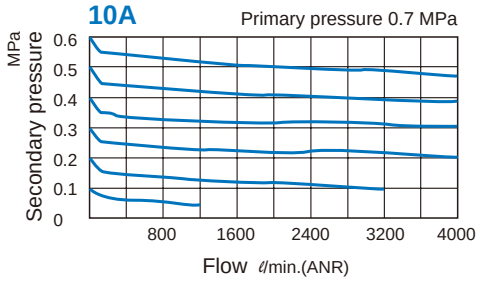
MAR403-P

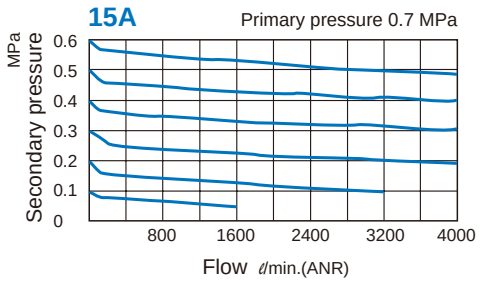
MPS Series
pneumatic pressure switch



Flow feature

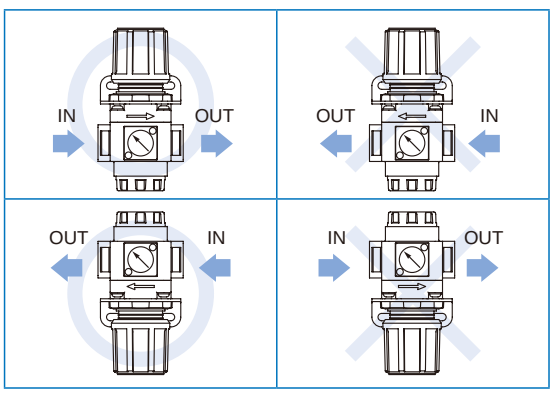




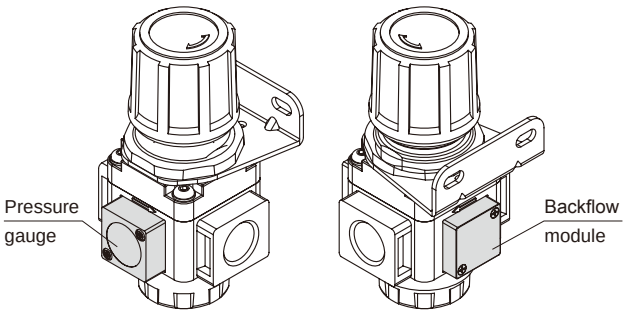


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

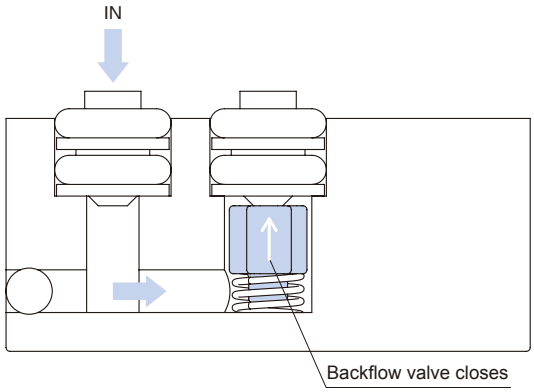


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

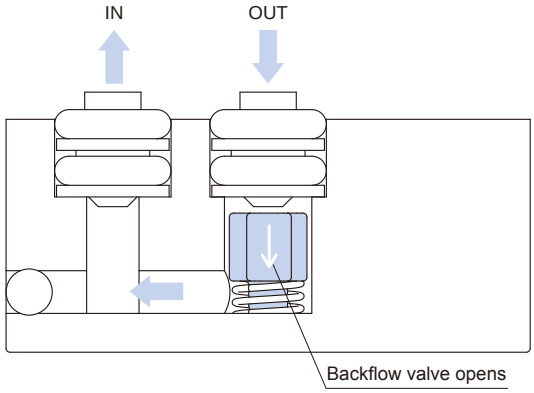
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



MAR501 series

PRESSURE REGULATOR

mindman



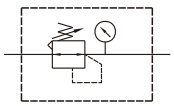


Option: **MP41**

Specification

Model	MAR501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Max. operating pressure	1.5 MPa	
Proof pressure	2 MPa	
Regulated pressure range	0.05~0.85 MPa	
Repeatability	±7% F.S.	
Ambient temperature	– 5~+60°C (No freezing)	
Attachment	Pressure gauge(PG-20),L-type bracket	
Weight	1460 g	

Symbol



Order example

MAR501 – 20A – □ – E1 – □

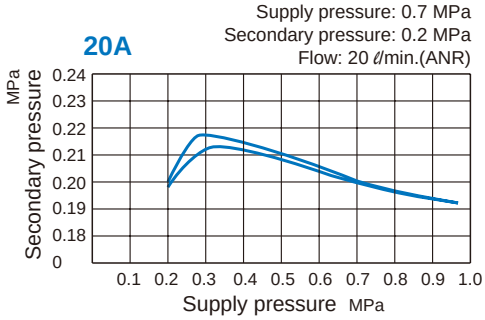
- MODEL
- PORT SIZE: **20A**: 3/4; **25A**: 1
- (Option) PRESSURE SWITCH: **E1**: MP41P-022; **E2**: MP41P-022-QD; **E5**: MP41P-042; **E6**: MP41P-042-QD
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

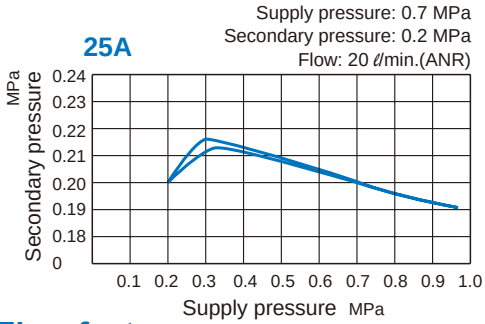
(Option) ACCESSORIES

Pressure gauge	Panel nuts
Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	**J**: Panel nuts

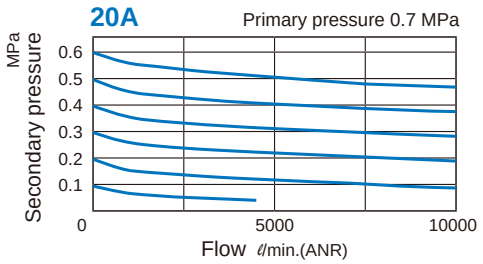
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Refer to page 5-13 for the option of digital pressure switch MP41 (E*).

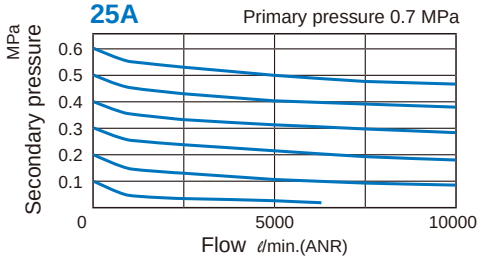
Pressure characteristics

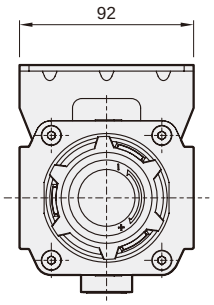




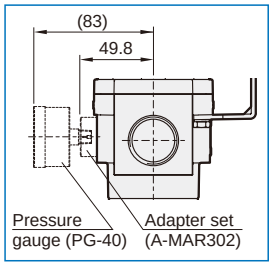
Flow feature



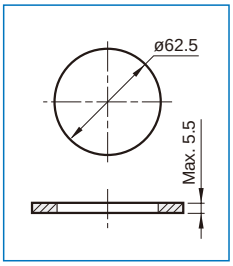


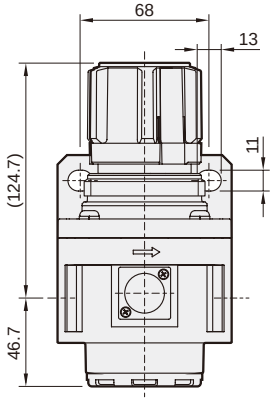


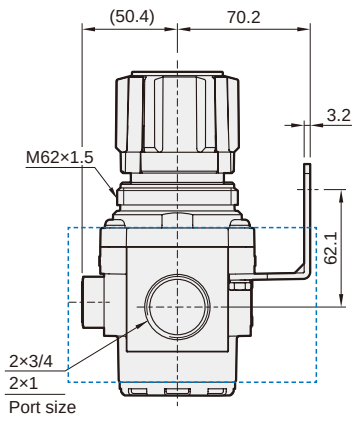
Accessories



Panel mounting hole





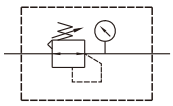


MAR900 series

PRESSURE REGULATOR



Symbol



- MAR900 reducing the system pressure to a desired level and maintain it at a constant level despite change in inlet pressure and changes in downsteam flow requirements.

Specification

Model	MAR900
Bore No.	40A
Port size	1 1/2
Medium	Air
Max. operating pressure	2.1 MPa
Regulated pressure range	0.09~0.86 MPa
Ambient temperature	0~+80°C (No freezing)
Standard nominal flow rate(*)	11000 ℓ/min
Attachment	Pressure gauge (PG-50)
Weight	1208 g

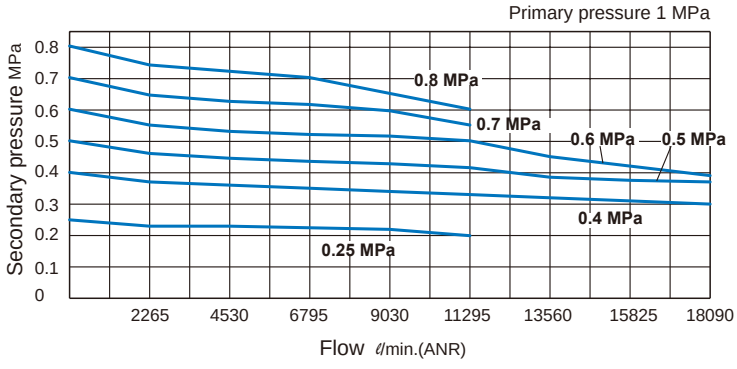
* Flow is at 1 MPa supply pressure and 0.1 MPa pressure drop of 0.6 MPa of secondary pressure.

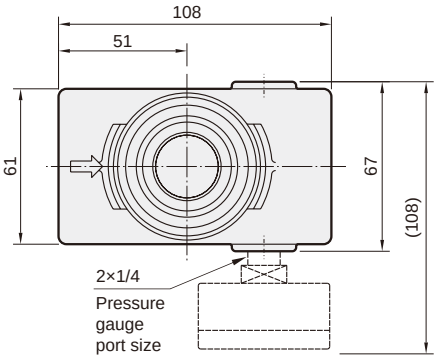
Order example

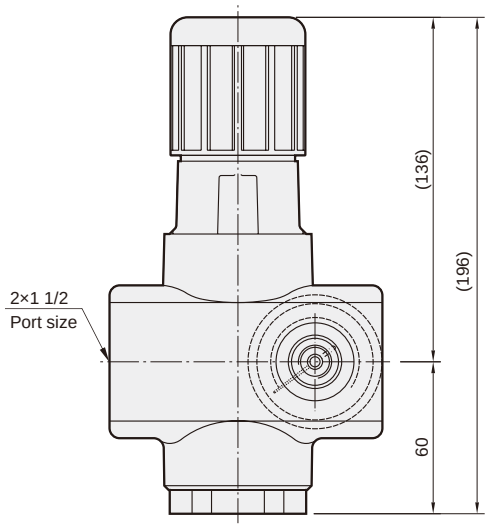
MAR900 — 40A — □

- MODEL
- PORT SIZE
  40A: 1 1/2
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Flow feature







MAR901 series Pilot operated

PRESSURE REGULATOR

mindman



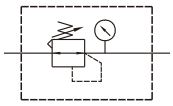
- MAR901 can be installed at any point in the compressed air system without regard to accessibility ensuring accurate pressure regulation over a wide range of air flows upto 56640 ℓ/min

Specification

Model	MAR901
Bore No.	50A
Port size	2
Medium	Air
Max. operating pressure	3.1 MPa
Regulated pressure range	Upto 1.75 MPa (with the help of a pilot regulator)
Ambient temperature	0~+80°C (No freezing)
Standard nominal flow rate(*)	59000 ℓ/min
Attachment	Pressure gauge (PG-50)
Weight	3055 g

* Flow is at 1 MPa supply pressure and 0.1 MPa pressure drop of 0.6 MPa of secondary pressure.

Symbol

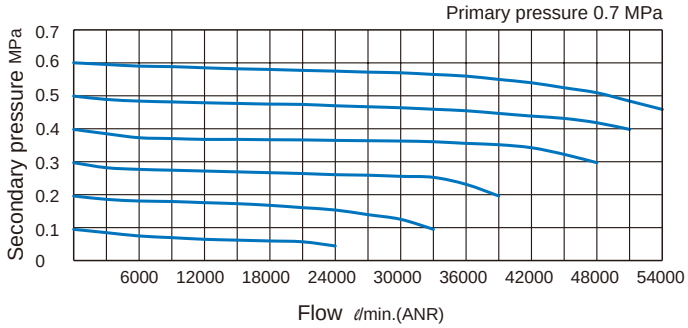


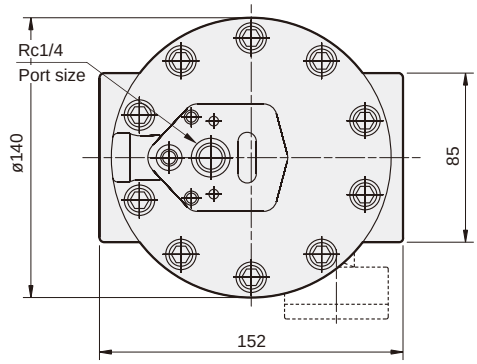
Order example

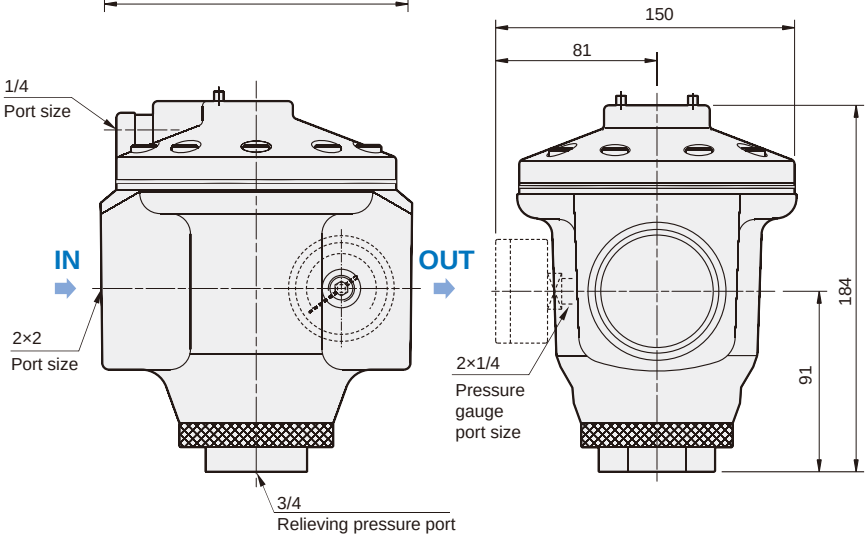
MAR901 — 50A — □

MODEL	PORT SIZE	PORT THREAD
	50A: 2	Blank: Rc thread **G**: G thread **NPT**: NPT thread

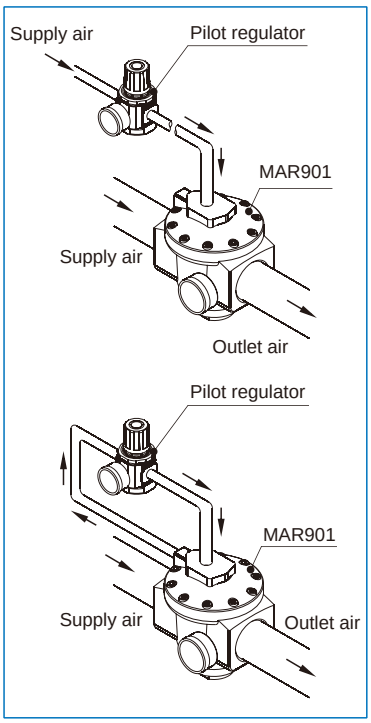
Flow feature







Pilot operation



MAHR200 series

PRESSURE REGULATOR



Feature

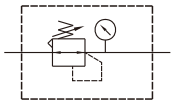
High pressure type can regulate up to 2.7 MPa.

Specification

Model	MAHR200
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	3.5 MPa
Proof pressure	5 MPa
Regulated pressure range	Standard: 0~1 MPa
	High pressure: 0~2.7 MPa
Ambient temperature	0~+60°C (No freezing)
Attachment	Pressure gauge (PG-40W)
Weight	250 g

* Product has no Pressed-in and self-locking mechanism.

Symbol

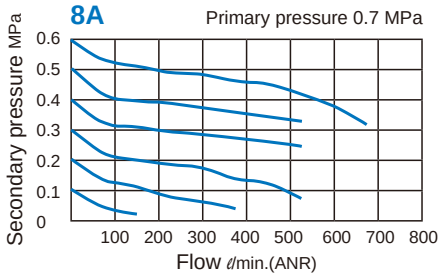


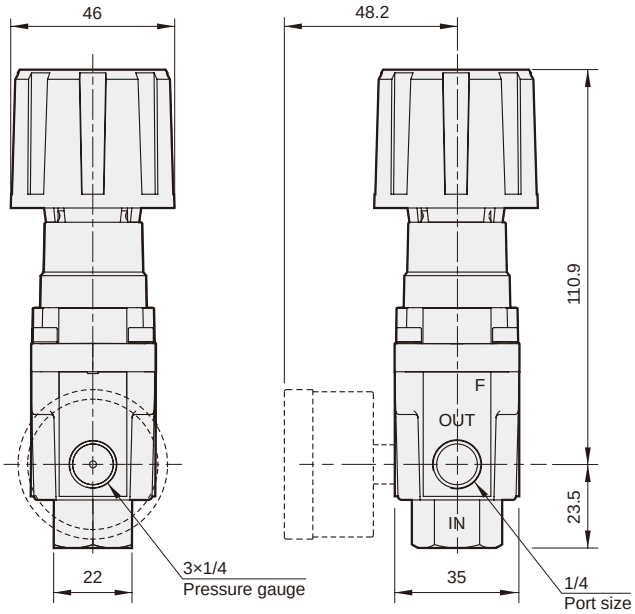
Order example

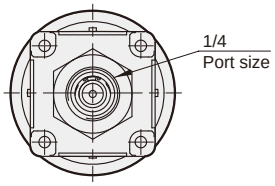
MAHR200 – 8A – □ – □

MODEL	PORT SIZE		PORT THREAD
	8A: 1/4	Blank: Standard type (Gray cap) **H**: High pressrue + External pressure gauge (PG-40W-30K) (Red cap)	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Flow feature







MAR300LK series

HAND-HELD REGULATOR

mindman





Symbol



Hand-held regulator could be directly assembled with pneumatic tools. According to the user's applications, you can regulate the pressure of pneumatic tool.

Feature

- Design: No convex shaft, small size and high transportability. Anodized aluminum body to achieve lightweight. (80g around)
- The outlet pressure can be observed through the scale of adjustment knob to determine. The lock mechanism can prevent rotation by accidentally.
- The unique structure of adjustment knob enables the pressure regulation to be completed within one turning round.
- Outlet pressure can be directly exhausted by turning back the adjustment knob.

Order example

MAR300LK — 8A — 15K — □

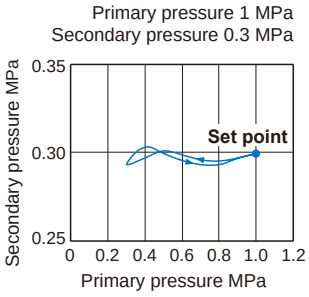
MODEL	PORT SIZE	PRESSURE RANGE	PORT THREAD
	8A: 1/4	Blank: 0~1 MPa **15K**: 0~1.5 MPa	Blank: Rc thread **G**: G thread **NPT**: NPT thread

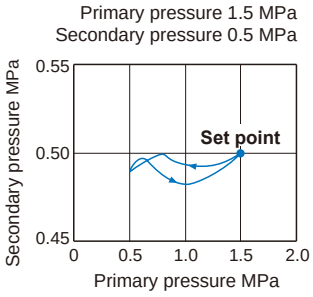
Specification

Model	MAR300LK
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1 MPa, 15K: 1.5 MPa
Proof pressure	3.75 MPa
Set pressure range	0.3~0.9 MPa
Ambient temperature	0~+60°C (No freezing)
Weight	80 g

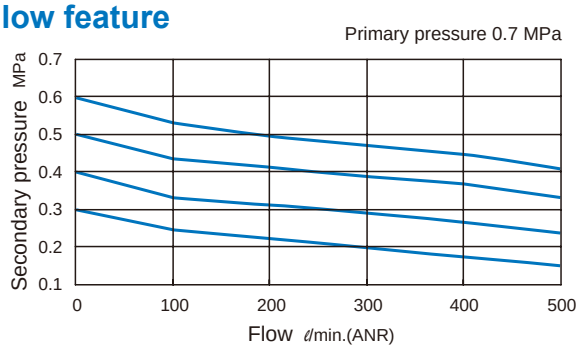
Pressure feature

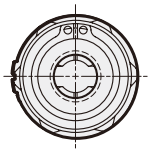
* The variation in the secondary pressure, with reference to the change in the primary pressure.

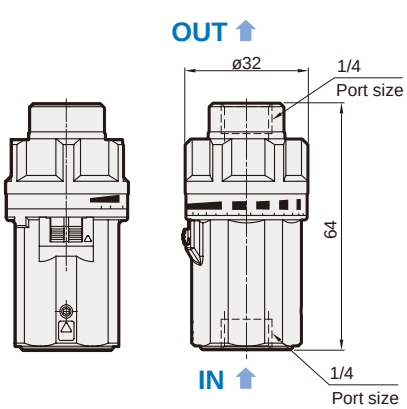




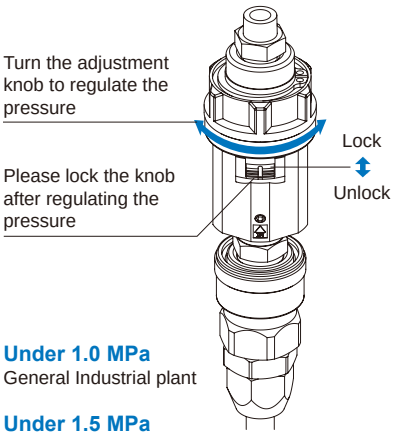
Flow feature

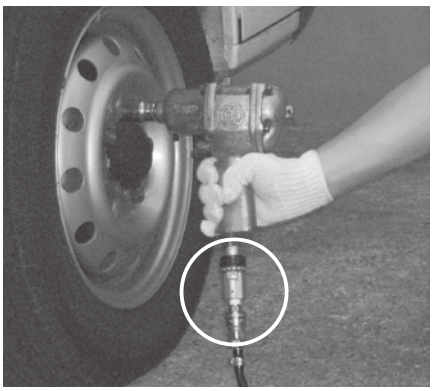






Pressure regulation





- The pressure regulation during painting.
- The pressure regulation for nail gun.
- Torque management for operating air.

1 **Stepless control**
Stepless control of air pressure proportional to an electrical signal.

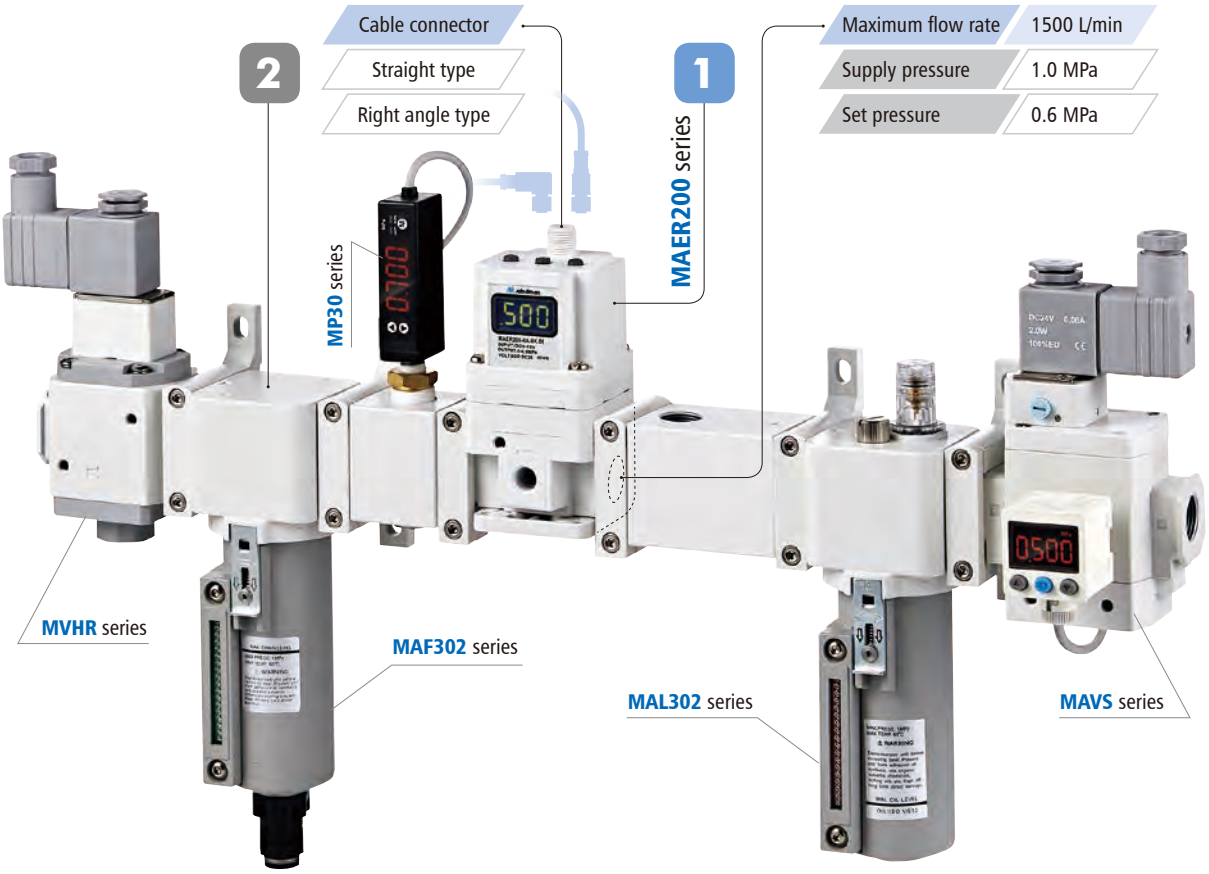
High precision pressure control
Achieve high precision pressure control with microcomputer PID.

Certification Comply with IP65 and CE certification.

2 **Compatible with modular**
MAER200 can be assembled with **MA**302** series.

1 **Regulator Performance**

Linearity	±1% less (F.S.)
Hysteresis	±0.5% less (F.S.)
Repeatability	±0.5% less (F.S.)
Sensitivity	±0.2% less (F.S.)

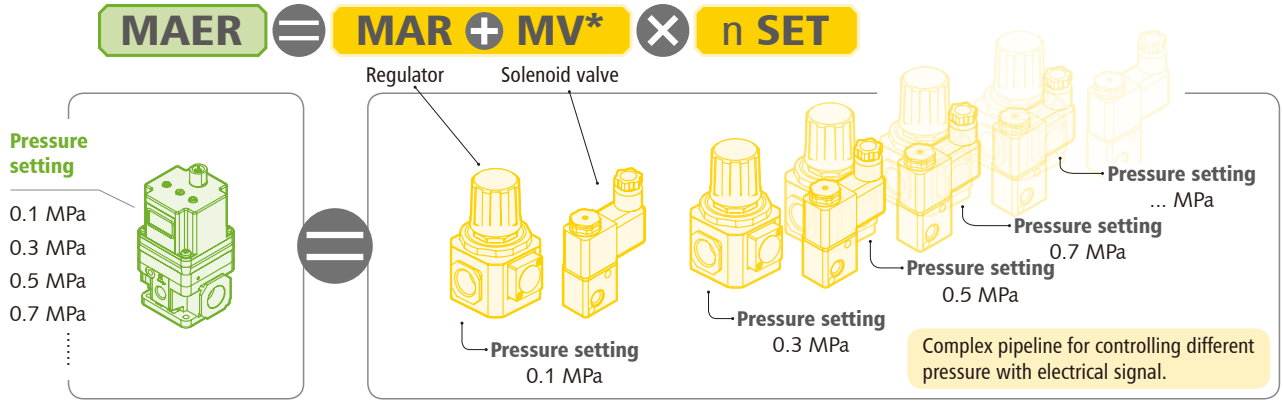


Energy saving piping VS **Tradition piping**

Simplify complex pipeline for controlling different pressure.
Space saving, Reduce cost, Energy saving.

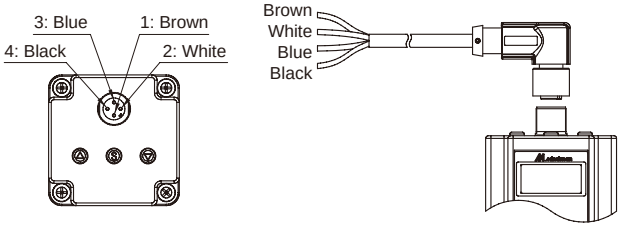
Tradition piping for multi-stage air pressure.

MAER = MAR + MV* × n SET



Wiring

Connect the cable to the connector on the body with the wiring arranged as shown below.



Input signal:
Current, voltage signal type

1	Brown	Power supply
2	White	Input signal
3	Blue	GND(COMMON)
4	Black	Monitor output

Input signal:
Preset input type

1	Brown	Power supply
2	White	Input signal 1
3	Blue	GND(COMMON)
4	Black	Input signal 2

* The cables are available in both straight type and right angle type. A right angle type connector is attached facing left (towards the SUP port). The direction of the straight type arrow is aligned with socket latch.

⚠ Warning

❶ The color of connector pins and cable conductors must be checked when wiring. Check wire color with handling precaution, since improper wire connection leads to destruction/failure and malfunction.

❷ When the cable plug is connected to the socket of the body, please correctly align the pins with the socket latch, and then slowly lock it downwards.

Do not force to lock, it may damage the cable plug or casing, causing malfunction or abnormality.

❸ Do not use power voltage exceeding specifications. The product could malfunction or catch fire if voltage exceeding the working range is applied.

❹ Short-circuiting the load could result in rupture or fire.

⚠ Caution

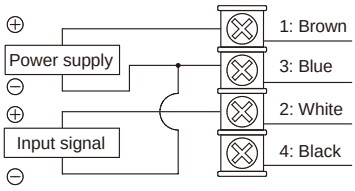
❺ The connection between the cable plug and the wire is weak. Excessive bending may shorten the life of the plug set, causing breakage or damage.

❻ If you need an anti-bending cable, please contact the sales.

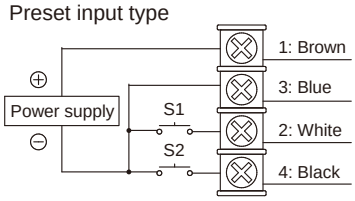
Wiring diagrams

Connect the cable to the connector on the body with the wiring arranged as shown below.

Current, voltage signal type

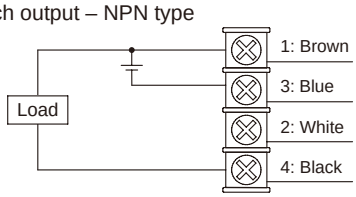


Preset input type

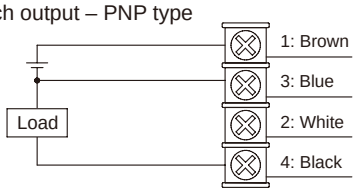


Monitor output wiring diagram

Switch output – NPN type

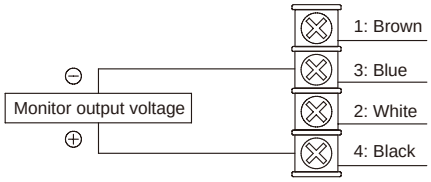


Switch output – PNP type

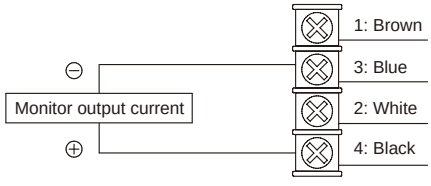


* NPN / PNP output type does not contain overcurrent protection and an error warning display, so the loop current should not exceed 160mA to avoid burning.

DC1~5V Analog output, Voltage type



DC4~20mA Analog output, Current type (source type)



Operating environment

⚠ Caution

❶ Avoid using this regulator where it will be subject to direct sunlight, water or oil, etc.

❷ Use in place where the temperature changes drastically or at high humidity may cause damage due to dew condensation in the product.

Air supply

⚠ Caution

❶ Use clean compressed air that does not contain corrosive gas. Poor air quality adversely affects function and life.

❷ For the pneumatic source, use cleaned air from which the solid, water and oil contents were eliminated sufficiently, using an air dryer, filter and oil mist filter. Recommend selecting a filtration precision of 5μm or less.

❸ Do not use a lubricator on the supply side of this product, the lubricated air might cause malfunction. When lubrication of terminal equipment is necessary, connect a lubricator on the output side of the equipment and set a check valve. When the secondary pressure is lowered with an input signal, the secondary air passes through the product and is discharged from the EXH port. Contamination on the secondary piping and the inside of the load will have an adverse effect on performance, etc. Keep the inside of the piping as clean as possible.

❹ Tighten pipes with the appropriate torque to prevent air leakage and screw damage. First tighten the screw by hand to prevent damage to screw threads, then use a tool.

❺ Tighten pipes with the appropriate torque. Pipes must be connected with the appropriate torque to prevent air leakages and screw damage. First tighten the screw by hand to prevent damage to screw threads, then use a tool.

Handling

⚠ Caution

❶ If supply pressure to this product is interrupted while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the product may be shortened, shut off the power supply also when supply pressure is shut off.

❷ IF electric power is shut off while pressure is being applied, pressure will be retained on the output side. However, this output pressure is held only temporarily and is not guaranteed.

❸ The product characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.

❹ Refer to the operation manual included with the product for details on its handling.

❺ When the appliance set standby with 0 kPa input, please input an offset signal of residual pressure. If not, the inner solenoid valve will overaction to cut down the product lifespan.

❻ Even when pressure is set to 0 MPa, secondary side pressure will not be completely released with less than 1%F.S. remaining. If precisely 0 MPa is required, bleed the secondary side or install a 3-way valve on the secondary side to switch the secondary side to atmospheric pressure.

⚠ Warning

❼ Do not use input signal exceeding specifications. This product could malfunction fire if input signal exceeding the working range is applied.

❽ This product is adjusted for each specification at the time of shipment from the factory. Disassembling and reformation are prohibited, as this way might lead to malfunction.

❾ If an abnormality occurs during operation, immediately turn off the power and air pressure and stop using it.

Terms

❶ **Proof pressure**: The value of the maximum pressure that the device can endures and not to malfunction.

❷ **Setting pressure range**: The range of the controllable pressures. Control is stopped when the input signal becomes 1% F.S. or lower.

Note. This is different from the accuracy guarantee range. See the item of linearity and hysteresis side.

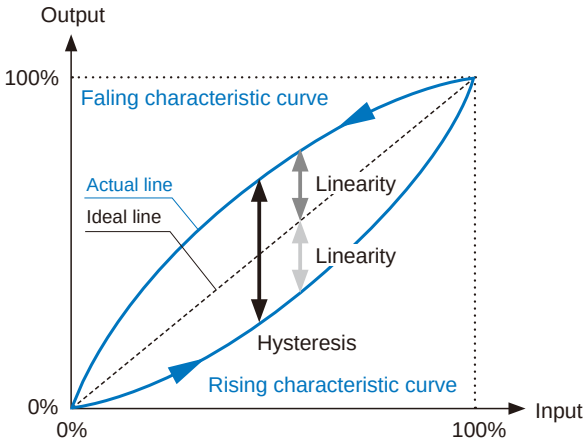
❸ **Linearity**: The error of the linear output relative to the ideal straight line, i.e. the accuracy of the analog output. It is usually expressed as a percentage compared to the entire measurement range (Full Scale: F.S.), such as 1% F.S..

❹ **Hysteresis**: Hysteresis is the maximum difference between the rising curve and the falling curve when the input signal is varied from 0% to 100% and 100% to 0%, indicated by the percentage relative to the full scale.

❺ **Repeatability**: Repeatability is the maximum deviation of control pressure measured when the same input signal is applied repeatedly in a short time and under the same operating conditions. Repeatability is indicated by the percentage relative to the full scale.

❻ **Sensitivity**: Sensitivity is the minimum value of the input signal that changes the control pressure, indicated by the percentage relative to the full scale.

❼ **Temperature characteristics**: The difference of the control pressure level made by 1°C difference of the ambient temperature (with reference temperature 25°C) is converted by calculation.



MAER series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

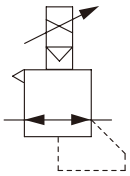
mindman



Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- MAER200 can be assembled with MA**302 series.
- Achieve high precision pressure control with microcomputer PID.
- Maximum flow rate 1500 L/min (Supply pressure 1.0 MPa, Set pressure 0.6 MPa).
- Comply with IP65 and CE certification.

Symbol



Specification

Model		MAER200		
Pressure range		1K	5K	9K
Bore No.		8A, 10A		
Port size		1/4, 3/8		
Medium		Air		
Proof pressure		0.3 MPa	1.5 MPa	
Ambient temperature		+5~+50°C (No condensation)		
Min. supply pressure		Set pressure +0.1 MPa		
Max. supply pressure		0.2 MPa	0.7 MPa	1 MPa
Setting pressure range (*1)		0.005~0.1 MPa	0.005~0.5 MPa	0.009~0.9 MPa
Power consumption	Voltage	DC24V±10%		
	Current	DC24V: 0.1A or less		
Signal input	Current type	DC4~20 mA		
	Voltage type	DC0~5V, DC0~10V		
	Preset input (*2)	4 points		
Input impedance	Current type	≤ 430Ω		
	Voltage type	Approx. ≤ 3kΩ		
	Preset type	Approx. ≤ 100kΩ		
Signal output (Monitor output)	Analog output	Current type DC4~20mA (Load impedance 600Ω or less)		
		Voltage type DC1~5V (Load impedance 500Ω or above)		
	Switch output	NPN,PNP: Max. 24V, 160mA		
Linearity		Within ±1% (F.S.)		
Hysteresis		Within 0.5% (F.S.)		
Repeatability		Within ±0.5% (F.S.)		
Sensitivity		Within 0.2% (F.S.)		
Temperature characteristics		Within ±0.2% (F.S.)/°C		
Output pressure display (*3)	Precision	±2% F.S. ±1 digit		
	Min. unit	MPa:0.001, kgf/cm^2:0.01, bar:0.01, psi:0.1, kPa:1		
Enclosure		Equivalent to IP65		
Weight		Main: 360 g; Bracket: Approx. 86g(B1) , 80g(B2); Cable connector: Approx. 55g(1m) , 130g(3m)		

*1. Minium setting pressure is equal to 1% F.S..
*2. For safety reasons, it is recommended that one of the preset pressures be set to 0 MPa.
*3. Linearity setting and preset pressure setting value both are set by the minimum unit of the output pressure display.
*4. The above characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.
*5. The above characteristics apply for a control pressure of 10% to 90% when power voltage is 24 VDC, ambient temperature is 25±3°C, no-loading and working pressure is maximum control pressure.

Order example

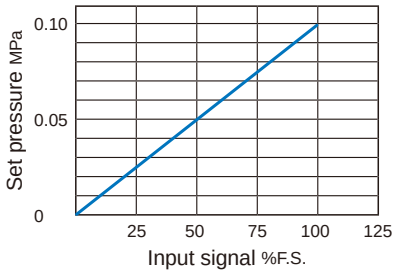
MAER200 – 8A – 9K – 1 1 1 – B1 S1 – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- PRESSURE RANGE
  - **1K**: 0.1 MPa
  - **5K**: 0.5 MPa
  - **9K**: 0.9 MPa
- BRACKET
  - Blank: Without
  - **B1**: L type
  - **B2**: Flat type
- CABLE CONNECTOR
  - Blank: Without
  - **S1**: Straight 1m
  - **S3**: Straight 3m
  - **L1**: Right angle 1m
  - **L3**: Right angle 3m
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

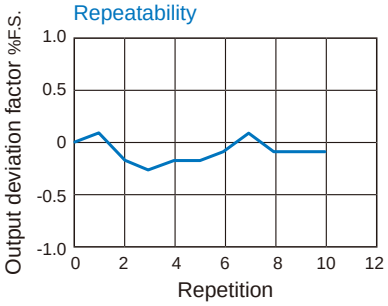
SIGNAL INPUT	SIGNAL OUTPUT	PRESSURE DISPLAY UNIT
1: Current DC4~20mA **2**: Voltage DC0~10V **3**: Voltage DC0~5V	**1**: Analog output DC1~5V **2**: Switch output NPN **3**: Switch output PNP **4**: Analog output DC4~20mA (Source type)	**1**: MPa **2**: kgf/cm^2 **3**: bar **4**: psi **5**: kPa
40: Preset input	–	

MAER200-1K

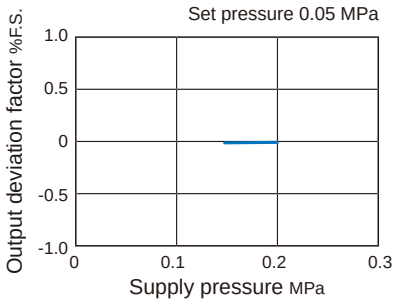
Linearity



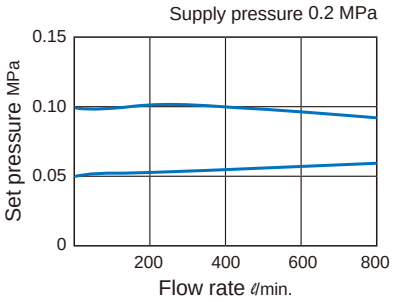
Repeatability



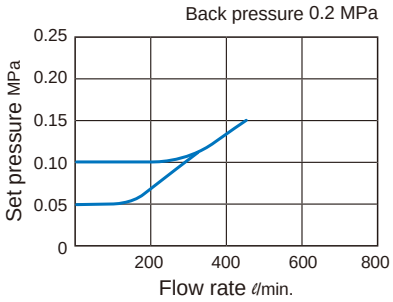
Pressure characteristics



Flow rate characteristics

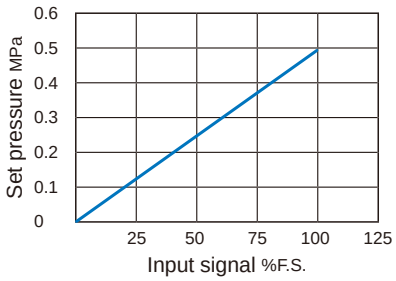


Relief flow characteristics

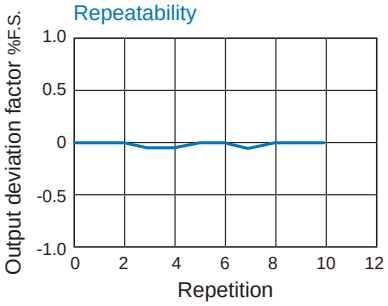


MAER200-5K

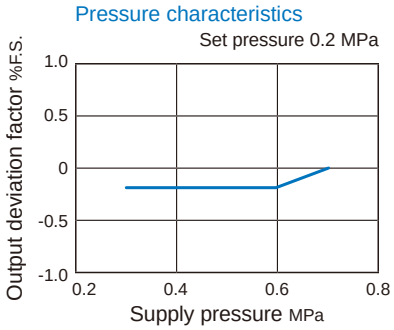
Linearity



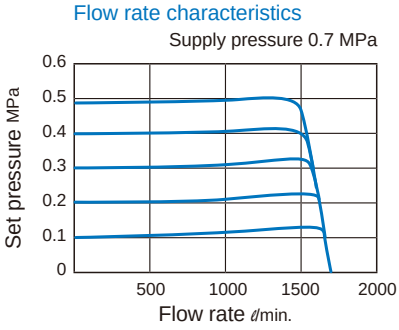
Repeatability



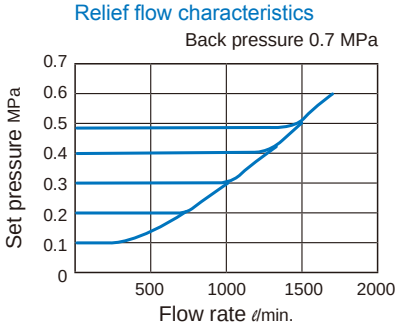
Pressure characteristics



Flow rate characteristics

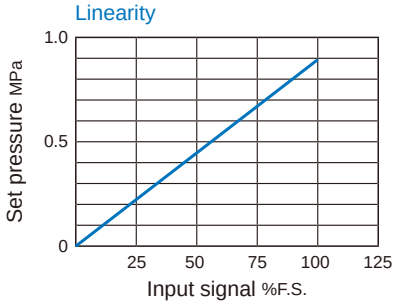


Relief flow characteristics

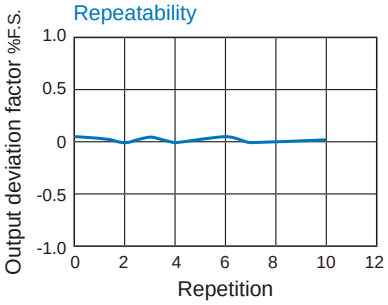


MAER200-9K

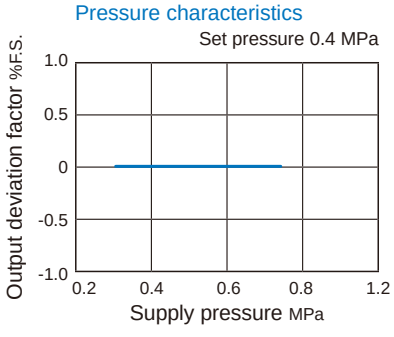
Linearity



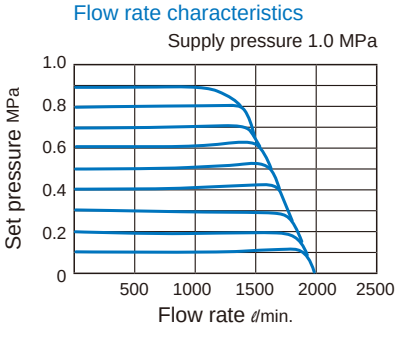
Repeatability



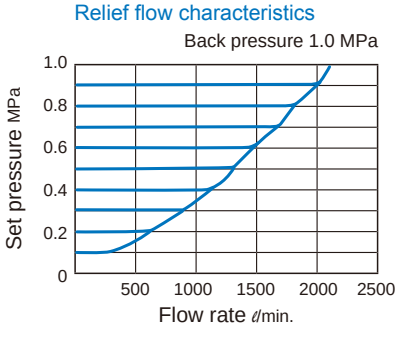
Pressure characteristics



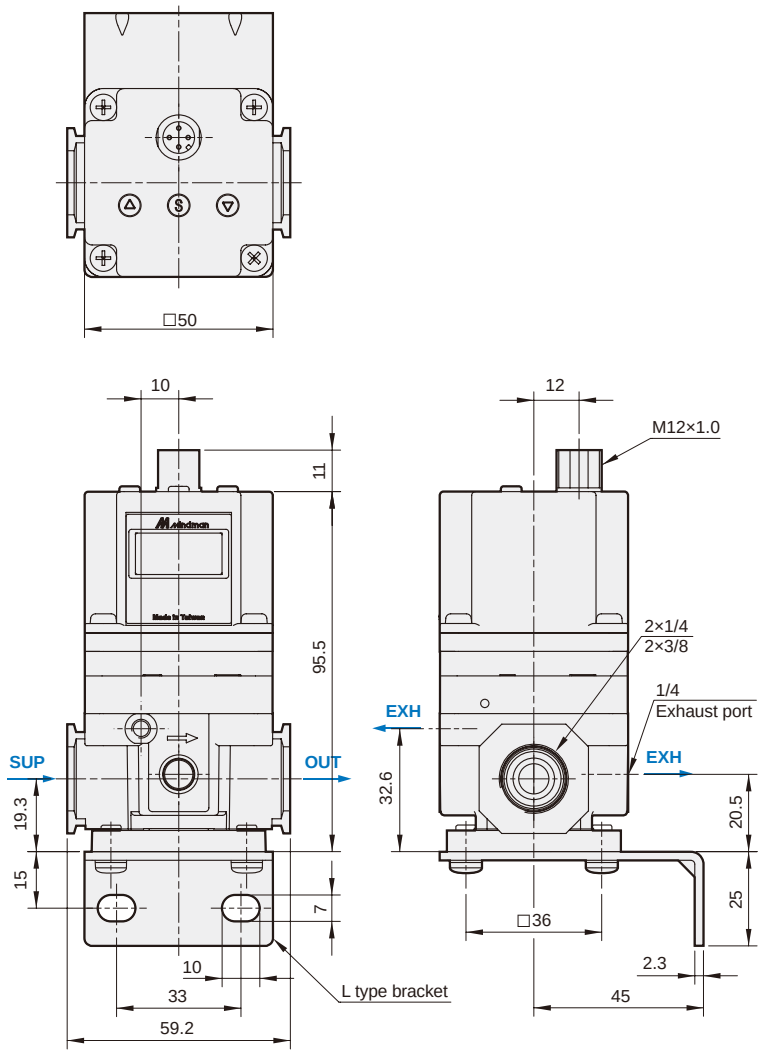
Flow rate characteristics



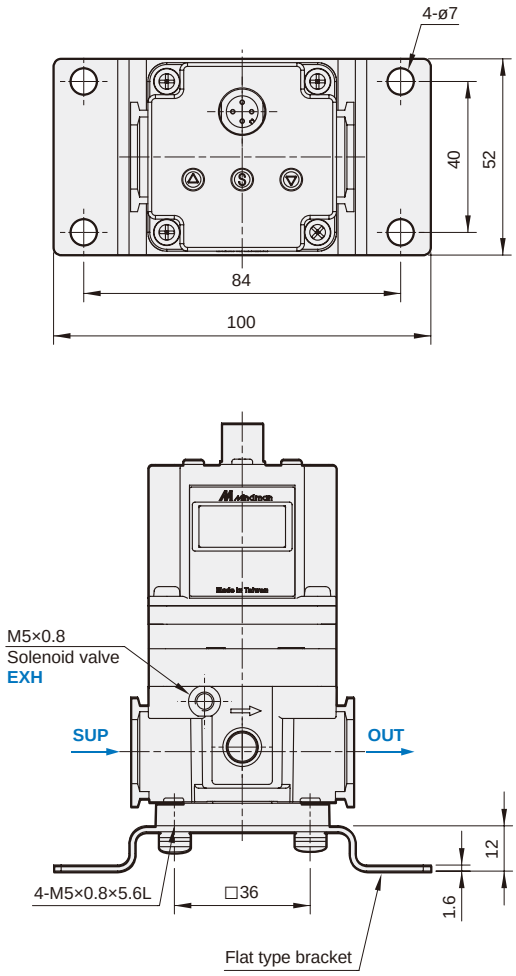
Relief flow characteristics



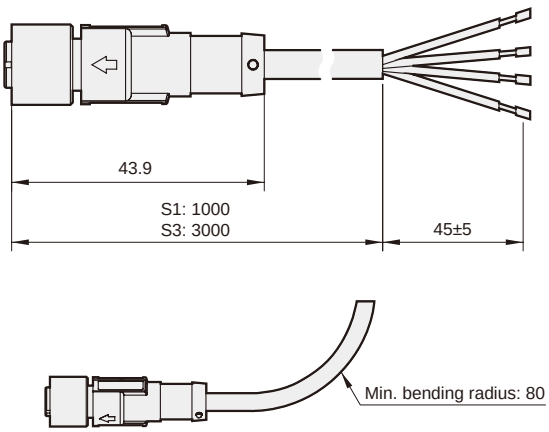
MAER200-B1 L type bracket



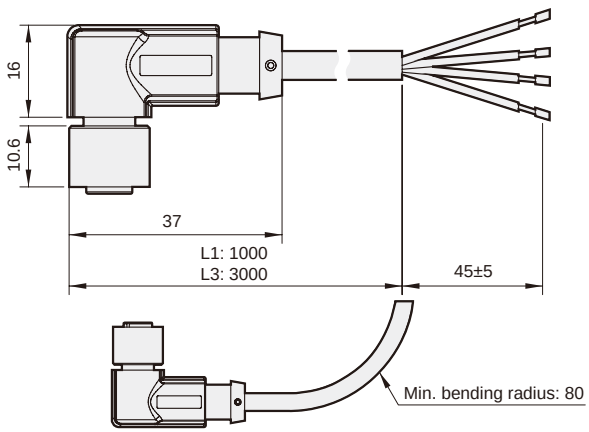
MAER200-B2 Flat type bracket



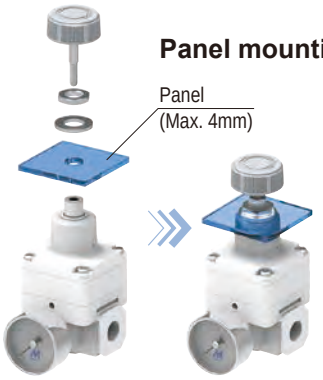
MAER200-S1/S3 Straight cable connector



MAER200-L1/L3 Angle cable connector



PRECISION REGULATOR MAIR



Panel mounting

REGULATOR PERFORMANCE

Sensitivity: 0.2% F.S.
Repeatability: ±0.5% F.S.
Set pressure range: 0.005~0.8 MPa

BRCKET

Convenient design, quick mounted bracket, can also be installed on the panel.

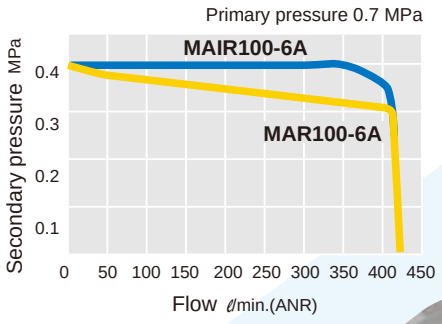


COMPATIBLE with MODULAR

MAIR200 can be assembled with MA*302 series.
MAIR300 can be assembled with MA*401/403 series.

STABLE OUTPUT PRESSUER

Compared with the MAR series, low pressure drop problem, better flow characteristics.



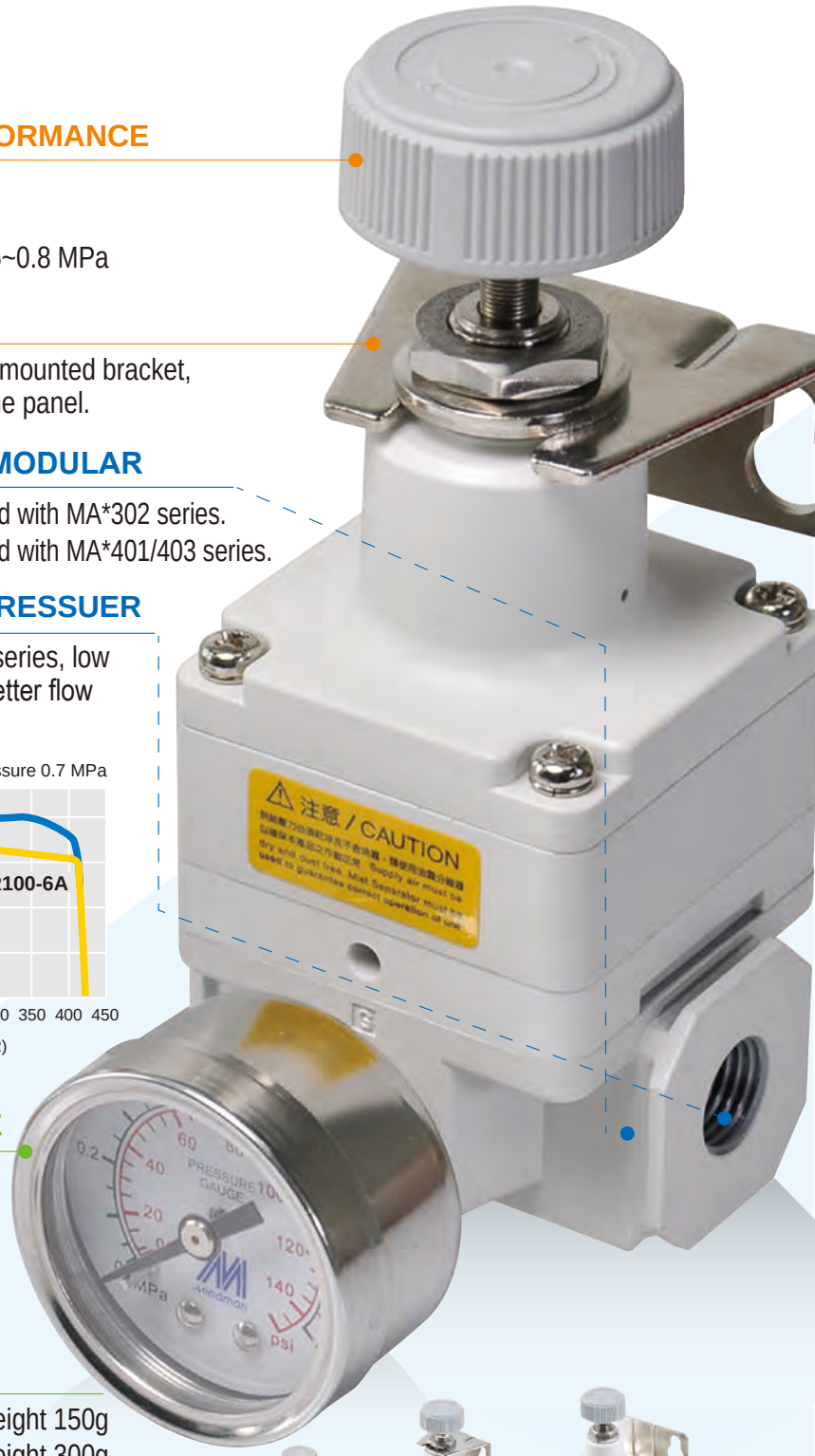


PRESSURE GAUGE

Pressure gauge can be mounted digital pressure switch.

COMPACT & LIGHTWEIGHT

MAIR100 width 35mm, weight 150g
MAIR200 width 50mm, weight 300g
MAIR300 width 68mm, weight 875g





MAIR100 MAIR200 MAIR300

Air Supply

⚠ Caution

❶ If the air supply line contains drain or particlate, etc., the primary pressure fixed throttle can become clogged leading to malfunction, and therefore, be sure to use an air filter (MAF or MAM*) & mist separator.

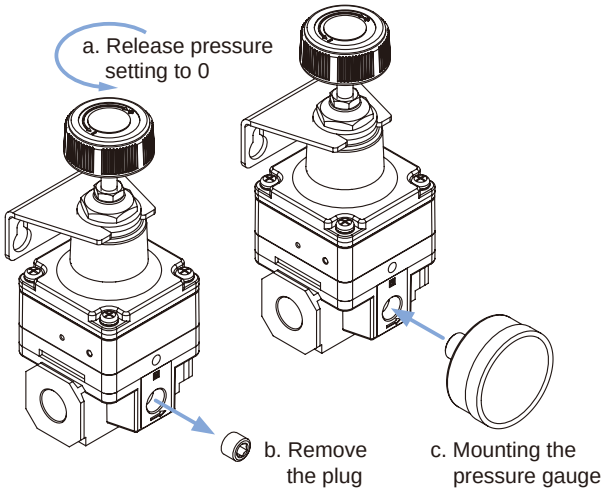
❷ Never use a lubricator on the primary side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the secondary side.

Maintenance

⚠ Warning

❶ When to be during maintenance, first reduce the precision regulatorset pressure to zero, and completely shut off the supply pressure.

❷ When a pressure gauge is to be mounted, remove the plug after reducing the regulator pressure set pressure to zero. (Step a→b→c)



MAIR300 Product Precautions

⚠ Caution

❶ The primary pressure is relatively high (approx. 0.5 MPa or more), the set pressure is low (approx. 0.1 MPa or less), and when operated with the secondary side released to the atmosphere, there may be pulsations in the setting pressure. In this kind of situation, operate with the primary pressure reduced as much as possible, or increase the set pressure somewhat and restrict the secondary side line (add and adjust a stop valve, etc.)

❷ When used for the purpose of a relief function, and capacity of the precision regulator is large, the exhaust sound will be loud when being relieved. the operation with a silencer (MSR*) mounted on the exhaust port (EXH port). (Silencer refer to Other Auxiliary Equipment)

Operation

⚠ Caution

❶ Do not use a precision regulator outside the range of its specifications as this can cause failure. (Refer to specifications.)

❷ When mounting is performed, make connections while confirming port direction (indications).

❸ Screw a panel nut with the proper torque when mounting onto a panel. (be listed as follows)

Model	MAIR100	MAIR200	MAIR300
Torque (kgf)	12.5	21	21

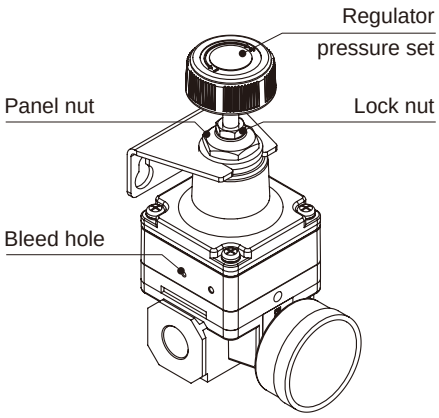
Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive.

⚠ Warning

❹ If a directional switching valve (solenoid valve, mechanical valve, etc.) is mounted on the primary side of the the precision regulator and repeatedly switched ON and OFF, wear of the nozzle/diaphragm section will be accelerated and a discrepancy in the setting value may occur. Therefore, avoid using a directional switching valve on the primary side. In the event a directional switching valve will be used, install it on the secondary side of the precision regulator.

❺ Air is normally released from the bleed hole (the hole on the side of the body's mid-section). This is a necessary consumption of air based on the construction of the precision regulator, and is not an abnormality.

❻ In order to avoid operation mistakes, make sure to tighten the lock nut after pressure adjustment.

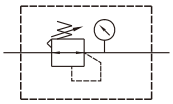


MAIR100 series

AIR UNIT (PRECISION REGULATOR)



Symbol



Specification

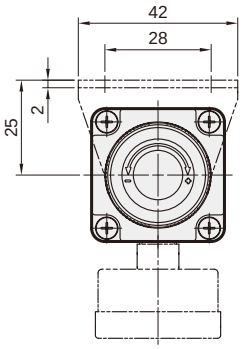
Model	MAIR100
Bore No.	6A
Port size	1/8
Medium	Air
Max. operating pressure	1 MPa
Min. operating pressure	Setting pressure+0.05 MPa
Proof pressure	1.5 MPa
Regulated pressure range	2K: 0.005~0.2 MPa
	4K: 0.01~0.4 MPa
	8K: 0.01~0.8 MPa
Sensitivity	0.2% F.S.
Repeatability	±0.5% F.S.
Air consumption (*)	4.4 ℓ/min(ANR) F.S.
Ambient temperature	– 5~+60°C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-33S)
Weight	150 g

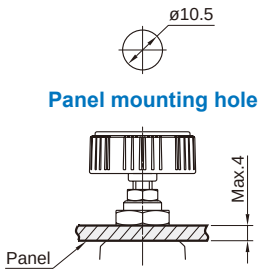
* For supply pressure 1 MPa.

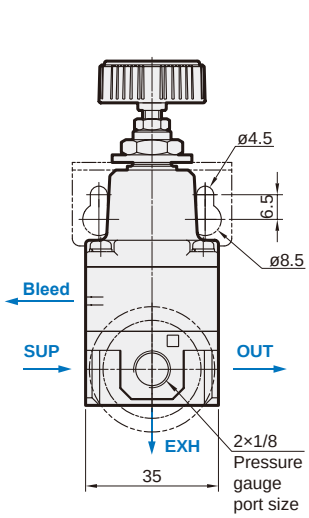
Order example

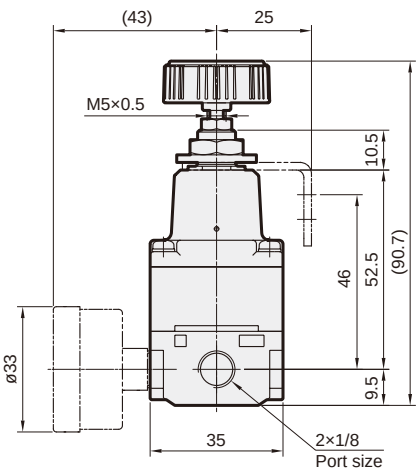
MAIR100 — 6A — 2K — C — □

- MODEL
- PORT SIZE
  6A: 1/8
- ADJUSTABLE PRESS. RANGE
  2K: 0.005~0.2 MPa
  4K: 0.01~0.4 MPa
  8K: 0.01~0.8 MPa
- Blank: Without pressure gauge
  C: Pressure gauge (PG-33S)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

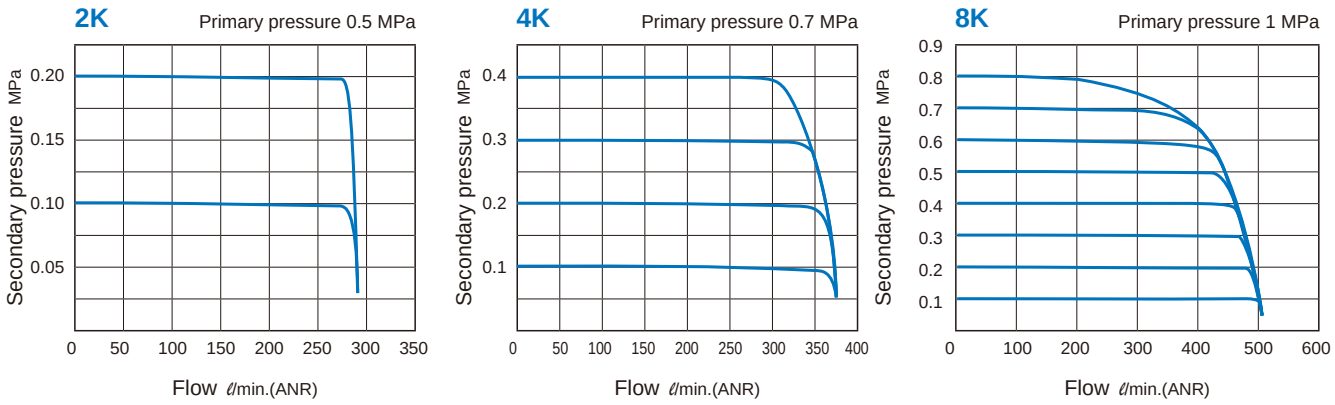




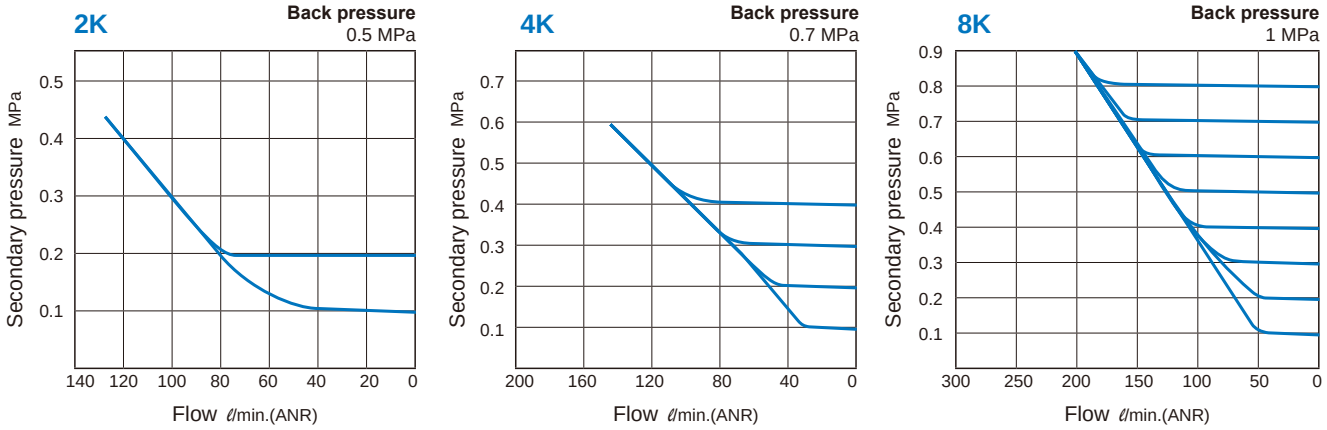




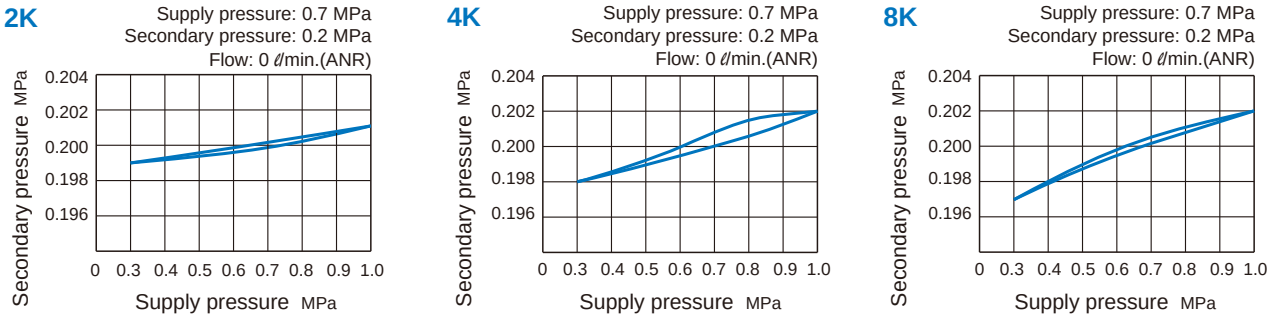
Flow feature



Relief characteristics



Pressure characteristics



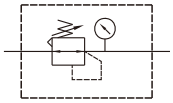
MAIR200 series

AIR UNIT (PRECISION REGULATOR)

mindman



Symbol



Specification

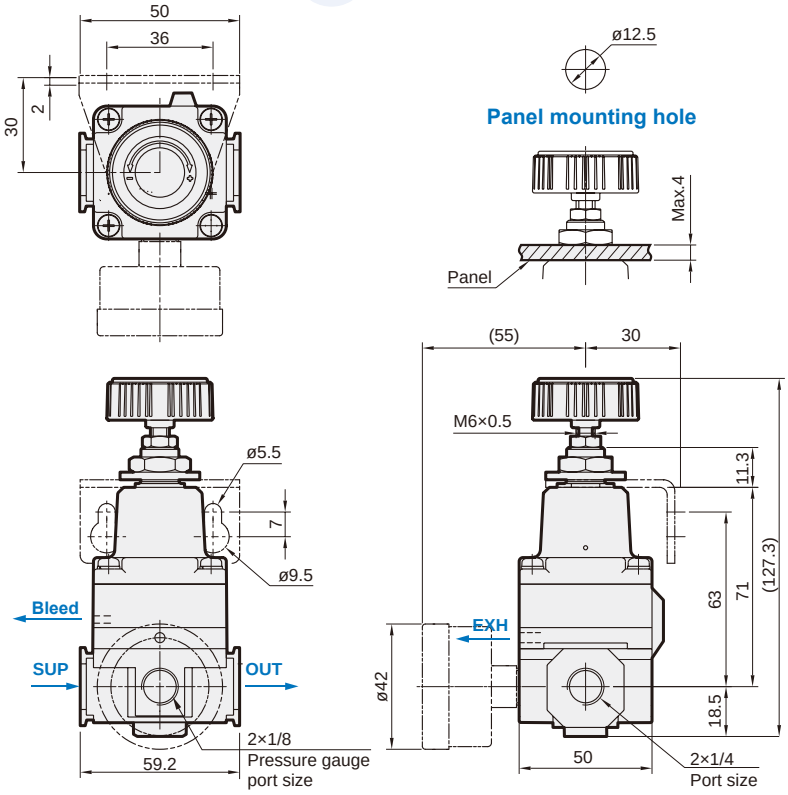
Model	MAIR200
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1 MPa
Min. operating pressure	Setting pressure+0.05 MPa
Proof pressure	1.5 MPa
Regulated pressure range	2K: 0.005~0.2 MPa
	4K: 0.01~0.4 MPa
	8K: 0.01~0.8 MPa
Sensitivity	0.2% F.S.
Repeatability	±0.5% F.S.
Air consumption(*)	4.4 ℓ/min(ANR) F.S.
Ambient temperature	– 5~+60°C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-40S)
Weight	300 g

* For supply pressure 1 MPa.

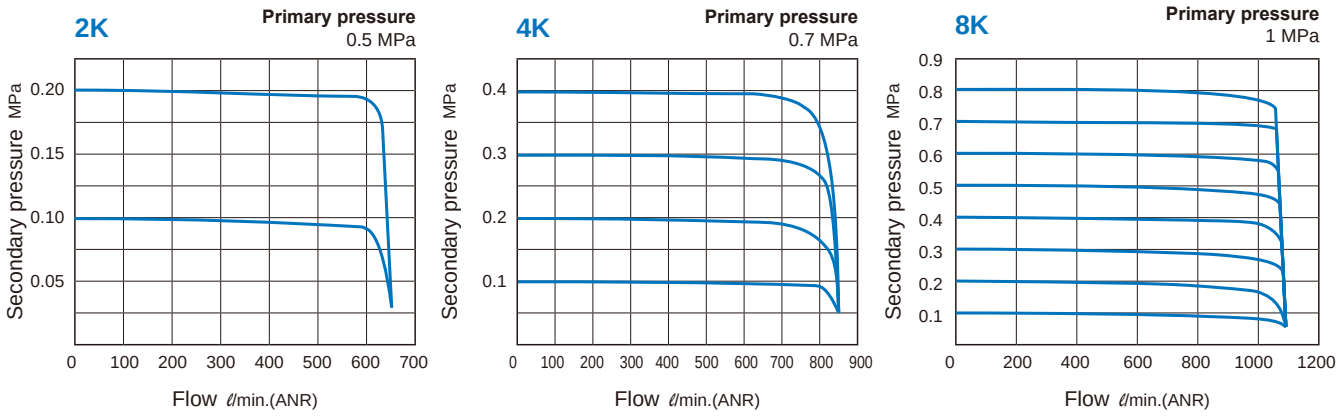
Order example

MAIR200 — 8A — 2K — C — □

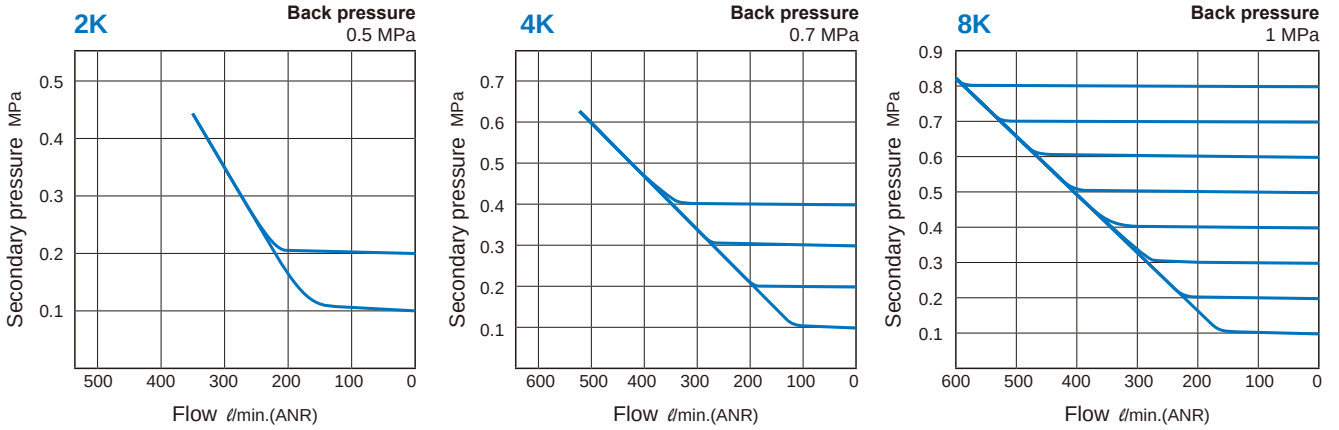
- MODEL
- PORT SIZE
  8A: 1/4
- ADJUSTABLE PRESS. RANGE
  2K: 0.005~0.2 MPa
  4K: 0.01~0.4 MPa
  8K: 0.01~0.8 MPa
- Blank: Without pressure gauge
  C: Pressure gauge (PG-40S)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread



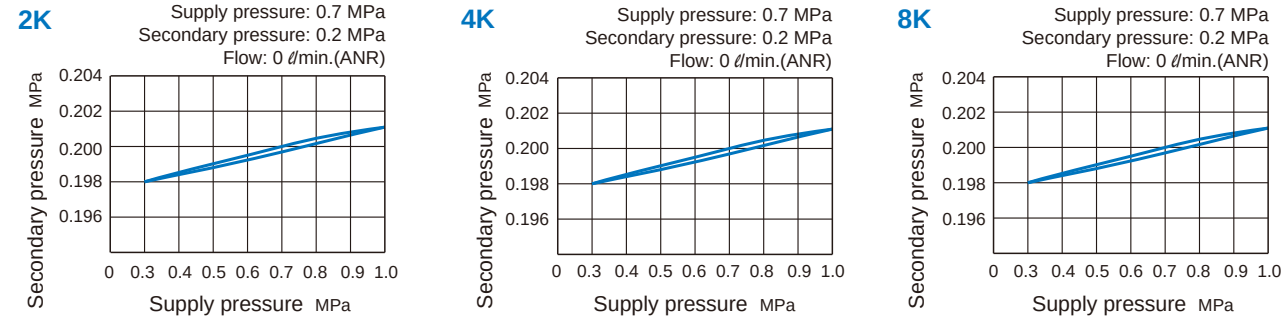
Flow feature



Relief characteristics



Pressure characteristics



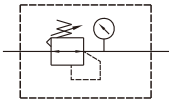
MAIR300 series

AIR UNIT (PRECISION REGULATOR)

mindman



Symbol



Specification

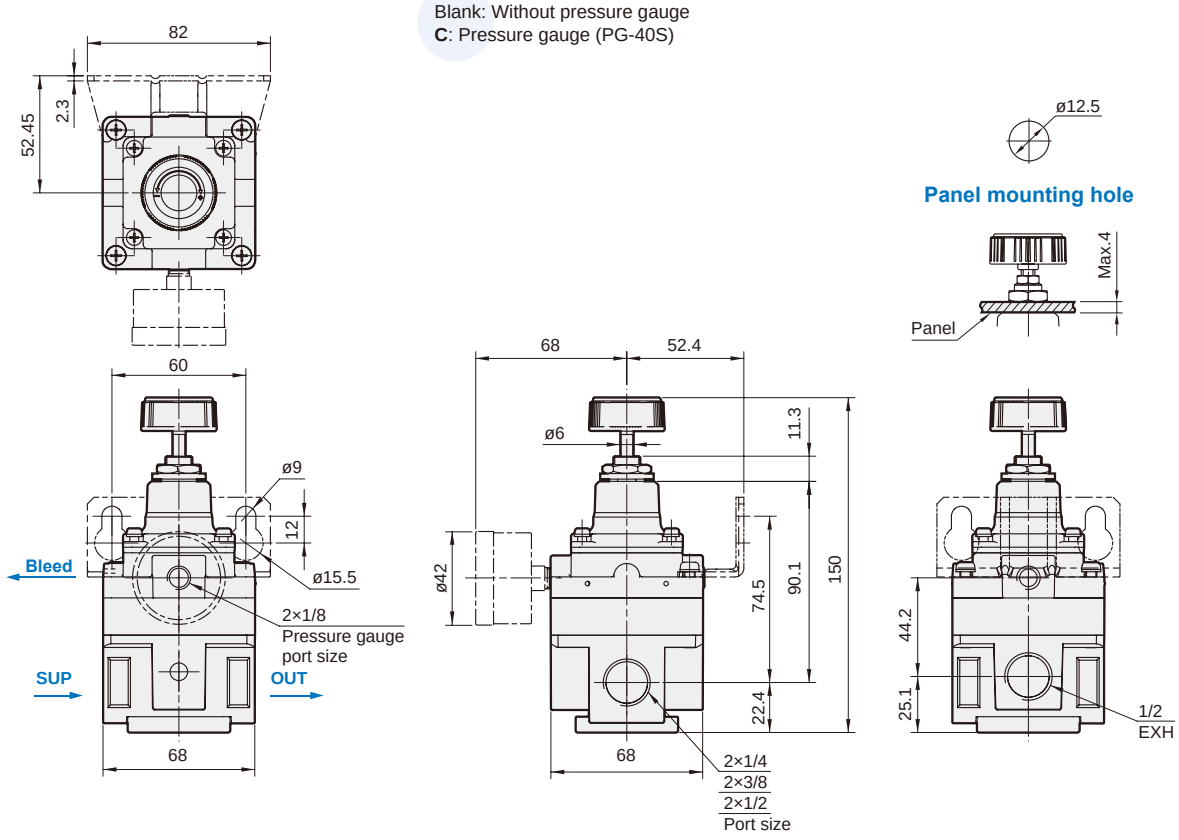
Model	MAIR300		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Min. operating pressure	Setting pressure +0.1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	2K: 0.005~0.2 MPa		
	4K: 0.01~0.4 MPa		
	8K: 0.01~0.8 MPa		
Sensitivity	0.2% F.S.		
Repeatability	±0.5% F.S.		
Air consumption(*)	11.5 ℓ/min(ANR) F.S.		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Bracket		
Option	Pressure gauge (PG-40S)		
Weight	875 g		

* For supply pressure 1 MPa.

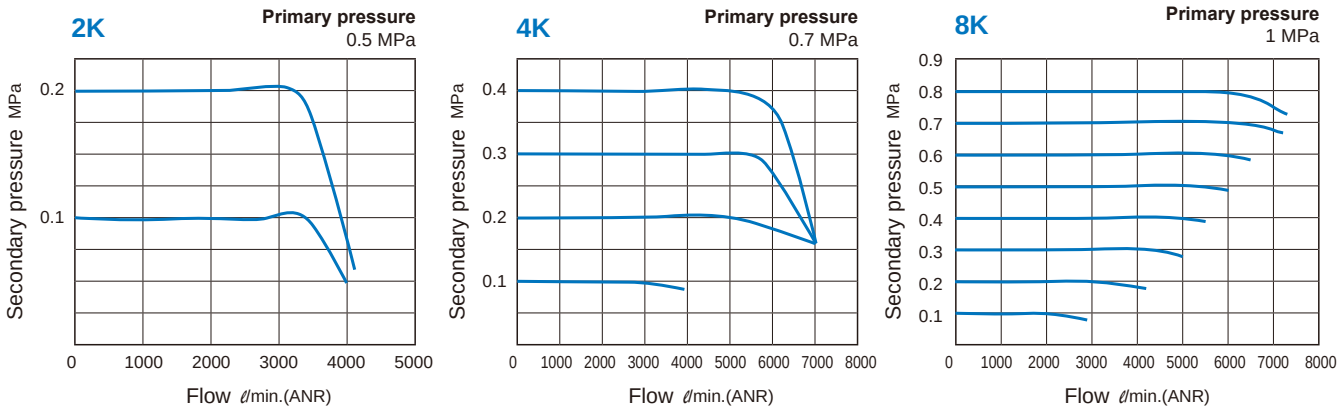
Order example

MAIR300 — 8A — 2K — C — □

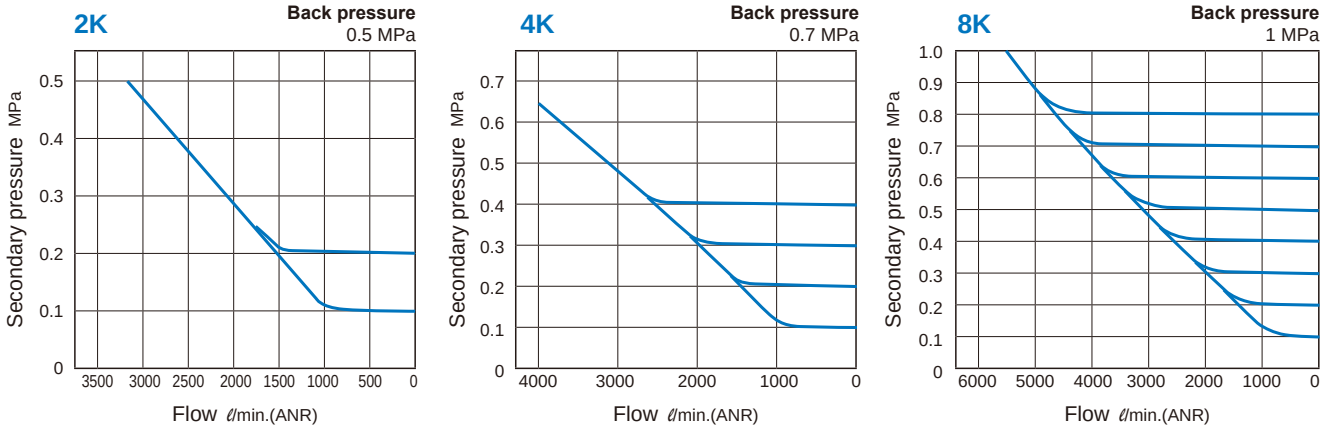
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- ADJUSTABLE PRESS. RANGE
  - **2K**: 0.005~0.2 MPa
  - **4K**: 0.01~0.4 MPa
  - **8K**: 0.01~0.8 MPa
- Blank: Without pressure gauge
  C: Pressure gauge (PG-40S)
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread



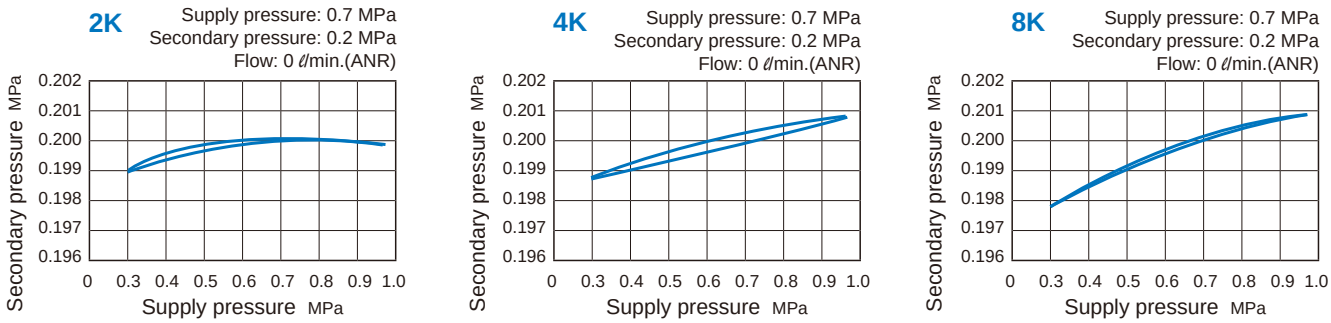
Flow feature



Relief characteristics



Pressure characteristics



MAL200 series

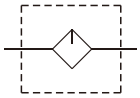
AIR UNIT (L.UNIT)



MAL200L



Symbol



Specification

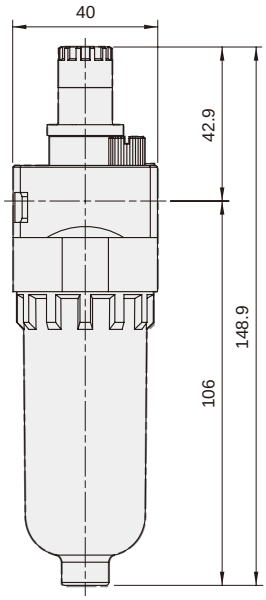
Model	MAL200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Lubricating oil capacity	20 c.c , 35 c.c (MAL200L)	
Min. Flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Weight	150 g, 130 g (MAL200L)	

Order example

MAL200L — 6A — □ — □

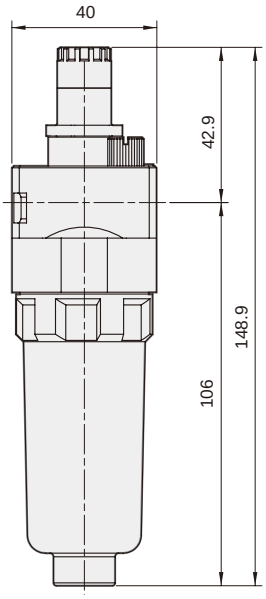
- MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- Blank: PC bowl
  M: Metal bowl (*)
  N: Nylon bowl
  * Only for 200L.
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

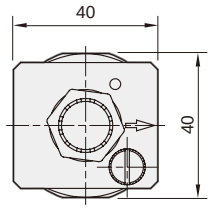
MAL200L

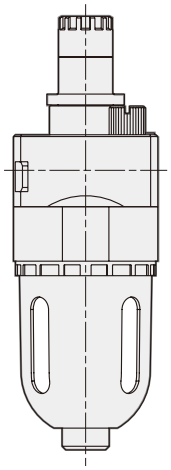


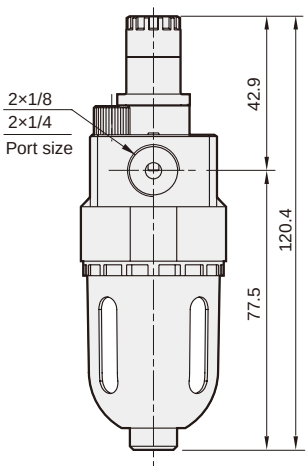
MAL200L-M

Metal bowl



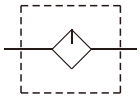








Symbol



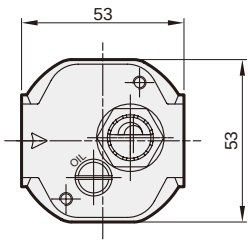
Specification

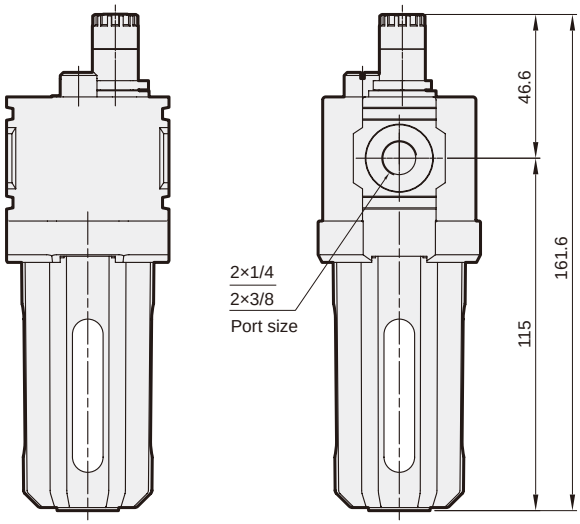
Model	MAL300	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Lubricating oil capacity	55 c.c	
Min. Flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Weight	265 g	

Order example

MAL300 — 8A — □ — □

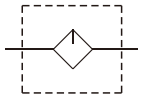
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- Blank: PC bowl
  N: Nylon bowl
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread







Symbol



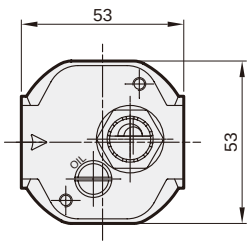
Specification

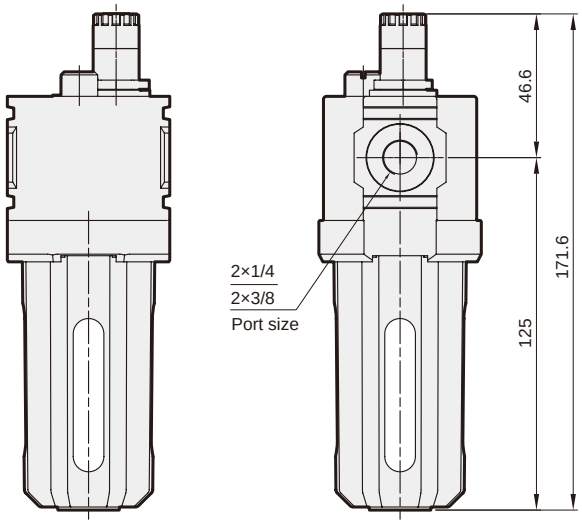
Model	MAL300L	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Max. operating pressure	1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Lubricating oil capacity	65 c.c	
Min. Flow for oil drip	50 ℓ/min	60 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Weight	275 g	

Order example

MAL300L — 8A — □ — □

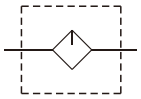
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- Blank: PC bowl
  N: Nylon bowl
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread







Symbol



Specification

Model	MAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Lubricating oil capacity	65 c.c		
Min. Flow for oil drip	50 ℓ/min	60 ℓ/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	345 g		

Order example

MAL302 – 8A – □ – B – □

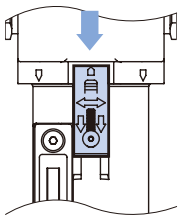
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **M**: Metal bowl, **N**: Nylon bowl
- Blank: Without bracket, **B**: C type bracket
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Caution

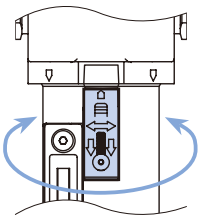
Metal bowl

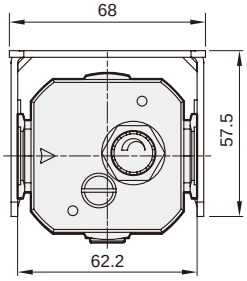
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

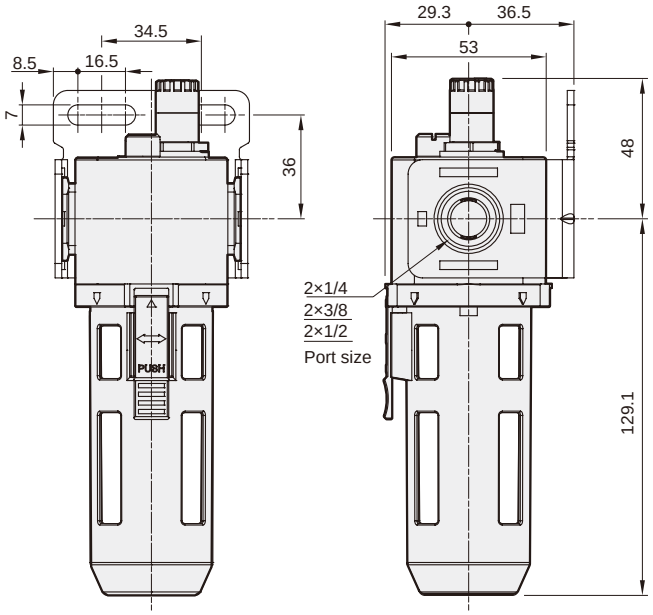
1.Sliding plate down



2. Rotating the bowl



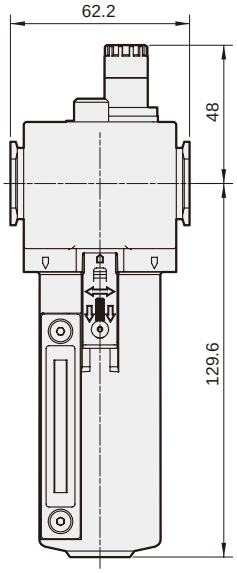




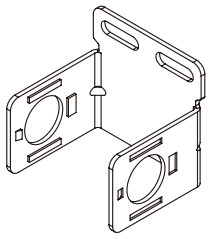
Option accessories

MAL302-M

Metal bowl



C type bracket



MAL400 series

AIR UNIT (L.UNIT)

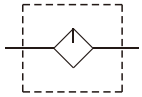


Specification

Model	MAL400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Lubricating oil capacity	200 c.c		
Max. flow rate (*) ℓ/min	400	1300	2500
Min. Flow for oil drip	100 ℓ/min	200 ℓ/min	400 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Option	Bracket		
Weight	600 g		

* Flow is at pressure P=0.7 MPa with pressure drop △ P=0.03 MPa. (ANR)

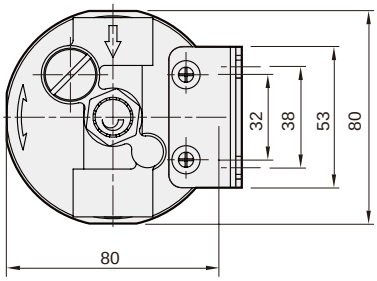
Symbol

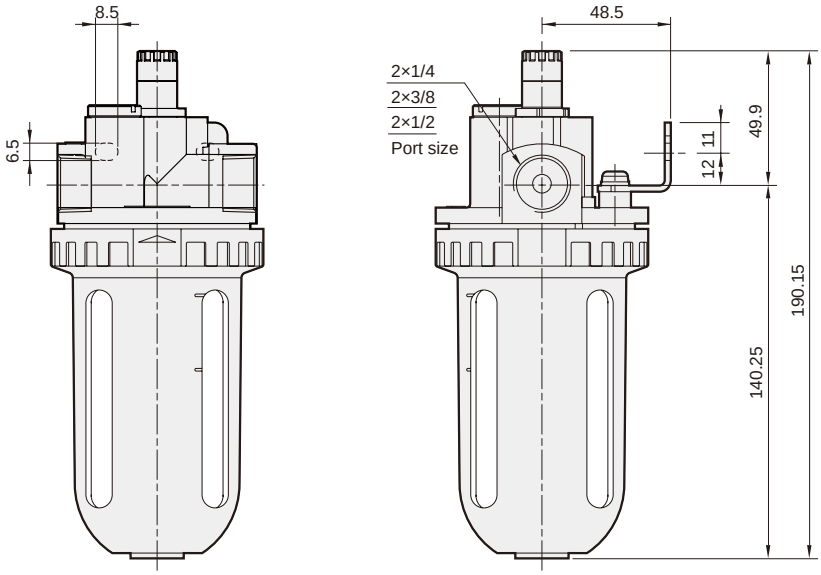


Order example

MAL400 – 8A – □ – B – □

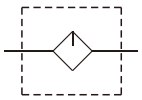
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- Blank: PC bowl
  N: Nylon bowl
- Blank: Without bracket
  B: Bracket
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread







Symbol



Specification

Model	MAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Lubricating oil capacity	200 c.c		
Max. flow rate (*) ℓ/min	1200	2000	2100
Min. Flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	545 g		

* Flow is at pressure P=0.7 MPa with pressure drop △ P=0.03 MPa. (ANR)

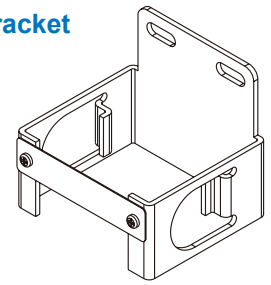
Order example

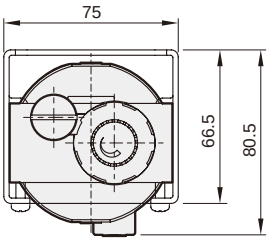
MAL401 – 8A – □ – B – □

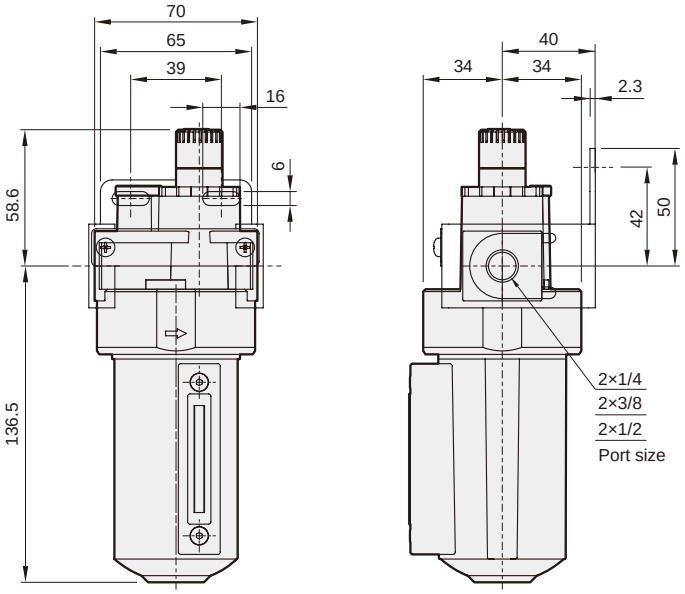
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- EXTERIOR COLOR
  - Blank: Black & silver
  - **W**: Gray & white
- Blank: Without bracket
  - **B**: C type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Option accessories

C type bracket

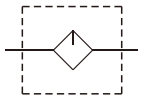








Symbol



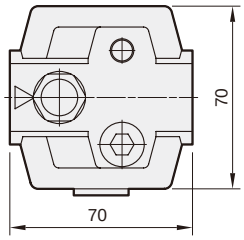
Specification

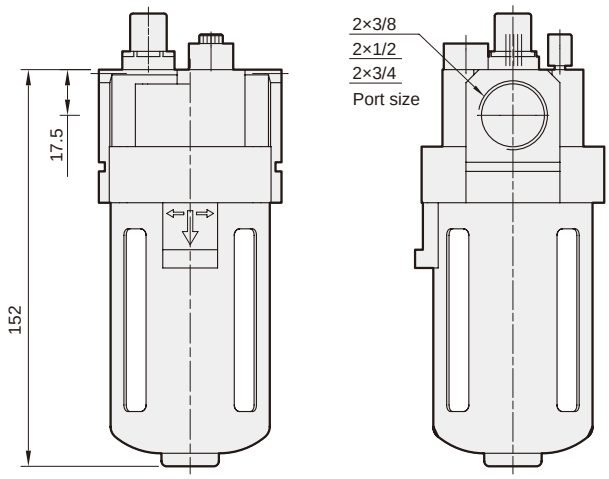
Model	MAL402		
Bore No.	10A	15A	20A
Port size	3/8	1/2	3/4
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Lubricating oil capacity	180 c.c		
Min. Flow for oil drip	200 ℓ/min		
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	477 g		

Order example

MAL402 — 15A — □

MODEL	PORT SIZE	PORT THREAD
	10A: 3/8 **15A**: 1/2 **20A**: 3/4	Blank: Rc thread **G**: G thread **NPT**: NPT thread



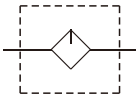


MAL403 series

AIR UNIT (L.UNIT)



Symbol



Specification

Model	MAL403		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Lubricating oil capacity	200 c.c		
Min. Flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Weight	410 g		

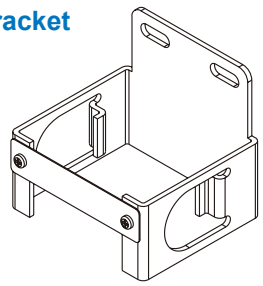
Order example

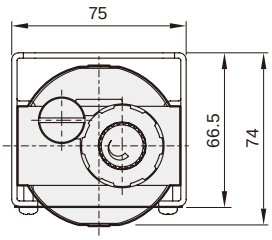
MAL403 – 8A – □ – B – □

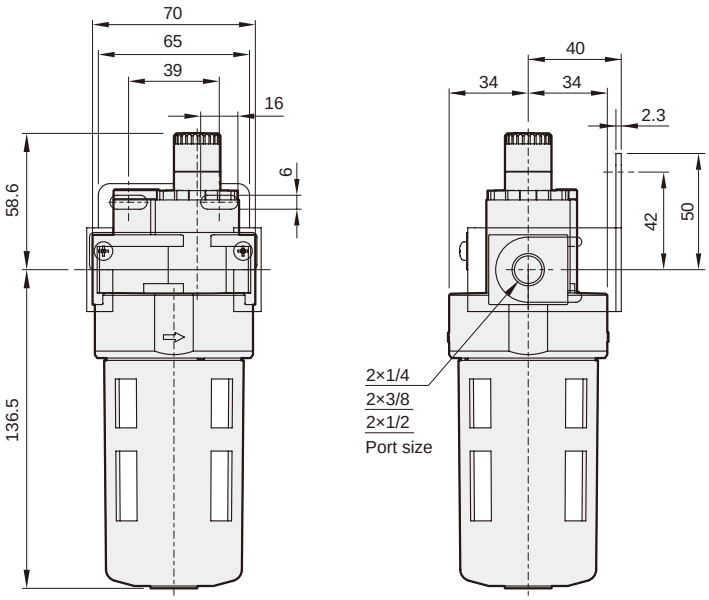
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
- Blank: Without bracket
  - **B**: C type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Option accessories

C type bracket







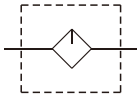
MAL501 series

AIR UNIT (L.UNIT)

mindman



Symbol



Specification

Model	MAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range	PC, Nylon bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	PC, Nylon bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Lubricating oil capacity	200 c.c	
Min. Flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Weight	PC, Nylon bowl: 1260 g	
	Metal bowl: 1380 g	

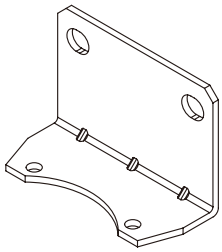
Order example

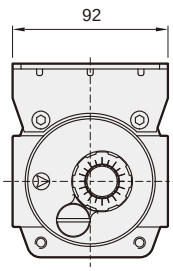
MAL501 – 20A – □ – B – □

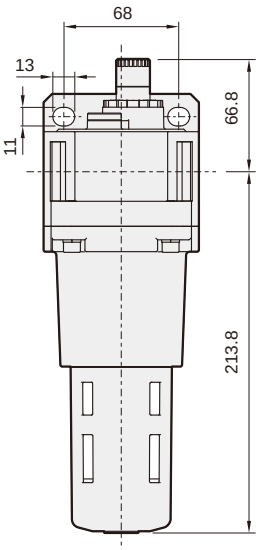
- MODEL
- PORT SIZE
  - **20A**: 3/4
  - **25A**: 1
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
  - **M**: Metal bowl
- Blank: Without bracket
  - **B**: L type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

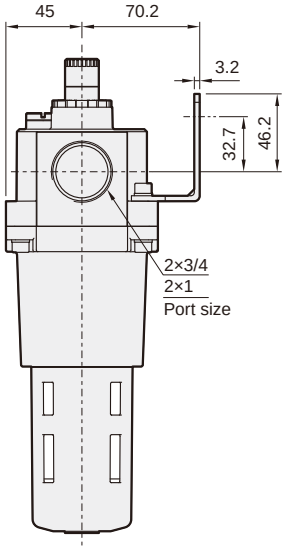
Option accessories

L type bracket



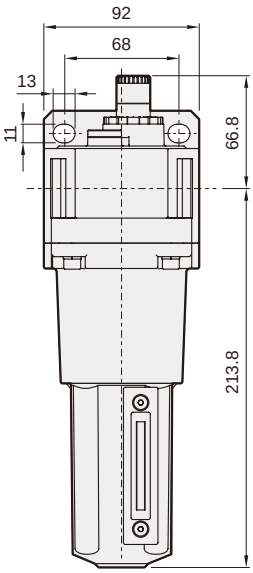




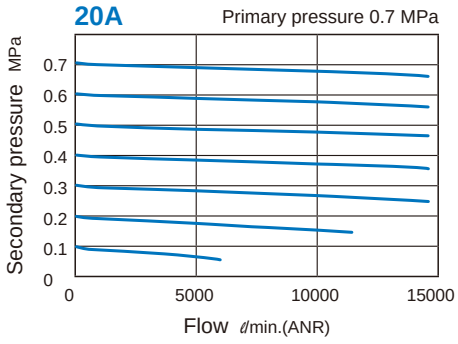


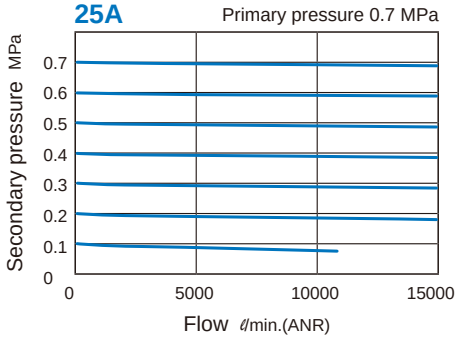
MAL501-M

Metal bowl



Flow feature



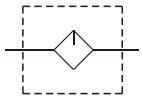


MAL900 series

AIR UNIT (L.UNIT)



Symbol



- MAL900 is useful to lubricate air tools, cylinders, valves, air motors and other air driven devices.

Specification

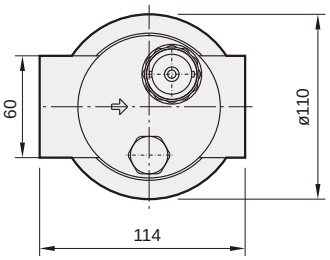
Model	MAL900
Bore No.	40A
Port size	1 1/2
Medium	Air
Max. operating pressure	1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Lubricating oil capacity	1000 c.c
Min. Flow for oil drip	204 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32
Standard nominal flow rate (*)	12000 ℓ/min
Weight	1766 g

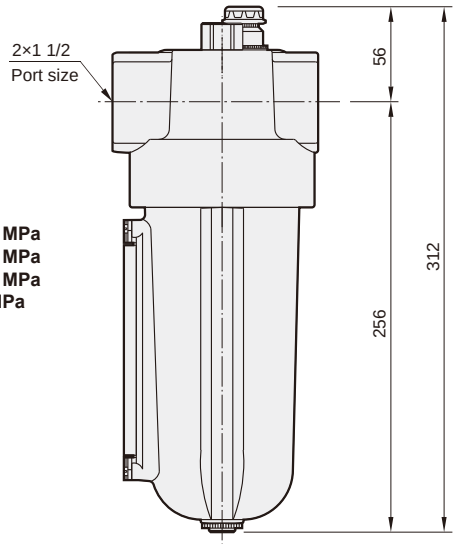
* Flow is at pressure P=0.6 MPa with pressure drop △ P=0.1 MPa.

Order example

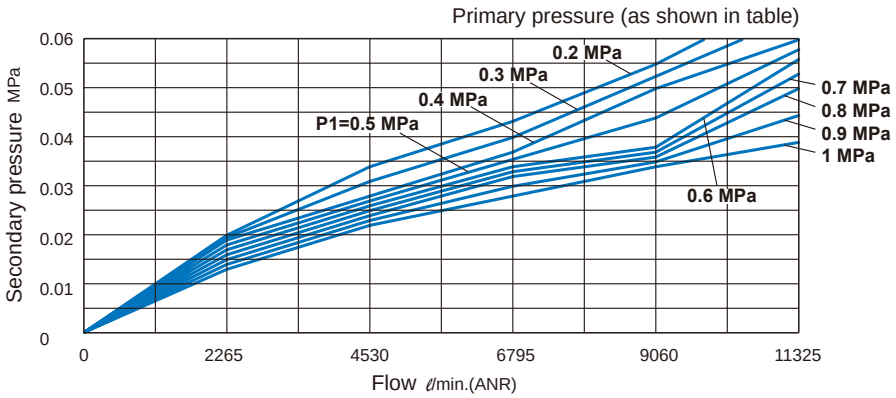
MAL900 — 40A — □

- MODEL
- PORT SIZE
  - **40A**: 1 1/2
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread





Flow feature

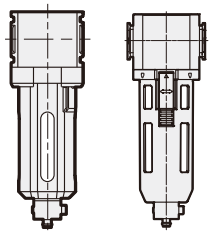


MA*300L / 302 / 401 / 501* series

AIR UNIT (AIR /MIST / MICRO MIST FILTER)

mindman

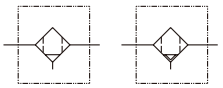
MAF300LD/M MAF302D/M



Air filter Air filter

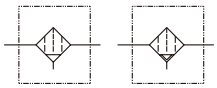
D 0.3 μm M 0.01 μm

MAF300LD
MAF302D

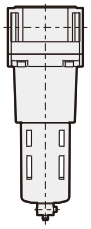


Auto drain type

MAF300LM
MAF302M



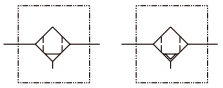
Auto drain type



Air filter

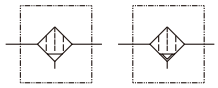
D 0.3 μm
M 0.01 μm

MAF501D



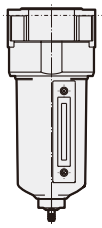
Auto drain type

MAF501M



Auto drain type

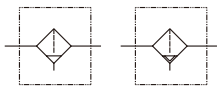
Model	Air filter 5 μm	Mist filter 0.3 μm	Micro mist filter 0.01 μm	Regulator
MAF300LD		●		
MAF300LM			●	
MAF302D		●		
MAF302M			●	
MAF501D		●		
MAF501M			●	
MAF401A	●			
MAF401D		●		
MAF401M			●	
MAFF401AD	●	●		
MAFF401DM		●	●	
MAFRF401	●	●		●
MATFR401	●	●	●	●



Air filter

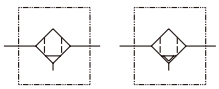
A 5 μm
D 0.3 μm
M 0.01 μm

MAF401A



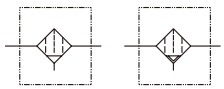
Auto drain type

MAF401D

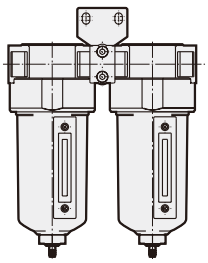


Auto drain type

MAF401M



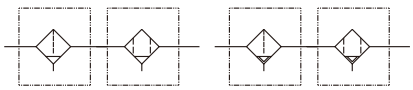
Auto drain type



Air filter Mist filter

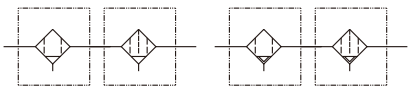
AD 5 μm + 0.3 μm
DM 0.3 μm + 0.01 μm

MAFF401AD



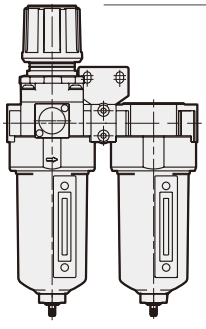
Auto drain type

MAFF401DM



Auto drain type

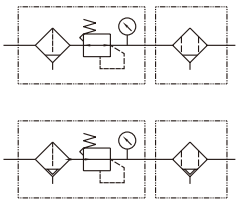
Regulator



Air filter Mist filter

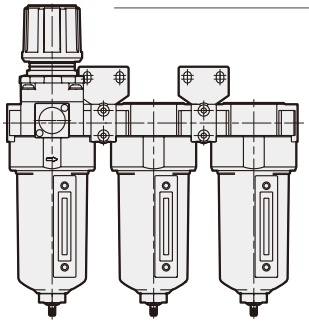
5 μm + 0.3 μm

MAFRF401



Auto drain type

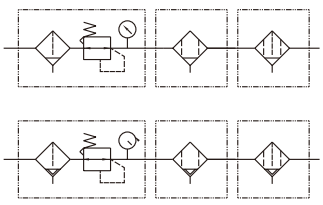
Regulator



Air filter Mist filter Micro mist filter

5 μm + 0.3 μm + 0.01 μm

MATFR401



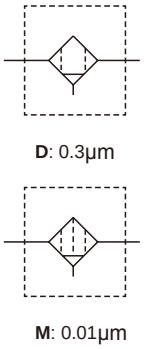
Auto drain type

MAF300LD / M series

AIR UNIT (MIST / MICRO MIST FILTER)



Symbol



D: 0.3μm

M: 0.01μm

- MA300LD is designed for removal of foreign matter as well as oil mist (Element: 0.3μm)
- MA300LM is designed for removal of foreign matter as well as oil mist (Element: 0.01μm)

Specification

Model	MAF300LD/M	
Bore No.	8A	10A
Port size	1/4	3/8
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	0.3 μm, 0.01 μm	
Drain capacity	35 cm^3	
Weight	300 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

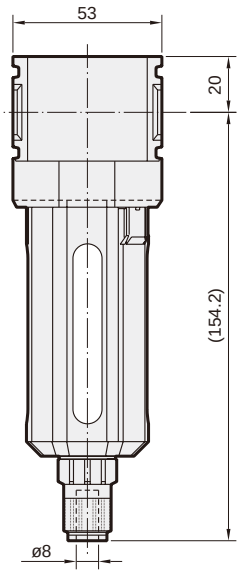
Order example

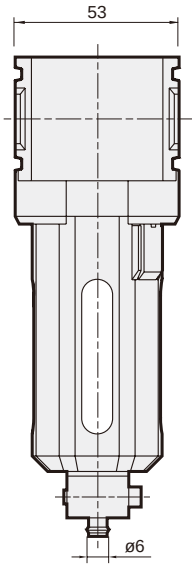
MAF300LD – 8A – ND – □

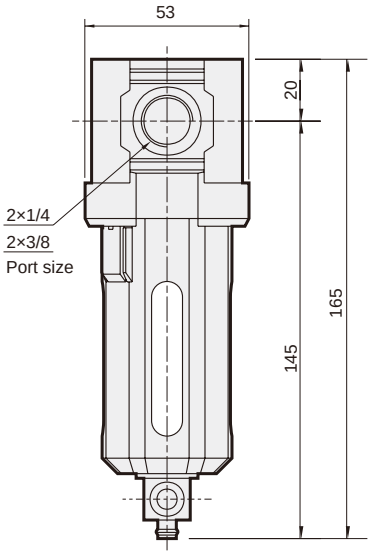
- MODEL
- FILTER ELEMENT
  - **D**: 0.3 μm
  - **M**: 0.01 μm
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- OPTION
  - Blank: Semi-auto drain
  - **D**: Auto drain valve (FMRF300)

MAF300LD/M-D

Auto drain valve







MAF302D / M series

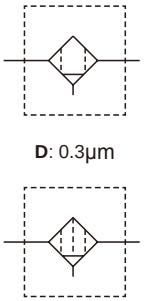
AIR UNIT (MIST / MICRO MIST FILTER)

mindman



- MA302D is designed for removal of foreign matter as well as oil mist (Element: 0.3μm)
- MA302M is designed for removal of foreign matter as well as oil mist (Element: 0.01μm)

Symbol



D: 0.3μm

M: 0.01μm

Specification

Model	MAF302D/M		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	0.3 μm, 0.01 μm		
Drain capacity	35 cm^3		
Weight	365 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

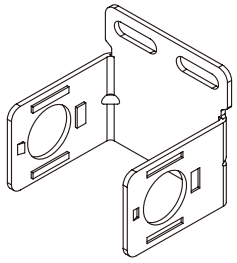
Order example

MAF302D – 8A – ND – B – □

- MODEL
- FILTER ELEMENT: **D**: 0.3 μm; **M**: 0.01 μm
- PORT SIZE: **8A**: 1/4; **10A**: 3/8; **15A**: 1/2
- BOWL: Blank: PC bowl; **M**: Metal bowl; **N**: Nylon bowl
- OPTION: Blank: Semi-auto drain; **D**: Auto drain valve (FMRF300)
- Blank: Without bracket; **B**: C type bracket
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

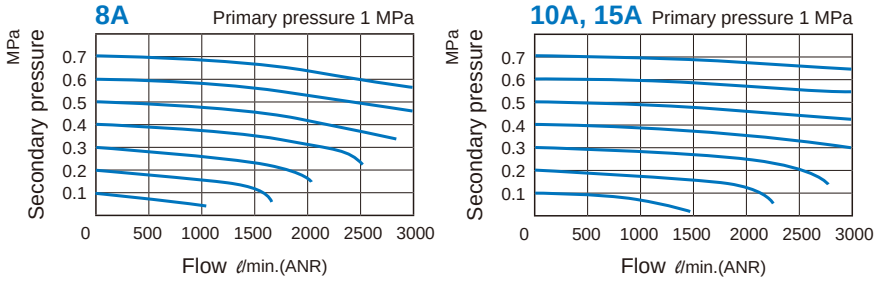
Option accessories

C type bracket

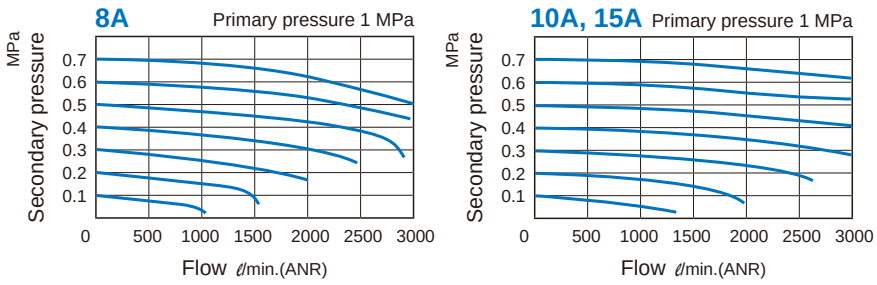


Flow feature

MAF302D (Filter element: 0.3 μm)



MAF302M (Filter element: 0.01 μm)

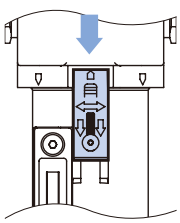


Caution

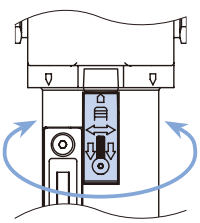
Metal bowl

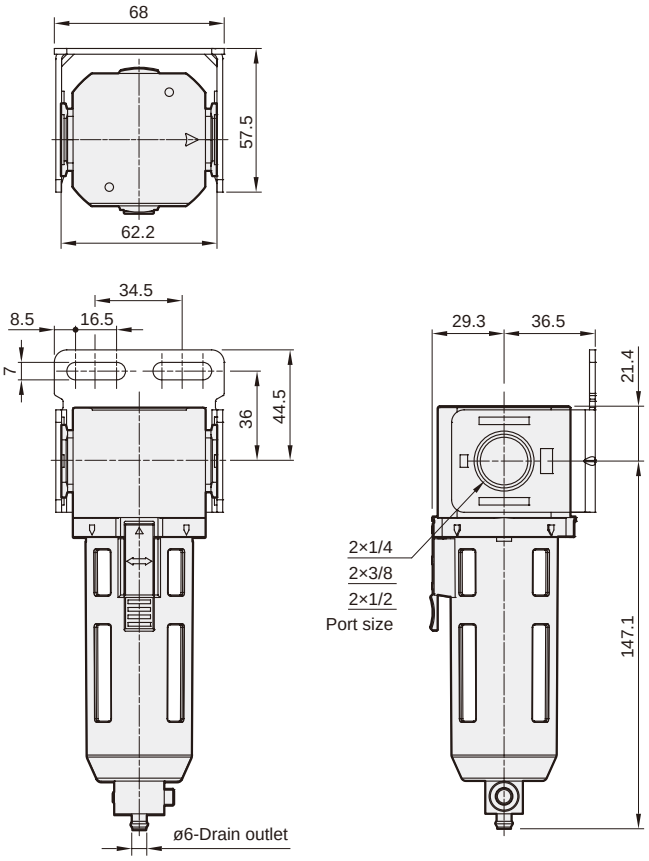
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1.Sliding plate down



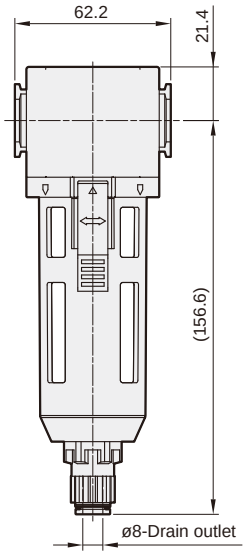
2. Rotating the bowl





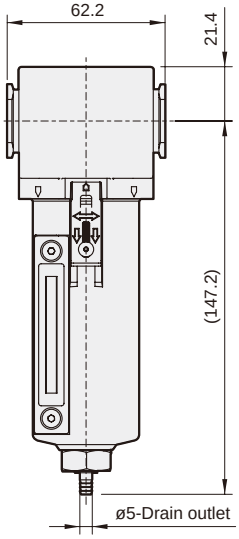
MAF302D/M-D

Auto drain valve



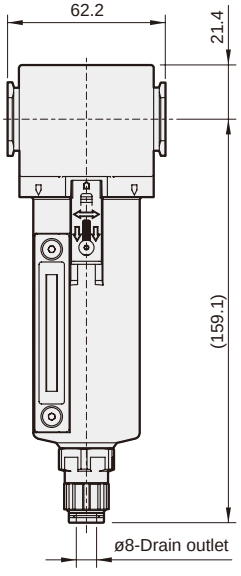
MAF302D/M-M

Metal bowl



MAF302D/M-MD

Metal bowl + Auto drain valve

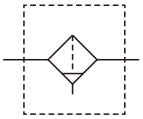


MAF401 A / D / M series

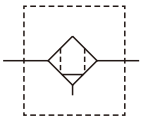
AIR UNIT (AIR / MIST / MICRO MIST FILTER)



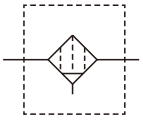
Symbol



A: 5μm



D: 0.3μm



M: 0.01μm

- MAF401A is designed for draining and removal of foreign matter. (Element: 5μm)
- MAF401D/M is designed for removal of foreign matter as well as oil mist (Element: 0.3μm / 0.01μm)

Specification

Model	MAF401A/D/M		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	5 μm, 0.3 μm, 0.01 μm		
Drain capacity	70 cm^3		
Weight	480 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

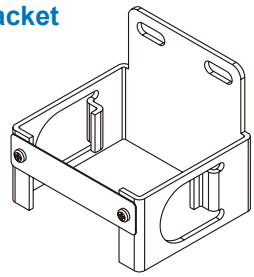
Order example

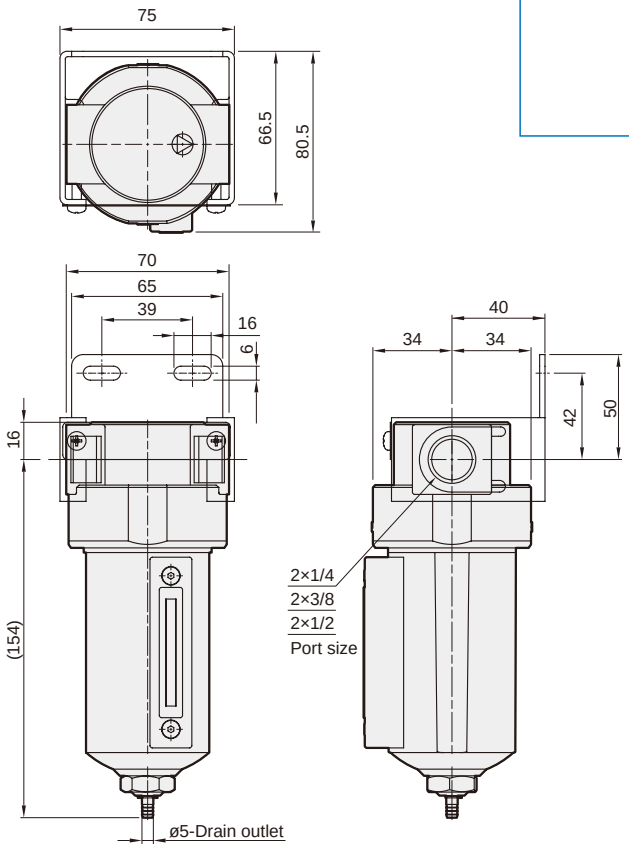
MAF401D – 8A – □ – D – B – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- FILTER ELEMENT: **A**: 5 μm, **D**: 0.3 μm, **M**: 0.01 μm
- EXTERIOR COLOR: Blank: Black & silver, **W**: Gray & white
- Blank: Semi-auto drain, **D**: Auto drain valve (FMRF300)
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- Blank: Without bracket, **B**: C type bracket

Option accessories

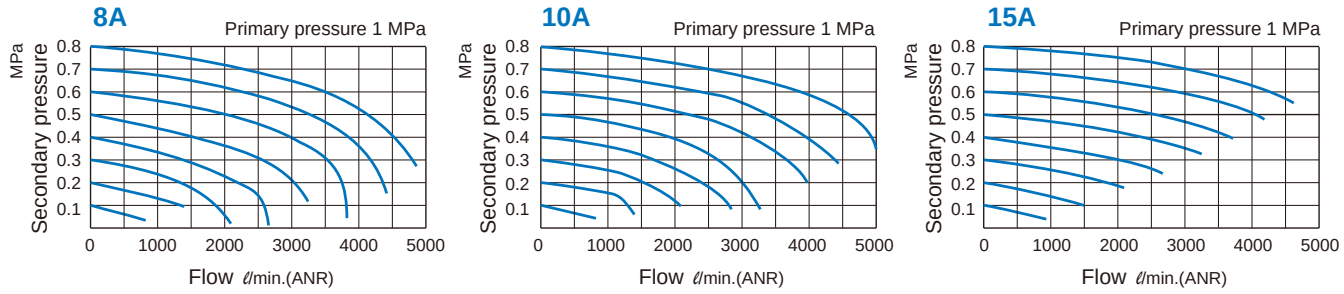
C type bracket



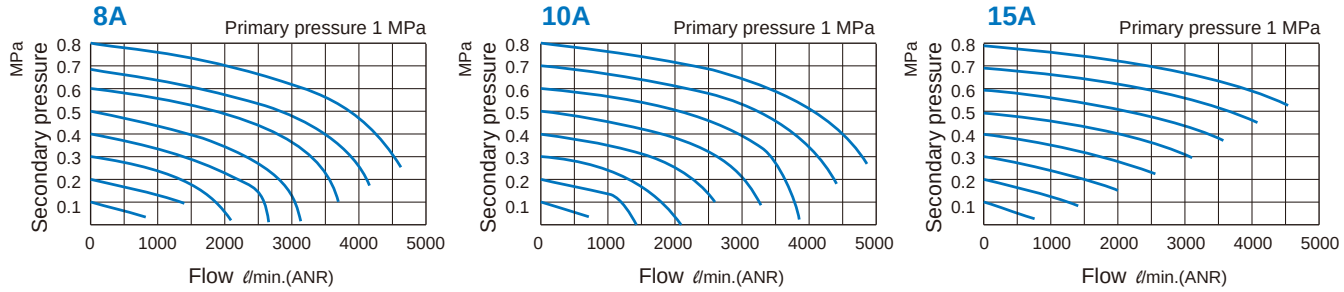


Flow feature

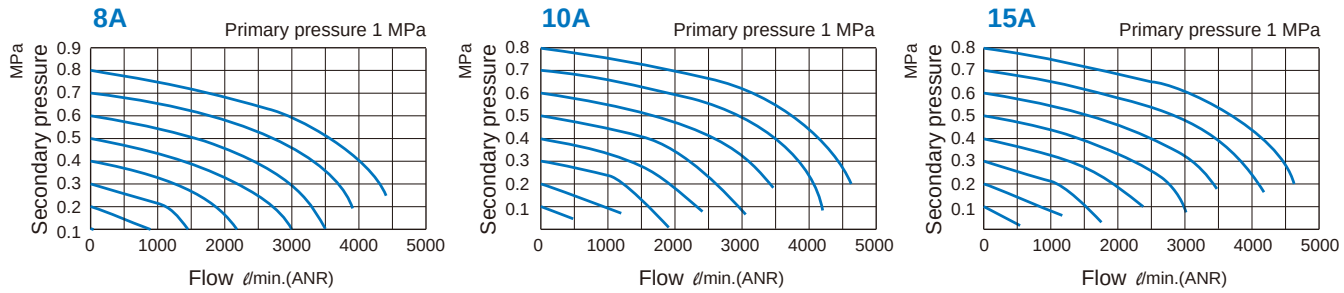
MAF401A (Filter element: 5 μm)



MAF401D (Filter element: 0.3 μm)



MAF401M (Filter element: 0.01 μm)



MAFF401 AD / DM series

AIR UNIT (AIR / MIST / MICRO MIST FILTER)

mindman



Specification

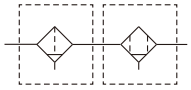
Model	MAFF401AD	MAFF401DM
Bore No.	8A,10A,15A	
Port size	1/4, 3/8, 1/2	
Medium	Air	
Operating pressure range (*)	0.05~1.5 MPa	
Proof pressure	2 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	5 μm+0.3 μm	0.3 μm+0.01 μm
Attachment	L type bracket	
Weight	1133 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

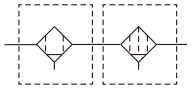
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol

AD



DM



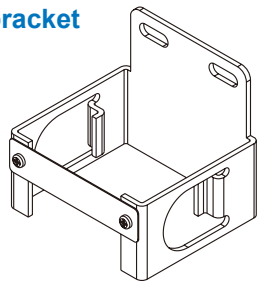
Order example

MAFF401AD – 8A – □ – D – B – □

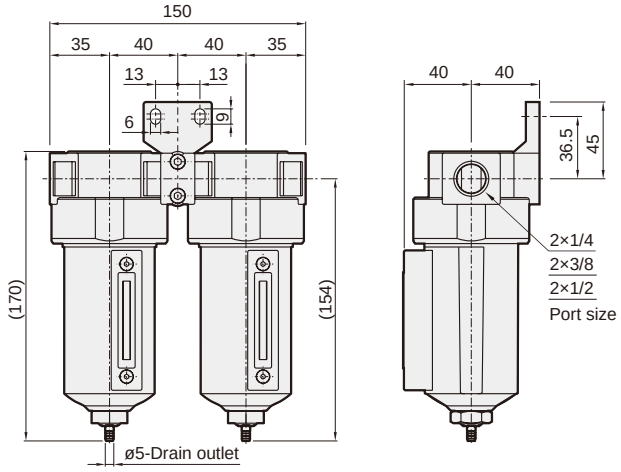
- MODEL
- FILTER ELEMENT
  AD: 5 μm+0.3 μm
  DM: 0.3 μm+0.01 μm
- PORT SIZE
  8A: 1/4
  10A: 3/8
  15A: 1/2
- EXTERIOR COLOR
  Blank: Black & silver
  W: Gray & white
- Blank: Semi-auto drain
  D: Auto drain valve (FMRF300)
- Blank: L type bracket
  B: C type bracket
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Option accessories

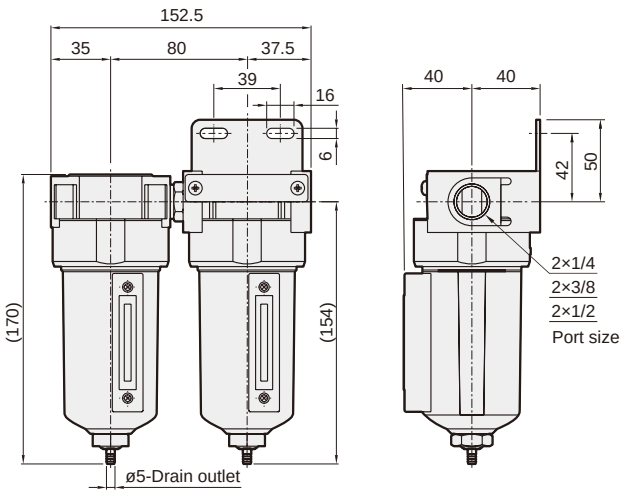
C type bracket



MAFF401** L type bracket



MAFF401**-B C type bracket



MAFRF401 series

AIR UNIT (F.R.UNIT)

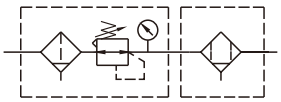


Specification

Model	MAFRF401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type:0.1~0.85 MPa		
	High pressure type: 0.1~1.5 Mpa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	5 μm+0.3 μm		
Attachment	Pressure gauge (PG-20), L type bracket		
Weight	1453 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MAFRF401AD – 8A – □ – HA□ – E1 – B – □

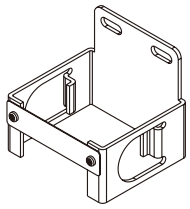
- MODEL
- FILTER ELEMENT — **AD**: 5 μm+0.3 μm
- PORT SIZE — **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- EXTERIOR COLOR — Blank: Black & silver, **W**: Gray & white
- (Option) PRESSURE SWITCH — **E1**: MP41P-022, **E2**: MP41P-022-QD, **E5**: MP41P-042, **E6**: MP41P-042-QD, * Refer to page 5-13 for MP41.
- PORT THREAD — Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- Blank: L type bracket, **B**: C type backet
- (Option) ACCESSORIES

Type	Pressure gauge	Drain valve
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain

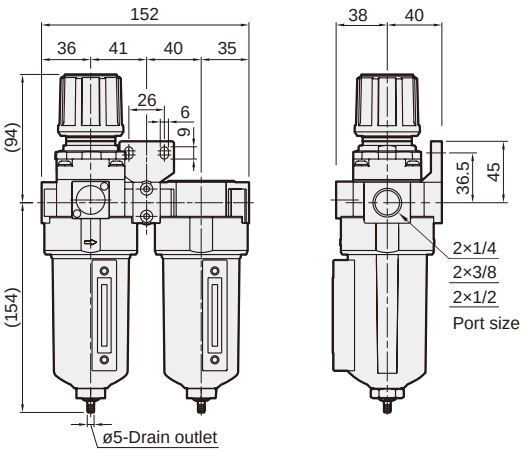
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).

Option accessories

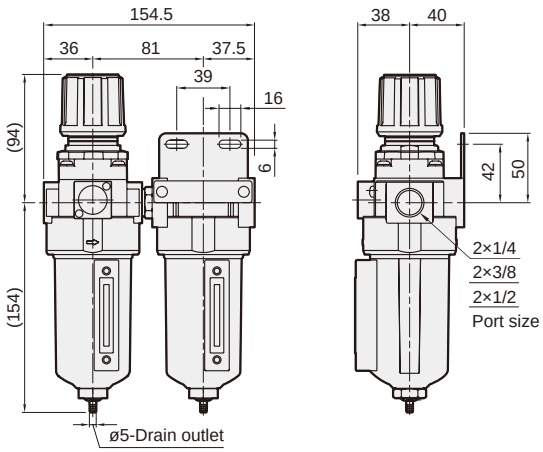
C type bracket



MAFRF401AD L type bracket



MAFRF401AD-B C type bracket



MATFR401 series

AIR UNIT (F.R.UNIT)

mindman

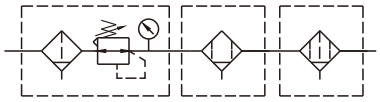


Specification

Model	MATFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type:0.1~0.85 MPa		
	High pressure type: 0.1~1.5 Mpa		
Ambient temperature	– 5~+60°C (No freezing)		
Filter element	5 μm+0.3 μm+0.01 μm		
Attachment	Pressure gauge (PG-20), L type bracket		
Weight	2106 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MATFR401 – 8A – □ – HA□ – E1 – B – □

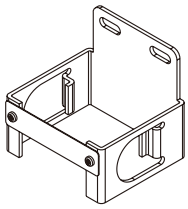
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- EXTERIOR COLOR: Blank: Black & silver, **W**: Gray & white
- (Option) ACCESSORIES
- (Option) PRESSURE SWITCH: **E1**: MP41P-022, **E2**: MP41P-022-QD, **E5**: MP41P-042, **E6**: MP41P-042-QD
  * Refer to page 5-13 for MP41.
- Blank: L type bracket, **B**: C type backet
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Type	Pressure gauge	Drain valve
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto drain

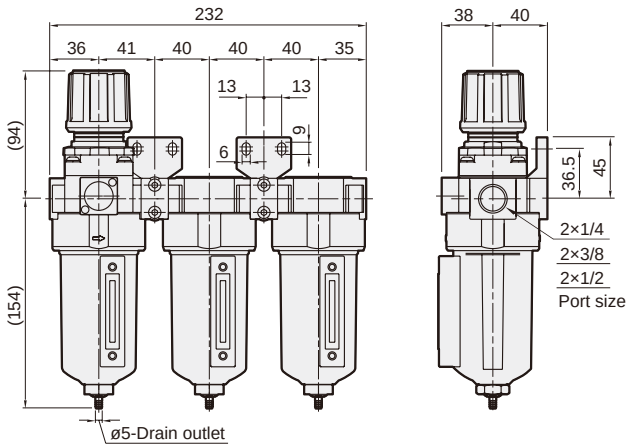
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).

Option accessories

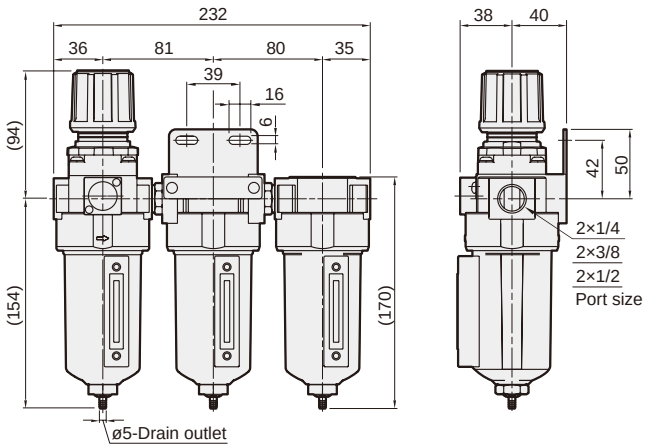
C type bracket



MATFR401 L type bracket



MATFR401-B C type bracket

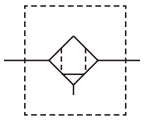


MAF501D / M series

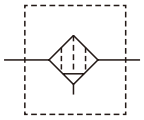
AIR UNIT (MIST / MICRO MIST FILTER)



Symbol



D: 0.3μm



M: 0.01μm

Specification

Model	MAF501D/M	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating perssure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	0.3 μm, 0.01 μm	
Drain capacity	Nylon bowl, PC bowl: 75 cm^3	
	Metal bowl: 70 cm^3	
Weight	Nylon bowl, PC bowl: 1180g	
	Metal bowl: 1300g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.
* Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

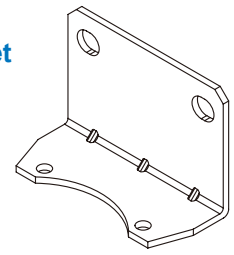
Order example

MAF501D – 20A – MD – B – □

- MODEL
- FILTER ELEMENT — **D**: 0.3 μm; **M**: 0.01 μm
- PORT SIZE — **20A**: 3/4; **25A**: 1
- BOWL — Blank: PC bowl; **M**: Metal bowl; **N**: Nylon bowl
- OPTION — Blank: Semi-auto drain; **D**: Auto drain valve (FMRF300)
- Blank: Without bracket; **B**: L type bracket
- PORT THREAD — Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

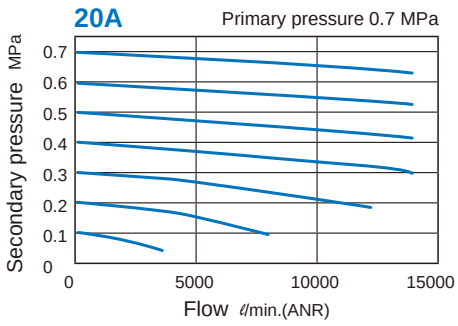
Option accessories

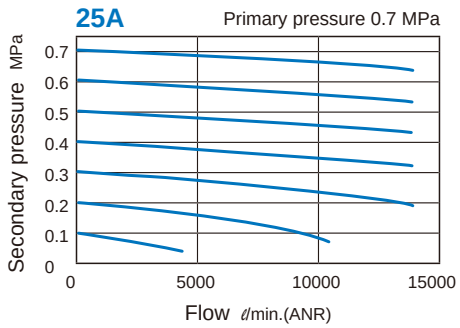
L type bracket



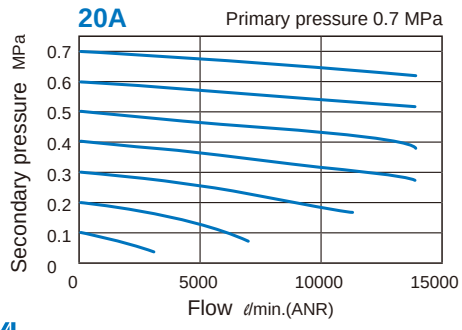
Flow feature

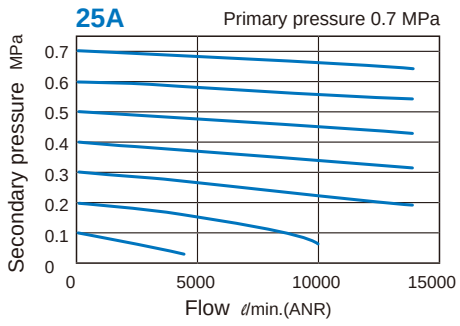
MAF501D (Filter element: 0.3 μm)





MAF501M (Filter element: 0.01 μm)



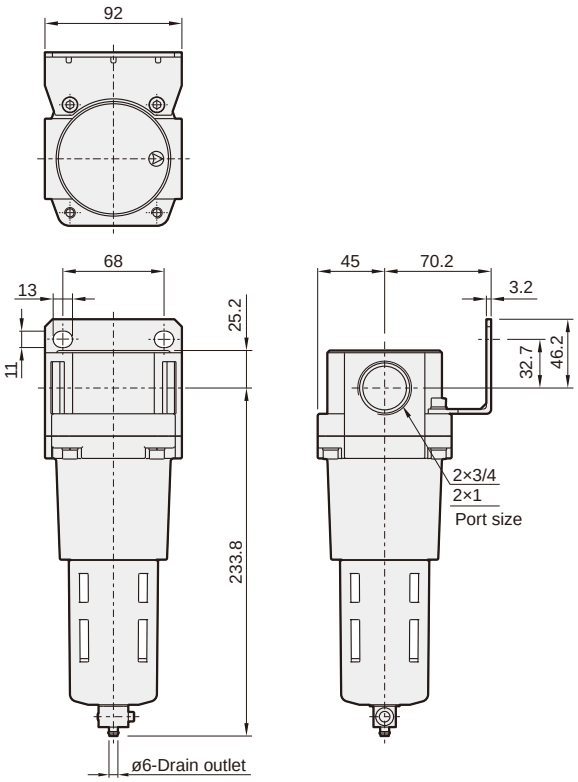


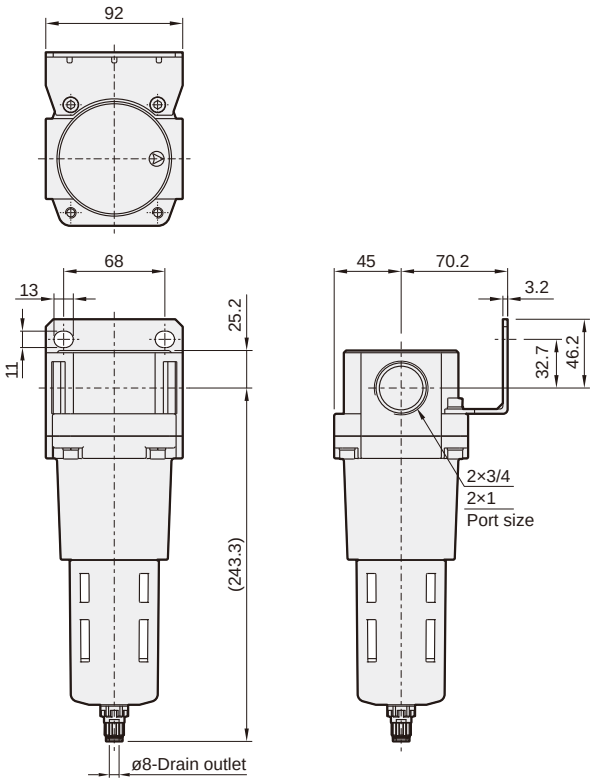
MAF501D / M Dimensions

AIR UNIT (MIST / MICRO MIST FILTER)

MAF501D/M-D

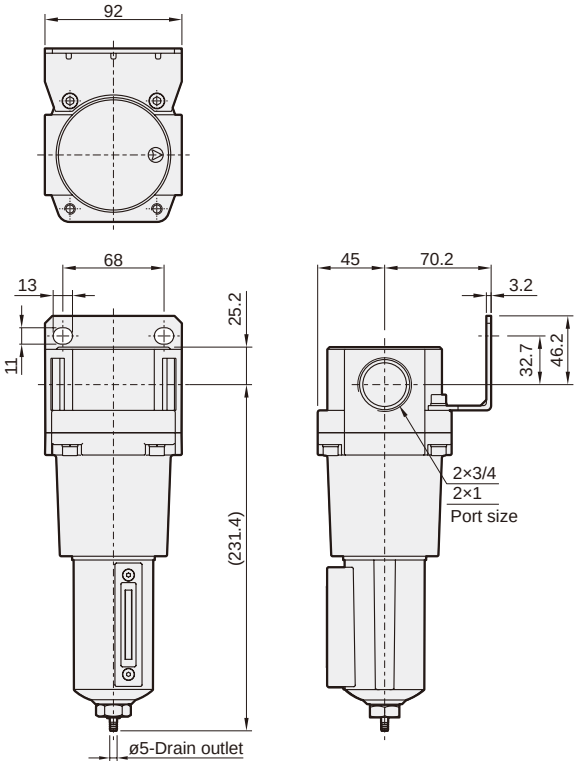
Auto drain valve





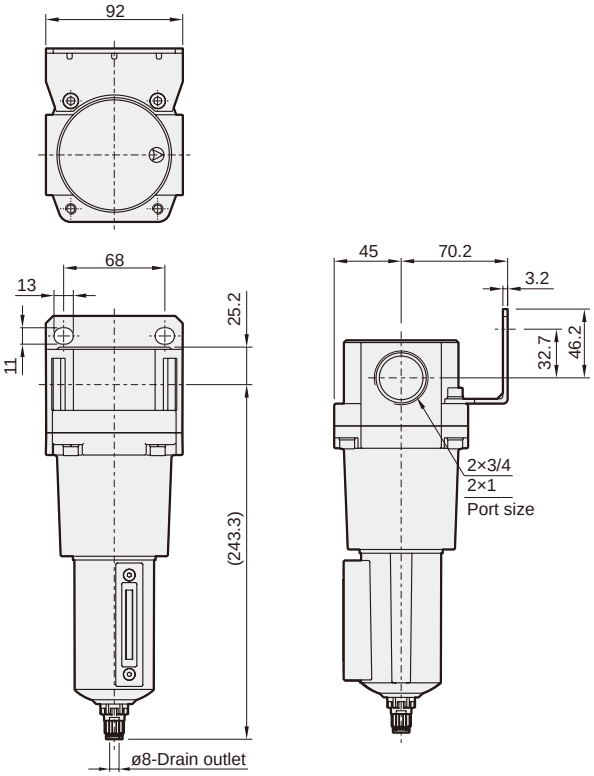
MAF501D/M-M

Metal bowl



MAF501D/M-MD

Metal bowl + auto drain valve



WATER SEPARATOR

MAM G

PRECISION FILTER

MAM B D M F



MAMG



EWS

Water separator

Removal rate 99%±1

Separating the water droplet with a special filtration in the compressed air. * cannot remove moisture.

MAMB



E3

3 μm

Filtration efficiency 99%

Removing the impurities which the particles are bigger than 3μm in compressed air, and extending the life of precision filter in the down-stream, then preventing trouble with the equipment.

MAMD



E03

0.3 μm

Filtration efficiency 99.9%

Removing the oil mist and impurities which the particles are bigger than 0.3μm in compressed air.

MAMM



E001

0.01 μm

Filtration efficiency 99.9%

Removing the oil mist and impurities which the particles are bigger than 0.01μm in compressed air. The filter can be applied to requirement of high purity and extremely low oil mist.

MAMF



E001D

0.01 μm + Deodorization

Filtration efficiency 99.9%

Adsorbing the order and efficiently removing oil mist with an activated carbon element in compressed air. The filter can be applied to requirement of high purity and oil-free, such as precision painting operations or food and medical equipment.

* Assembling a MAMD series as pre-filter to extend the life of activated carbon.



Body & Port size

[Rc, G, NPT thread]

MAM*25 1/4, 3/8
MAM*35 3/8, 1/2
MAM*45 1/2, 3/4
MAM*55 3/4, 1

Model & Filter element

Water separator

MAMG

Precision filter

MAMB 3 μm
MAMD 0.3 μm
MAMM 0.01 μm
MAMF 0.01 μm + Deodorization

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.
(E001D every 6 months)





(Option)

Differential pressure indicator

Double-check with a **Sensor Switch** and an indicator to achieve preventative maintenance.

⚠ Caution

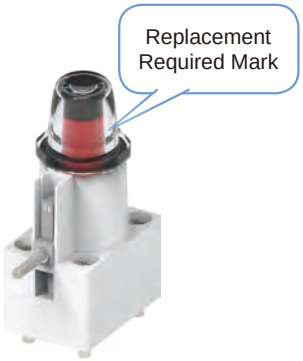
This product can't be operated in a location in which pulsations frequently occur.

The indicator is only available with Indicator (Q) and Indicator with switch (QR) models.

Operation image



Initial (No clogging)



Replacement recommended

An indicator that can confirm intuitively.
A clear cover and colorful lamp enables high visibility.
A mark that help you know when it is time to replace the filter element.

Sensor switch (Option)



RDFE(V)
Solid state output, Normally open
Operating voltage: 5~30V DC
Switching current: 50mA max.

* Sensor switch specification please refer to page 7-12.

A hint for preventative maintenance

Generally speaking, the filter element should be replaced about once a year. This is just a guideline. The air cleanliness of the secondary side depends on working conditions. To keep your system at optimal conditions, we recommend that

Customers replace filter elements regularly / follow the Replacement mark

Modular combination example (Option)

Model	Joiner set	Air unit	Shutoff valve	Soft start-up valve
MAM*25 MAM*35	BS-MACP403	MA*401-W MA*403	MVHR400 MVHT400	MAVS400
MAM*45 MAM*55	BS-MACP501	MA*501	–	–

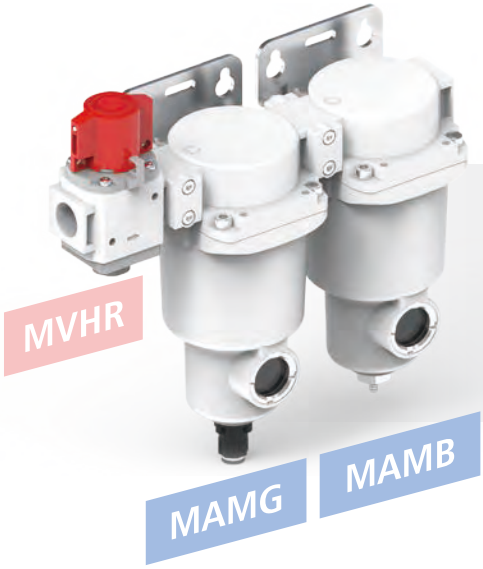
- Space-saving
- Various combinations available
- Easy assembly (DIY)



EXAMPLE

MAMG35 (Water separator) + **MAMB35** (3 μm) + **MAVS400** (Shutoff valve)

Applicable to the dangerous pneumatic machinery. The valve will control the pressure to increase gradually when the air supply start up, which avoids the accident and machinery damage caused by the sudden action of the actuators.



EXAMPLE

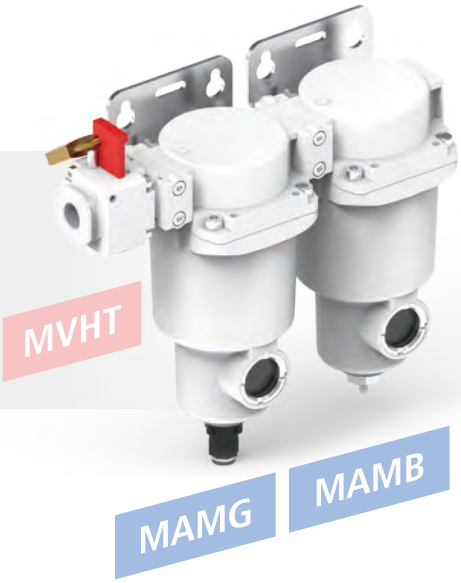
MVHR400 (Shutoff valve) + **MAMG35** (Water separator) + **MAMB35** (3 μm)

Applicable to the pneumatic circuit to switch the air supply on and off promptly and release residual pressure while the valve is off.

EXAMPLE

MVHT400 (Shutoff valve) + **MAMG35** (Water separator) + **MAMB35** (3 μm)

Applicable to the pneumatic circuit to switch the air supply on and off promptly and release residual pressure while the valve is off.





EXAMPLE

MAMG45 + MAMB45

Water separator | 3 μm

Applicable to the main line of the pneumatic circuit or the instance of low compressed air quality demand. For example, the main circuit of the pneumatic system in the factory.

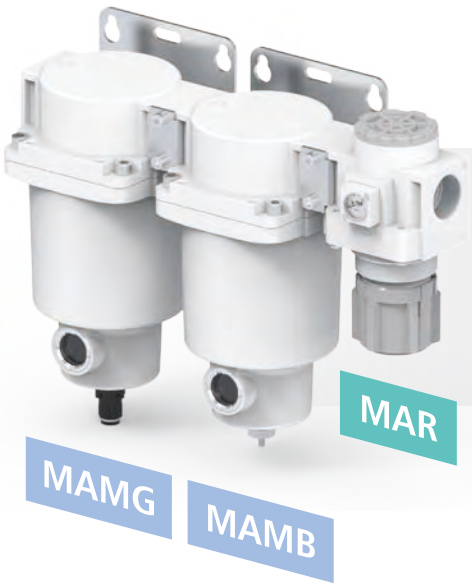


EXAMPLE

MAMB45 + MAMD45 + MAMM45

3 μm | 0.3 μm | 0.01 μm

Applicable to the instance of high compressed air quality demand. For example, food processing industry and pharmaceutical plant.



EXAMPLE

MAMG55 + MAMB55 + MAR501

Water separator | 3 μm | Regulator

Applicable to the instance of pressure regulation requirement. For example, automation industry and machine tool.



EXAMPLE

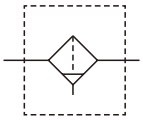
MAMG55 + MAMB55 + MAL501

Water separator | 3 μm | Lubricator

Applicable to the instance of lubrication requirement. For example, automation industry and machine tool.



Symbol



Order example

MAMG 45 — 15A — D — Q — □

- MODEL
- **G**: Water separator (Removal rate 99%±1)

BODY SIZE	PORT SIZE
25	**8A**: 1/4 **10A**: 3/8
35	**10A**: 3/8 **15A**: 1/2
45	**15A**: 1/2 **20A**: 3/4
55	**20A**: 3/4 **25A**: 1

- Blank: Semi-auto drain
- **D**: Auto drain valve (FMRF300)
- Differential Pressure Indicator (*)
  - Blank: Without
  - **Q**: Indicator
  - **QR**: Indicator with switch (*)
- PORT HREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

* Please add the sensor when selecting Indicator with switch (QR).
* The models without Indicator (Q) and Indicator with switch (QR) type don't have the installation thread holes.

Order example of sensor switch

RDFE V — □

- MODEL
  - **RDFE**: Non-contact
  - **RNFE**: NPN
  - **RPFE**: PNP
- AUTO SWITCH TYPE
  - Blank: Straight cable
  - **V**: Angle cable
- WIRE LENGTH
  - Blank: L=2000mm
  - **1M**: L=1000mm
  - **QD**: M8, 3 Pin connector
  - **EQD**: M8, 3 Pin connector

MAMG series Water removal rate

$$\text{Water removal rate (\%)} = \frac{\text{Removed water (water droplet) g}}{\text{Inflowed water (water droplet) g}} \times 100$$

* Water separator can remove water droplets, but it cannot remove moisture.

Dimensions

* Please refer to page 4-152.

Features

Separating the water droplet with a special filtration in the compressed air. * cannot remove moisture.

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Specification

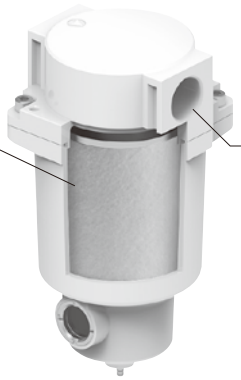
Model	MAMG							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	– 5~+60°C (No freezing)							
Filter element	Water separator (Removal rate 99%±1)							
Attchment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 7-12)							
Weight	610 g		870 g		1450 g		2250 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Selector table – Filter element

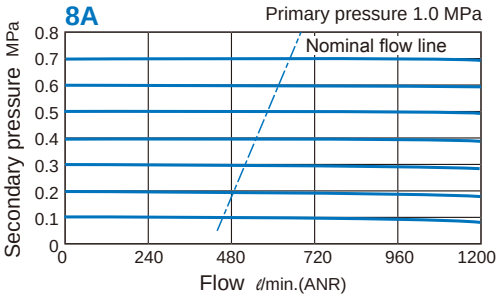
Model	Port size	Filter element	Nominal * flow capacity l/min(ANR)	Symbol for order
MAMG25	1/4, 3/8	Water separator (removal rate 99%±1)	650	**EWS-G25**
MAMG35	3/8, 1/2		1350	**EWS-G35**
MAMG45	1/2, 3/4		2100	**EWS-G45**
MAMG55	3/4, 1		3600	**EWS-G55**

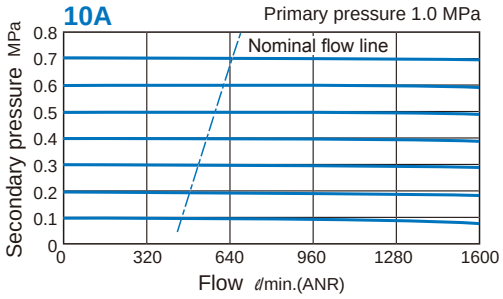
* Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.



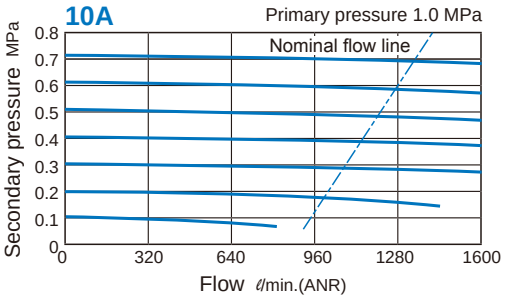
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

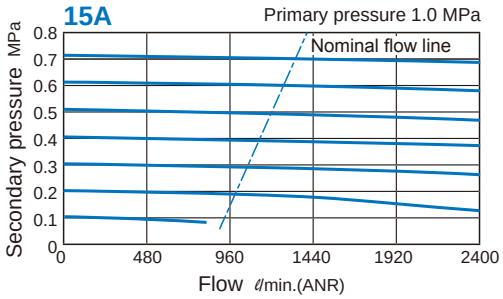
MAMG25



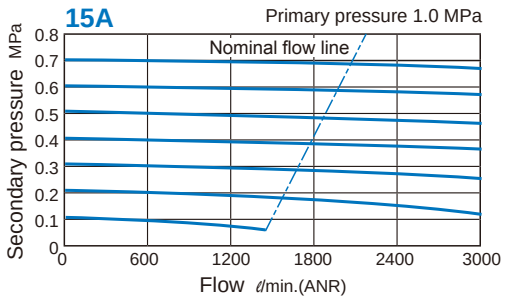


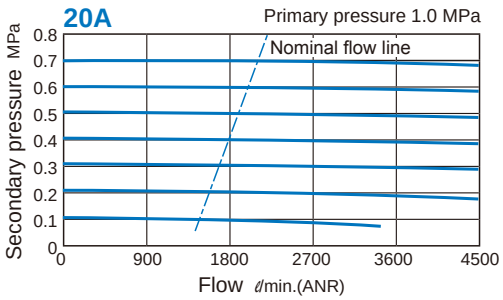
MAMG35



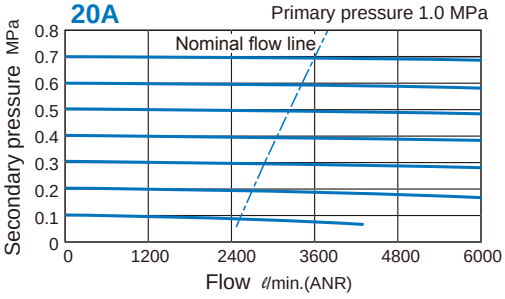


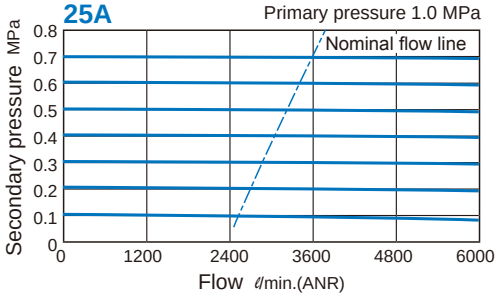
MAMG45





MAMG55



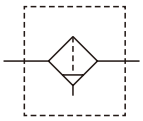


MAMB series 3 μm

AIR UNIT (MAIN LINE FILTER)



Symbol



Order example

MAMB 45 — 15A — D — Q — □

- MODEL
  - B: 3 μm
- BODY SIZE / PORT SIZE

BODY SIZE	PORT SIZE
25	8A: 1/4 10A: 3/8
35	10A: 3/8 15A: 1/2
45	15A: 1/2 20A: 3/4
55	20A: 3/4 25A: 1

- Differential Pressure Indicator (*)
  - Blank: Without
  - Q: Indicator
  - QR: Indicator with switch (*)
- PORT HREAD
  - Blank: Rc thread
  - G: G thread
  - NPT: NPT thread
- Blank: Semi-auto drain
  - D: Auto drain valve (FMRF300)

* Please add the sensor when selecting Indicator with switch (QR).
* The models without Indicator (Q) and Indicator with switch (QR) type don't have the installation thread holes.

Order example of sensor switch

RDFE V — □

- MODEL
  - RDFE: Non-contact
  - RNFE: NPN
  - RPFE: PNP
- AUTO SWITCH TYPE
  - Blank: Straight cable
  - V: Angle cable
- WIRE LENGTH
  - Blank: L=2000mm
  - 1M: L=1000mm
  - QD: M8, 3 Pin connector
  - EQD: M8, 3 Pin connector

Dimensions

* Please refer to page 4-152.

Features

Removing the impurities which the particles are bigger than 3μm in compressed air, and extending the life of precision filter in the down-stream, then preventing trouble with the equipment.

Maintenance

Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Specification

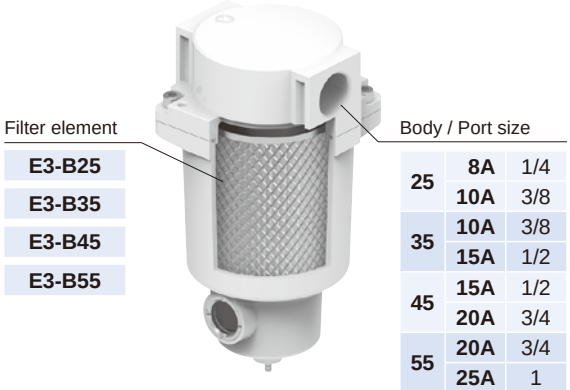
Model	MAMB							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	– 5~+60°C (No freezing)							
Filter element	3 μm							
Attchment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 7-12)							
Weight	610 g		870 g		1450 g		2250 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Selector table – Filter element

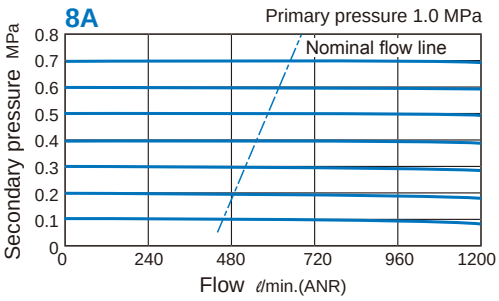
Model	Port size	Filter element *1	Nominal*2 flow capacity l/min(ANR)	Symbol for order
MAMB25	1/4, 3/8	E3: 3μm (filtration efficiency 99%)	650	E3-B25
MAMB35	3/8, 1/2		1350	E3-B35
MAMB45	1/2, 3/4		2100	E3-B45
MAMB55	3/4, 1		3600	E3-B55

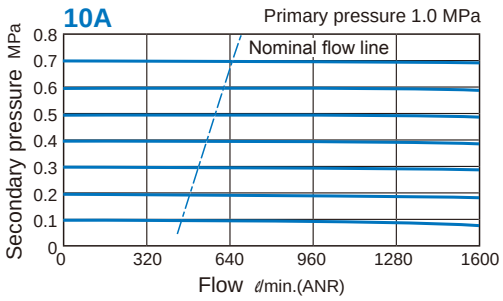
*1. Tested according to ISO8573.
*2. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.



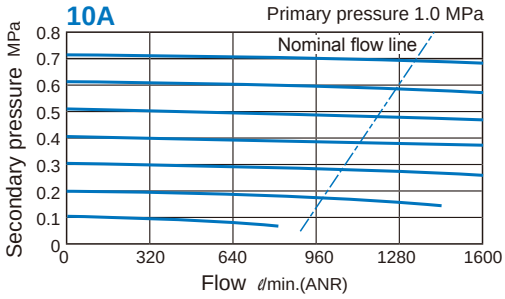
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

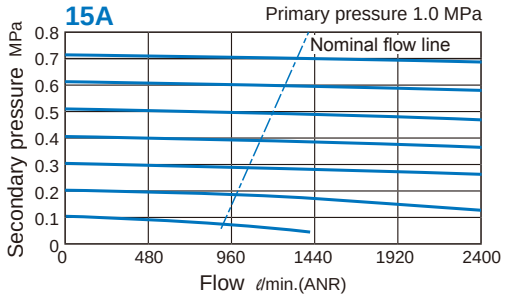
MAMB25



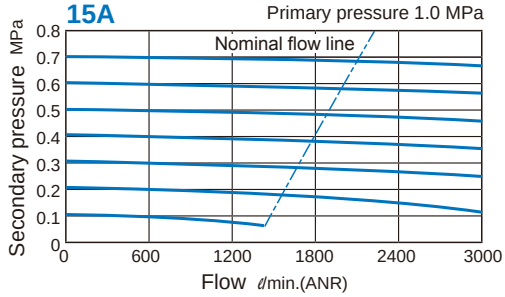


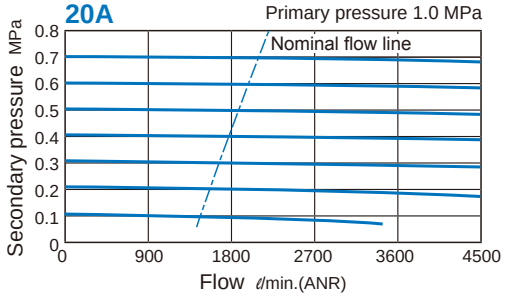
MAMB35



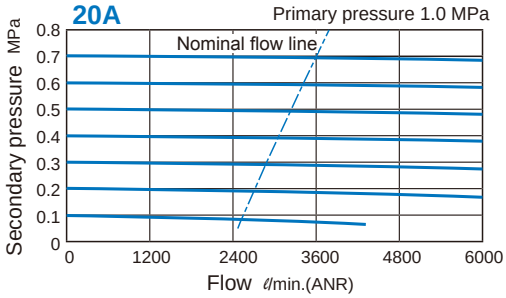


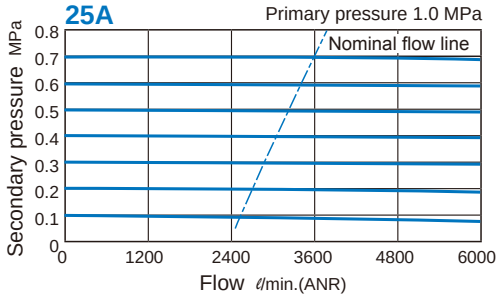
MAMB45





MAMB55





MAMD series 0.3 μm

AIR UNIT (MIST FILTER)



Features

Removing the oil mist and impurities which the particles are bigger than 0.3μm in compressed air.

Maintenance

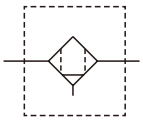
Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Specification

Model	MAMD							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	– 5~+60°C (No freezing)							
Filter element	0.3 μm							
Attchment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 7-12)							
Weight	610 g		870 g		1450 g		2250 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MAMD 45 — 15A — D — Q — □

- MODEL
- BODY SIZE / PORT SIZE

BODY SIZE	PORT SIZE
25	**8A**: 1/4 **10A**: 3/8
35	**10A**: 3/8 **15A**: 1/2
45	**15A**: 1/2 **20A**: 3/4
55	**20A**: 3/4 **25A**: 1

- **D**: 0.3 μm
- Differential Pressure Indicator (*)
  Blank: Without
  Q: Indicator
  QR: Indicator with switch (*)
- PORT HREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
- Blank: Semi-auto drain
  D: Auto drain valve (FMRF300)

* Please add the sensor when selecting Indicator with switch (QR).
* The models without Indicator (Q) and Indicator with switch (QR) type don't have the installation thread holes.

Selector table – Filter element

Model	Port size	Filter element *1	Residual oil content *2	Nominal*3 flow capacity l/min(ANR)	Symbol for order
MAMD25	1/4, 3/8	**E03**: 0.3μm (filtration efficiency 99.9%)	< 0.1 mg/m^3	650	**E03-D25**
MAMD35	3/8, 1/2			1350	**E03-D35**
MAMD45	1/2, 3/4			2100	**E03-D45**
MAMD55	3/4, 1			3600	**E03-D55**

*1. Tested according to ISO8573.
*2. Tested according to ISO12500-1, inlet concentration 10mg/m^3
*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.

Order example of sensor switch

RDFE V — □

- MODEL
  RDFE: Non-contact
  RNFE: NPN
  RPFE: PNP
- AUTO SWITCH TYPE
  Blank: Straight cable
  V: Angle cable
- WIRE LENGTH
  Blank: L=2000mm
  1M: L=1000mm
  QD: M8, 3 Pin connector
  EQD: M8, 3 Pin connector

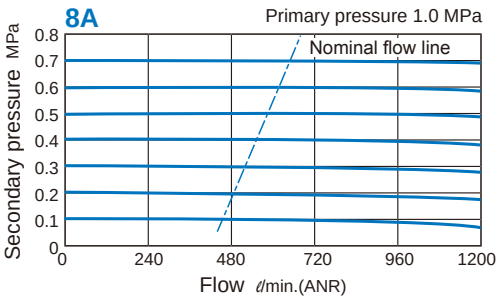


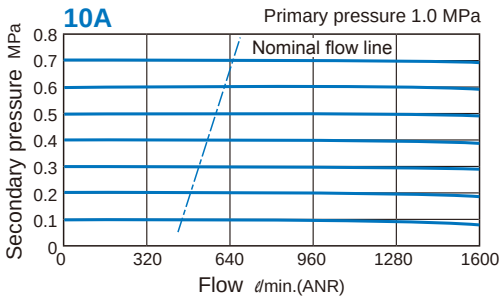
Dimensions

* Please refer to page 4-152.

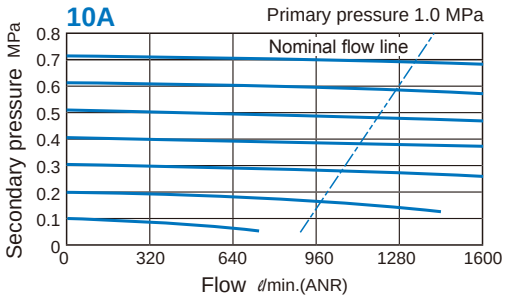
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

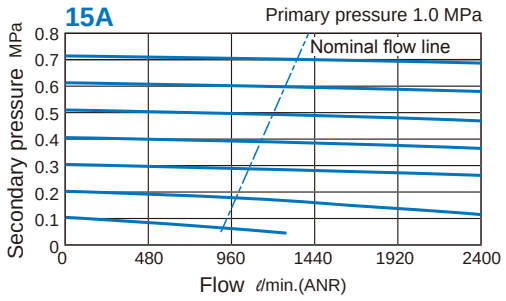
MAMD25



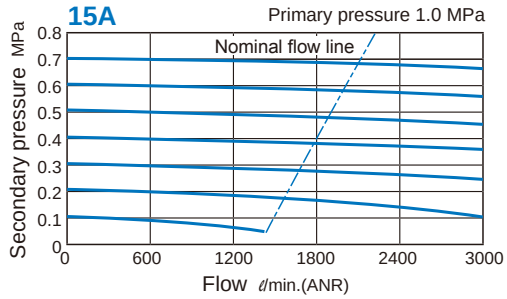


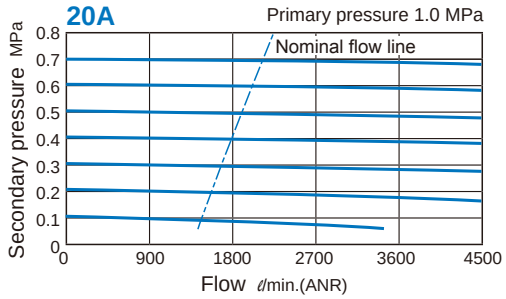
MAMD35



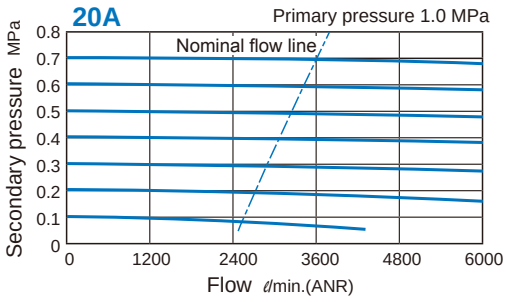


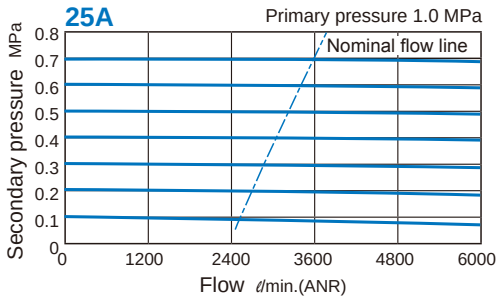
MAMD45





MAMD55





MAMM series 0.01 μm

AIR UNIT (MICRO MIST FILTER)



Features

Removing the oil mist and impurities which the particles are bigger than 0.01μm in compressed air. The filter can be applied to requirement of high purity and extremely low oil mist.

Maintenance

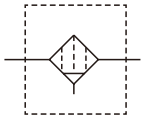
Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

Specification

Model	MAMM							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	– 5~+60°C (No freezing)							
Filter element	0.01 μm							
Attchment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 7-12)							
Weight	610 g		870 g		1450 g		2250 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

MAMM 45 – 15A – D – Q – □

- MODEL
  - **M**: 0.01 μm
- BODY SIZE / PORT SIZE

BODY SIZE	PORT SIZE
25	**8A**: 1/4 **10A**: 3/8
35	**10A**: 3/8 **15A**: 1/2
45	**15A**: 1/2 **20A**: 3/4
55	**20A**: 3/4 **25A**: 1

- Differential Pressure Indicator (*)
  - Blank: Without
  - **Q**: Indicator
  - **QR**: Indicator with switch (*)
- PORT HREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- Blank: Semi-auto drain
  D: Auto drain valve (FMRF300)

* Please add the sensor when selecting Indicator with switch (QR).
* The models without Indicator (Q) and Indicator with switch (QR) type don't have the installation thread holes.

Selector table – Filter element

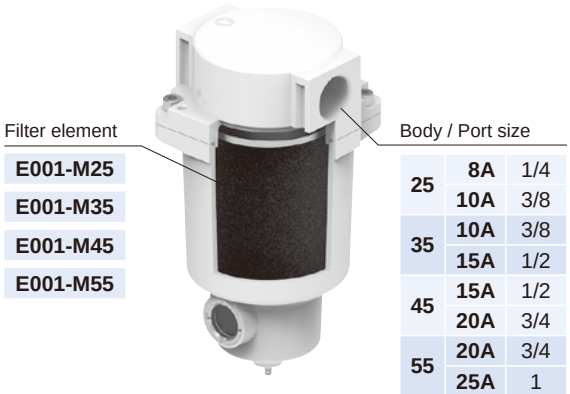
Model	Port size	Filter element *1	Residual oil content *2	Nominal*3 flow capacity l/min(ANR)	Symbol for order
MAMM25	1/4, 3/8	**E001**: 0.01μm (filtration efficiency 99.9%)	< 0.01 mg/m^3	500	**E001-M25**
MAMM35	3/8, 1/2			1000	**E001-M35**
MAMM45	1/2, 3/4			2000	**E001-M45**
MAMM55	3/4, 1			3600	**E001-M55**

*1. Tested according to ISO8573.
*2. Tested according to ISO12500-1, inlet concentration 10mg/m^3
*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.

Order example of sensor switch

RDFE V – □

- MODEL
  - **RDFE**: Non-contact
  - **RNFE**: NPN
  - **RPFE**: PNP
- AUTO SWITCH TYPE
  - Blank: Straight cable
  - **V**: Angle cable
- WIRE LENGTH
  - Blank: L=2000mm
  - **1M**: L=1000mm
  - **QD**: M8, 3 Pin connector
  - **EQD**: M8, 3 Pin connector

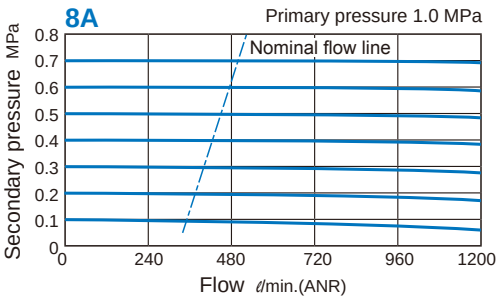


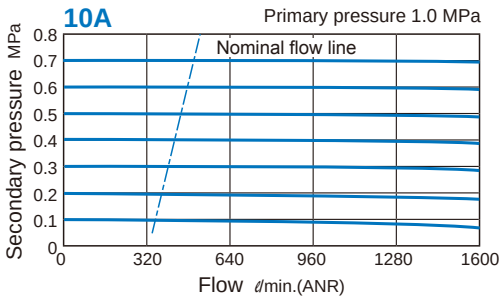
Dimensions

* Please refer to page 4-152.

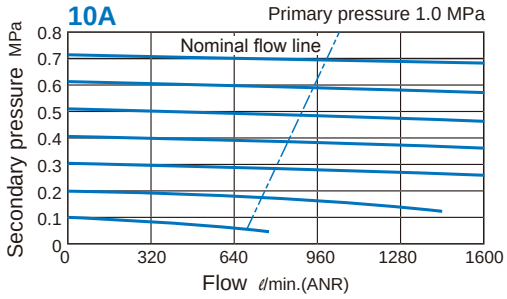
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

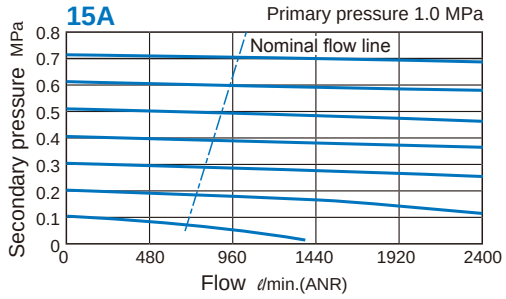
MAMM25



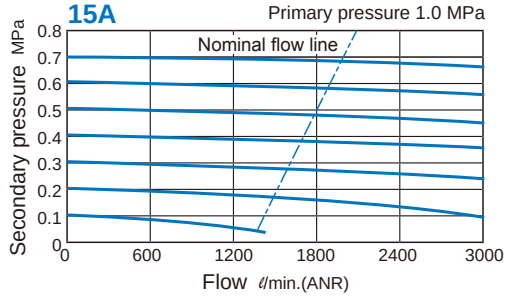


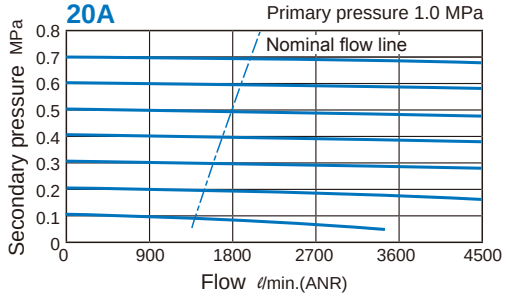
MAMM35



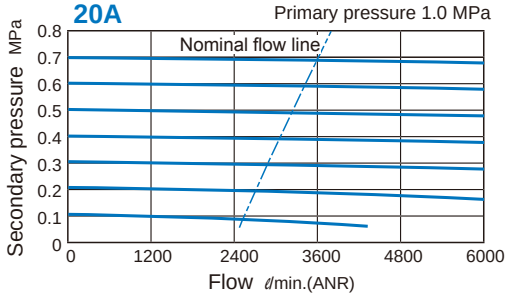


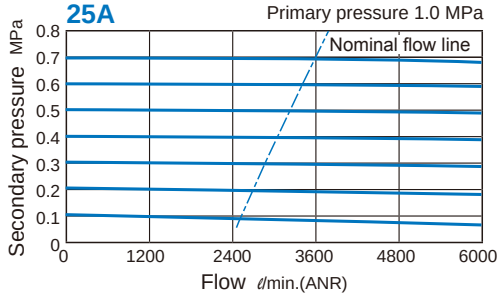
MAMM45





MAMM55



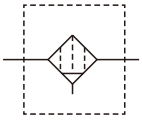


MAMF series 0.01 μm + Deodorization

AIR UNIT (ODOR REMOVAL FILTER)



Symbol



Order example

MAMF 45 — 15A — D — Q — □

- MODEL
  - **F**: 0.01 μm + Deodorization (*1)
- BODY SIZE / PORT SIZE

BODY SIZE	PORT SIZE
25	**8A**: 1/4 **10A**: 3/8
35	**10A**: 3/8 **15A**: 1/2
45	**15A**: 1/2 **20A**: 3/4
55	**20A**: 3/4 **25A**: 1

- Differential Pressure Indicator (*2)
  - Blank: Without
  - **Q**: Indicator
  - **QR**: Indicator with switch (*2)
- PORT HREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- Blank: Semi-auto drain
  D: Auto drain valve (FMRF300)

*1. Assembling a MAMD series as pre-filter of activated carbon.
*2. Please add the sensor when selecting Indicator with switch (QR). The models without Indicator (Q) and Indicator with switch (QR) type don't have the installation thread holes.

Order example of sensor switch

RDFE V — □

- MODEL
  - **RDFE**: Non-contact
  - **RNFE**: NPN
  - **RPFE**: PNP
- AUTO SWITCH TYPE
  - Blank: Straight cable
  - **V**: Angle cable
- WIRE LENGTH
  - Blank: L=2000mm
  - **1M**: L=1000mm
  - **QD**: M8, 3 Pin connector
  - **EQD**: M8, 3 Pin connector

Features

Adsorbing the order and efficiently removing oil mist with an activated carbon element in compressed air. The filter can be applied to requirement of high purity and oil-free, such as precision painting operations or food and medical equipment.

* Assembling a MAMD series as pre-filter to extend the life of activated carbon.

Maintenance

Replace filter element at least every 6 months or when pressure drop reaches 0.07 MPa.

Specification

Model	MAMF							
Body size	25		35		45		55	
Bore No.	8A	10A	10A	15A	15A	20A	20A	25A
Port size	1/4	3/8	3/8	1/2	1/2	3/4	3/4	1
Medium	Air							
Operating perssure range (*1)	0.05~1 MPa							
Proof pressure	1.5 MPa							
Ambient temperature	– 5~+60°C (No freezing)							
Filter element	0.01μm+Deodorization (*2)							
Attchment	L-type bracket							
Sensor switch	RDFE(V) (Refer to page 7-12)							
Weight	610 g		870 g		1450 g		2250 g	

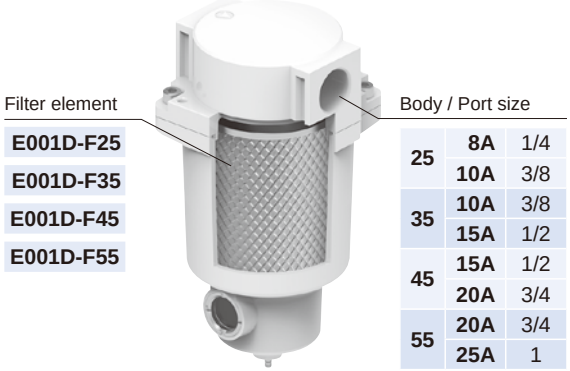
*1. Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

*2. Assembling a MAMD series as pre-filter to extend the life of activated carbon.

Selector table – Filter element

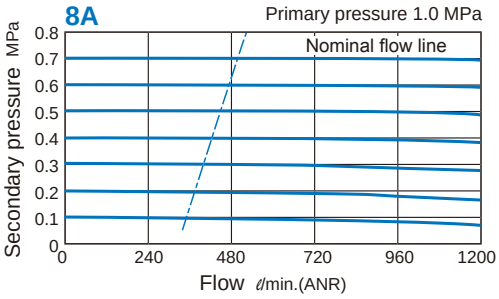
Model	Port size	Filter element *1	Residual oil content *2	Nominal*3 flow capacity l/min(ANR)	Symbol for order
MAMF25	1/4, 3/8	**E001D**: 0.01μm + Deodorization (filtration efficiency 99.9%)	< 0.005 mg/m^3	500	**E001D-F25**
MAMF35	3/8, 1/2			1000	**E001D-F35**
MAMF45	1/2, 3/4			2000	**E001D-F45**
MAMF55	3/4, 1			3600	**E001D-F55**

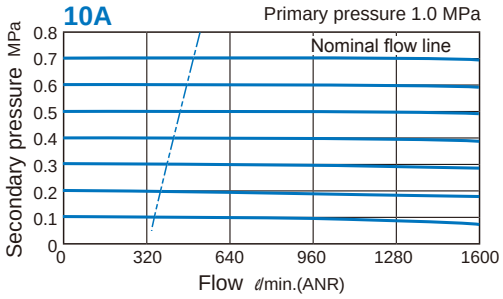
*1. Tested according to ISO8573.
*2. Tested according to ISO12500-1, inlet concentration 10mg/m^3
*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.



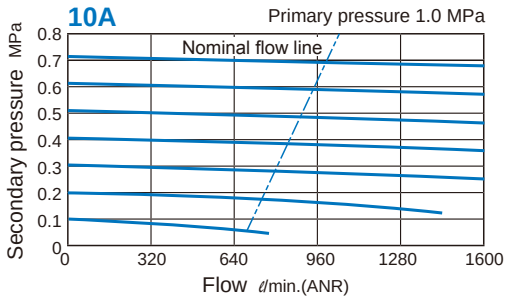
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

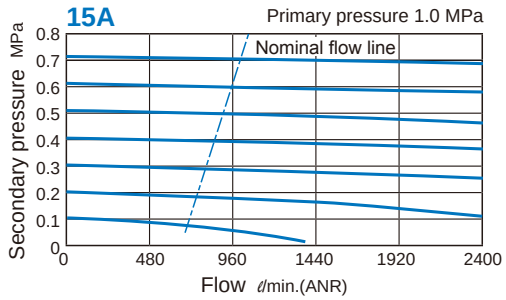
MAMF25



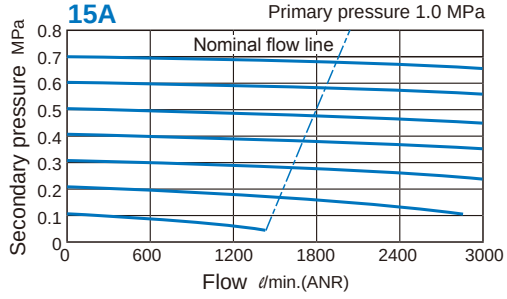


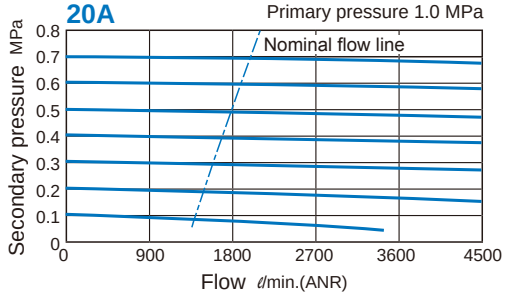
MAMF35



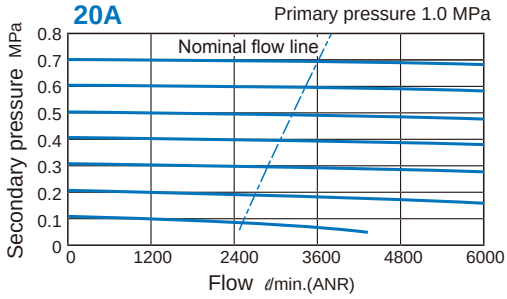


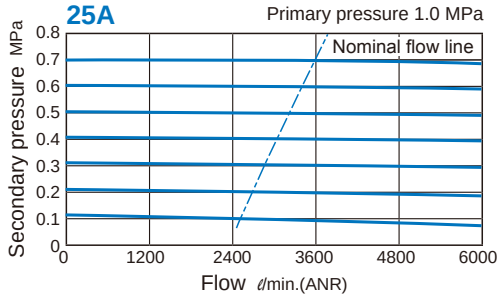
MAMF45

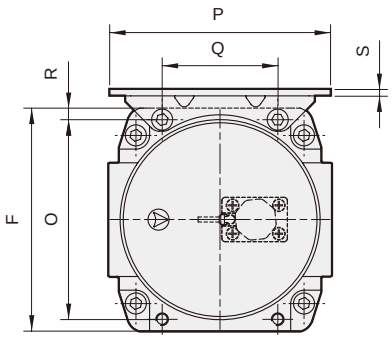


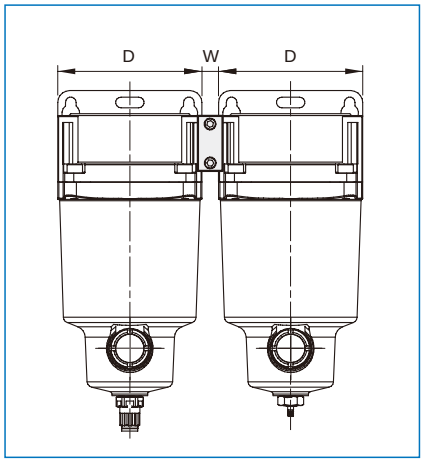


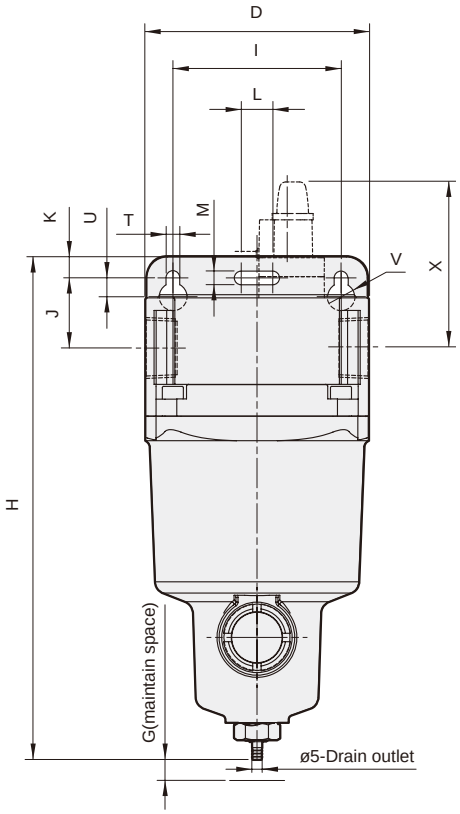
MAMF55

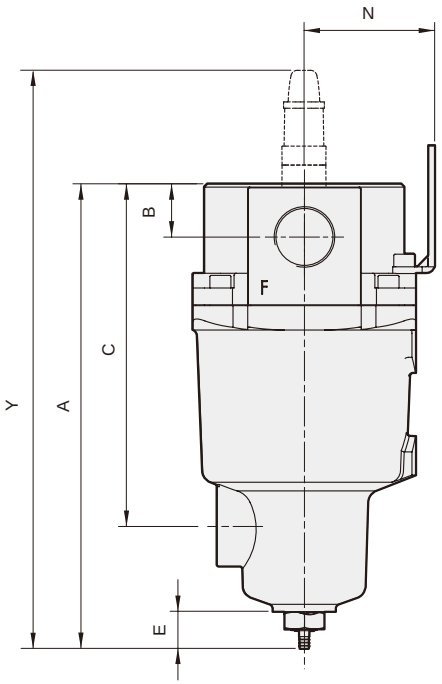




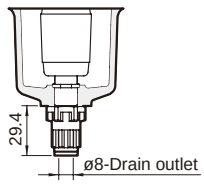








MAM*-D



Code / Model	Port size	A	B	C	D	E	F	G	H	I	J	K	T	U	L	M	V	N	O	P	Q	R	S	W	X	Y
MAM*25	1/4", 3/8"	171.6	16.5	113.5	76	17.6	76	10	187.1	66	24	8	6	6	6	6	10	47	68.5	80	35	3.8	2	10	71.5	226.6
MAM*35	3/8",1/2"	199.1	16.5	141	90	17.6	90	10	218.6	80	28	8	7	7	7	7	12	53.4	80.5	95	44	4.8	2.3	10	71.5	254.1
MAM*45	1/2",3/4"	221.1	25.2	163	106	17.6	106	10	236.9	90	31	10	9	9	9	9	15	62	95	111	55	5.5	3.2	14	80.2	276.1
MAM*55	3/4",1"	256.1	25.2	198.5	122	17.6	122	10	275.6	100	34.7	10	9	9	15	9	15	72	106	122	63	8	3.2	14	80.2	311.1

MAM* Modular combination example

AIR UNIT (PRECISION FILTER • WATER SEPARATOR)

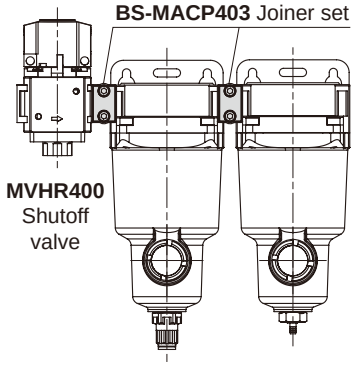
mindman

Available components (Option)

Model	Joiner set	Air unit	Shutoff valve	Soft start-up valve
MAM*25	BS-MACP403	MA*401-W MA*403	MVHR400 MVHT400	MAVS400
MAM*35				
MAM*45	BS-MACP501	MA*501	–	–
MAM*55				

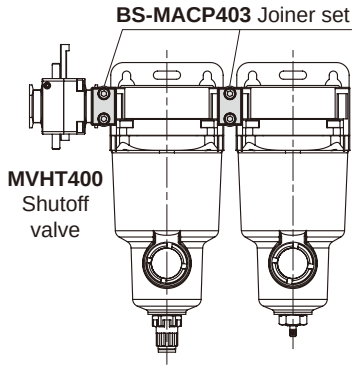
- Space-saving.
- Various combinations available.
- Easy assembly (DIY).

Example 1



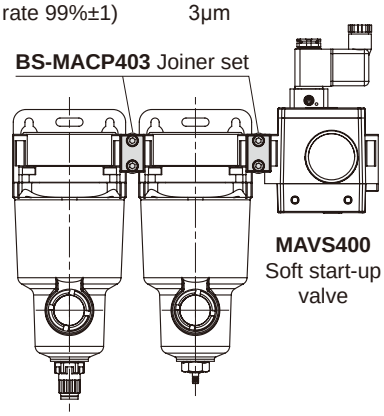
MAMG25 **MAMB25**
MAMG35 **MAMB35**
(Removal rate 99%±1) 3μm

Example 2



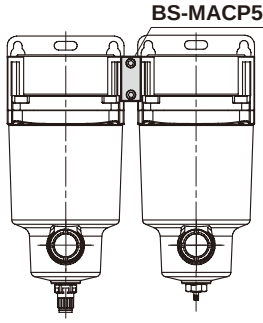
MAMG25 **MAMB25**
MAMG35 **MAMB35**
(Removal rate 99%±1) 3μm

Example 3



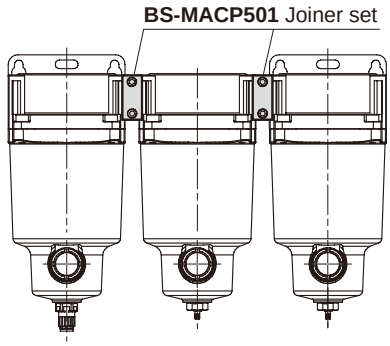
MAMG25 **MAMB25**
MAMG35 **MAMB35**
(Removal rate 99%±1) 3μm

Example 4



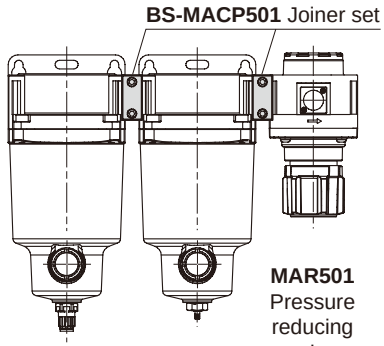
MAMG45 **MAMB45**
MAMG55 **MAMB55**
(Removal rate 99%±1) 3μm

Example 5



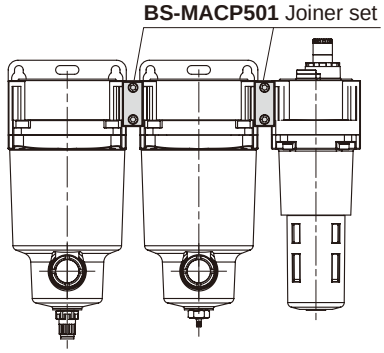
MAMB45 **MAMD45** **MAMM45**
MAMB55 **MAMD55** **MAMM55**
3μm 0.3μm 0.01μm

Example 6



MAMG45 **MAMB45**
MAMG55 **MAMB55**
(Removal rate 99%±1) 3μm

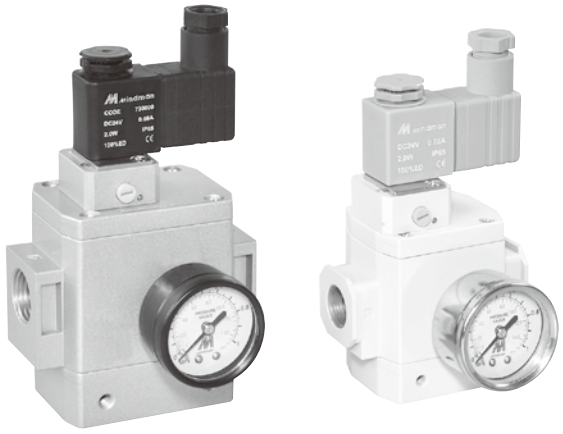
Example 7



MAMG45 **MAMB45** **MAL501**
MAMG55 **MAMB55** Lubricator
(Removal rate 99%±1) 3μm

MAVS series

SOFT START-UP **VALVE**



- Start-up valve for low speed air supply to gradually raise initial pressure in an air system and for quick exhaust by cutting off air supply.
- Combination with modular type air units (F.R.L. unit).
- Adaptor possess smooth pressure relief is optional.

Specification

Model	MAVS200	MAVS300	MAVS400
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.25~1 MPa		
Effective orifice 1(P)→2(A)	20 mm^2	37 mm^2	61 mm^2
Effective orifice 2(A)→3(R)	24 mm^2	49 mm^2	76 mm^2
Ambient temperature	0~+60°C		
Voltage	AC110V, 220V (50/60)Hz, DC24V		
Power consumption	AC=4.8/4.4VA, 6/4.9VA DC=2W		
Available voltage range	±10%		
Insulation class	F class		
Option	Pressure gauge (PG-40), L type bracket		
Weight	450 g	520 g	800 g

Order example

MAVS400 — 15A — 1 — □ — B — AC110 — L — □

MODEL
200
300
400

PORT SIZE
8A: 1/4 (for 200 type)
10A: 3/8 (for 300 type)
15A: 1/2 (for 400 type)

EXTERIOR COLOR (*)
1: Silver (for air unit 401 series)
3: Cool gray (for air unit 401-W, 403 series)

PRESSURE GAUGE
Blank: Without pressure gauge
C: Pressure gauge (PG-40)

BRACKET
Blank: Without
B: L type bracket

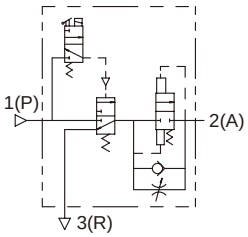
VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Blank: DIN connector
L: DIN connect with LED indicator
E: Explosion protection (Table 1)
(E type use black coil)

* MAVS200/300 only have cool gray, if selected MAVS200/300 type can skip this option.

Symbol



Order example of Adaptor

MAVS400 — F — □

MODEL
200
300
400

ADAPTOR with smooth pressure relief

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* By using the adaptor with smooth pressure relief, when air supplied from valve is off, the air inside the body will be released, smoothly and safely. (The exhausting duration will be around 40 seconds for 10L volume)

Table 1

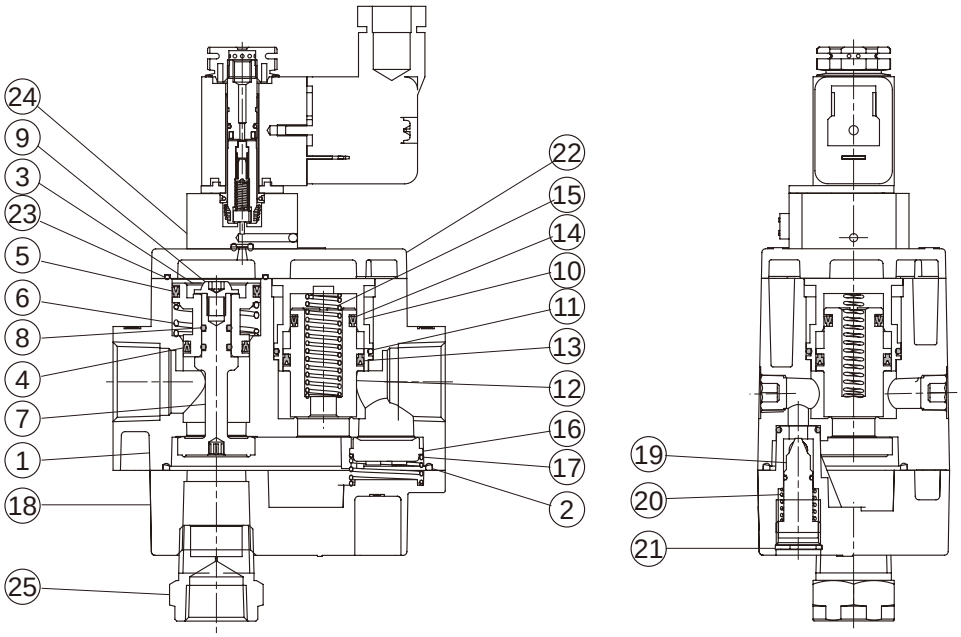
Property for explosion-proof type

Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available valtage range	±10%
Insulation class	F class
Wire length	3 m

Piping note

When the air current is restricted or insufficient pressure, the main valve will not function / switch normally and it could cause air to leak from the R port.
The total effective orifice of the piping material and component on the P port side:

MAVS200	Total effective orifice ≥5mm^2
MAVS300	Total effective orifice ≥22mm^2
MAVS400	Total effective orifice ≥35mm^2

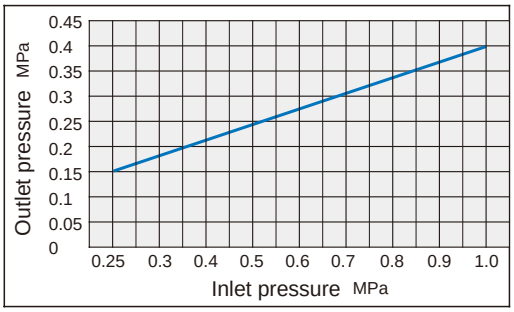


Material

No.	Part name	Material
1	Body	Aluminum alloy
2	Body packing	NBR
3	Piston A	Aluminum alloy
4	Seal ring	NBR
5	Rod packing	NBR
6	Piston A spring	SWP
7	Main valve assembly	Copper+NBR
8	O-ring	NBR
9	Screw	Alloy steel
10	Snap ring	Spring steel
11	O-ring	NBR
12	Piston B	Copper+NBR
13	Seal ring	NBR
14	Seal ring	NBR
15	Piston B spring	Stainless steel
16	Check valve	Copper+NBR
17	Check valve spring	Stainless steel
18	Cap	Aluminum alloy
19	Needle valve	Copper
20	Needle valve spring	SWP
21	Snap ring	Spring steel
22	Cover	Aluminum alloy
23	Cover ring	NBR
24	Pilot valve assembly	–
25	Adaptor with smooth pressure relief	Aluminum alloy

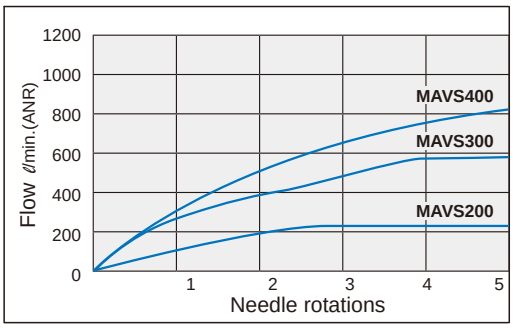
Flow feature

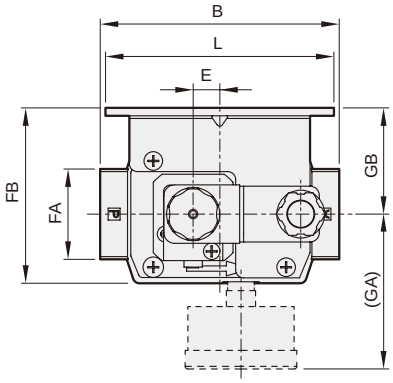
Piston B switching pressure (Close→Open)

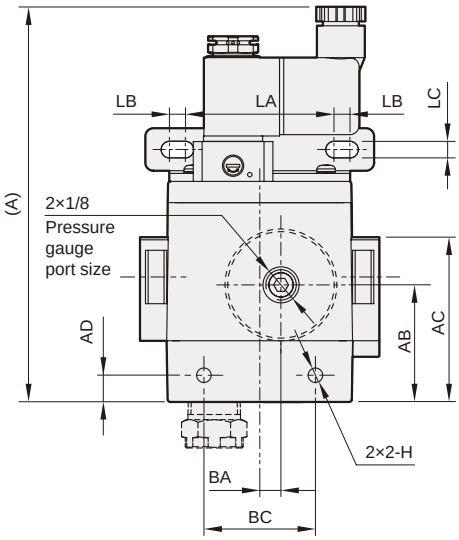


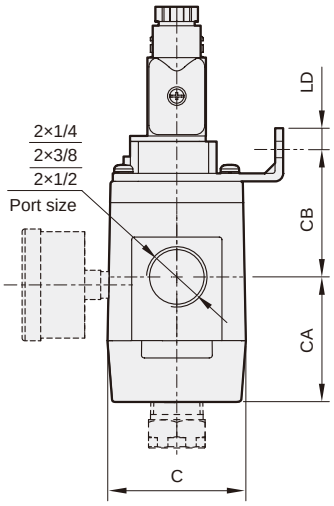
Needle valve flow characteristics

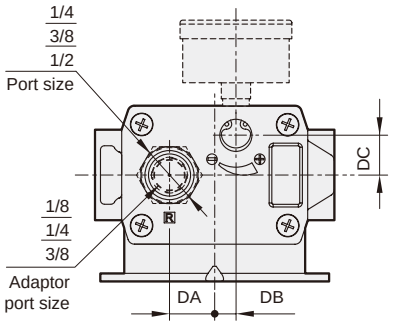
Inlet pressure 0.5 MPa









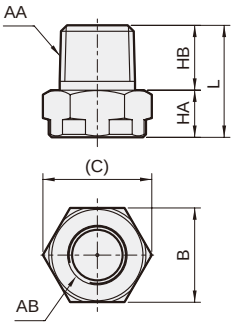


Code / Model	A	AB	AC	AD	B	BA	BC	C	CA	CB	DA	DB	DC
200	126.6	31	41.2	7.5	66	5	29	39.6	31.2	40.2	11	5	11
300	134	34	50.5	8.5	78	5	28	47.6	36	31.9	14	5	14
400	149	44	62	10	90	8	42	52	47	48	17	8	15

Code / Model	E	FA	FB	GA	GB	H	L	LA	LB	LC	LD
200	8.9	35	47.3	53.8	27.5	M4×0.7×4.5 dp	68	50	3.5	4.3	7
300	11	29	56.3	55	32.5	M5×0.8×5 dp	76	55	5	5.2	8
400	10	34	66	60	40	M6×1.0×6 dp	86	56	6	6.2	8

MAVS*-F

Adaptor with smooth pressure relief

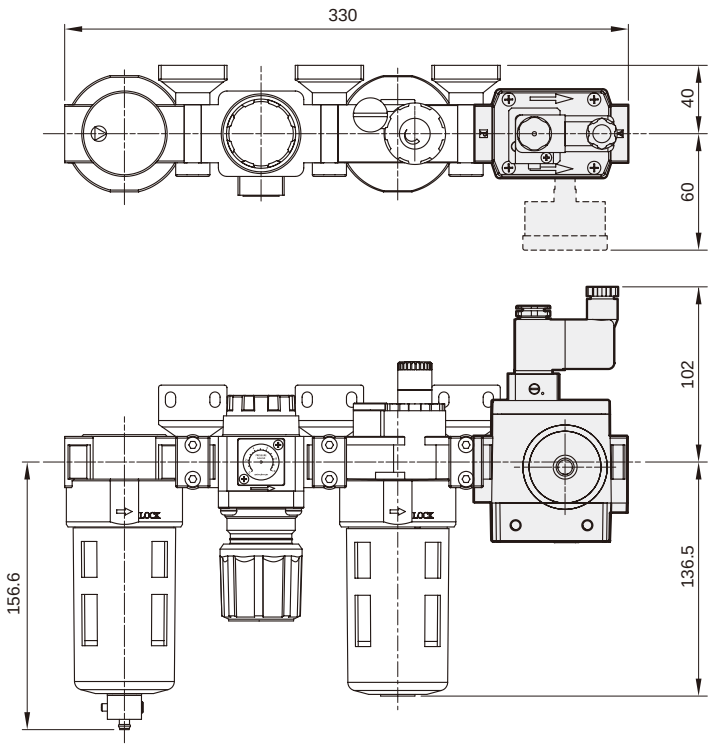


Code / Model	AA	AB	B	C	HA	HB	L	Weight
200	R1/4	Rc1/8	16	18.5	8	11	19	6 g
200-N	NPT1/4	NPT1/8	16	18.5	8	15.1	23.1	7 g
200-G	G1/4	G1/8	19	21.9	8	7	15	7 g
300	R3/8	Rc1/4	19	21.9	11	12	23	11 g
300-N	NPT3/8	NPT1/4	19	21.9	11	15.2	26.2	12 g
300-G	G3/8	G1/4	25	28.9	11	8.5	19.5	15 g
400	R1/2	Rc3/8	22	25.4	11	15	26	15 g
400-N	NPT1/2	NPT3/8	22	25.4	11	19.8	30.8	17 g
400-G	G1/2	G3/8	27	31.2	11	11.5	22.5	19

Combination with air units (F.R.L. unit)

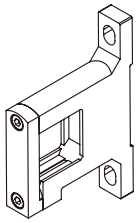
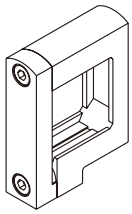
Air unit (F.R.L.)		Valve
MA**302		MAVS300
MA**401	MA**403	MAVS400

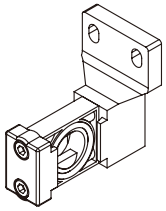
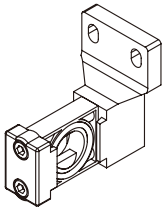
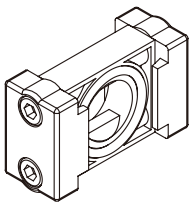
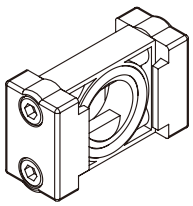
EX: MACT403+MAVS400



Bracket / Joiner set

BT: T type bracket/ **BL**: L type bracket/ **BS**: Joiner set

Order example	BT-MACP302	BS-MACP302
Pictures		
Applicable model	MACP302, MACT302	MACP302, MACT302

Order example	BL-MACP401	BL-MACP403	BS-MACP401	BS-MACP403
Pictures				
Applicable model	MACP401, MACT401	MACP401-W, MACT401-W MACP403, MACT403	MACP401, MACT401	MACP401-W, MACT401-W MACP403, MACT403

MJF / MJL series (Grade)-10F~(Grade)-1250L

HIGH EFFICIENCY COMPRESSED **AIR FILTER**



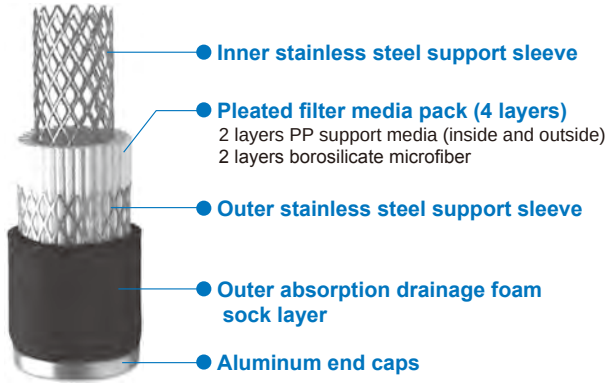
Features

Air filter engineering original imported top quality filter element 98% voids volume provides long life time with lowest operating cost. Pleated media provides far more filter surface, therefore more dirt holding capacity, lower diff. pressure and lower running cost compare to conventional wrapped element designs.

A. Filter media: AFE uses high performance borosilicate microfiber with 98% void volume. The pleated design assures the highest possible filtration area within the element geometry to provide low operating cost.

B. End cap: An O-ring sealed alumina end cap for the highest possible operating temperature together with tie rod construction provides highest possible security against pressure spikes in the compressed air system.

C. Stainless steel support sleeves: Inner and outer SS support sleeves for supporting the filter media, incl. a mechanical pre-separation.



Order example

MJF – CP – 60FP – D – G

MODEL
MJF (Ported)
MJL (Flanged)

GRADE
CP: Coarse pre-filtration
TU: General filtration
AH: High performance filtration
HC: Activated carbon filter

CODE
10F~150F (Ported)
200L~1250L (Flanged)

CUSTOMIZE
P: Stainless steel
H1: High pressure (11~20barG)
H2: High pressure (21~30barG)
H3: High pressure (31~40barG)
H4: High pressure (41~50barG)

OPTION
D: Auto drain (*)
G: Differential pressure gauge

* **H1**~**H4** high pressure can not choose **D**: Auto drain.

Refrigeration dryer

C – NF1E

GRADE
C: Coarse Pre-filtration
T: General filtration
A: High performance filtration
H: Activated carbon filter

REPLACEMENT ELEMENT

Features (Grades)

Filtration grade	CP	TU	AH	HC
Features	Coarse Pre-filtration	General filtration	High performance filtration	Activated carbon filter
Oil removal mg/m^3	n/a	0.1	0.01	0.003
Partcle removal micron μ	3.0 μ	1.0 μ	0.01 μ	n/a

Correction factor

Inlet pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
Correction factor	0.25	0.38	0.50	0.65	0.75	0.88	1.0	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13

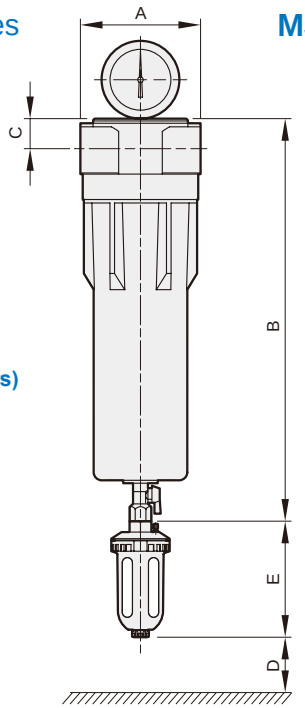
MJF / MJL Dimensions (Grade)-10F~(Grade)-1250L

HIGH EFFICIENCY COMPRESSED AIR FILTER

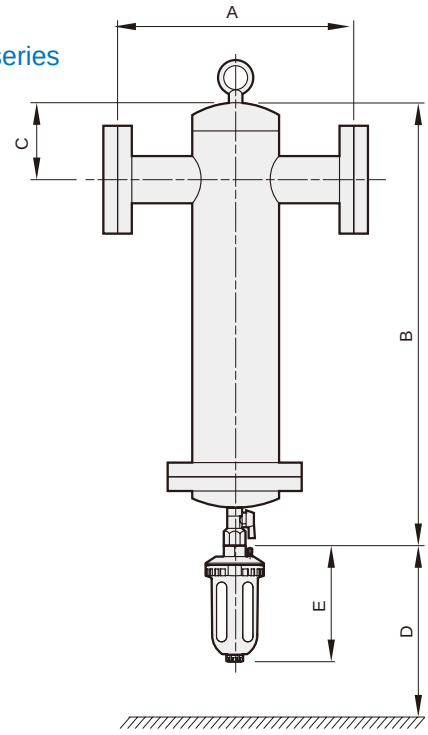
mindman



MJF series



MJL series

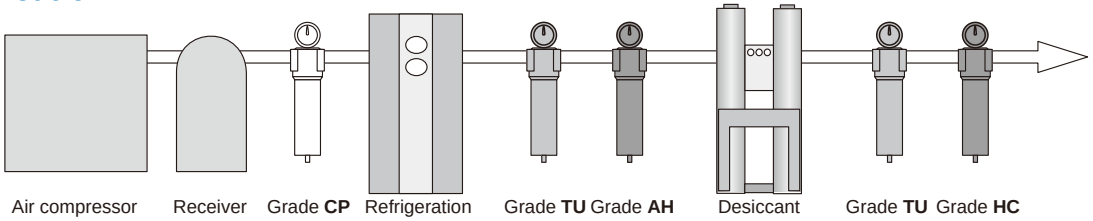


Specification

Filter model		Max. capacity		Connection	Oper. pressure	Dimension (mm)					N.W.	Replacement element Model×Q'ty
		Nm^3/min	SCFM	inch	barG	A	B	C	D	E	kg	
MJF Series (Ported)	(Grade)-**10F**	1.6	56	Rc1/2"	16	87	303	24	180	200	1.3	NF1E×1
	(Grade)-**15F**	2.4	84	Rc3/4"	16	87	303	24	180	200	1.3	NF1E×1
	(Grade)-**25F**	3.6	127	Rc1"	16	130	325	43	190	200	3.6	NF2E×1
	(Grade)-**40F**	5.5	194	Rc1 1/2"	16	130	325	43	190	200	3.6	NF2E×1
	(Grade)-**60F**	8.1	285	Rc1 1/2"	16	130	740	43	430	200	6.7	NF3E×1
	(Grade)-**100F**	15	529	Rc2"	16	163	762	55	590	200	8.9	NF4E×1
	(Grade)-**150F**	25	882	Rc2 1/2"	16	163	1017	55	700	200	11.0	NL1E×1
MJL Series (Flanged)	(Grade)-**200L**	30	1059	3"FL	10	350	1120	116	680	200	45	NL1E×1
	(Grade)-**400L**	60	2118	4"FL	10	510	1330	150	680	200	70	NL1E×2
	(Grade)-**700L**	90	3177	6"FL	10	600	1450	195	680	200	110	NL1E×3
	(Grade)-**900L**	120	4236	6"FL	10	600	1460	195	680	200	150	NL1E×4
	(Grade)-**1250L**	150	5295	8"FL	10	750	1600	195	680	200	240	NL1E×5

Operating scope: ● Max. operating temp: 60°C(High temp. is also available) ● Max. differential pressure: 0.6barG
Material: Ported: ● Aluminum ● Flanged: Carbon steel
Optional: ● Auto drain: "**D**" (Pressure is higher than 10 barG needs prior notice) ● Differential pressure gauge:"G"
Customize: ● Stainless steel: "**P**" ● High pressure: **H1**(11~20barG); **H2**(21~30barG); **H3**(31~40barG); **H4**(41~50barG)
Element Replacement: Replace every 1 year or earlier if the differential pressure gauge changes to red. Activated carbon elements should be changed after 1000 hours operation. All filter elements only guaranteed under operating scope.
Ordering Example: AH High efficiency oil removal filter with a max. capacity of 30Nm3/min, internal auto drain and differential pressure gauge. would be configured as : **MJL-AH-200L-D-G. A-NL1E** for element model. (Equip with "**D**" or "**G**". **MJF** series model number printed on name plate without **-D-G**, **MJL** series model number with **-D-G**)

Application



Note: 1. Grade TU filters after desiccant air dryer is for particle removal. Must be installed reversely and auto drain is unnecessary.
2. Grade HC filters is for oil vapor and odor removal. Auto drain and differential pressure gauge are not required.

MBS / MCS / MBD Automation control systems

DIGITAL CONDENSATION REMOVAL **TIMER**



General description

- The Digital Condensation Removal Timer is a compact, modular timer valve combination specifically designed for air line condensation removal. This digital timer is compatible with MBS/ MCS/MBD series valve size to obtain an optimal system.
- This device easily programmed by two press-keys and a LCD display.

Notes

- Timer is water and dust protected to IP65 when installed properly to a coil and connector with provided M3 screw.
- See manual for all operation options.

Order example

* **MBS** specifications please refer to page 2-6.

MBS–03–2–J–3–D–AC110–Y–T

- MODEL
- FIG. — **1**, **2**, **3**, **4**, **5**
- COIL — **3**: Bigger
- VOLTAGE — **AC220**V(50/60)Hz, **AC110**V(50/60)Hz
- TIMER
- PORT SIZE — **03**: 1/8, **06**: 1/4
- SEAL MAT'L — **N**: NBR, **J**: EPDM, **V**: VITON, **T**: TEFLON (*1)
- PLUG — Blank: DIN, **D**: LED, **G**: 1/2" NPT
- STRAINER — Blank: None, **Y**: Y-type

* **MCS** specifications please refer to page 2-8.

MCS–06–2–J–5–D–AC110–Y–T

- MODEL
- FIG. — **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**
- COIL — **4**: Standard coil, **5**: Bigger
- VOLTAGE — **AC220**V(50/60)Hz, **AC110**V(50/60)Hz
- TIMER
- PORT SIZE — **06**: 1/4, **10**: 3/8, **15**: 1/2, **20**: 3/4
- SEAL MAT'L — **N**: NBR, **J**: EPDM, **V**: VITON, **T**: TEFLON (*1), **R**: RUBY (*1), **Z**: FFKM
- PLUG — Blank: DIN, **D**: LED, **G**: 1/2" NPT
- STRAINER — Blank: None, **Y**: Y-type

*1. When the seal material is (**T**) Teflon or (**R**) RUBY, the valve has slight leakage, not suitable for vacuum.

* **MBD** specifications please refer to page 2-7.

MBD–06–2–V–3–D–AC110–Y–T

- MODEL
- FIG. — **1**, **2**, **3**, **4**, **5**
- COIL — **3**: #3, **4**: Standard, **5**: Bigger
- VOLTAGE — **AC220**V(50/60)Hz, **AC110**V(50/60)Hz
- TIMER
- PORT SIZE (*2) — **06**: 1/4, **09**: 3/8, **10**: 3/8, **15**: 1/2
- SEAL MAT'L — **N**: NBR, **V**: VITON
- PLUG — Blank: DIN, **D**: LED, **G**: 1/2" NPT
- STRAINER — Blank: None, **Y**: Y-type

*2. Port size (06) and (09) can only apply with coil No.3.
Port size (10) and (15) can only apply with coil No.4 and No.5.

Specification

Valve type	Bore size	Orifice (mm)
MBS-03	03(1/8)	1~2.4
MBS-06	06(1/4)	1~2.4
MCS-06	06(1/4)	1.6~10
MCS-10	10(3/8)	1.6~10
MCS-15	15(1/2)	1.6~10
MCS-20	20(3/4)	1.6~10
MBD-06	06(1/4)	1.6~3.5
MBD-09	09(3/8)	1.6~3.5
MBD-10	10(3/8)	2.5~5.5
MBD-15	15(1/2)	2.5~5.5

Time adjustment



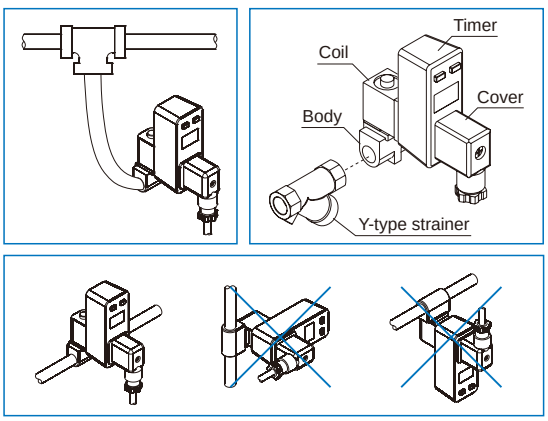
Time ranges: OFF 0~99 mins.
ON 0~59 sec.

Digital display
Count down ON and OFF times.

Reset timing: Press both buttons simultaneously for 2 seconds
(Reset timing only. Settings will remain the same.)

1.Press SET for 2 seconds
2.Press ADJ to adjust ON time
3.Press SET
4.Press ADJ to adjust OFF time seconds
5.Press SET
6.Press ADJ to adjust OFF time minutes
7.Press SET

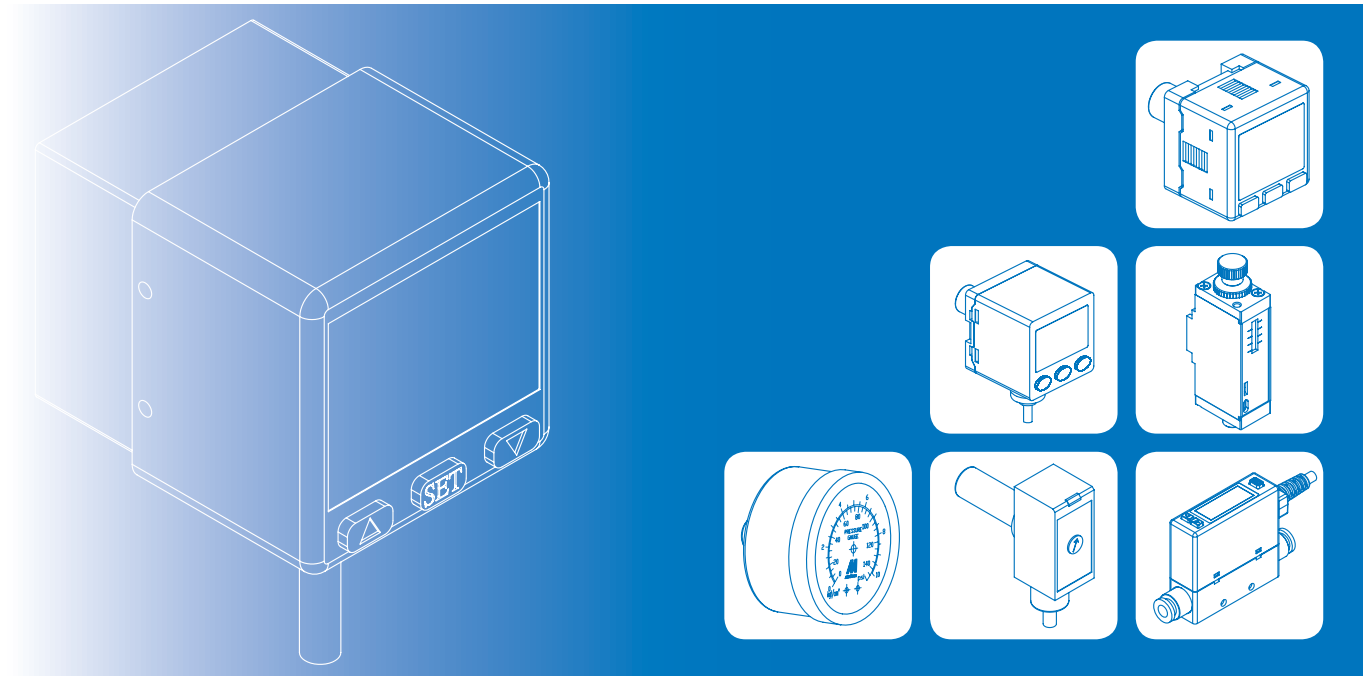
Installation



MEMO

NOTE

PRESSURE SWITCH



Selector Table 5-2

PNEUMATIC PRESSURE SWITCH

MP* MP1 5-6
MP10 5-8
MP30 5-11
MP41 5-13
MP43 5-19
MP45 5-23
MP47 5-27
MP50 5-31
MP70 New 5-35
MPS 5-39

DIGITAL PRESSURE GAUGE

MP23 5-40
MPG-60 5-42

PRESSURE GAUGE

PG PG 5-44

DIGITAL FLOW SENSOR

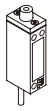
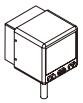
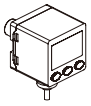
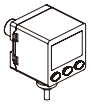
MF* MF01 New 5-45

FLOW & PRESSURE SENSOR

MFP01 New 5-50

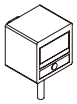
Selector table

● Standard type ❶ Standard type (for MP41) ❷ Extra purchase (T8 bracket: Rc1/4 + Fitting: R1/4 → Rc1/8)
❸ Extra purchase (Gauge adapter set) ❹ Extra purchase (Gauge adapter set + Fitting: R1/8 → Rc1/4)

Model		Pneumatic pressure switch		High precision digital pressure switch							Pneumatic pressure switch
		MP1	MP10-F1	MP30	MP41	MP43	MP45	MP47	MP50	MP70	MPS
Pictures											
Model	Port size	R1/8	R1/8	R1/8	—	R1/8	R1/8	R1/8	R1/4	R1/8	R1/8
MACP200	Rc1/8					●	●	●		●	
MACP300*	Rc1/8	❷	❷	❷		●	●	●		●	❷
MACP302	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	❷
MACP400	Rc1/4								●		
MACP401	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	●
MACP402	Rc1/4								●		
MACP403	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	●
MACP501	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	❷
MACC300	Rc1/8					●	●	●		●	
MACT200	Rc1/8					●	●	●		●	
MACT300*	Rc1/8	❷	❷	❷		●	●	●		●	❷
MACT302	—	❷	❷	❷	❶	❸	❸	❸		❸	❷
MACT400	Rc1/4								●		
MACT401	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	●
MACT402	Rc1/4								●		
MACT403	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	●
MACT501	—	❷	❷	❷	❶	❸	❸	❸	❹	❸	❷
MAFR200	Rc1/8					●	●	●		●	
MAFR300*	Rc1/8					●	●	●		●	
MAFR302	—	❷	❷	❷	❶	❸	❸	❸		❸	❷
MAFR400	Rc1/4								●		
MAFR401	—				❶	❸	❸	❸		❸	
MAFR402	Rc1/4								●		
MAFR403	—				❶	❸	❸	❸		❸	
MAFR501	—				❶	❸	❸	❸		❸	
MAR200	Rc1/8					●	●	●		●	
MAR201	Rc1/8					●	●	●		●	
MAR300	Rc1/8					●	●	●		●	
MAR301	Rc1/8					●	●	●		●	
MAR302	—	❷	❷	❷	❶	❸	❸	❸		❸	❷
MAR400	Rc1/4								●		
MAR401	—				❶	❸	❸	❸		❸	
MAR402	Rc1/4								●		
MAR403	—				❶	❸	❸	❸		❸	
MAR501	—				❶	❸	❸	❸		❸	

* 300L specification is the same as the 300 series.

● Standard type ❸ Extra purchase (Gauge adapter set)
○ Male thread type (Code: **M1**, **M2**, **N1**, **N2**)

Model		Digital pressure gauge		Pressure gauge
		MP23	**MPG-60**	**PG**
Pictures				
Model	Port size	R1/8	R1/8	—
MACP200	Rc1/8	○	●	●
MACP300*	Rc1/8	○	●	●
MACP302	—	○	❸	❸
MACP400	Rc1/4	○		●
MACP401	—	○	❸	❸
MACP402	Rc1/4	○		
MACP403	—	○	❸	❸
MACP501	—	○	❸	❸
MACC300	Rc1/8	○	●	●
MACT200	Rc1/8	○	●	●
MACT300*	Rc1/8	○	●	●
MACT302	—	○	❸	❸
MACT400	Rc1/4	○		●
MACT401	—	○	❸	❸
MACT402	Rc1/4	○		
MACT403	—	○	❸	❸
MACT501	—	○	❸	❸
MAFR200	Rc1/8	○	●	●
MAFR300*	Rc1/8	○	●	●
MAFR302	—	○	❸	❸
MAFR400	Rc1/4	○		●
MAFR401	—	○	❸	❸
MAFR402	Rc1/4	○		
MAFR403	—	○	❸	❸
MAFR501	—	○	❸	❸
MAR200	Rc1/8	○	●	●
MAR201	Rc1/8	○	●	●
MAR300	Rc1/8	○	●	●
MAR301	Rc1/8	○	●	●
MAR302	—	○	❸	❸
MAR400	Rc1/4	○		●
MAR401	—	○	❸	❸
MAR402	Rc1/4	○		
MAR403	—	○	❸	❸
MAR501	—	○	❸	❸

* 300L specification is the same as the 300 series.

Order example of male thread type

MP23 — **Standard order example** — M1

MODEL
MP23

PORT SIZE
M1: R1/8 male thread
M2: NPT1/8 male thread
N1: R1/4 male thread
N2: NPT1/4 male thread

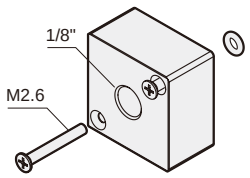
Order example of gauge adapter set

A — MAR302— □

MODEL
MAR302
MAR401

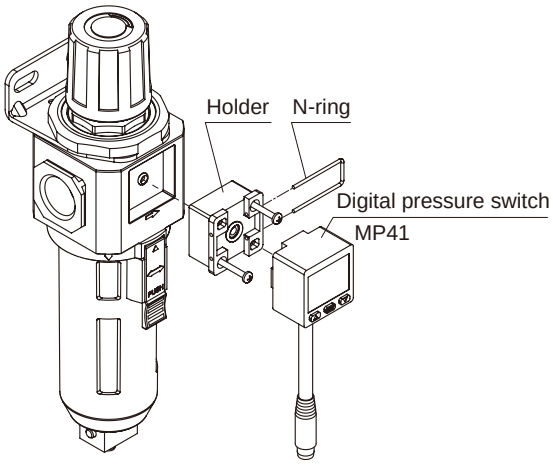
PORT THREAD
Blank: Rc thread
NPT: NPT thread

Order example	Applicable model
A—MAR302—□	MAR302, MAFR302
A—MAR401—□	MAR401, MAFR401
A—MAR302—□ (With 302 shared)	MAR401-W, MAFR401-W MAR403, MAFR403 MAR501, MAFR501

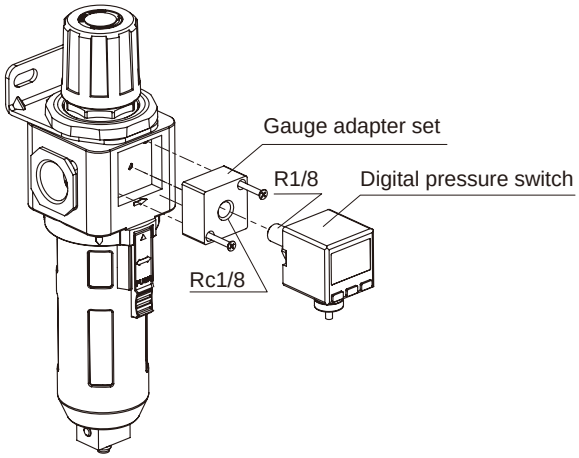


* Recommended tightening torque is between 1.5 to 2.5 Nm for the female thread (1/8") and 0.3 to 0.5Nm for the screws(M2.6).

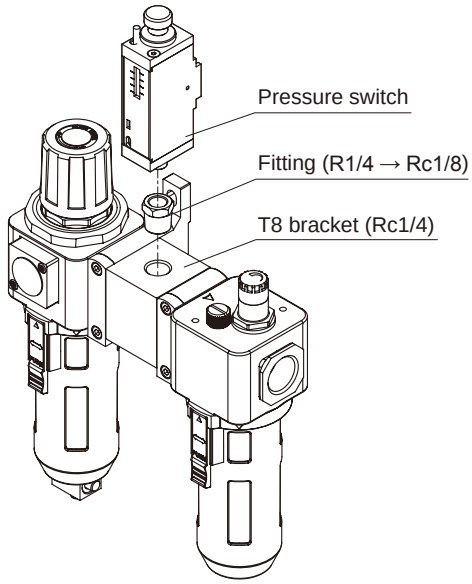
1 Standard type (for MP41)



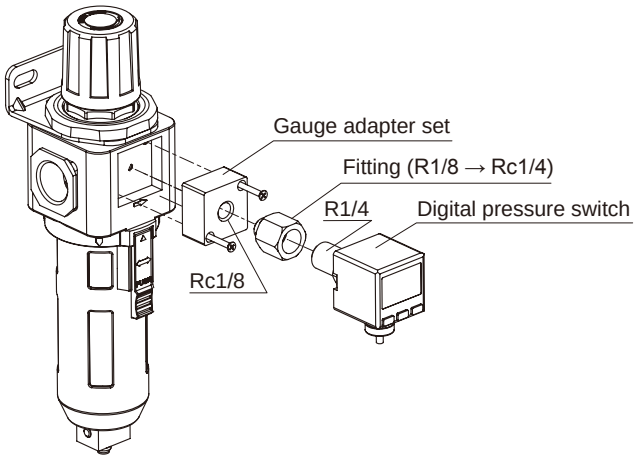
3 Extra purchase (Gauge adapter set)



2 Extra purchase (T8 bracket + Fitting)



4 Extra purchase (Gauge adapter set + Fitting)



Mounting accessories (Option)

MP — A1

MODEL

CODE

Model / Code		High precision digital pressure switch								Digital pressure gauge		Digital flow sensor	
		MP10	MP30	MP41	MP43	MP45	MP47	MP50	MP70	MP23	MPG-60	MF01	MFP01
A1	Mounting bracket					●				●			
A2	Mounting bracket									●			
A5	Mounting bracket										●		
A6	Mounting bracket										●		
A10	Mounting bracket					●		●					
A11	Mounting bracket					●		●					
A12	Mounting bracket				●				●				
A13	Mounting bracket				●				●				
A17	Mounting bracket					●							
A22	Mounting bracket						●						
A23	Mounting bracket						●						
A26	Mounting bracket											●	●
B1	Panel adapter									●			
B2	Panel adapter				●		●		●		●		
B3	Panel adapter					●		●					
C1	Panel adapter + Front protective lid									●			
C2	Panel adapter + Front protective lid				●		●		●		●		
C3	Panel adapter + Front protective lid					●		●					
D1	M8,4 Pin female connector (M84R-W0085-2M)		●	●						●			
D2	M8,3 Pin female connector (M83R-W0114-2M)	●											
E1	I-0360 Snubber (for pressure port F1&F3)							●					
E2	I-0379 Snubber (for pressure port F2)							●					

MP1 series

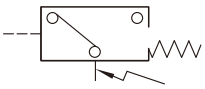
PNEUMATIC **PRESSURE SWITCH**



Features

- High Repeatability : ≤ ±1%F.S.
- Quick response : 5ms.
- Hysteresis adjustable.
- Low cost.

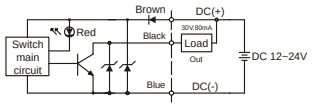
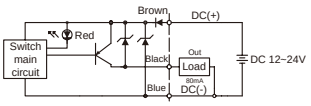
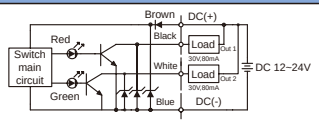
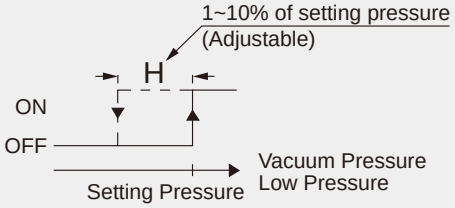
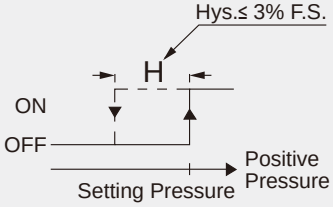
Symbol



Specification

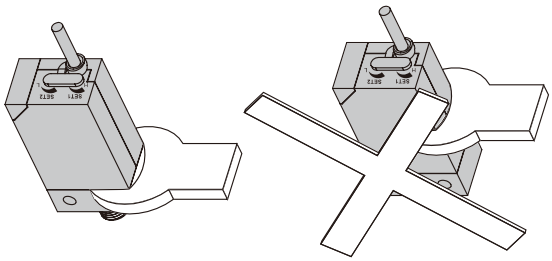
Model		MP1-1 (Vacuum)	MP1-2 (Low pressure)	MP1-3 (Positive)
Operating /Setting pressure range		-101 to 0 kPa	0 to 100 kPa	0 to 1 MPa
Allowable pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive/ Non-flammable gas		
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Response time		5ms or less		
Repeatability		±1% F.S.		
Current consumption		1 NPN or 1 PNP output: 21mA max., 2 NPN output: 35mA max.		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : –20 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/ Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50M Ω min. (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	980m/s^2 (100G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±3% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size		R1/8",M5; NPT1/8",M5; G1/8",M5		
Lead wire		Oil-resistance cable (0.18mm^2)		
Weight		Approx. 50 g (with 1M lead wire)		

Output specification

Model	MP1- ☐ - 01	MP1- ☐ - 02	MP1- ☐ - 03
Connect diagram			
Output method	NPN open collector 30V 80mA	PNP open collector 80mA	NPN open collector 30V 80mA
Hysteresis	1~10% of setting pressure (Adjustable)		3% F.S.or less (Fixed)
Setting points	1Point		2Point
Operation indicating lamp	Light at ON (Red)		Light at ON (out1 Red,out2 Green)
Hysteresis adjustable (Output hysteresis "H" is user adjustable)			

Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.

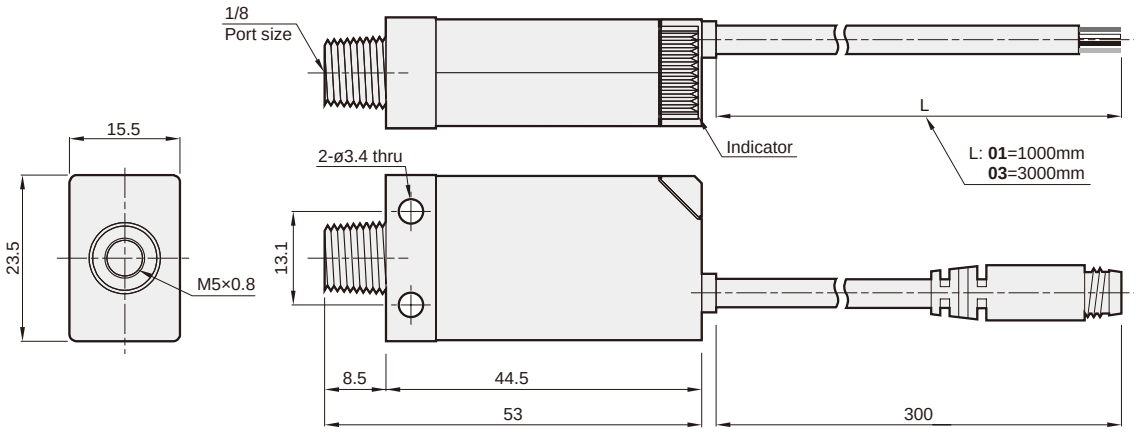


Order example

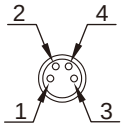
MP1 — 1 — 01 — 01 — NPT

- MODEL
- PRESSURE RANGE
  - **1**: Vacuum
  - **2**: Low pressure
  - **3**: Positive
- OUTPUT METHOD
  - **01**: NPN 1 output
  - **02**: PNP 1 output
  - **03**: NPN 2 output
- CABLE LENGTH / CONNECTOR
  - **01**: L=1000 mm
  - **03**: L=3000 mm
  - **C**: M8, 4 Pin male connector
- PORT THREAD
  - Blank: R1/8 thread
  - **NPT**: NPT1/8 thread
  - **G**: G1/8 thread

Dimensions



QD Pinout

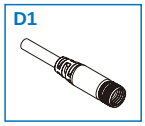


(1) Brown(+)
(2) White(OUT2)
(3) Blue(-)
(4) Black(OUT)

Mounting accessories (Option)

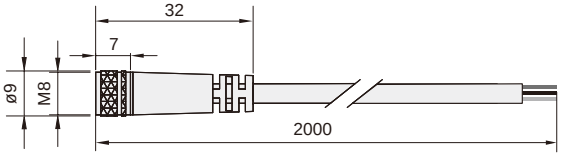
MP — D1

- MODEL
- OPTION PARTS
  - **D1**: M8, 4 Pin female connector



MP-D1

M8, 4 Pin female connector



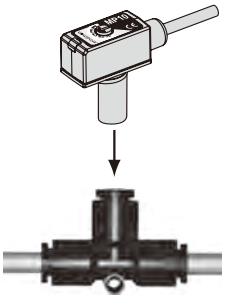
MP10 series

PNEUMATIC **PRESSURE SWITCH**



Features

- Simple installation, plug-in port or thread-in fitting.
- Compact size: 26×10×10.4 mm.
- Setting pressure range.
  Switch: Vacuum (0~ -101.3 kPa)
  Positive (0~0.6 MPa)
  Analog: Compound (-100~100 kPa)
  Compound (-101~500 kPa)
  Low (0~100 kPa)
  Vacuum (0~-101.3 kPa)
  Positive (0~1.0 MPa)
- Low cost.



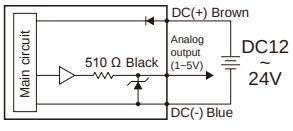
Specification

Model	MP10C	MP10L	MP10V	MP10R	MP10P	MP10V	MP10P	MP10A	MP10B
Output method	01					02 / 04		–	
Type	Analog					Switch		–	
Setting pressure range	-100~100 kPa	0~100 kPa	-101.3 ~0 kPa	-101~500 kPa	0~1.0 MPa	-101.3~0 kPa	0~0.6 MPa	-0.1~0.6 MPa	
Withstand pressure	0.2 MPa			1.5 MPa		0.6 MPa	1.5 MPa	1.5 MPa	
Fluid	Filtered air, Non-corrosive / Non-flammable gas								
Power supply voltage	12 to 24V DC (5% ripple voltage)					10.8 to 30V DC (include ripple voltage)		12 to 24V DC±10% Ripple(P-P) 10% or less	
Load / Leak current	–					80mA max. (Load)		5~40mA / ≤ 1mA	
Internal voltage drop	–					≤ 0.8V		≤ 5V	
Current consumption	10mA max.							–	
Analog output	1~5V ± 1% F.S. / Linearity ± 0.5% F.S.					–		–	
Sensor type	–					NPN or PNP		Present press.≥ Set press.: ON	Present press.≥ Set press.: OFF
Output short circuit protection	–					Yes		None	
Setting method	–					Adjusting by VR			
Response time	–					Approx. 1ms			
Repeatability	–					±1% F.S.			
Hysteresis	–					≤ 3% F.S. max.		≤ 4% F.S.	
Indicator	–					Red LED turns ON			
Enclosure	IP 40								
Temperature characteristic	≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C					≤±3% F.S. of detected pressure (25°C) at temp. Range of 0~50°C			
Ambient temp. range	Operation: 0 ~ 50°C, storage: -20 ~70°C (No condensation or freezing)					Operation: 0 ~ 60°C, storage: -20 ~70°C (No condensation or freezing)			
Ambient humidity range	Operation / Storage: 35~85% RH (No condensation)								
Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z								
Shock	980m/s^2 (100G),3 times each in direction of X, Y and Z								
Port size	ø4mm. ø6mm, R1/8, NPT1/8, G1/8, M5								
Lead wire	Oil-resistance cable, 3 wires (0.18mm^2), ø2.6mm							Oil-resistance cable, 2 wires (0.18mm^2), ø2.6mm	
Weight	Approx. 50 g (with 3 meter lead wire)								

Circuit wiring diagram

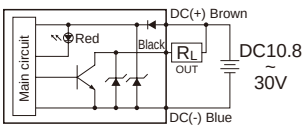
MP10□-01

Analog Output (1~5V)

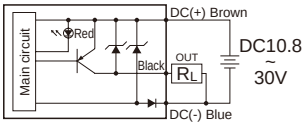


MP10□-02/04

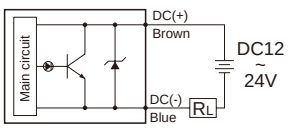
NPN

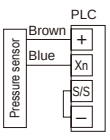


PNP

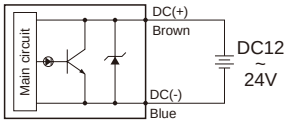


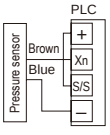
MP10A / MP10B





Connection to PNP input module

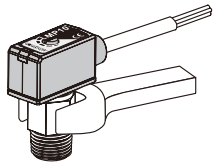


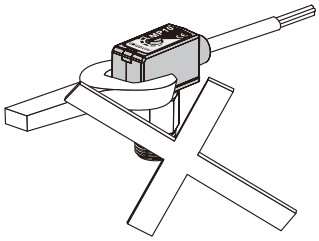


Connection to NPN input module

Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.





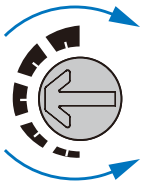
How to set pressure

- Use the pressure setting trimmer to set "ON" pressure.
  Rotate clockwise to increase pressure setpoint.
  Rotate counter-clockwise to decrease pressure setpoint.
- Use appropriate size screwdriver for the setting trimmers.
  Gently turn the screwdriver to make adjustments.
  To prevent damage to the Pressure setting trimmer, DO NOT force the trimmer when it comes to a stop.

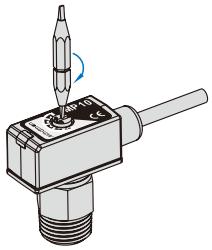
MP10□-02/04
Positive & Vacuum

MA10A / MA10B
Positive





Vacuum



Order example

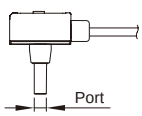
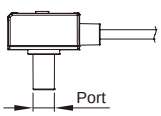
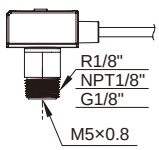
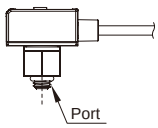
MP10P — 01— R4 — □

MODEL

PRESSURE RANGE	OUTPUT METHOD
C: Compound (-100~100 kPa)	**01**: Analog output (1~5V)
R: Compound (-101~500 kPa)	
L: Low (0~100 kPa)	
V: Vacuum (0~ -101.3 kPa)	
P: Positive (0~1.0 MPa)	
V: Vacuum (0~ -101.3 kPa)	**02**: NPN output **04**: PNP output
P: Positive (0~0.6 MPa)	
A: Switch turns ON when the pressure is larger than setting pressure	–
B: Switch turns OFF when the pressure is larger than setting pressure.	

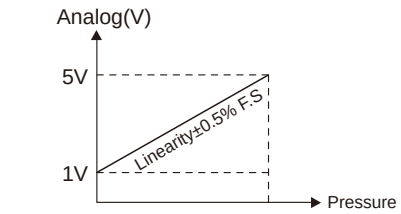
CABLE LENGTH / CONNECTOR
Blank: With 3 meter cable
C: With M8, 3 Pin male connector

PRESSURE PORT

	R4	R6	F1 / F2 / F3	M5
Drawing				
Port size	**R4**: ø4mm	**R6**: ø6mm	**F1**: R1/8", M5×0.8 **F2**: NPT1/8", M5×0.8 **F3**: G1/8", M5×0.8	**M5**: M5×0.8

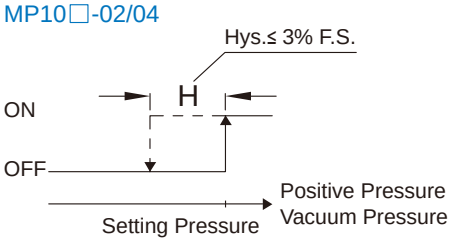
Output type

MP10□-01 Analog Output (1~5V)

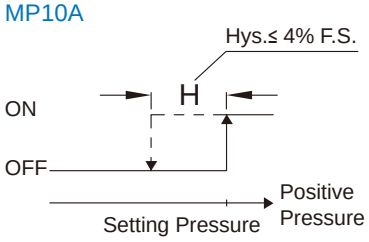


Compound	-100 kPa	100 kPa
Compound	-101 kPa	500 kPa
Low	0 kPa	100 kPa
Vacuum	0 kPa	-101.3 kPa
Positive	0 MPa	1.0 MPa

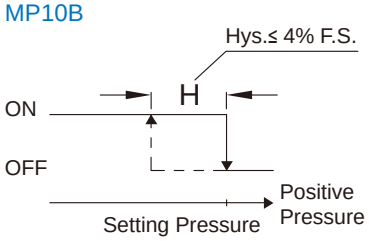
MP10□-02/04



MP10A



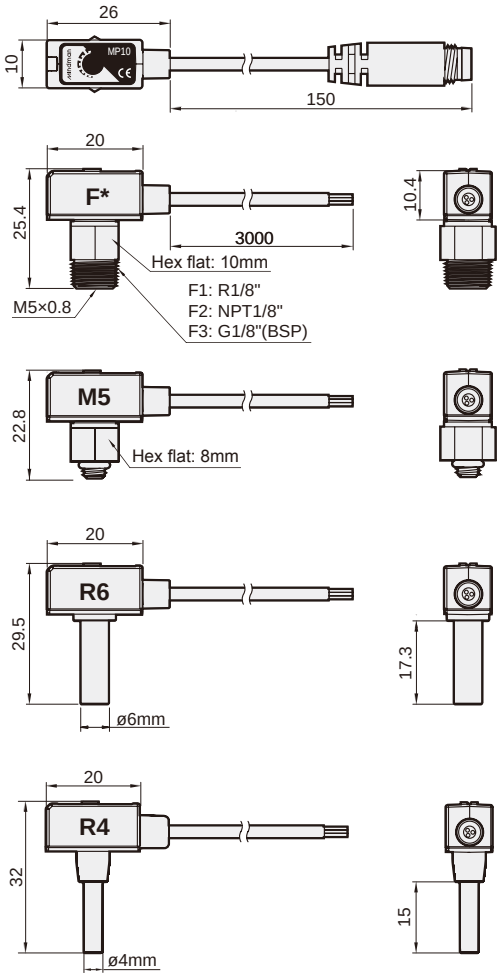
MP10B



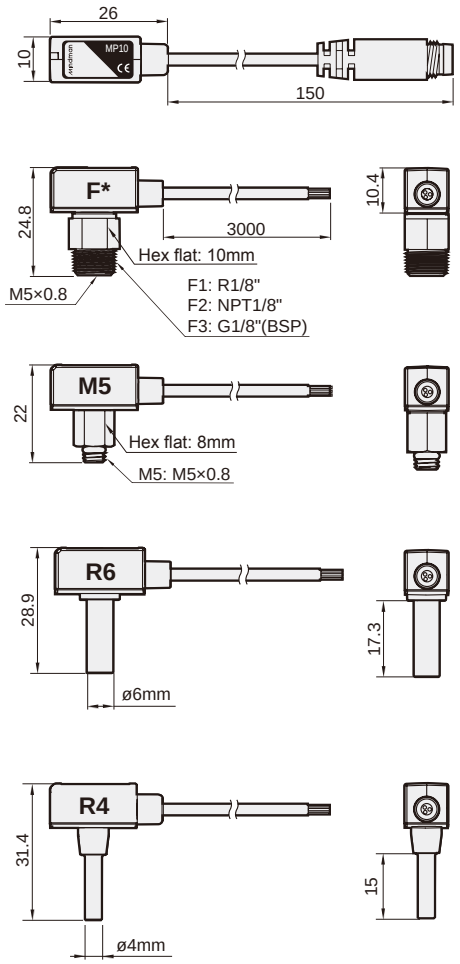
Dimensions

MP10□-02/04 / MA10A / MA10B

Unit: mm

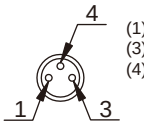


MP10□-01



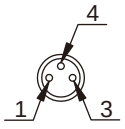
QD Pinout

MP10□-02/04



(1) Brown(+)
(3) Blue(-)
(4) Black
(OUT/Analog out)

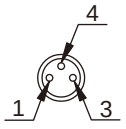
MP10A/B



(1) Brown(+)
(3) Blue(-)
(4) Not use

QD Pinout

MP10□-01



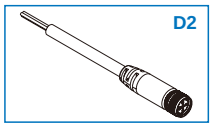
(1) Brown(+)
(3) Blue(-)
(4) Black
(OUT/Analog out)

Mounting accessories (Option)

MP – D2

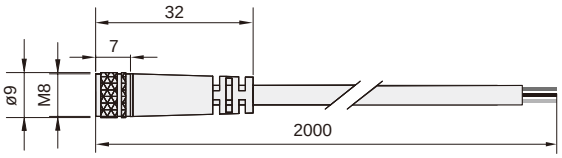
MODEL

OPTION PARTS
D2: M8, 3 Pin female connector
(M83R-W0114-2M)



MP-D2

M8, 3 Pin female connector



MP30 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**



Features

- Pressure range: Compound -100.0~100 kPa
  Positive 0~1 MPa
  Vacuum 0~-101.3 kPa.
- 2 switch output & one analog output.
- Hysteresis adjustable.
- High accuracy and Resolution.
- Low cost.

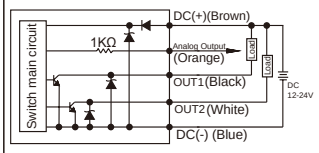
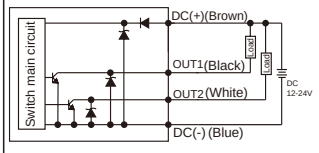
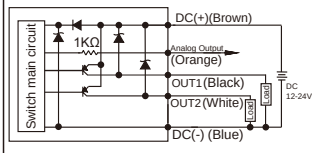
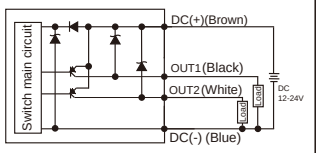
Specification

Model		MP30C (Compound)	MP30V (Vacuum)	MP30P (Positive)
Rated pressure range		—100.0~100.0 kPa	—101.3 ~0.0 kPa	0.0 ~ 1.0 MPa
Operating / Setting pressure range		—100.0~100.0 kPa	—101.3~10.0 kPa	—0.1 ~ 1.0 MPa
Allowable pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammalbe gas		
Set pressure resolution	KPa	0.1		—
	MPa	—		0.001
	kgf/cm^2 , bar	0.001		0.01
	psi	0.01		0.1
	InHg	0.1		—
	mmHg	1		—
	mmH$_2$O	0.1		—
Power supply voltage		12 to 24V DC±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 60mA		
Switch output		NPN or PNP open collector 2 outputs Max. load current : 100mA Max. supply voltage: NPN, 30V DC; PNP, 24V DC Residual voltage : ≤1V		
Repeatability (Switch output)		≤± 0.2% F.S. ±1digit		
Hysteresis	Hysteresis mode	Adjustable		
	Window comparator mode	Fixed (3 digits)		
Response time		≤2.5ms (chattering-proof function: 24ms, 192ms and 768ms selections)		
Output short circuit protection		Yes		
7 segment LED display		3 1/2 digit LED display (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Indicator		Green LED (OUT1), Red LED (OUT2)		
Analog output *(Only type MP30□-01, MP30□-03)		Output voltage: 1 to 5V±5% F.S. (within rated pressure range) Linearity: ±1% F.S.	Output voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S.	
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage: —20 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	980m/s^2 (100G), 3 times each in direction of X, Y and Z		

Specification

Model	MP30C (Compound)	MP30V (Vacuum)	MP30P (Positive)
Temperature characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1: R1/8", M5×0.8; F2: NPT1/8", M5×0.8; F3: G1/8", M5×0.8		
Lead wire	Oil-resistance cable (0.15mm^2)		
Weight	Approx. 67 g (with 2 meter lead wire), Approx. 35 g (with M8 4Pin male connector)		

Output circuit wiring graph

MP30□-01	MP30□-02	MP30□-03	MP30□-04
			
NPN output	NPN output	PNP output	PNP output

Order example

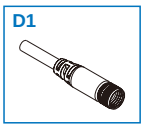
MP30C — 01— F1— QD

- MODEL
- PRESSURE RANGE
  C: Compound (—100.0~100.0 kPa)
  V: Vacuum (10.0~ —101.3 kPa)
  P: Positive (—0.10~1.00 MPa)
- OUTPUT METHOD
  01: 2 NPN output & Analog output (1~5V)
  02: 2 NPN output
  03: 2 PNP output & Analog output (1~5V)
  04: 2 PNP output
- PRESSURE PORT
  F1: R1/8", M5×0.8
  F2: NPT1/8", M5×0.8
  F3: G1/8", M5×0.8
- CABLE LENGTH / CONNECTOR
  Blank: With 2 meter cable
  QD: With M8, 4 Pin male connector (Only type **02**, **04**)

Mounting accessories (Option)

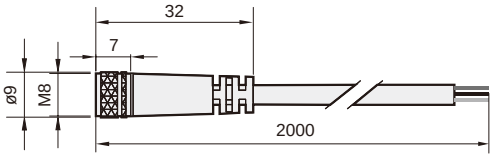
MP — D1

- MODEL
- OPTION PARTS
  D1: M8, 4 Pin female connector (M84R-W0085-2M)

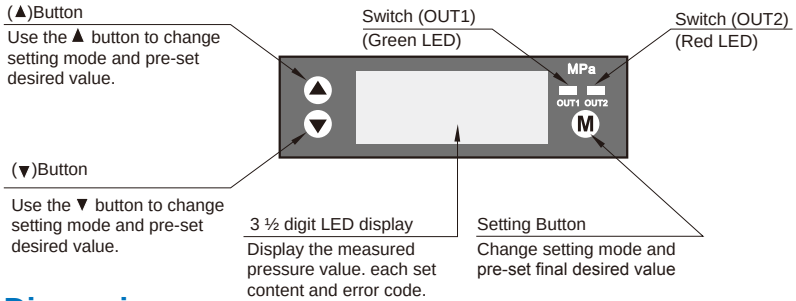


MP-D1

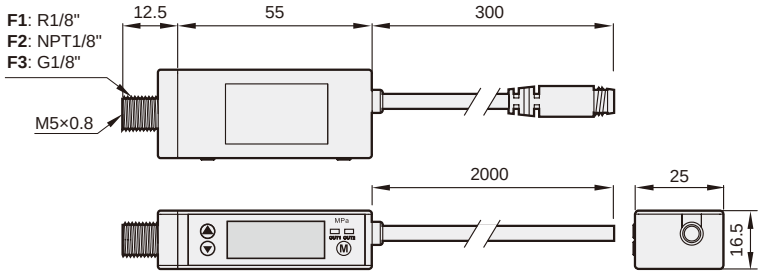
M8, 4 Pin female connector



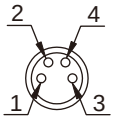
Panel instructions



Dimensions



QD Pinout



(1) Brown(+)
(2) White(OUT2)
(3) Blue(-)
(4) Black(OUT1)

MP41 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**



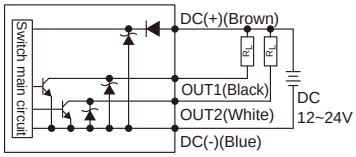
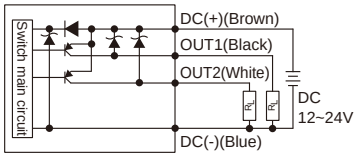
Features

- Hysteresis adjustable.
- High accuracy and Resolution.
- Low cost.
- Pressure unit selectable: kPa, MPa, kgf/cm^2, bar, psi, inHg, mmHg.

Specification

Model		MP41C (Compound)	MP41P (Positive)
Rated pressure range		— 100.0 ~ 100.0 kPa	0.0 ~ 1.0 MPa
Setting pressure range		— 101.0 ~ 101.0 kPa	— 0.1 ~ 1.0 MPa
Withstand pressure		300 kPa	1.5 MPa
Fluid		Air, Non-corrosive gases, incombustible gases	
Set pressure resolution	kPa / MPa	0.1 / —	— / 0.001
	kgf/cm^2 / bar	0.001	0.01
	psi	0.01	0.1
	inHg / mmHg	0.1 / 1	—
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		≤ 40mA (With no load)	
Switch output	Output type	2 NPN or 2 PNP open collector	
	Max. load current	125mA	
	Max. supply voltage	30V DC (at NPN output), 24V DC (at PNP output)	
	Residual voltage	≤1.5V	
Response time		Chattering-proof function: 50ms, 250ms, 500ms, 1000ms, 2000ms, 3000ms selections	
Output short circuit protection		Yes	
Display	LCD display	Two color(Red/Green) main & unit display, Orange sub-display (Sampling rate: 5 times/1sec.)	
	Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2	
	Updates time	Adjustable	
	Indicator accuracy	≤±2% F.S. ±1 digit (ambient temperature: 25 ± 3°C)	
Repeatability (Switch output)		≤± 0.2% F.S. ±1digit	
Environment	Enclosure	IP40	
	Ambient temp. range	Operation: 0 ~ 50°C, storage : — 10 ~ 60°C (No condensation or freezing)	
	Ambient humidity range	35 ~ 85% RH (No condensation)	
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)	
	Insulation resistance	50M Ω min. (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm or 10G,10Hz-150Hz-10Hz scan for 1 minute, two hours each direction of X,Y and Z	
	Shock	100m/s^2 (10G),3 times each in direction of X,Y and Z	
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C	
Lead wire		Oil-resistance cable (0.15mm^2)	
Weight		Approx. 65 g (with 2 meter lead wire), Approx. 30g (with male connector)	

Output circuit wiring graph

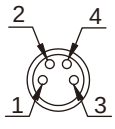
Model	MP41□-022	MP41□-042
Connect diagram		
Output method	2 NPN output	2 PNP output

Order example

MP41P – 022– QD – W

- MODEL
- OUTPUT METHOD
  - **022**: 2 NPN output
  - **042**: 2 PNP output
- HOLDER
  - **W**: White (for MA**302 / 401-W / 403 / 501 series)
  - **B**: Black (for MA**401 series)
- PRESSURE RANGE
  - **C**: Compound (–101.0~101.0 kPa)
  - **P**: Positive (–0.100~1.000 MPa)
- CABLE LENGTH / CONNECTOR
  - Blank: With 2 meter cable
  - **QD**: With M8, 4 Pin male connector

QD Pinout

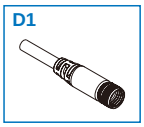


(1) Brown(+)
(2) White(OUT2)
(3) Blue(-)
(4) Black(OUT1)

Mounting accessories (Option)

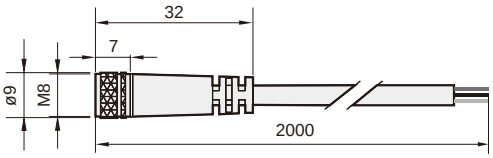
MP – D1

- MODEL
- OPTION PARTS
  - **D1**: M8, 4 Pin female connector (M84R-W0085-2M)

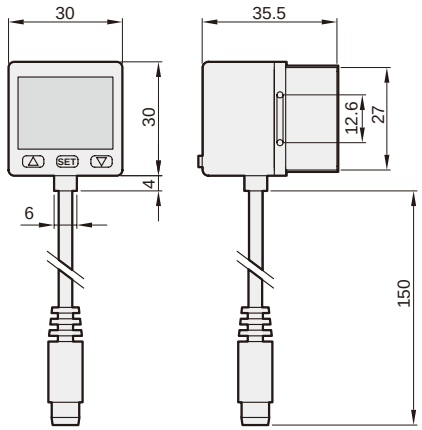


MP-D1

M8, 4 Pin female connector



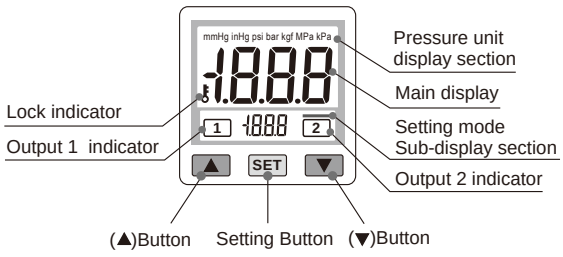
Dimensions



Applicable model

Series	302 / 403 / 501	401
F.R.L.Unit	**MACP302 / 403 / 501**	**MACP401**
F.R.L.Unit	**MACT302 / 403 / 501**	**MACT401**
F.R.Unit	**MAFR302 / 403 / 501**	**MAFR401**
R. Unit	**MAR302 / 403 / 501**	**MAR401**
F.R.Unit	–	**MAFRF401**
F.R.Unit	–	**MATFR401**

Panel instructions



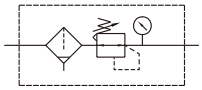
MP41 With MA**302

HIGH PRECISION DIGITAL **PRESSURE SWITCH**

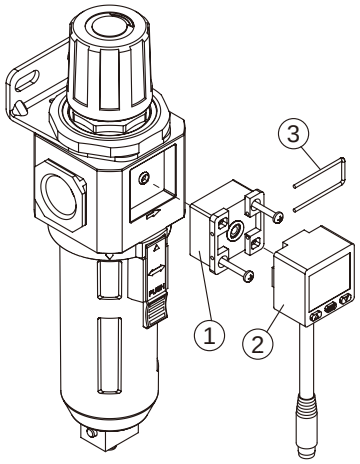
mindman



Symbol



Mounting procedures



1. Fix the holder.
2. Assambly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR302 — 8A — □□ — E1 — □ — G

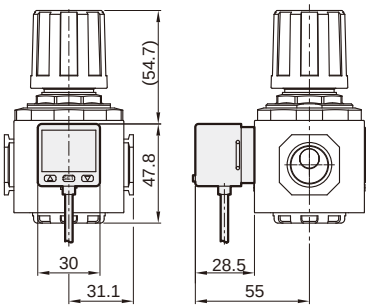
MODEL	BORE SIZE	PRESSURE SWITCH	(*) FILTER ELEMENT	PORT THREAD
MACP302 **MACT302** **MAFR302** **MAR302**	**8A**: 1/4 **10A**: 3/8 **15A**: 1/2	**E1**: MP41P-022 **E2**: MP41P-022-QD **E5**: MP41P-042 **E6**: MP41P-042-QD	Blank: 5μm **40u**: 40μm	Blank: Rc thread **G**: G thread **NPT**: NPT thread

(Option) ACCESSORIES

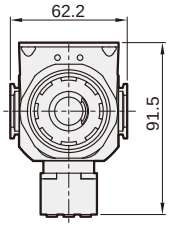
Bowl	Drain valve (*)
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* Not applicable to **MAR302**

MAR302



MAFR302

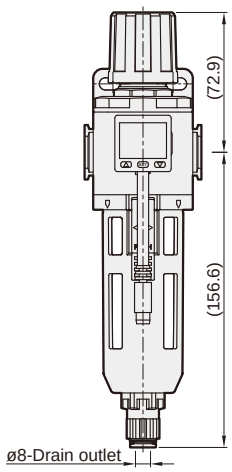


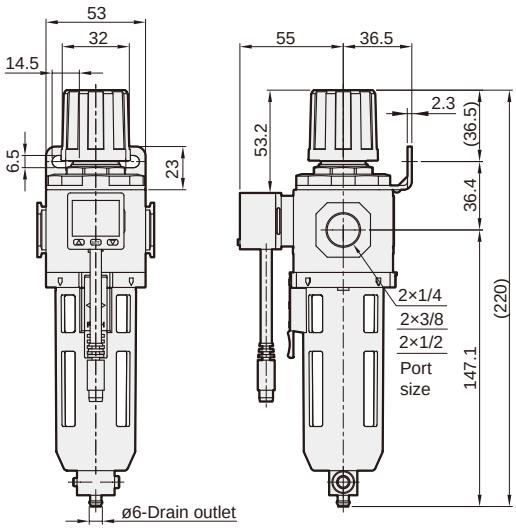
MAFR302-D

Auto drain valve

Operating pressure range

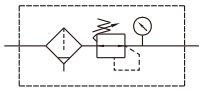
0.15~1 MPa



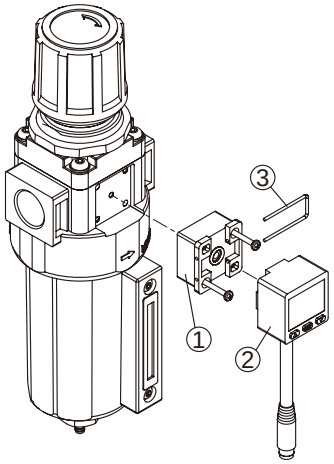




Symbol



Mounting procedures



1. Fix the holder.
2. Assambly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR401 — 8A — □ — □ — E1 — □ — G

MODEL
MACP401
MACT401
MAFR401
MAR401

BORE SIZE
8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR
Blank: Black & Silver
W: Gray & white

(Option) ACCESSORIES

Bowl	Drain valve (*)
Blank: Metal bowl	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

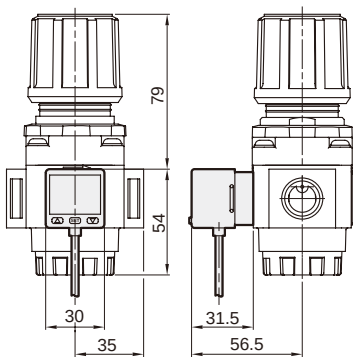
PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

(*) FILTER ELEMENT
Blank: 40μm
5u: 5μm

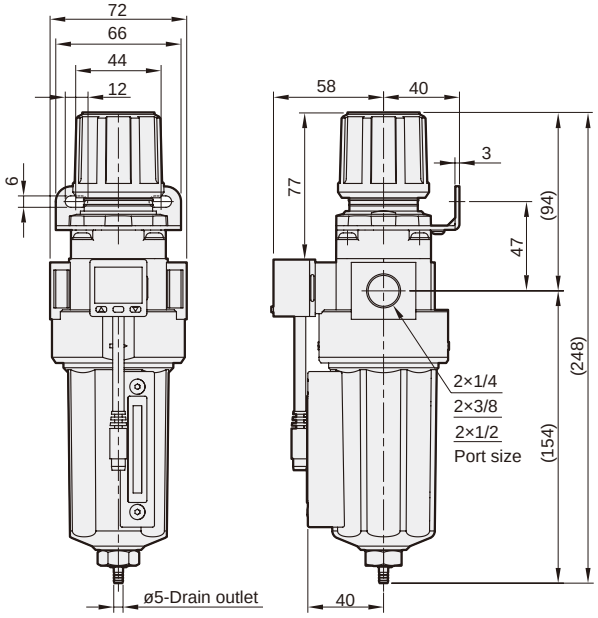
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Not applicable to **MAR401**

MAR401



MAFR401

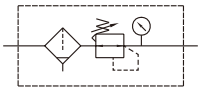


MP41 With MA**403

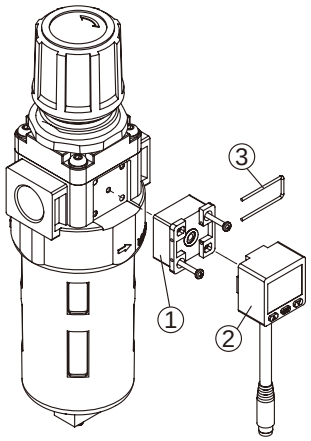
HIGH PRECISION DIGITAL **PRESSURE SWITCH**



Symbol



Mounting procedures



1. Fix the holder.
2. Assambly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR403 — 8A — □□ — E1 — □ — G

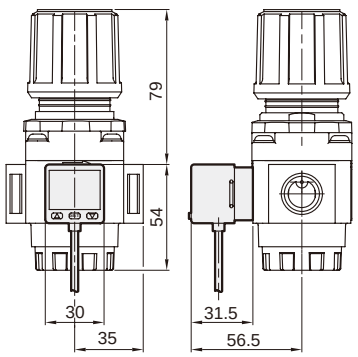
MODEL	BORE SIZE	PRESSURE SWITCH	(*) FILTER ELEMENT	PORT THREAD
MACP403 **MACT403** **MAFR403** **MAR403**	**8A**: 1/4 **10A**: 3/8 **15A**: 1/2	**E1**: MP41P-022 **E2**: MP41P-022-QD **E5**: MP41P-042 **E6**: MP41P-042-QD	Blank: 40μm **5u**: 5μm	Blank: Rc thread **G**: G thread **NPT**: NPT thread

(Option) ACCESSORIES

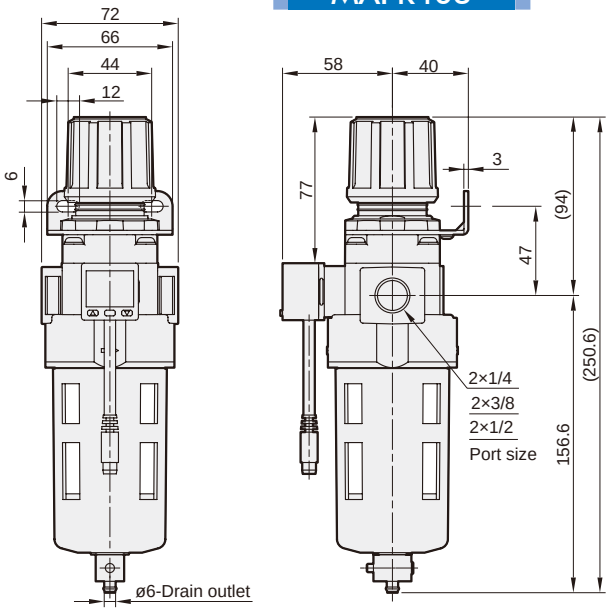
Bowl	Drain valve (*)
Blank: PC bowl **N**: Nylon bowl	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300)

* Not applicable to **MAR403**

MAR403

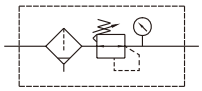


MAFR403

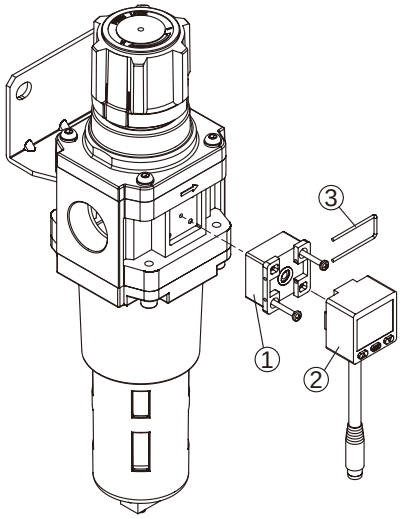




Symbol



Mounting procedures



1. Fix the holder.
2. Assambly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR501 – 8A – □□ – E1 – G

MODEL
MACP501
MACT501
MAFR501
MAR501

BORE SIZE
20A: 3/4
25A: 1

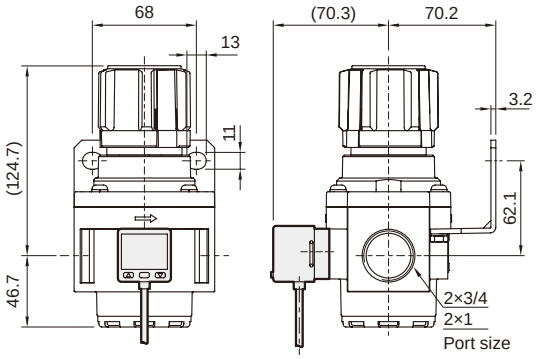
(Option) ACCESSORIES

Bowl	Drain valve
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Semi-auto drain **D**: Auto drain valve (FMRF300) * Not applicable to **MAR501**

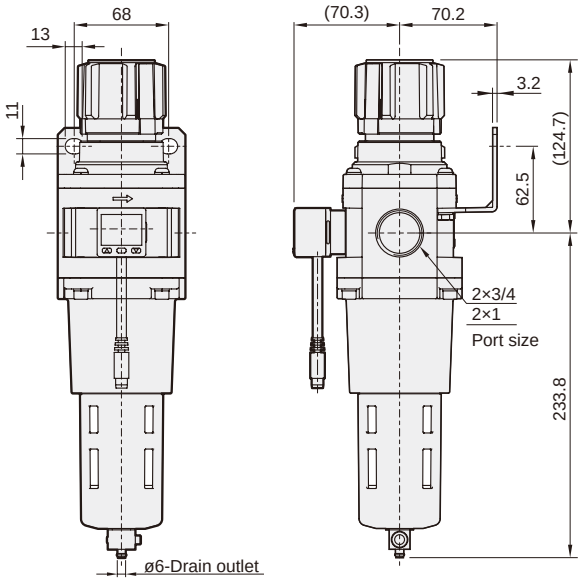
PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

MAR501

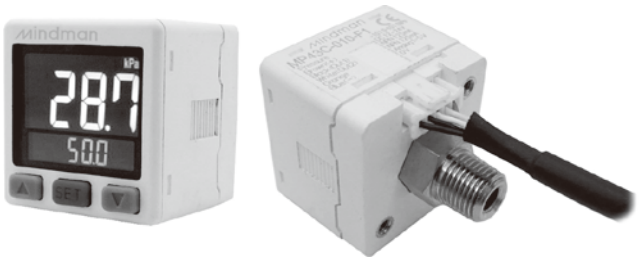


MAFR501



MP43 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**



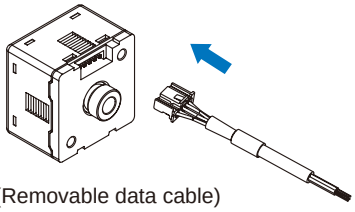
Features

- 3 color digital LCD display.
- Copy function.
- Programmable pressure unit: kPa, MPa, kgf/cm^2, bar, psi, mmHg, inHg.
- Dual LCD display allow setting value to be displayed.
- Key lock indicator.
- Power saving mode.

Features highlight

Quick installation

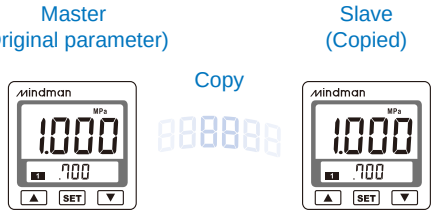
- Save installation time.
- Easy removal.



(Removable data cable)

Copy setting

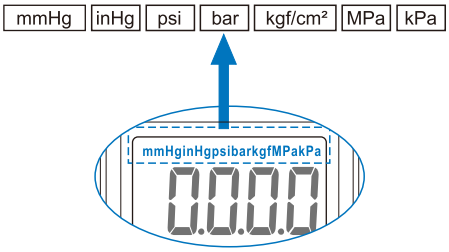
- Reduce setting time.
- Avoid setting errors.



Can copy the setting value from master to slave sensor.

Easy unit identification

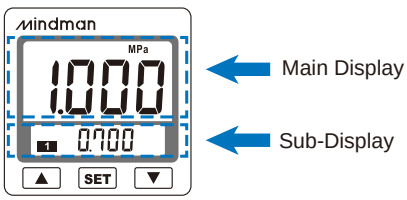
- Conversion unit is on display and easy to read.



Setting Value Easy Indication

- User can easily observe the setting value from sub-display.

Main/Sub-Display



2-Color Main display

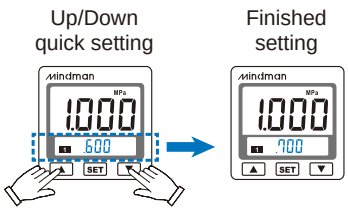
- User programmable color mode, for different setting conditions.



	SoU	Sor	Urn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

OPS Quick Setting

- Sub-display allows changing the parameter directly, reduce setting step by 3/4.

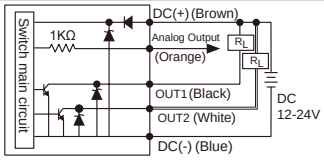
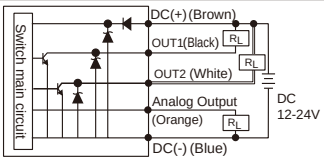
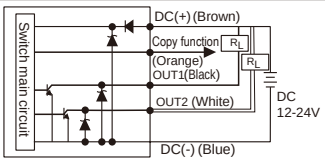


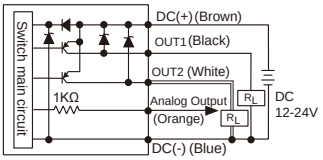
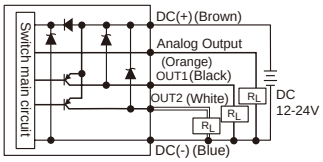
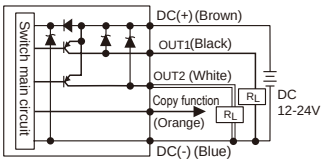
Specification

Model		MP43C (Compound)	MP43V (Vacuum)	MP43P (Positive)
Rated pressure range		−100.0~100.0 kPa	−101.3 ~0.0 kPa	0 ~ 1.0 MPa
Set pressure range		−101.0~101.0 kPa	−101.3 ~ 10.0 kPa	−0.1 ~ 1.0 MPa
Withstand pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa / MPa	0.1 / —		— / 0.001
	kgf/cm^2 / bar	0.001		0.01
	psi	0.01		0.1
	mmHg	1		—
	InHg	0.1		—
Power supply voltage		12 to 24V DC ± 10%, Ripple (P-P) 10% or less		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤1.5V		PNP: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V
Repeatability (Switch output)		± 0.2% F.S. ±1digit		
Hysteresis	Hysteresis mode / Window comparator mode	Adjustable(*1)		
Response time		≤2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LCD display		2 color(Red/Green) main & unit display, Orange sub-dispaly (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2		
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5%F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
Analog output (Current Output) (*3)		Output Current: 4 to 20mA ±2.5%F.S. (within rated pressure range); Linearity: ±1% F.S. Max. load impedance: 300Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : −10~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50M Ω (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s^2 (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±2.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size		F1: R1/8, M5×0.8; F2: NPT1/8, #10~32UNF; F3: G1/8, M5×0.8		
Lead wire		Oil-resistance cable (0.15mm2)		
Weight		Approx. 80g (with 2 meter lead wire)		

*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.
*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.
*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

Output circuit wiring graph

Model	MP43□-010	MP43□-011	MP43□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function

Model	MP43□-030	MP43□-031	MP43□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

Order example

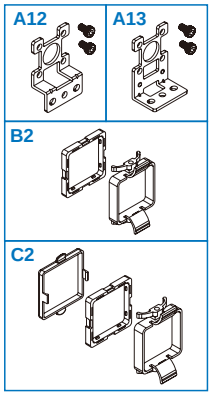
MP43C — 010 — F1

- MODEL
- PRESSURE RANGE
  - **C**: Compound (—101.0~101.0 kPa)
  - **V**: Vacuum (—101.3~10.0 kPa)
  - **P**: Positive (—0.1~1.0 MPa)
- OUTPUT METHOD
  - **010**: 2 NPN output + 1 Analog output (1~5V)
  - **011**: 2 NPN output + 1 Analog output (4~20mA)
  - **02** : 2 NPN output + Copy function
  - **030**: 2 PNP output + 1 Analog output (1~5V)
  - **031**: 2 PNP output + 1 Analog output (4~20mA)
  - **04** : 2 PNP output + Copy function
- PRESSURE PORT
  - **F1**: R1/8, M5×0.8
  - **F2**: NPT1/8, #10-32UNF
  - **F3**: G1/8, M5×0.8

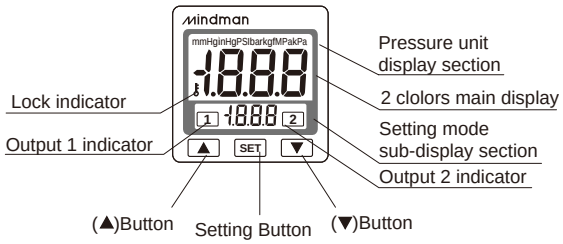
Mounting accessories (Option)

MP — A12

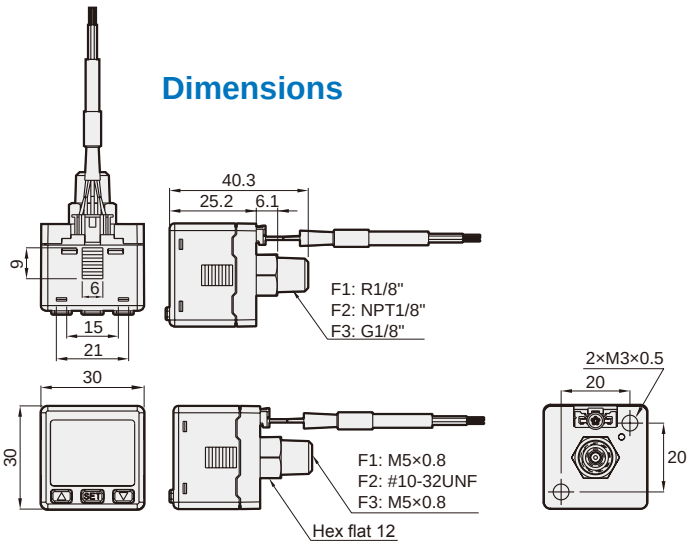
- MODEL
- OPTION PARTS
  - **A12**: Mounting bracket
  - **A13**: Mounting bracket
  - **B2**: Panel adapter
  - **C2**: Panel adapter + Front protective lid



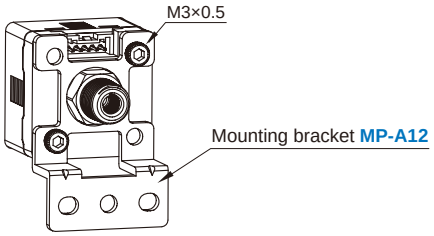
Panel instructions



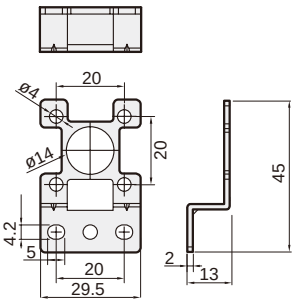
Dimensions

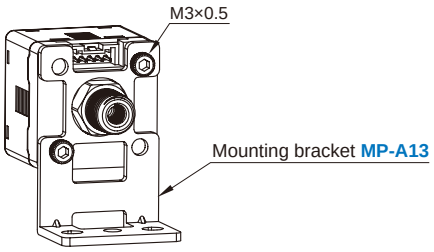


Mounting bracket

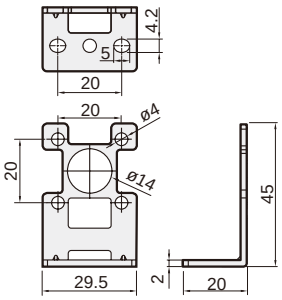


MP-A12

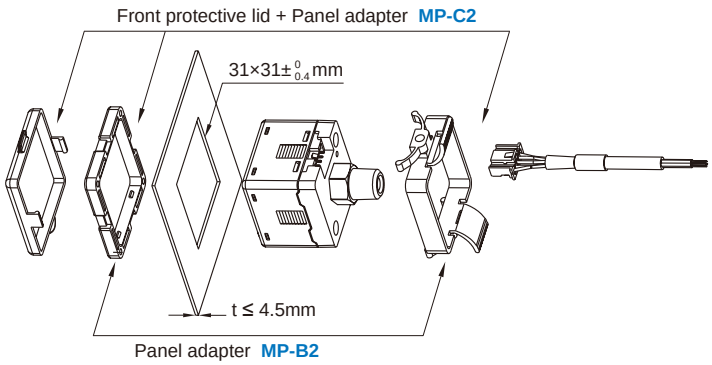


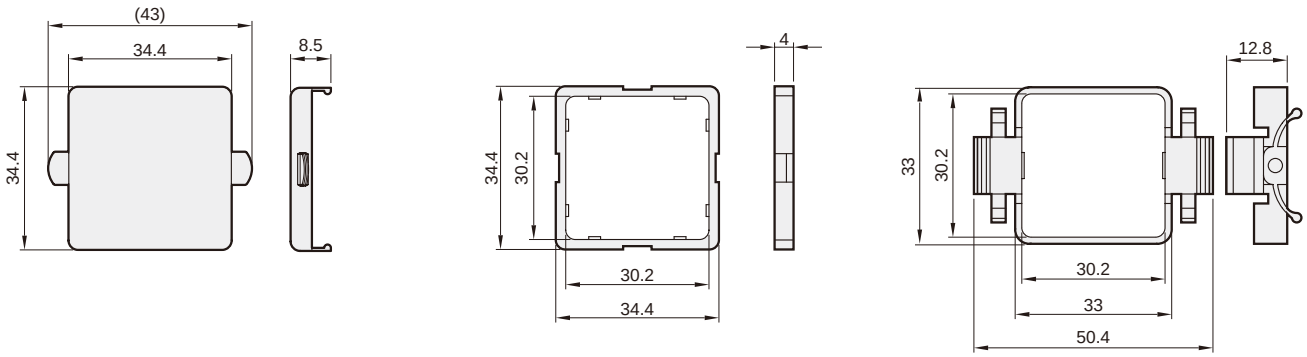


MP-A13



Panel type





MP45 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**

mindman



Features

- IP65
- Copy setting.
- 2 NPN / PNP open collector + analog output (1~5V or 4~20mA).
- 2-color digital LCD display..
- Repeatability ± 0.2% F.S. ± 1 digit.
- Programmable pressure unit: kPa, MPa, kgf/cm^2, bar, psi, inHg.

Specification

Model		MP45P (Positive)	MP45V (Vacuum)	MP45C (Compound)
Rated pressure range		0 ~ 1.0 MPa	— 101.3 ~ 0.0 kPa	— 100.0~100.0 kPa
Setting pressure range		— 0.1 ~ 1.0 MPa	— 101.3 ~ 10.0 kPa	— 101.0~101.0 kPa
Withstand pressure		1.5 MPa	300 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa, MPa	— / 0.001	0.1 / —	
	kgf/cm^2 / bar	0.01	0.001	
	psi	0.1	0.01	
	InHg	—	0.1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less (UL class 2)		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤ 1.5V	NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V	
Repeatability (Switch output)		± 0.2% F.S. ±1 digit		
Hysteresis	Hysteresis mode / Window comparator mode	Adjustable (*1)		
Response time		≤2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
LCD display		3 ½ digit, 7 segment (Red/Green)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2		
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
Analog output (Voltage Output) (*3)		Output Current: 4 to 20mA ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Max. load impedance: 250Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω		
Environment	Enclosure	IP65		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s^2 (10G),3 times each in direction of X, Y and Z		

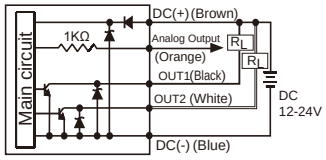
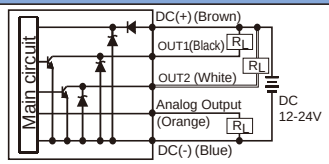
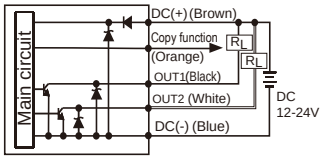
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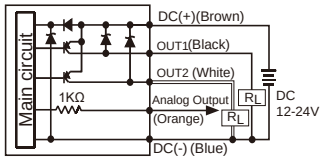
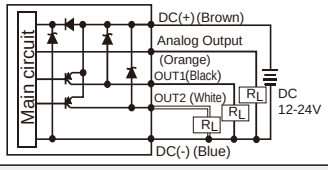
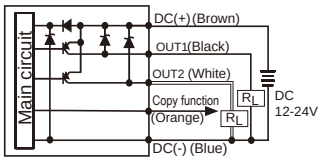
Specification

Model	MP45P (Positive)	MP45V (Vacuum)	MP45C (Compound)
Temperature characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1(C):R1/8, M5; F2(C):NPT1/8, #10~32UNF; F3(C):G1/8(BSPP), M5		
Lead wire	Oil-resistance cable (0.15mm^2)		
Weight	Port F1~F3 approx. 86g; Port F1C~F3C approx. 114g (with 2 meter lead wire)		

*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.
*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.
*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

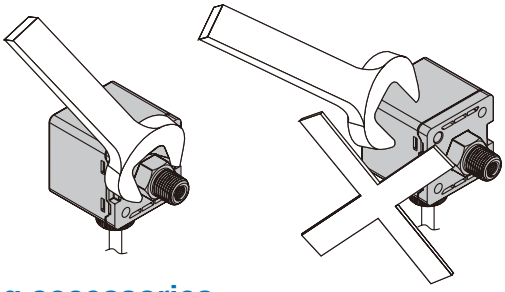
Output circuit wiring graph

Model	MP45□-010	MP45□-011	MP45□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function

Model	MP45□-030	MP45□-031	MP45□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.



Order example

MP45C — 010 — F1

MODEL

PRESSURE RANGE
C: Compound (—101.0~101.0 kPa)
V: Vacuum (—101.3~10.0 kPa)
P: Positive (—0.1~1.0 MPa)

OUTPUT METHOD
010: 2 NPN output + 1 Analog output (1~5V)
011: 2 NPN output + 1 Analog output (4~20mA)
02 : 2 NPN output + Copy function
030: 2 PNP output + 1 Analog output (1~5V)
031: 2 PNP output + 1 Analog output (4~20mA)
04 : 2 PNP output + Copy function

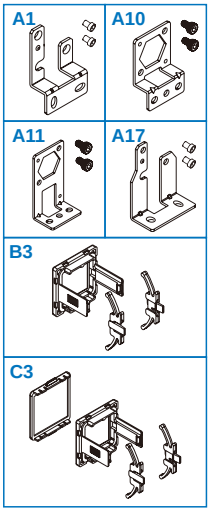
PRESSURE PORT
F1: R1/8", M5, with external threads
F2: NPT1/8", #10-32UNF, with external threads
F3: G1/8"(BSPP) , M5, with external threads
F1C: Rc1/8", with internal threads
F2C: NPT1/8", with internal threads
F3C: G1/8(BSPP), with internal threads

Mounting accessories (Option)

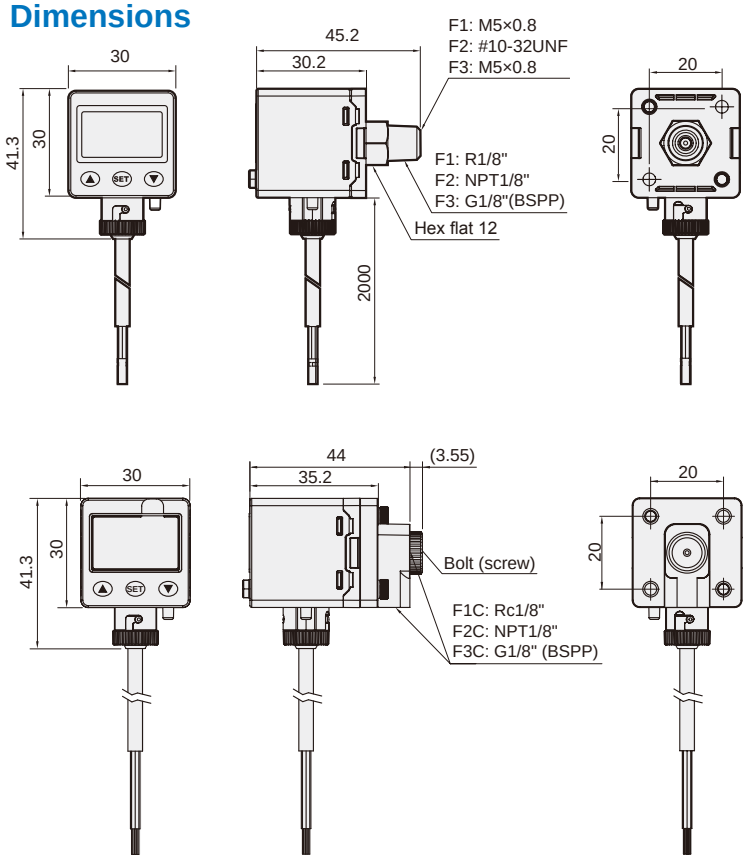
MP — A10

MODEL

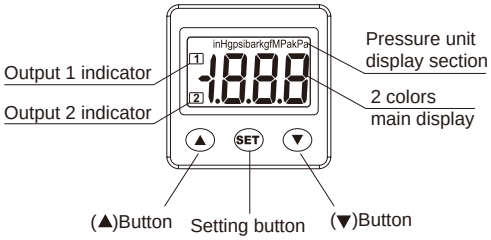
OPTION PARTS
A10: Mounting bracket (for pressure port **F1~F3**)
A11: Mounting bracket (for pressure port **F1~F3**)
A1: Mounting bracket (for pressure port **F1C~F3C**)
A17: Mounting bracket (for pressure port **F1C~F3C**)
B3: Panel adapter
C3: Panel adapter + Front protective lid



Dimensions

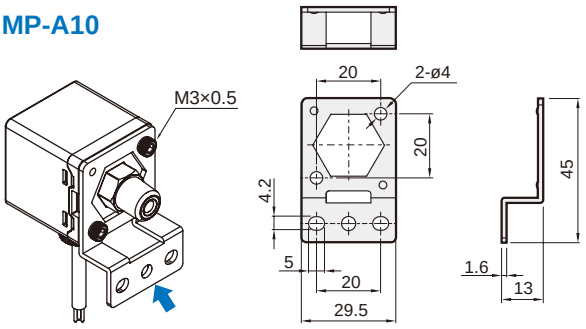


Panel instructions

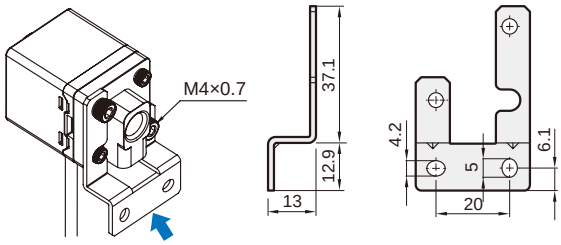


Mounting bracket

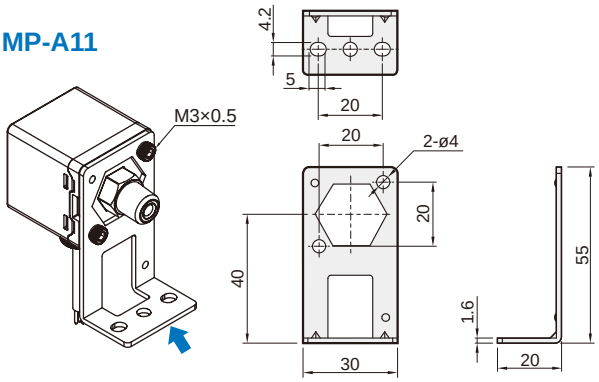
MP-A10



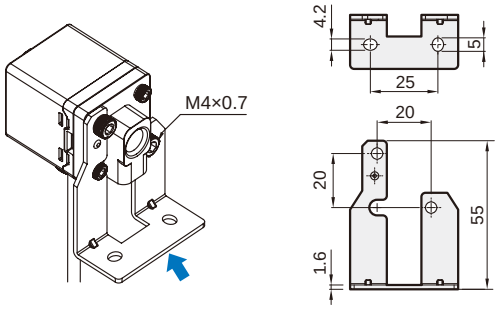
MP-A1



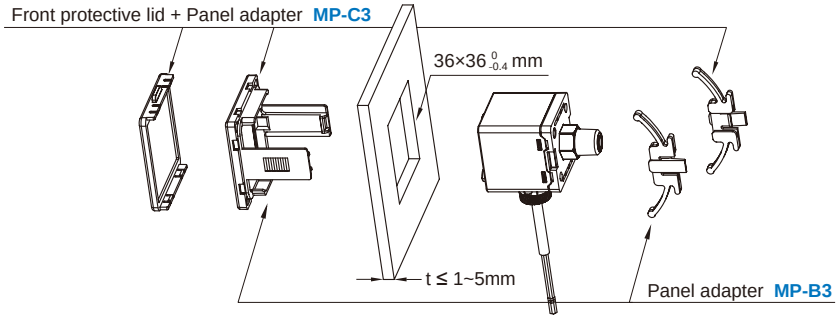
MP-A11

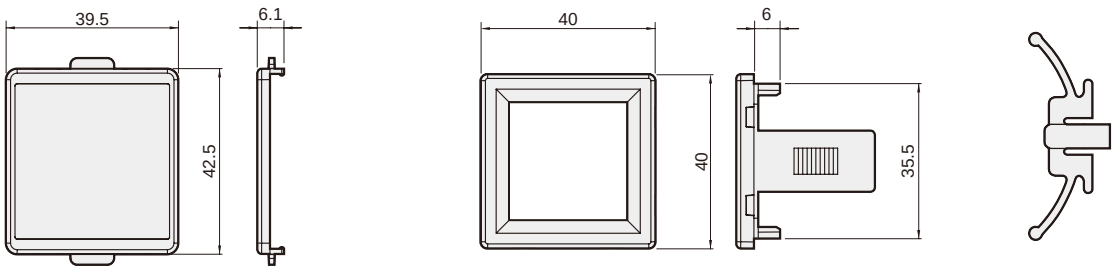


MP-A17



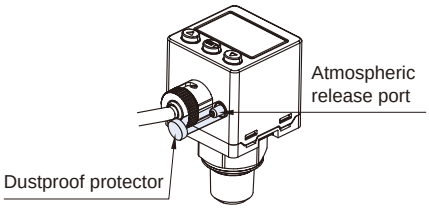
Panel type

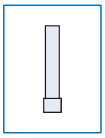




Accessory

IP65 protector

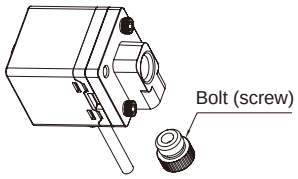




⚠ Caution

This device must be installed to maintain IP 65 (Dust and splash proof) enclosure rating.

Accessory for pressure port F1C ~ F3C



1. This product has two inlet pressure ports, select the one most convenient for installation.
2. Please plug the unused inlet port with supplied port plug. Use seal tape to prevent pressure leak.

MP47 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**



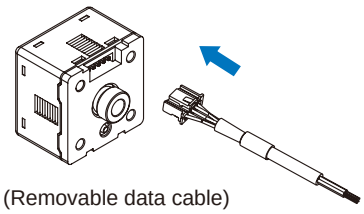
Features

- 3-color digital LCD display.
- Main/Sub-Display, 4 digits 7 segment LCD display.
- Programmable pressure unit : kPa、MPa、kgf/cm²、bar、psi、inHg、mmHg.
- Dual LCD display allows setting value to be displayed.
- Key lock indicator.
- Power-save mode.
- Fine adjustment mode.

Features highlight

Quick installation

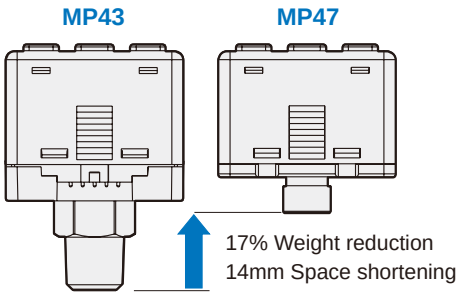
- Save installation time.
- Easy removal.



(Removable data cable)

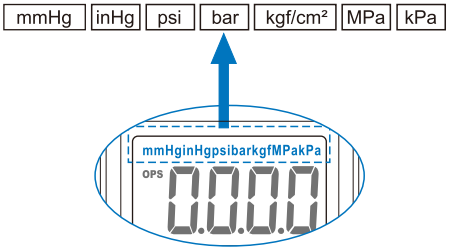
Compact design

- Compared with similar products, approx. 35% shorter.



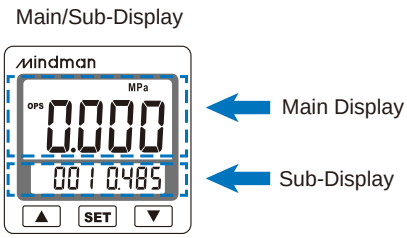
Easy unit identification

- Conversion unit is on display and easy to read.



Setting Value Easy Indication

- User can easily observe the setting value from sub-display.



2-Color Main display

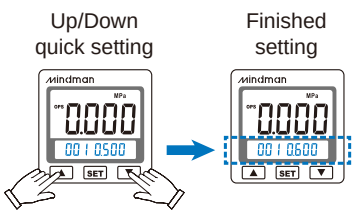
- User programmable color mode, for different setting conditions.



	SoU	Sor	Grn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

OPS Quick Setting

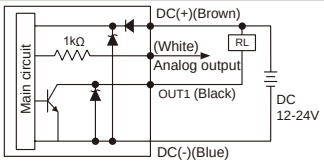
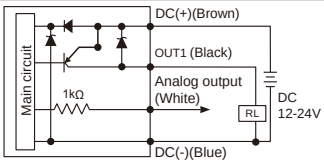
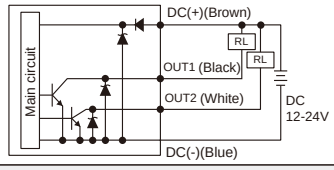
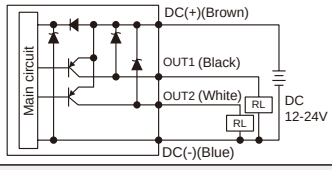
- Sub-display allows changing the parameter directly, reduce setting step by 3/4.



Specification

Model		MP47C (Compound)	MP47V (Vacuum)	MP47P (Positive)
Rated pressure range		–100 ~ 100 kPa	–101.3 ~ 0 kPa	–0.1 ~ 1.0 MPa
Setting pressure range		–103 ~ 103 kPa	–103 ~ 10 kPa	–0.103 ~ 1.03 MPa
Allowable pressure		500 kPa		1.5 MPa
Medium		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa	0.1		—
	MPa	—		0.001
	kgf/cm^2 / bar	0.001		0.01
	psi	0.01		0.1
	InHg / mmHg	0.1 / 1		—
Power supply voltage		12~24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 30mA (With no load)		
Switch output		NPN: open collector outputs Max. load current: 80mA Max. supply voltage: 30V DC Residual voltage: ≤ 1V		PNP: open collector outputs Max. load current: 80mA Max. supply voltage: 24V DC Residual voltage: ≤ 1V
Repeatability(Switch output)		±0.3% F.S. ±1 digit		
Hysteresis	One point set mode	Adjustable (Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.)		
	Hysteresis mode			
	Window comparator mode			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms selectable)		
Output short circuit protection		Yes		
Display	Display	2 color (Red/Green) main & unit display, Orange sub-display (Sampling rate: 0.2, 0.5, 1 sec./time selectable)		
	Indicator accuracy	±1% F.S. ±1 digit (ambient temperature: 25 ± 3°C)		
	Switch ON Indicator	Orange Indicator OUT		
Analog output (within rated pressure range) (Voltage Output)		Output Voltage: 1 to 5V ±2.5% F.S. Linearity: ±1% F.S. Output impedance: about 1kΩ		Output Voltage: 0.6 to 5V 2.5% F.S. Linearity: ±1% F.S. Output impedance: about 1kΩ
Environment	Enclosure classification	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, Storage : –10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-150Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s^2 (10G), 3 times each in direction of X, Y and Z		
Tmperature charateristic		±2% F.S. of detected pressure 25°C at temp. Range of 0~50°C		
Port size		F1: R1/8", M5×0.8; F2: NPT1/8",#10-32UNF; F3: G1/8"(BSPP), M5×0.8; M5 female thread		
Lead wire		Oil-resistance cable (0.15mm^2)		
Weight		Approx. 67g (with 2 meter lead wire)		

Output circuit wiring graph

Model	MP47□-01	MP47□-03
Connect diagram		
Output method	1 NPN + Analog output (1~5V) (0.6~5V only positive)	1 PNP + Analog output (1~5V) (0.6~5V only positive)
Model	**MP47□-02**	**MP47□-04**
Connect diagram		
Output method	2 NPN output	2 PNP output

Order example

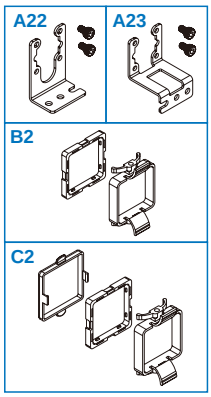
MP47C — 01 — F1

- MODEL
- PRESSURE RANGE
  - **C**: Compound (–103~103 kPa)
  - **V**: Vacuum (–103~10kPa)
  - **P**: Positive (–0.103~1.03 MPa)
- OUTPUT METHOD
  - **01**: 1 NPN output + Analog output (1~5V)
  - **02**: 2 NPN output
  - **03**: 1 PNP output + Analog output (1~5V)
  - **04**: 2 PNP output
- PRESSURE PORT
  - **F1**: R1/8, M5×0.8
  - **F2**: NPT1/8, #10-32UNF
  - **F3**: G1/8(BSPP), M5×0.8
  - **M5**: M5 female thread

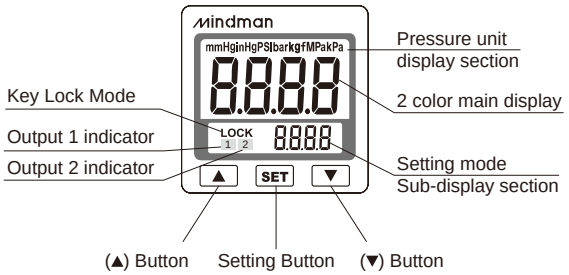
Mounting accessories (Option)

MP — A22

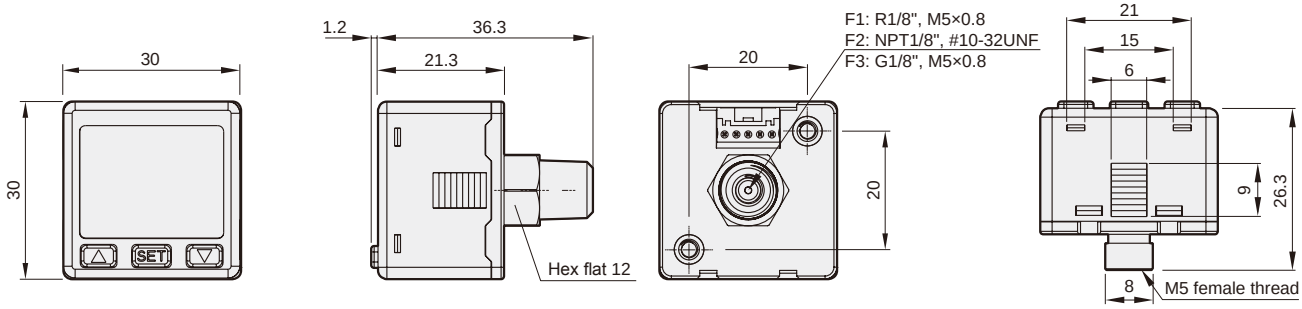
- MODEL
- OPTION PARTS
  - **A22**: Mounting bracket
  - **A23**: Mounting bracket
  - **B2**: Panel adapter
  - **C2**: Panel adapter + Front protective lid



Panel instructions

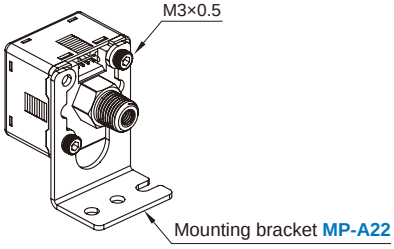


Dimensions

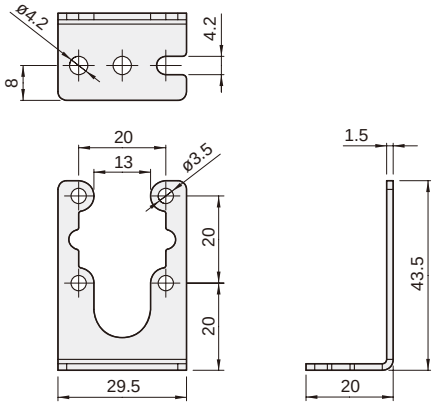


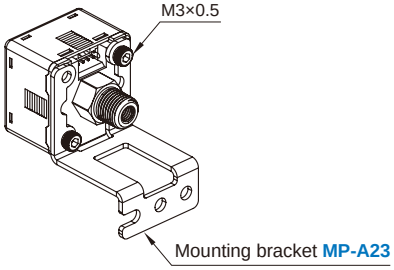
Mounting accessories

Mounting bracket

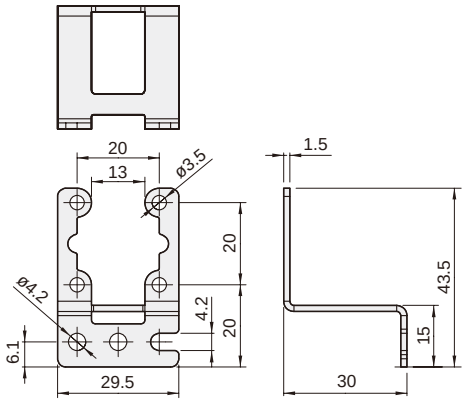


MP-A22

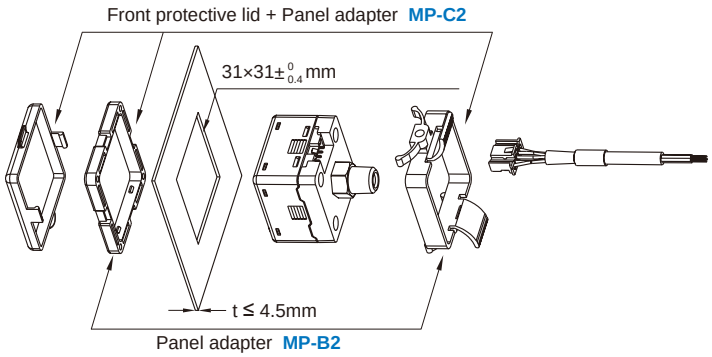


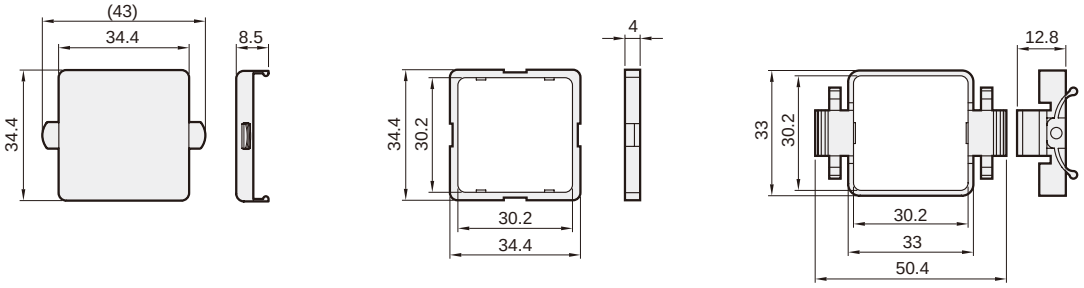


MP-A23



Panel type





MP50 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**



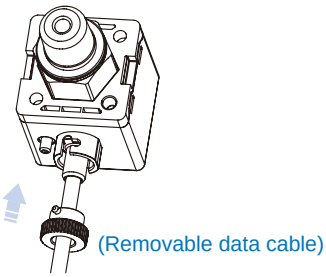
Features

- 2 color digital LCD display.
- Copy function.
- Programmable pressure unit: kPa, MPa, kgf/cm^2, bar, psi, inHg.
- Sensor parts & fitting parts: Stainless steel 316L.
- Corrosive fluid or gas available.
- IP65 enclosure.

Features highlight

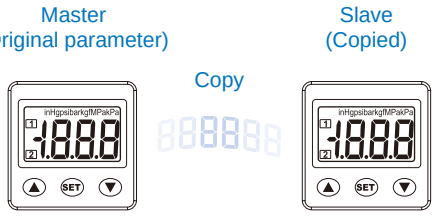
Quick installation

- Save installation time.
- Easy removal.



Copy setting

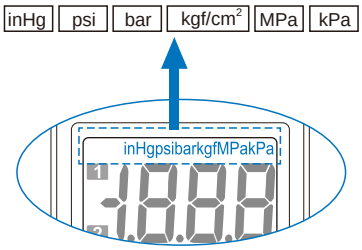
- Reduce setting time.
- Avoid setting errors.



Can copy the setting value from master to slave sensor.

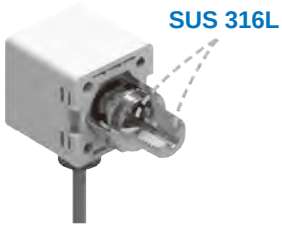
Easy unit identification

- Conversion unit is on display and easy to read.



Applicable for corrosive fluid or gas

- Sensor parts & fitting parts are SUS 316L, applicable for corrosive fluid or gas equipment.



2-Color display

- User programmable color mode, for different setting conditions.



	SoU	Sor	Grn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

IP65 enclosure

- Protected against water and dustsplash from all directions.

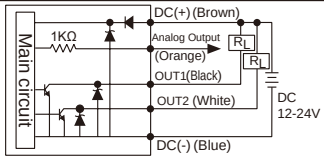
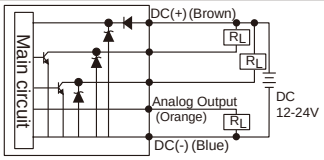
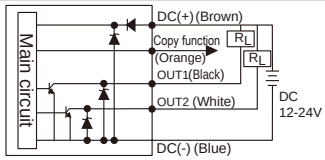


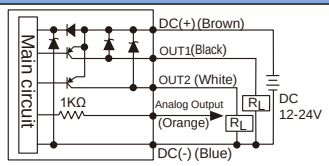
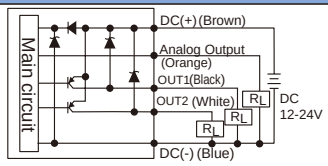
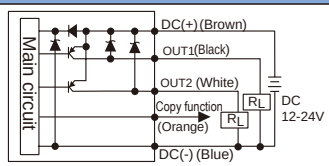
Specification

Model		MP50P (Positive)	MP50H (High)	MP50V (Vacuum)	MP50C (Compound)
Rated pressure range		0 ~ 1.0 MPa	0.0 ~ 2.0 MPa	0.0~ — 101.3 kPa	— 100.0~100.0 kPa
Setting pressure range		— 0.1 ~ 1.0 MPa	— 0.1 ~ 2.0 MPa	10.0~ — 101.3 kPa	— 101.0~101.0 kPa
Allowable pressure		3 MPa		300 kPa	
Fluid		Fluids do not corrode stainless steel 316L			
Set pressure resolution	KPa	—	—	0.1	
	MPa	0.001	0.001(~1.999) / 0.01(2.00~)	—	
	kgf/cm^2 / bar	0.01	0.01(~19.99) / 0.1(20.0~)	0.001	
	psi	0.1	0.1(~199.9) / 1(200~)	0.01	
	InHg	—	—	0.1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less			
Current consumption		≤ 40mA (With no load)			
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤1.5V		PNP: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V	
Repeatability (Switch output)		± 0.3% F.S. ±1 digit			
Hysteresis mode	One point set/ Hysteresis / Window comparator	Adjustable (*1)			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)			
Output short circuit protection		Yes			
Display		3 ½ digit, 7 segment (Red/Green)			
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)			
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2			
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5%F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ			
Analog output (Current) Output) (*3)		Output Current: 4 to 20mA ≤±2.5%F.S. (within rated pressure range); Linearity: ±1% F.S. Max. load impedance: 250Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω			
Environment	Enclosure classification	IP65			
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)			
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)			
	Withstand voltage	250V AC in 1-min. (between case and lead wire)			
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)			
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z			
	Shock	100m/s^2 (10G), 3 times each in direction of X, Y and Z			
Tmperature charateristic		±3% F.S. of detected pressure (25°C) at temp. range of 0 ~ 50°C			
Port size		F1: R1/4, M5; F2: NPT1/4", #10-32 UNF; F3: G1/4"(BSPP), M5			
Lead wire		Oil-resistance cable (0.15mm^2)			
Weight		Approx. 110 g (Rear ported), Approx. 145 g (Bottom ported)			

*1. Hysteresis value is adjustable within 1~8 digits for one point set and window comparator mode.
*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.
*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.
*4. G port O-ring material is NBR. If any special request, please contact us.

Output circuit wiring graph

Model	MP50□-010	MP50□-011	MP50□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function

Model	MP50□-030	MP50□-031	MP50□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

Order example

MP50C — 010 — F1— □

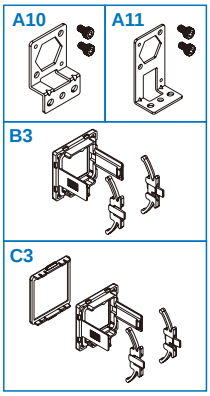
- MODEL
- PRESSURE RANGE
  - **P**: Positive (— 0.1~1.0 MPa)
  - **H**: High (— 0.1~2.0 MPa)
  - **V**: Vacuum (10.0~ — 101.3 kPa)
  - **C**: Compound (— 101.0~101.0 kPa)
- OUTPUT METHOD
  - **010**: 2 NPN output + 1 Analog output (1~5V)
  - **011**: 2 NPN output + 1 Analog output (4~20mA)
  - **02** : 2 NPN output + Copy function
  - **030**: 2 PNP output + 1 Analog output (1~5V)
  - **031**: 2 PNP output + 1 Analog output (4~20mA)
  - **04** : 2 PNP output + Copy function
- PRESSURE PORT
  - **F1**: R1/4, M5×0.8
  - **F2**: NPT1/4", #10-32UNF
  - **F3**: G1/4"(BSPP), M5×0.8
- PIPING DIRECTION
  - Blank: Rear ported
  - **L**: Bottom ported

Mounting accessories (Option)

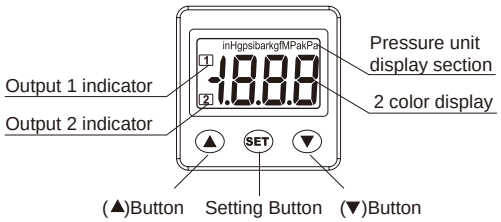
MP — A10

- MODEL
- OPTION PARTS
  - **A10**: Mounting bracket
  - **A11**: Mounting bracket
  - **B3**: Panel adapter
  - **C3**: Panel adapter + Front protective lid
  - **E1**: I-0360 Snubber (for pressure port F1&F3)
  - **E2**: I-0379 Snubber (for pressure port F2)

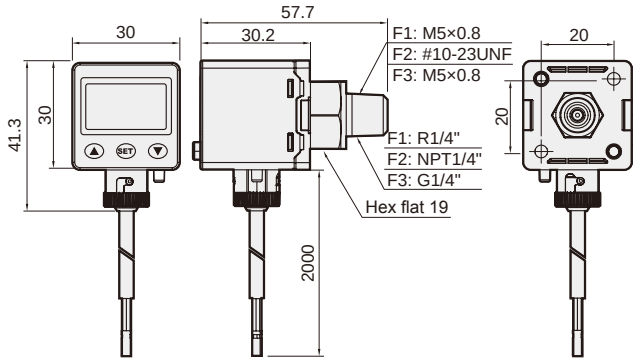
* MP50P & MP50H are suggested to select a snubber.



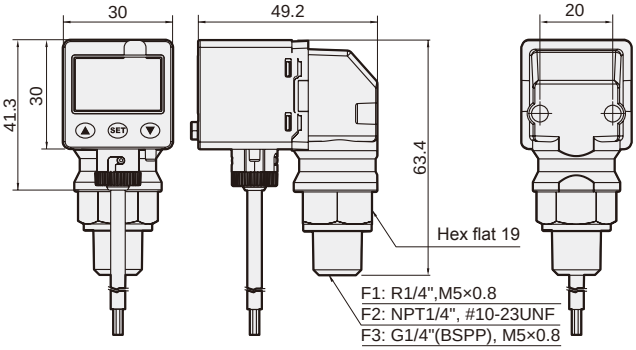
Panel instructions



Dimensions (Rear ported)



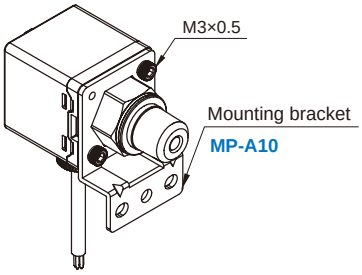
(Bottom ported)

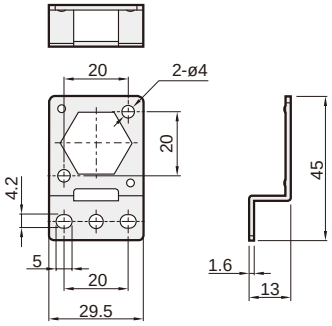


Mounting accessories

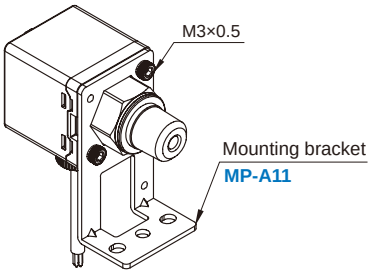
Mounting bracket

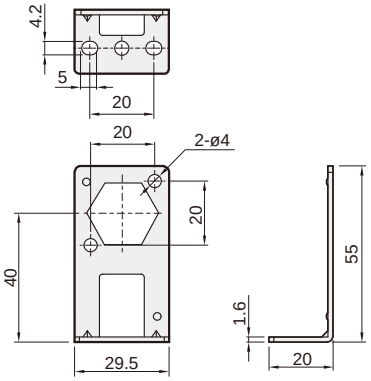
MP-A10



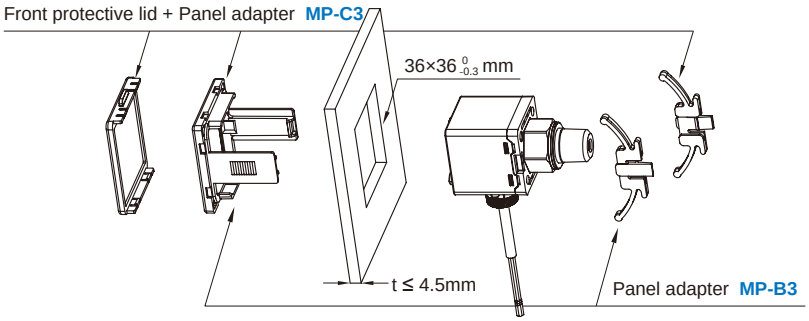


MP-A11

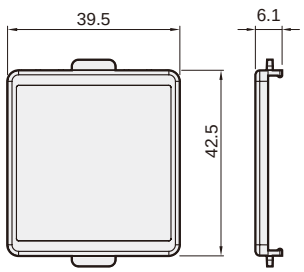




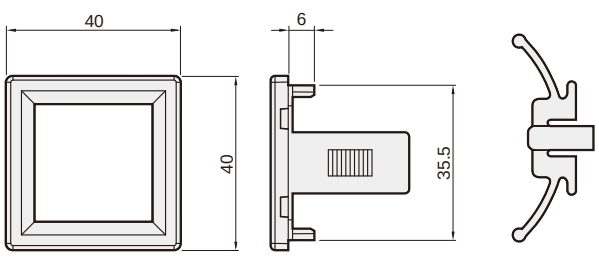
Panel type



Front protective lid



Panel adapter

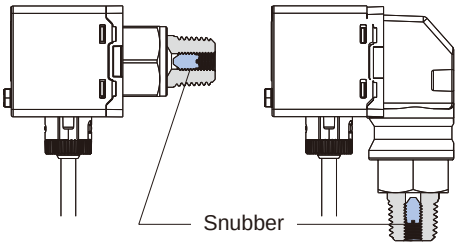


MP-E*

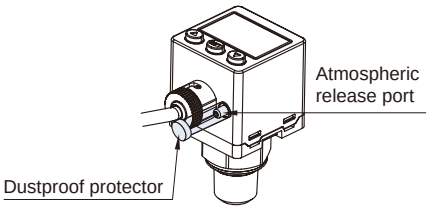
Removable snubber installed

Pressure port equipped with snubber can avoid damage caused by sudden pressure surge of water or oil, improve product durability.

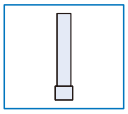
* When sunbber is clogged with contaminants, please use a flat head screwdriver to remove the snubber, clean and reinstall.



IP65 protector



⚠ Caution



This device must be installed to maintain IP 65 (Dust and splash proof) enclosure rating.

MP70 series

HIGH PRECISION DIGITAL **PRESSURE SWITCH**

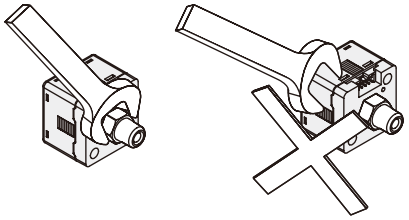


Features

- Smart pressure sensor.
- Remote control. Real-time monitoring.
- RS-485 modbus RTU / ASCII.
- 4 dight, 7 segment LCD display.
- Programmable pressure unit: kPa, MPa, kgf/cm^2, bar,psi, inHg, mmHg.
- IP40 enclosure.

Installation precautions

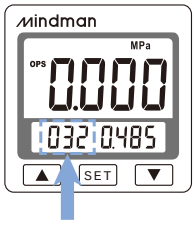
- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.



Features highlight

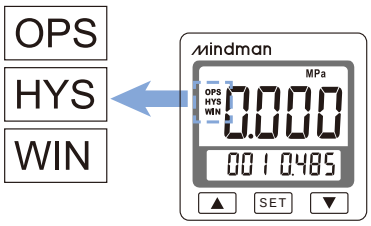
Station setting display

- Provide 0~255 station to set the sensor.



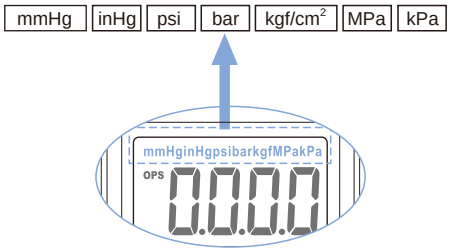
Modes display

- 3 modes show on the screen.



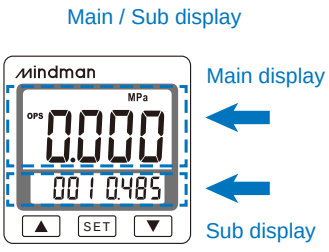
Easy unit identification

- Conversion unit is on display and easy to read.



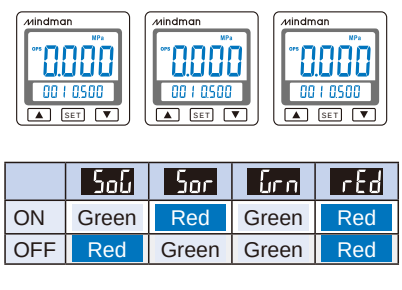
Setting value easy indication

- User can easily obsever the setting value from sub display.



2 color display

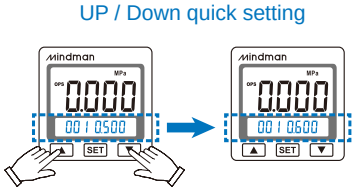
- User programmable color mode,for different setting conditions.



	SoU	Sor	Crn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

OPS quick setting

- Sub display allows changing the parameter directly, reduce setting step by 3/4.

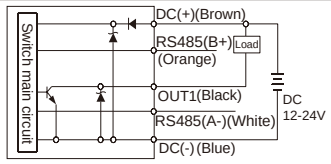
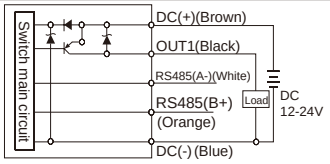


Specification

Model		MP70P (Positive)	MP70V (Vacuum)	MP70C (Compound)
Rated pressure range		0 ~ 1.0 MPa	─ 101.3~0.0 kPa	─ 100.0~100.0 kPa
Setting pressure range		─ 0.10 ~ 1.0 MPa	─ 101.3 ~10.0 kPa	─ 101.0~101.0 kPa
Withstand pressure		1.5 MPa	500 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa, MPa	─ / 0.001	0.1 / ─	
	kgf/cm^2 / bar	0.01	0.001	
	psi	0.1	0.01	
	InHg	─	0.1	
	mmHg	─	1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 1 output Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: ≤1.5V	PNP: open collector 1 output Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≤1.5V	
Repeatability (Switch output)		± 0.2% F.S. ±1 digit		
Hysteresis	Hysteresis mode / Window comparator mode	Adjustable (*1)		
Response time		≤ 2.5ms (*2)		
Output short circuit protection		Yes		
7 segment LCD display		Two color (Red/Green) main & unit display, Orange sub dispaly (Sampling rate: 0.2, 0.5, 1 seconds/time selectable)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 indicator) OUT1		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : ─10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	100m/s^2 (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±2.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Communication interface		RS─485		
Port size (Male / Female thread)		F1: R1/8", M5; F2: NPT1/8", #10-32 UNF; F3: G1/8"(BSPP), M5		
Lead wire		Oil-resistance cable (0.15mm^2)		
Weight		Approx. 80 g (with 2 meter lead wire)		

*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.
*2. Chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms, 2000ms and 5000ms selectable.

Output circuit wiring graph

Model	MP70□-02-□	MP70□-04-□
Connect diagram		
Output method	NPN output + RS485	PNP output + RS485

Order example

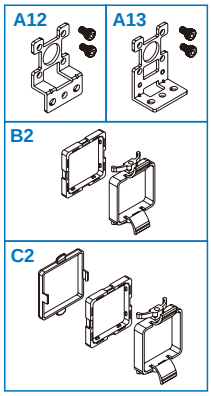
MP70C — 02 — F1

- MODEL
- PRESSURE RANGE
  - **C**: Compound (— 101.0~101.0 kPa)
  - **V**: Vacuum (10.0~ — 101.3 kPa)
  - **P**: Positive (— 0.1~1.0 MPa)
- OUTPUT METHOD
  - **02** : 1 NPN output + RS485
  - **04** : 1 PNP output + RS485
- PRESSURE PORT (Male/ Female thread)
  - **F1**: R1/8", M5×0.8
  - **F2**: NPT1/8", #10-32UNF
  - **F3**: G1/8", M5×0.8

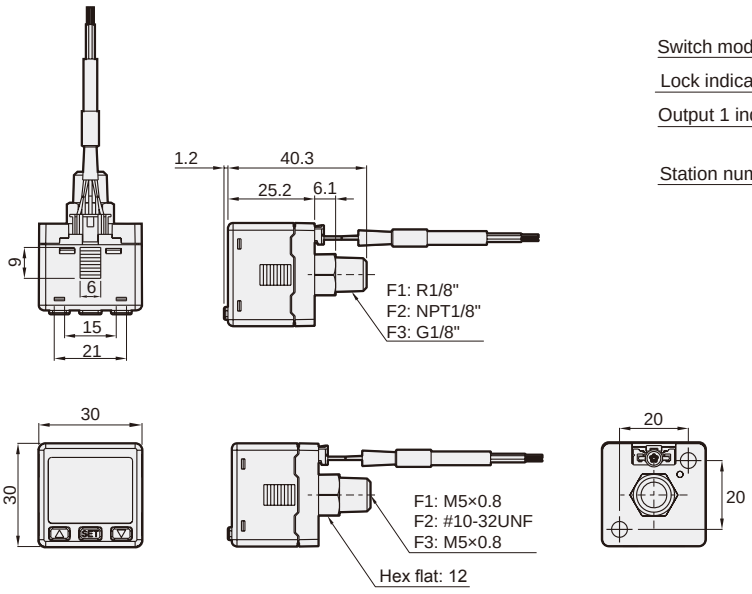
Mounting accessories (Option)

MP — A12

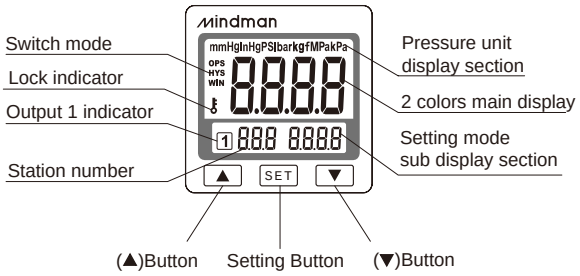
- MODEL
- OPTION PARTS
  - **A12**: Mounting bracket
  - **A13**: Mounting bracket
  - **B2**: Panel adapter
  - **C2**: Panel adapter + Front protective lid



Dimensions

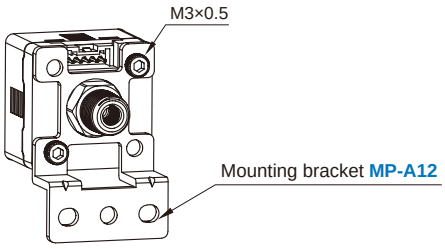


Panel instructions

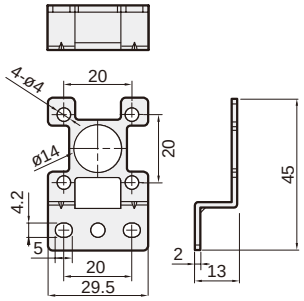


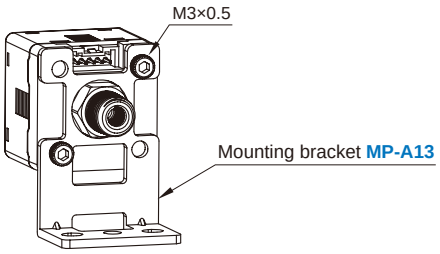
Mounting accessories

Mounting bracket

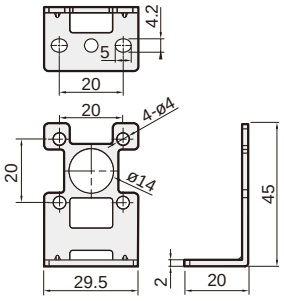


MP-A12

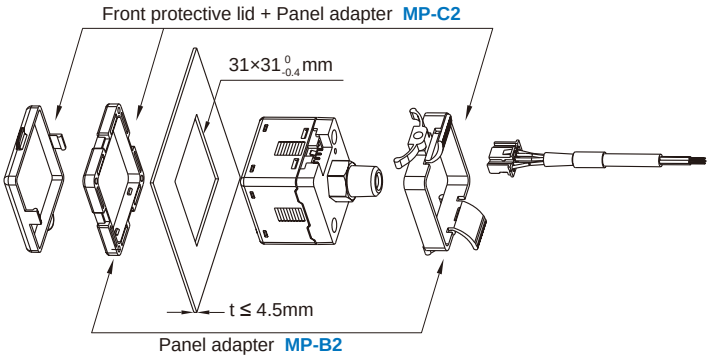


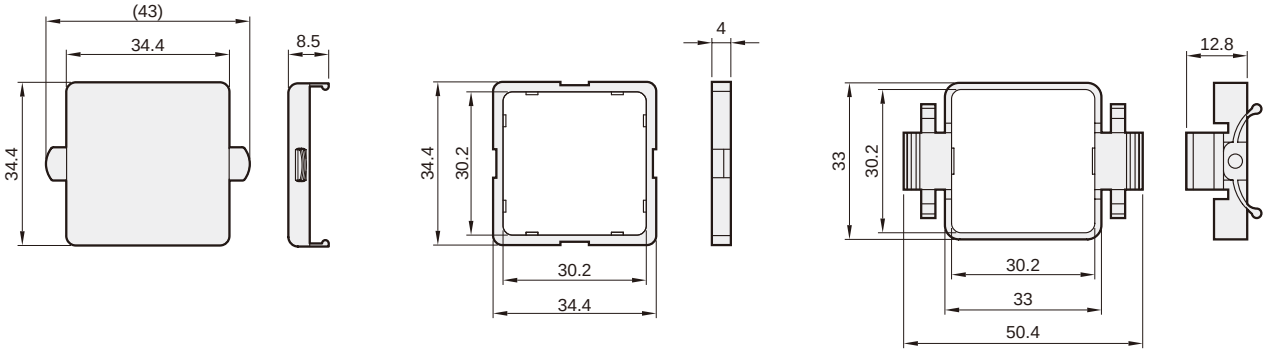


MP-A13



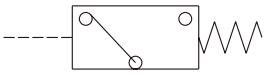
Panel type



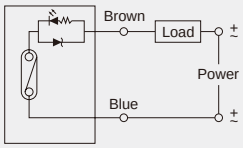




Symbol



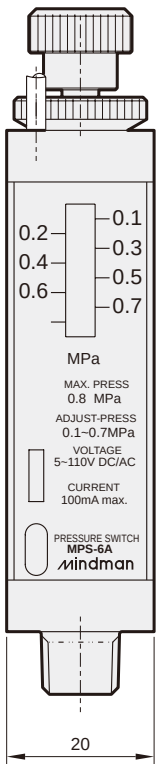
Specification

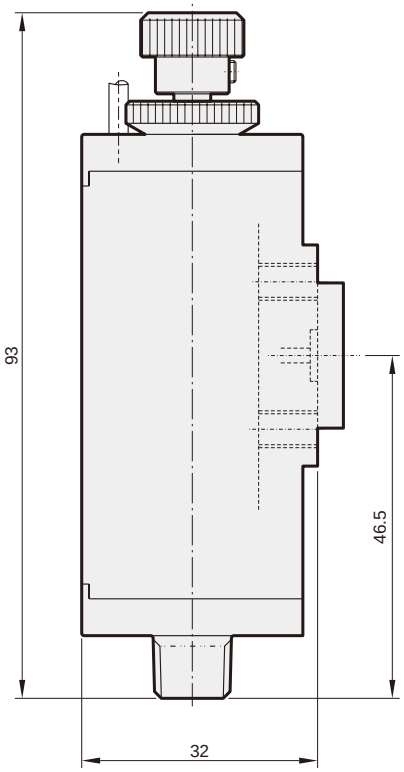
Model	MPS-6A	MPS-6A-R
Fitting method	R1/8 (for port thread fitting)	O-ring: S4 (for O-ring fitting)
Ambient temperature	–5~+60°C (No freezing)	
Max. operating pressure	0.8 MPa	
Proof pressure	1 MPa	
Pressure setting range	0.1~0.7 MPa	
Operation output	Normal open ON (Red led lighting up) above value	
Sensor switch	RCE2 Reed switch / Normal open Voltage range: 5~110V DC/AC Max. Current: 100mA	
Connect diagram		
Weight	185 g	189 g

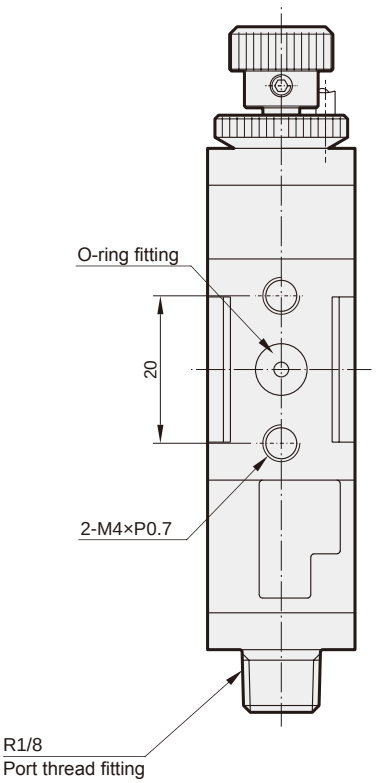
Order example

MPS — 6A — R

- MODEL
- Blank: by prot thread fitting
  R: by O-ring fitting







MP23 series

DIGITAL **PRESSURE GAUGE**



Features

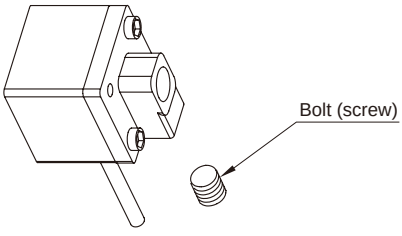
- Digital display, easy readout.
- Pressure range: Compound -100~100 kPa
  Positive 0~1 MPa.
- High accuracy and Resolution.
- Programmable pressure unit: kPa, MPa, kgf/cm^2, bar, psi, inHg, mmHg, mmH2O.
- Low cost.

Specification

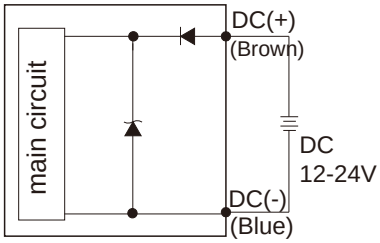
Model		MP23C (Compound)	MP23P (Positive)
Operating pressure range		–100.0~100.0 kPa	– 0.100 ~ 1.0 MPa
Allowable pressure		300 kPa	1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammalbe gas	
Set pressure resolution	kPa / MPa	0.1 / –	– / 0.001
	kgf/cm^2 / bar	0.001	0.01
	psi	0.01	0.1
	inHg	0.1	–
	mmHg	1	–
	mmH2O	0.1	–
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		≤ 55mA	
7 segment LED display		3 1/2 digit LED display (Sampling rate: 5 times/1sec.)	
Indicator accuracy		≤±2% F.S. ±1 digit (ambient temperature: 25 ± 3°C)	
Environment	Enclosure	IP40	
	Ambient temp. range	Operation: 0 ~ 50°C, storage : –20 ~ 60°C (No condensation or freezing)	
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)	
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)	
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z	
	Shock	980m/s^2 (100G), 3 times each in direction of X, Y and Z	
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C	
Port size		F1: Rc1/8"; F2: NPT1/8"; F3: G1/8"(BSPP)	
Lead wire		Oil-resistance cable(0.15mm^2)	
Weight		Approx. 80 g (with 2 meter lead wire), Approx. 68 g (with M8 4Pin male connector)	

Installation

1. This product has two inlet pressure ports, select the one most convenient for installation.
2. Please plug the unused inlet port with supplied port plug. Use seal tape to prevent pressure leak.



Circuit wiring graph



Order example

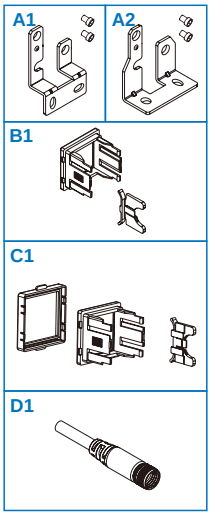
MP23C – F1 – QD

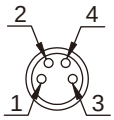
- MODEL
- PRESSURE RANGE
  - **C**: Compound (–100.0~100.0 kPa)
  - **P**: Positive (–0.10~1.00 MPa)
- PRESSURE PORT
  - **F1**: Rc1/8"
  - **F2**: NPT1/8"
  - **F3**: G1/8"
  - **M1**: R1/8"
  - **M2**: NPT1/8"
  - **N1**: R1/4"
  - **N2**: NPT1/4" (Male thread)
- CABLE LENGTH / CONNECTOR
  - Blank: With 2 meter cable
  - **QD**: With M8, 4 Pin male connector

Mounting accessories (Option)

MP – A1

- MODEL
- OPTION PARTS
  - **A1**: Mounting bracket
  - **A2**: Mounting bracket
  - **B1**: Panel adapter
  - **C1**: Panel adapter + Front protective lid
  - **D1**: M8 4Pin female connector (M84R-W0085-2M)





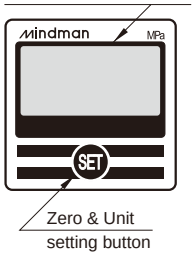
QD Pinout

(1) Brown(+)
(2) Not used
(3) Blue(-)
(4) Not used

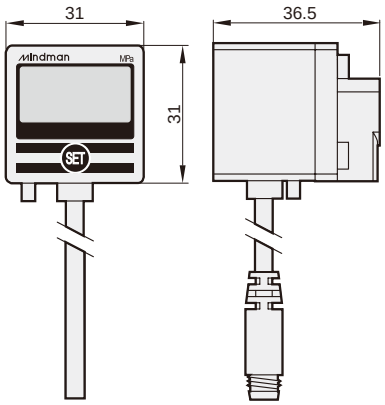
Panel instructions

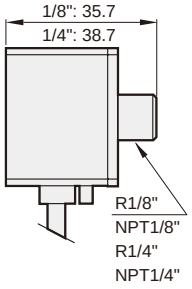
3 ½ digit LED display

Display the measured Pressure value. Each set Content and error code.



Dimensions

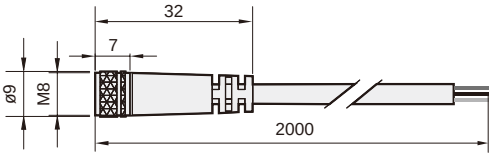




M1 / M2 / N1 / N2
Male thread

Optional part dimensions

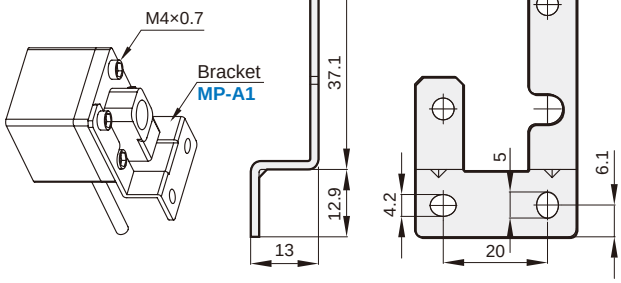
M8, 4 Pin female connector Model: **MP-D1**



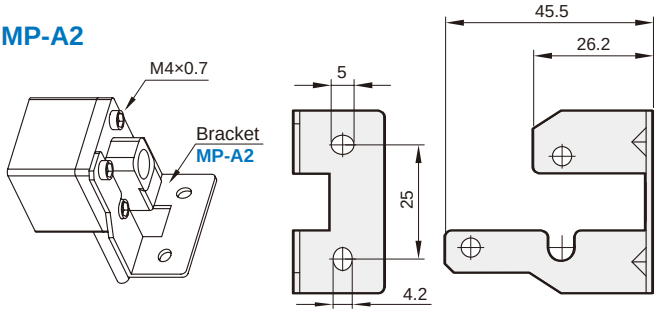
Mounting accessories

Mounting bracket

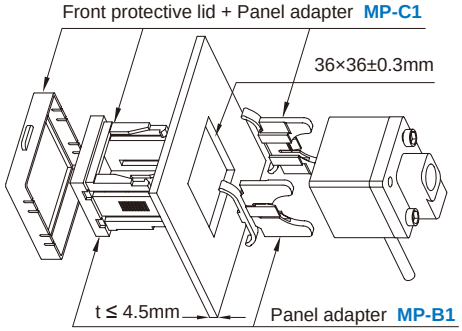
MP-A1

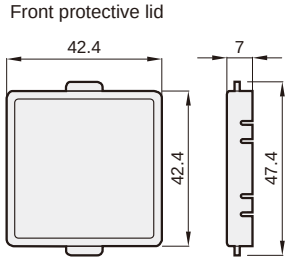


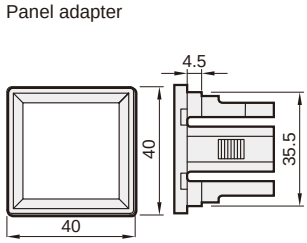
MP-A2

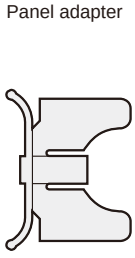


Panel type









MPG-60 series

DIGITAL **PRESSURE GAUGE**



Features

- 6 user programmable pressure units (kPa, MPa, kgf/cm^2, psi, bar, mmHg) available.
- Battery powered.
- Easy / fast read out with digital display.
- Power saving mode.
- Back light option.
- IP65 enclosure, dust and splash-proof.

Specification

Model		Vacuum		Positive	
		MPG-60V	MPG-60V-L	MPG-60P	MPG-60P-L
Rate / display pressure range		0 ~ -101 kPa / 10 ~ -101 kPa		0 ~ 1 MPa / -0.1 ~ 1 MPa	
Proof pressure		300 kPa		1.5 MPa	
Fluid		Filtered air, Non-corrosive gases ,incombustible gases			
Set pressure resolution	kPa / MPa	1 / —		— / 0.001	
	kgf/cm^2 / bar	— / 0.01		0.01	
	psi	0.1		0.1	
	mmHg	1		—	
Battery / Battery replaceable		CR 2032 lithium / Yes			
Battery life		3 years (5 times/day)	1 years (5 times/day)	3 years (5 times/day)	1 year (5 times/day)
Low-power indicator		Yes			
Back light		No	Yes	No	Yes
Turn-on interval		Display turn off after 60 sec.			
Sampling rate		2 Hz (2 times/sec.)			
Programmable pressure unit		psi, bar mmHg, kPa user selectable		psi, bar, kfg/cm^2, MPa user selectable	
Repeatability		≤ ±1% F.S. ±1digit		≤ ±0.2% F.S. ±1digit	
LCD display		7 segment, 3 1/2 digit			
Indicator accuracy		≤ ±2% F.S. ±1 digit (Ambient temperature: 25 ±3 °C)			
Environment	Enclosure	IP65 (Air tube must be installed to maintain IP65)			
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)			
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)			
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z			
	Shock	100m/s^2 (10G), 3 times each in direction of X, Y and Z			
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C			
Weight		Approx. 40 g			

Order example

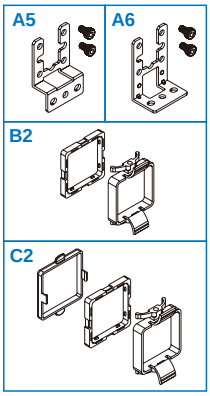
MPG — 60 P — L — F1

- MPG — 60: MODEL
- P: PRESSURE RANGE
  - **V**: Vacuum
  - **P**: Positive
- L: BACK LIGHT
  - Blank: Back light unavailable
  - **L**: Back light available
- F1: PRESSURE PORT
  - **F1**: R1/8", M5
  - **F2**: NPT1/8", #10-32 UNF
  - **F3**: G1/8", M5
  - **F4**: R1/4", M5
  - **F5**: NPT1/4", #10-32 UNF
  - **F6**: G1/4", M5

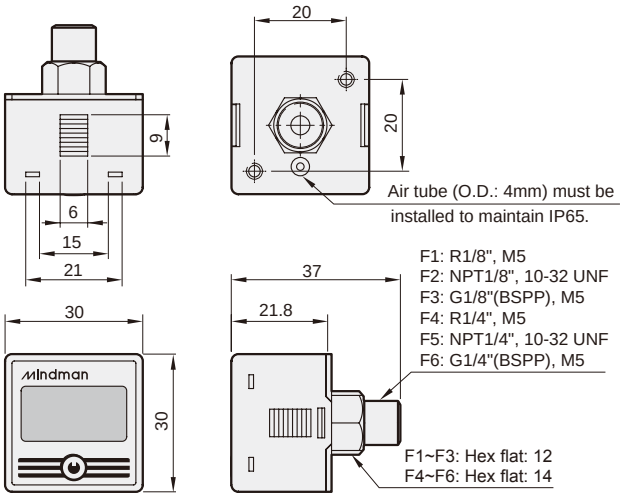
Mounting accessories (Option)

MP — A5

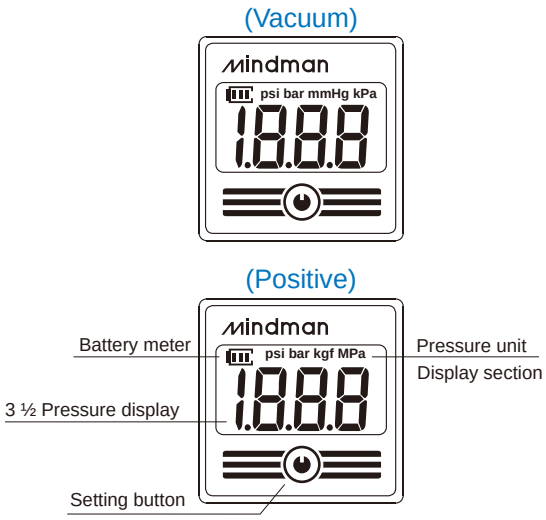
- MP: MODEL
- A5: OPTION PARTS
  - **A5**: Mounting bracket
  - **A6**: Mounting bracket
  - **B2**: Panel adapter
  - **C2**: Panel adapter + Front protective lid



Dimensions



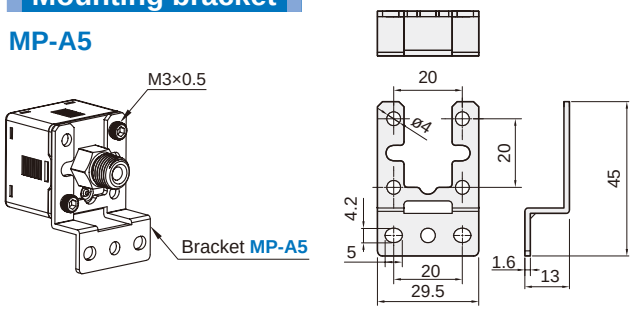
Panel instructions



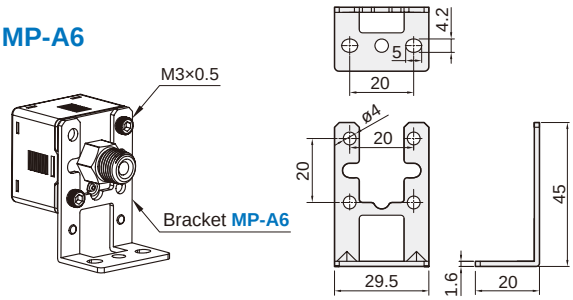
Mounting accessories

Mounting bracket

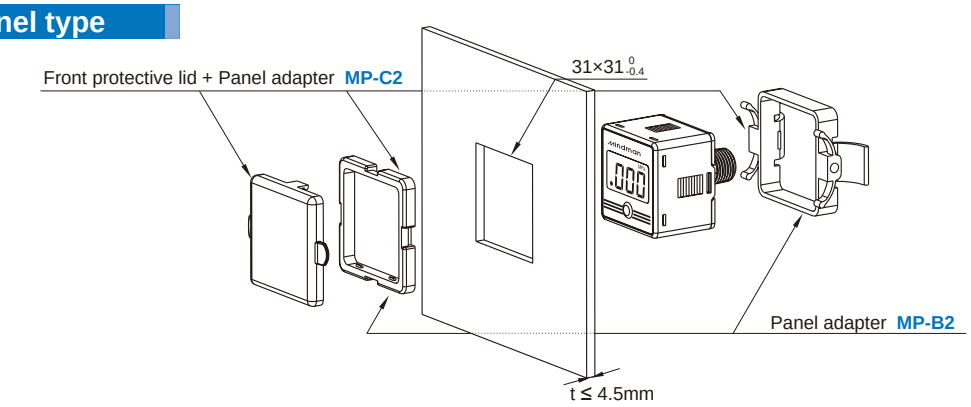
MP-A5

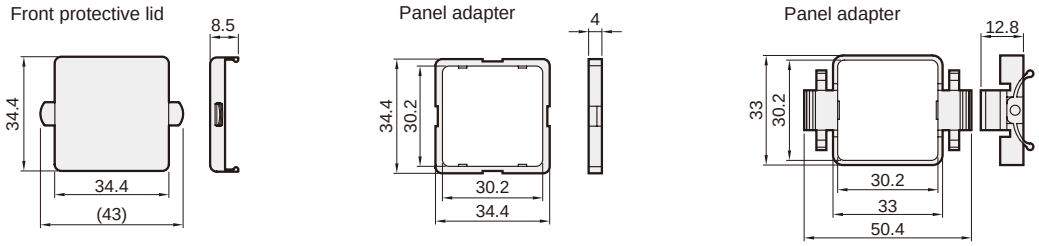


MP-A6



Panel type





PG-20	PG-20W	PG-25	PG-33S
			
PG-40	**PG-40W**	**PG-40S**	**PG-50**
			

Specification

Model	PG-20	PG-25	PG-33	PG-40	PG-50
Bore No.	–	–	6A	6A	8A
Port size	–	1/16	1/8	1/8	1/4
Medium	Air				
Operating perssure range	By order specifications				
Proof pressure	The max. scale of gauge times 1.2				
Precision	±4% F.S.		ASME B class		
Ambient temperature	-5~+60°C (No freezing)				
Weight	11 g	17 g	34 g	54 g	108 g

* Please consult us if out of specification.

Order example

PG — 40 S — 1K — NPT

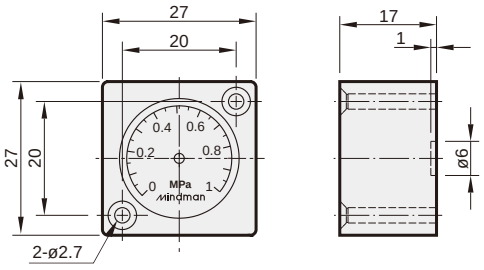
- MODEL
- GAUGE SIZE: **20, 25, 33, 40, 50**
- CASE MATERIAL
- PRESSURE RANGE
  - Blank: 0~1 MPa
  - **1K**: 0~0.1 MPa
  - **2K**: 0~0.2 MPa
  - **3K**: 0~0.3 MPa
  - **4K**: 0~0.4 MPa
  - **5K**: 0~0.5 MPa
  - **20K**: 0~2 MPa
  - **30K**: 0~3.5 MPa
- PORT THREAD
  - Blank: R thread
  - **NPT**: NPT thread

Code / Model	–	W	S	Note
PG-20	○	○		**W**(White)
PG-25	○			
PG-33			○	
PG-40	○	○	○	**W**(Electroplating)
PG-50	○			

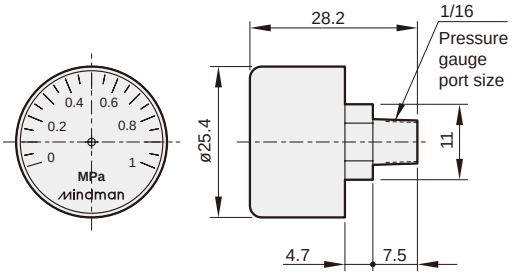
* Blank: Standard type (Black)
PG-25 standard type (Gray)
* S: Stainless steel

Code / Model	–	1K	2K	3K	4K	5K	20K	30K
PG-20	○	×	×	×	×	×	×	×
PG-20W	○	×	×	×	×	×	×	×
PG-25	○	×	×	×	×	×	×	×
PG-33S	○	×	○	×	○	×	×	×
PG-40	○	○	○	○	○	○	○	×
PG-40W	○	○	○	○	○	○	○	○
PG-40S	○	×	○	×	○	×	×	×
PG-50	○	×	×	×	×	×	○	×

PG-20

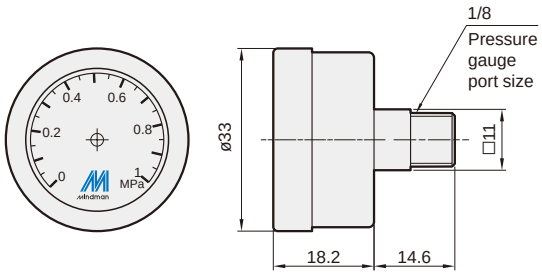


PG-25

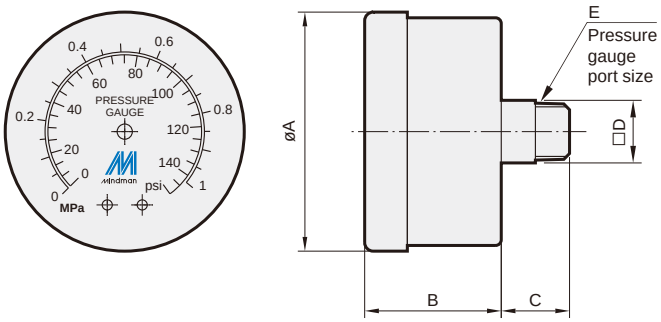


PG-33S

*Only for SUS case.



PG-40 / 50



Code / Model	A	B	C	D	E
PG-40	42	25	15	11	1/8
PG-50	53	26.5	22.5	14	1/4

MF01 series

DIGITAL FLOW SENSOR



Feature

- Display can be vertically inverted.
  To set and watch monitor easily.
- 3-Color & 7 segment LCD display.
- 8 digit accumulated flow rate display.
- Real-time monitoring.
- RS-485 Modbus RTU.

Specification

Model				005	010	050	100	500	101	201
Fluid				Dry air, N_2, Non-corrosive / Non-flammable gas						
Sensor element	Flow	Measured flow rate range		0 ~ 500 mL/min	0 ~ 1000 mL/min	0 ~ 5 L/min	0 ~ 10 L/min	0 ~ 50 L/min	0 ~ 100 L/min	0 ~ 200 L/min
		Flow direction		Unidirection						
Display	Display			4 digital (Flow) / 8 digital (Accumulated flow), 7 segment LCD display (Red / Green / Orange)						
	Instant flow rate	Display range		0 ~ 525 mL/min	0 ~ 1050 mL/min	0 ~ 5.25 L/min	0 ~ 10.50 L/min	0 ~ 52.5 L/min	0 ~ 105.0 L/min	0 ~ 210 L/min
		Min. setting scale	LPM	1 mL/min		0.01 L/min		0.1 L/min		1 L/min
			CFM *1	0.01 ft^3/min		0.1 ft^3/min		1 ft^3/min		
	Accumulated Flow	Display range		99999999 mL		999999.99 L		9999999.9 L		99999999 L
		Min. Setting Scale *1		1 mL		0.01 L		0.1 L		1 L
				0.01 ft^3		0.1 ft^3		1 ft^3		
Accuracy	Flow	Guaranteed range		2 ~ 100 % F.S.						
		Indicator accuracy		± 3 % F.S. ± 1 digit *2						
		Analog output accuracy		± 5 % F.S. *2						
		Repeatability		± 1 % F.S. ± 1 digit *3						
		Linearity		± 3 % F.S. *3						
		Temp. characteristic		± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C, 35~ 50 °C) (compare with *3)						
		Pressure characteristic		± 5 % F.S. ± 1 digit *4						
Switch output	Switch output			2 NPN : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 28 V DC Voltage Drop : ≤ 1.5 V				2 PNP : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 24 V DC Voltage Drop : ≤ 1.5 V		
	Response time			800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms selectable)						
	Output mode			Hysteresis Mode, Window Comparator Mode, Accumulated Output, Accumulated Pulse Output						
	Hysteresis			Adjustable						
	Output short circuit proterction			Yes						
	Accumulated pulse output *1			5 mL/Pulse	10 mL/Pulse	0.05 L/Pulse	0.1 L/Pulse	0.5 L/Pulse	1 L/Pulse	2 L/Pulse
				0.02 ft^3/Pulse	0.04 ft^3/Pulse	0.2 ft^3/Pulse	0.4 ft^3/Pulse	2 ft^3/Pulse	4 ft^3/Pulse	7 ft^3/Pulse

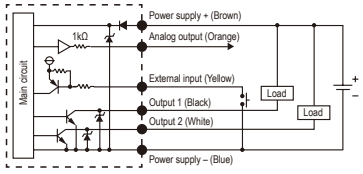
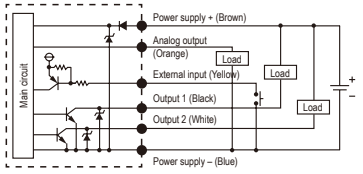
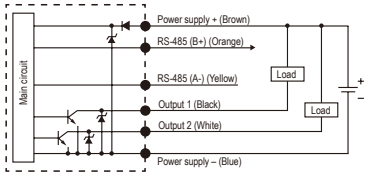
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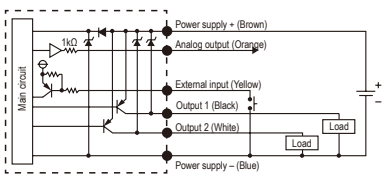
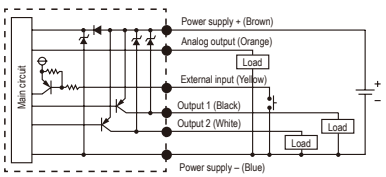
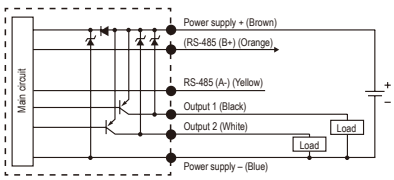
Specification

Model			005	010	050	100	500	101	201
Analog output	Voltage output		Voltage output range : 1 ~ 5 V ; Output impedance : 1 KΩ						
	Current output		Current output range : 4 ~ 20 mA ; Load impedance : ≤ 300 Ω						
	Response time		≤ 100 ms						
External input			Non-voltage input, < 0.4 V, ≥ 30 ms						
Communication interface			RS-485 *5						
Power		Power supply voltage	12 ~ 24 V DC ± 10 %, Ripple (P-P) ≤ 10 %						
		Current consumption	≤ 50 mA						
Environment	Working pressure range		–0.09~0.8 MPa						
	Withstand pressure		1 MPa						
	Enclosure		IP40						
	Working Fluid Temp.		0 ~ 50 °C (No condensation or freezing)						
	Ambient Temp. Range		Operation : 0 ~ 50 °C ; Storage : -10 ~ 60 °C (No condensation or freezing)						
	Ambient Humidity Range		Operation / Storage : 35 ~ 85 % R.H. (No condensation)						
	Insulation Resistance		≥ 50 MΩ (500 V DC, between case and lead wire)						
	Withstand Voltage		1000 V AC in 1-min (between case and lead wire)						
	Vibration		Total amplitude 1.5 mm or 10 G, 10 Hz ~ 55 Hz ~ 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z						
	Shock		100 m/s² (10 G), 3 times each in direction of X, Y and Z						
	EMC		IEC 61000-6-2, IEC 61000-6-4						
Lead wire			ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm²) - 6 cores						
Port Size	R6, F1C		●	●	●	●	●		
	R8, F4C							●	●
Weight (with 2 meter lead wire)			Approx. 109.3 g (ø6 port) ; Approx. 112.7 g (ø8 port); Approx. 118 g (Rc1/4 port); Approx. 128.5 g (Rc1/8 port)						

*1. When the display unit is CFM, ft³, the actual flow is the display value×10⁻².
*2. Condition: Inlet pressure: 300 kPa, Outlet pressure: 1 atmospheric pressure, 25 °C
*3. Condition: Outlet pressure: 1 atmospheric pressure, 25 °C.
*4. -0.09 ~ 0.8 MPa, Outlet pressure: 1 atmospheric pressure, 25 °C.
*5. This function only available for Output Specification -02 and -04.

Output circuit wiring graph

Model	MF01-□-010	MF01-□-011	MF01-□-02
Connect diagram			
Output method	NPN output / Analog voltage output / External input	NPN output / Analog current output / External input	NPN output / RS-485 MODBUS mode

Model	MF01-□-030	MF01-□-031	MF01-□-04
Connect diagram			
Output method	PNP output / Analog voltage output / External input	PNP output / Analog current output / External input	PNP output / RS-485 MODBUS mode

* Procedure to wiring RS485 products : To prevent product damage due to short circuit , MUST do RS485 line conneciton BEFORE power line connection.

Order example

MF01 – 005 – 010 – R6

MODEL

FLOW RATE RANGE
- **005**: 500 (ml/min)
- **010**: 1000 (ml/min)
- **050**: 5 (l/min)
- **100**: 10 (l/min)
- **500**: 50 (l/min)
- **101**: 100 (l/min)
- **201**: 200 (l/min)

OUTPUT SPEC.
- **010**: 2 NPN output + Analog output 1 ~ 5 V
- **011**: 2 NPN output + Analog output 4 ~ 20 mA
- **02** : 2 NPN output + RS485
- **030**: 2 PNP output + Analog output 1 ~ 5 V
- **031**: 2 PNP output + Analog output 4 ~ 20 mA
- **04** : 2 PNP output + RS485

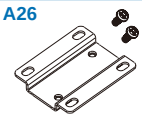
PORT SIZE
- **R6**: ø6 mm, for flow rate range 005, 010, 050, 100, 500.
- **R8**: ø8 mm, for flow rate range 101, 201.
- **F1C**: Rc1/8", with internal threads, for flow rate range 005, 010, 050, 100, 500
- **F4C**: Rc1/4", with internal threads, for flow rate range 101, 201

Mounting accessories

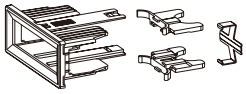
MP – A26

MODEL **OPTION PARTS**
- **A26**: Mounting bracket
- **B4**: Panel adapter
- **C4**: Panel adapter + Front protective lid

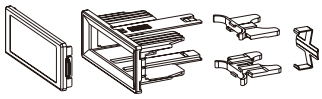
A26



B4

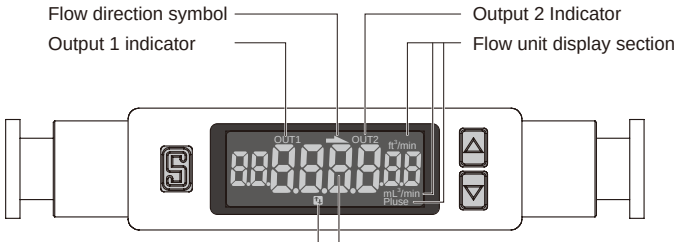


C4

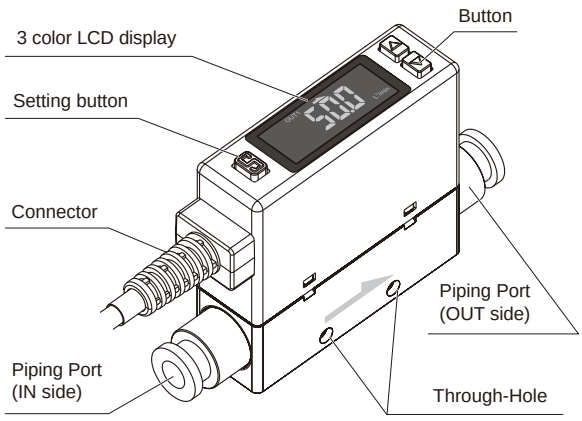


Name and functions of individual parts

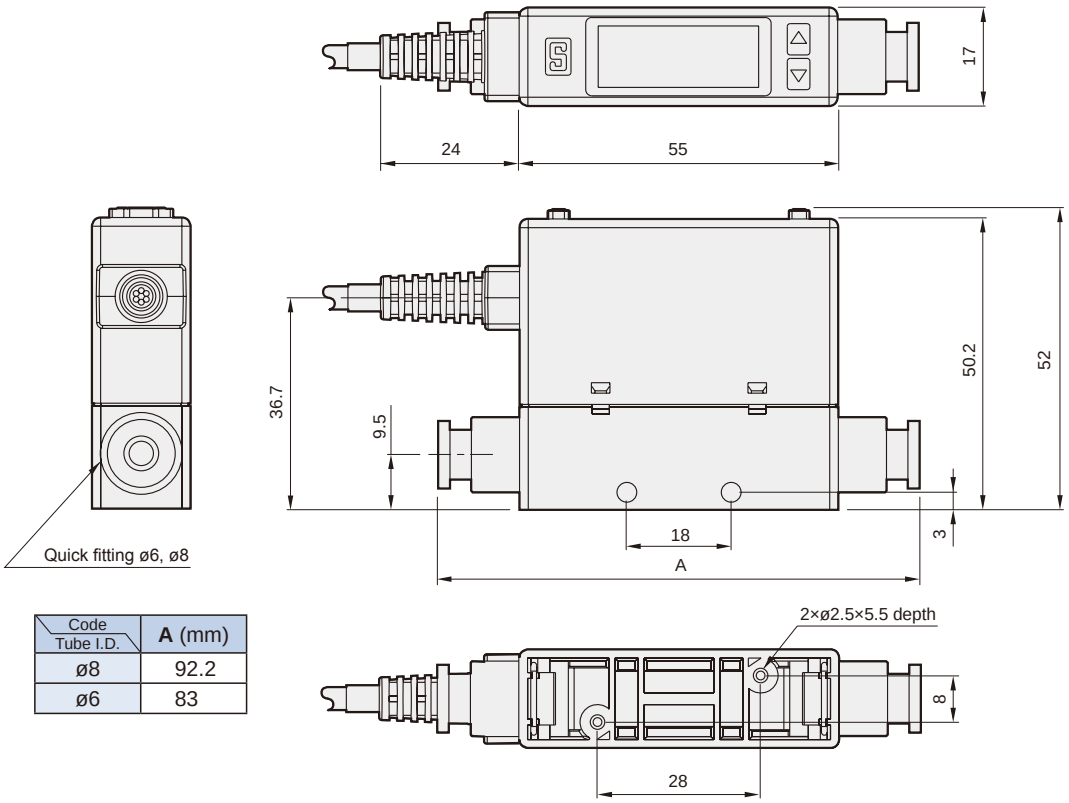
Panel description



Body description

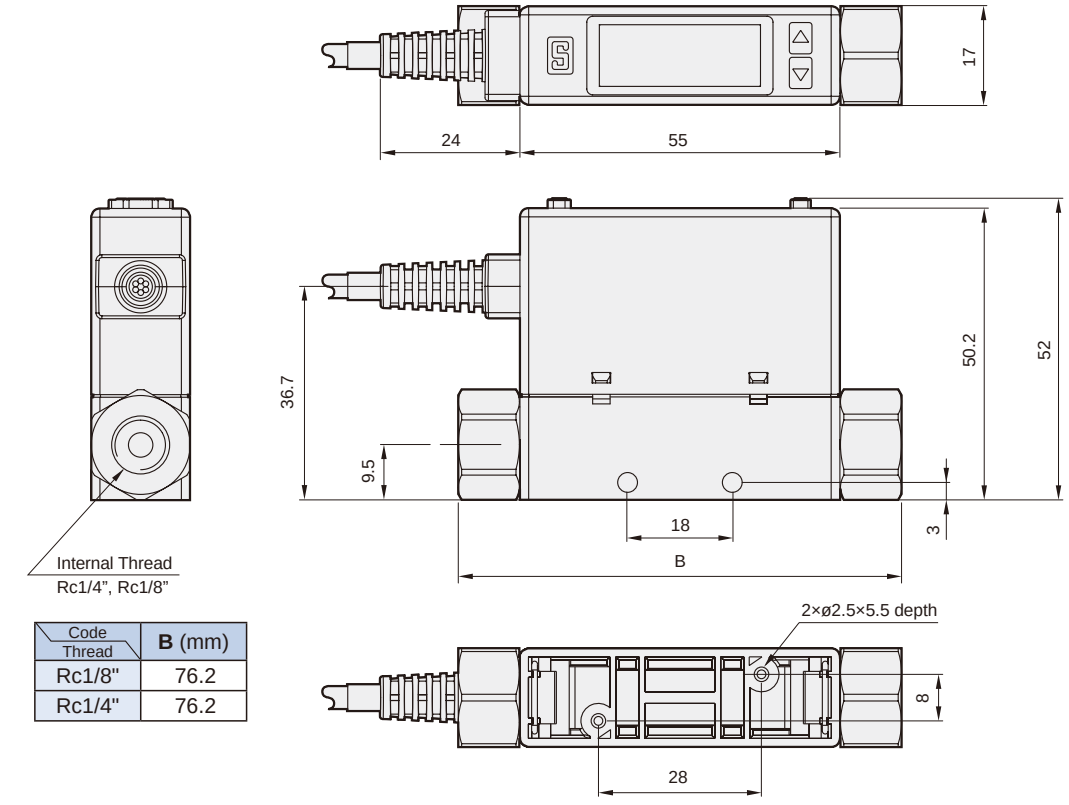


Port size
R6 (ø6)
R8 (ø8)



Code / Tube I.D.	**A** (mm)
ø8	92.2
ø6	83

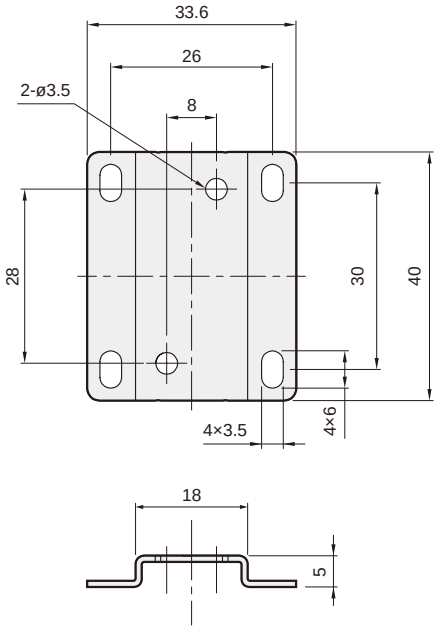
Port size
F1C (Rc1/8")
F4C (Rc1/4")

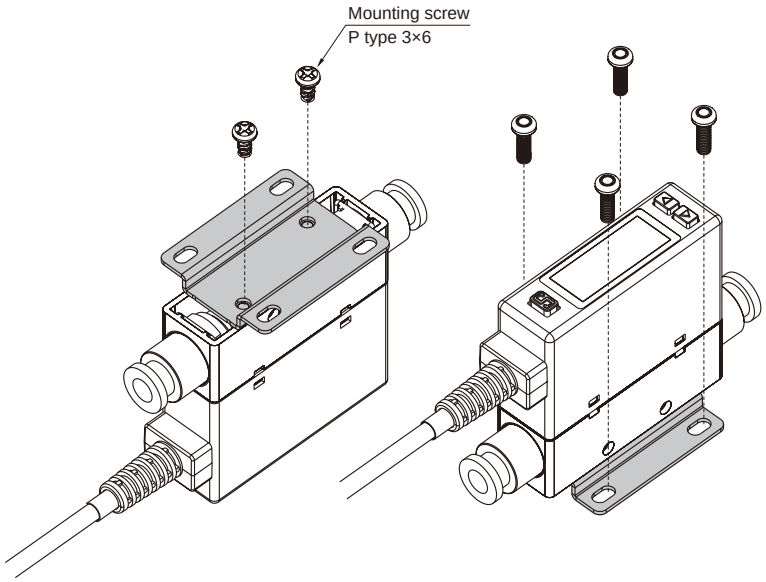


Code / Thread	**B** (mm)
Rc1/8"	76.2
Rc1/4"	76.2

Mounting bracket

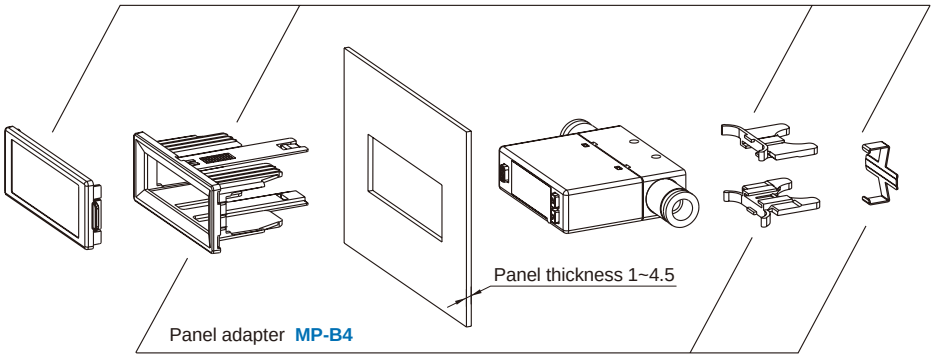
MP-A26



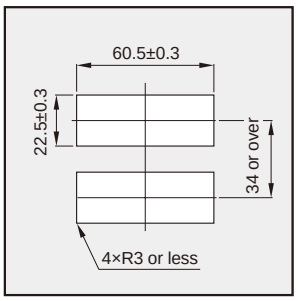


Panel type

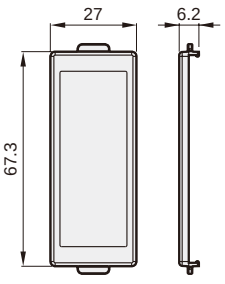
Front protective lid + Panel adapter **MP-C4**



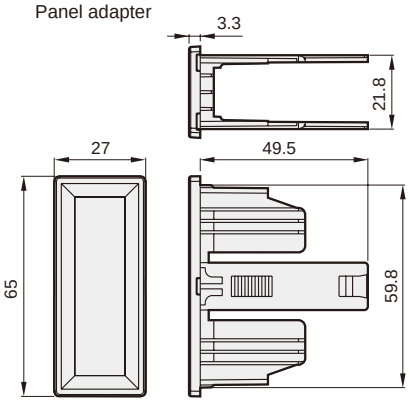
Panel cut dimensions



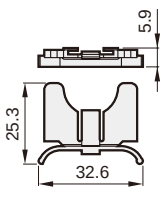
Front protective lid



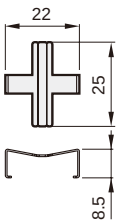
Panel adapter



Panel adapter



Panel adapter



MFP01 series

FLOW & PRESSURE SENSOR



Feature

- Cost control, User-friendly, High performance.
- Dry air, N_2.
- RS-485 MODBUS control.
- 2-in-1 design: Pressure and flow rate simultaneous monitoring.
- Accumulated flow rate display at a glance.
- Multiple output function: Digital display, switch output, analog output, accumulated pulse output.
- Wide range of flow rates.

Specification

Model				005	010	050	100	500	101	201
Fluid				Dry air, N_2, Non-corrosive / Non-flammable gas						
Sensor element	Flow	Measured flow rate range		0 ~ 500 mL/min	0 ~ 1000 mL/min	0 ~ 5 L/min	0 ~ 10 L/min	0 ~ 50 L/min	0 ~ 100 L/min	0 ~ 200 L/min
		Flow direction		Unidirection						
	Pressure	Rated pressure range		-90 ~ 800 kPa						
Display	Display			4 digital × 4 digital, 7 segment LCD display (Red / Green / Orange)						
	Instant flow rate	Display range		0 ~ 525 mL/min	0 ~ 1050 mL/min	0 ~ 5.25 L/min	0 ~ 10.50 L/min	0 ~ 52.5 L/min	0 ~ 105.0 L/min	0 ~ 210 L/min
		Min. setting scale	LPM	1 mL/min		0.01 L/min		0.1 L/min		1 L/min
			CFM *1	0.01 ft^3/min		0.1 ft^3/min		1 ft^3/min		
	Accumulated Flow	Display range		99999999 mL		999999.99 L		9999999.9 L		99999999 L
		Min. Setting Scale *1		1 mL		0.01 L		0.1 L		1 L
				0.01 ft^3		0.1 ft^3		1 ft^3		
	Pressure Display	Display range		-100 ~ 1000 kPa						
		Min. Setting Scale	kPa	1						
			kgf/cm^2	0.01						
			bar / psi	0.01 / 0.1						
Accuracy	Flow	Guaranteed range		2 ~ 100 % F.S.						
		Indicator accuracy		± 3 % F.S. ± 1 digit *2						
		Analog output accuracy		± 5 % F.S. *2						
		Repeatability		± 1 % F.S. ± 1 digit *3						
		Linearity		± 3 % F.S. *3						
		Temp. characteristic		± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C, 35~ 50 °C) (compare with *3)						
		Pressure characteristic		± 5 % F.S. ± 1 digit *4						
	Pressure	Guaranteed range		0 ~ 100 % F.S.						
		Indicator accuracy		± 2 % F.S. ± 1 digit *5						
		Analog output accuracy		± 2.5 % F.S. *5						
		Repeatability		± 0.2 % F.S. ± 1 digit *5						
		Linearity		± 1 % F.S. *5						
		Temp. characteristic		± 2 % F.S. (compare with *5)						

(Continued)

MFP01 Specifications

FLOW & PRESSURE SENSOR

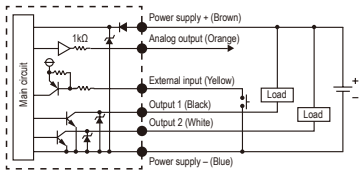
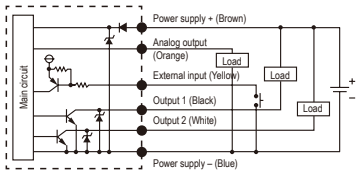
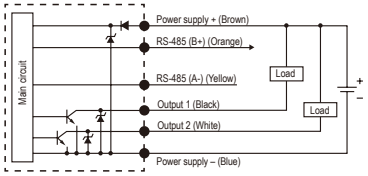
mindman

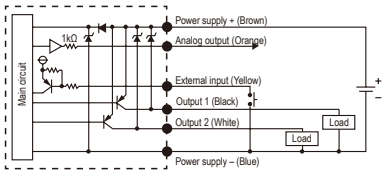
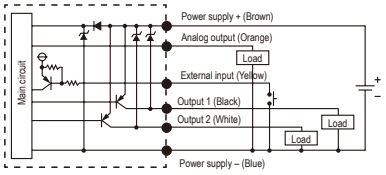
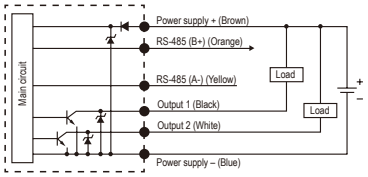
Specification

Model			005	010	050	100	500	101	201
Switch output	Switch output		2 NPN : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 28 V DC Voltage Drop : ≤ 1.5 V			2 PNP : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 24 V DC Voltage Drop : ≤ 1.5 V			
	Response time	Flow	800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms selectable)						
		Pressure	2.5 ms (25 ms, 100 ms, 250 ms, 500 ms, 1000 ms, 1500 ms selectable)						
	Output mode	Flow	Hysteresis Mode, Window Comparator Mode, Accumulated Output, Accumulated Pulse Output						
		Pressure	One Point Set Mode, Hysteresis Mode, Window Comparator Mode						
	Hysteresis		Adjustable						
	Output short circuit proterction		Yes						
	Accumulated pulse output *1		5 mL/Pulse	10 mL/Pulse	0.05 L/Pulse	0.1 L/Pulse	0.5 L/Pulse	1 L/Pulse	2 L/Pulse
			0.02 ft^3/Pulse	0.04 ft^3/Pulse	0.2 ft^3/Pulse	0.4 ft^3/Pulse	2 ft^3/Pulse	4 ft^3/Pulse	7 ft^3/Pulse
Analog output	Voltage output		Voltage output range : 1 ~ 5 V *6 ; Output impedance : 1 KΩ						
	Current output		Current output range : 4 ~ 20 mA *6 ; Load impedance : ≤ 300 Ω						
	Response time		Pressure : ≤ 50 ms ; Flow : ≤ 100 ms						
External input			Non-voltage input, < 0.4 V, ≥ 30 ms						
Communication interface			RS-485 *7						
Power	Power supply voltage		12 ~ 24 V DC ± 10 %, Ripple (P-P) ≤ 10 %						
	Current consumption		≤ 50 mA						
Environment	Withstand Pressure		1000 kPa						
	Enclosure		IP40						
	Working Fluid Temp.		0 ~ 50 °C (No condensation or freezing)						
	Ambient Temp. Range		Operation : 0 ~ 50 °C ; Storage : -10 ~ 60 °C (No condensation or freezing)						
	Ambient Humidity Range		Operation / Storage : 35 ~ 85 % R.H. (No condensation)						
	Insulation Resistance		≥ 50 MΩ (500 V DC, between case and lead wire)						
	Withstand Voltage		1000 V AC in 1-min (between case and lead wire)						
	Vibration		Total amplitude 1.5 mm or 10 G, 10 Hz ~ 55 Hz ~ 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z						
	Shock		100 m/s² (10 G), 3 times each in direction of X, Y and Z						
	EMC		IEC 61000-6-2, IEC 61000-6-4						
Lead wire			ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm^2) - 6 cores						
Port Size	R6, F1C		●	●	●	●	●		
	R8, F4C							●	●
Weight (with 2 meter lead wire)			Approx. 109.3 g (ø6 port) ; Approx. 112.7 g (ø8 port) ; Approx. 118 g (Rc1/4" port) ; Approx. 128.5 g (Rc1/8" port)						

*1. When the display unit is CFM, ft^3, the actual flow is the display value×10^{-2}.
*2. Condition: Inlet pressure: 300 kPa , Outlet pressure: 1 atmospheric pressure, 25 °C
*3. Condition: Outlet pressure: 1 atmospheric pressure, 25 °C
*4. -90 ~ 800 kPa, Outlet pressure: 1 atmospheric pressure, 25 °C
*5. Outlet flow rate = 0 L/min, 25 °C
*6. PWM output, corresponding to pressure sensor 0 ~ 1000 kPa
*7. This function only available for Output Specification -02 and -04

Output circuit wiring graph

Model	MFP01-□-010	MFP01-□-011	MFP01-□-02
Connect diagram			
Output method	NPN output / Analog voltage output / External input	NPN output / Analog current output / External input	NPN output / RS-485 MODBUS mode

Model	MFP01-□-030	MFP01-□-031	MFP01-□-04
Connect diagram			
Output method	PNP output / Analog voltage output / External input	PNP output / Analog current output / External input	PNP output / RS-485 MODBUS mode

* Procedure to wiring RS485 products : To prevent product damage due to short circuit , MUST do RS485 line conneciton BEFORE power line connection.

Order example

MFP01 – 005 – 010 – R6

MODEL

FLOW RATE RANGE

005: 500 (ml/min)
010: 1000 (ml/min)
050: 5 (l/min)
100: 10 (l/min)
500: 50 (l/min)
101: 100 (l/min)
201: 200 (l/min)

OUTPUT SPEC.

010: 2 NPN output + Analog output 1 ~ 5 V
011: 2 NPN output + Analog output 4 ~ 20 mA
02 : 2 NPN output + RS485
030: 2 PNP output + Analog output 1 ~ 5 V
031: 2 PNP output + Analog output 4 ~ 20 mA
04 : 2 PNP output + RS485

PORT SIZE

R6: ø6 mm, for flow rate range 005, 010, 050, 100, 500.
R8: ø8 mm, for flow rate range 101, 201.
F1C: Rc1/8", with internal threads, for flow rate range 005, 010, 050, 100, 500
F4C: Rc1/4", with internal threads, for flow rate range 101, 201

Mounting accessories

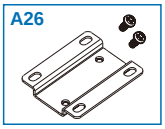
MP – A26

MODEL

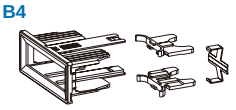
OPTION PARTS

A26: Mounting bracket
B4: Panel adapter
C4: Panel adapter + Front protective lid

A26



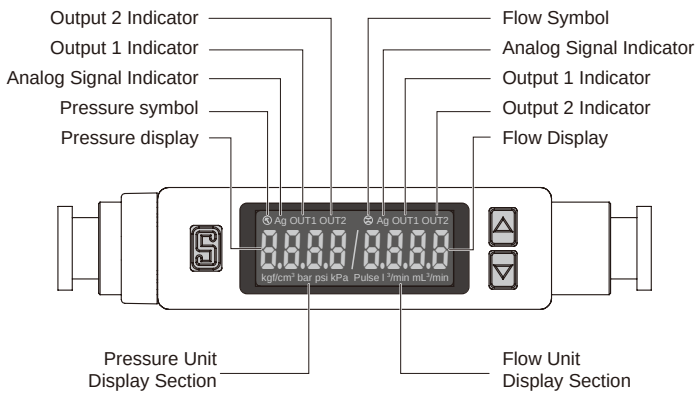
B4

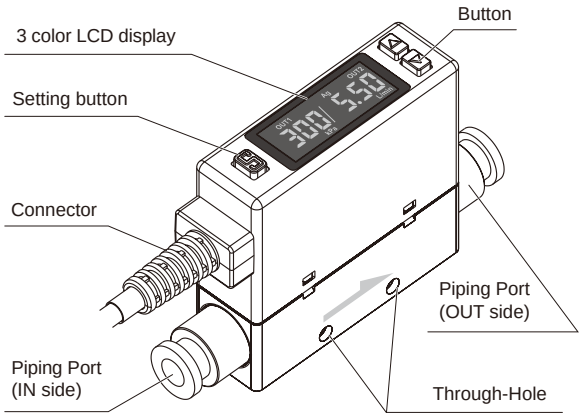


C4

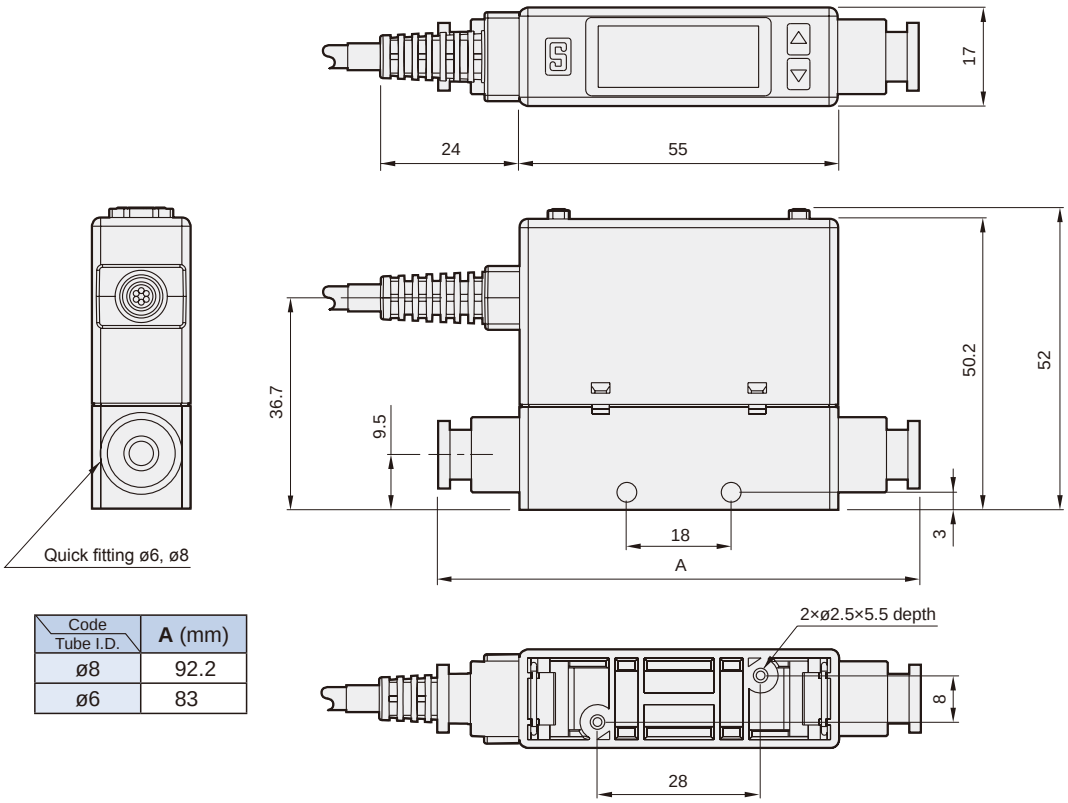


Name and functions of individual parts



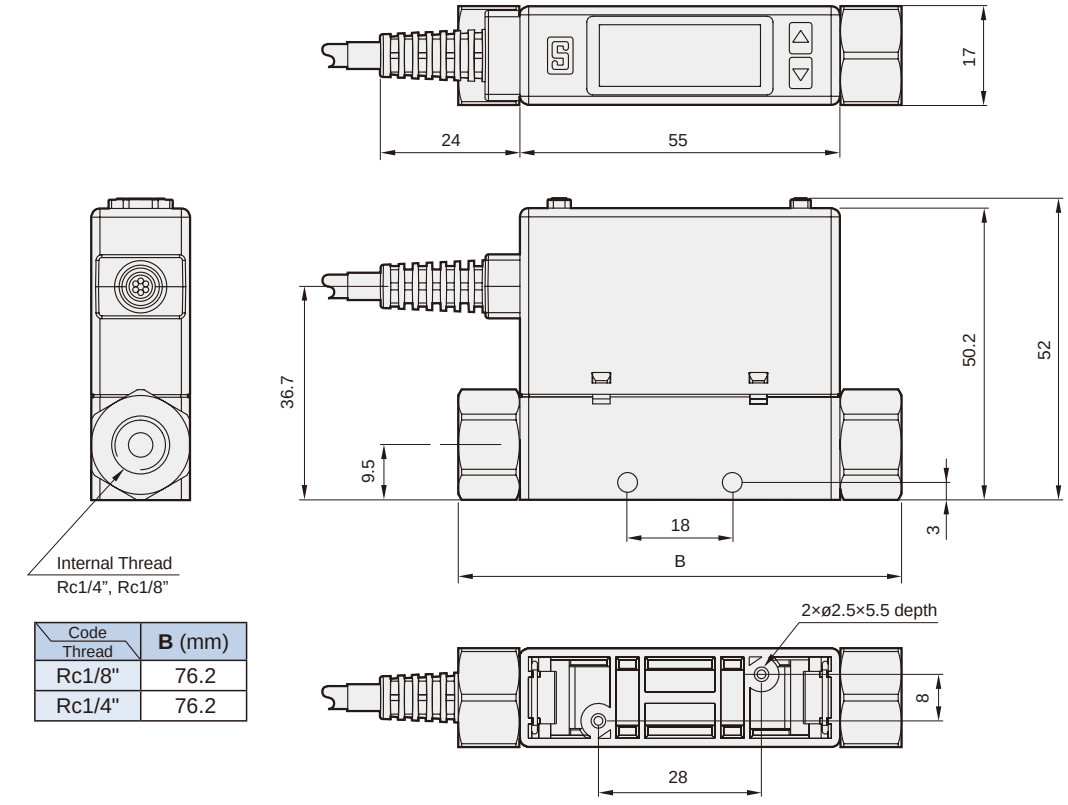


Port size
R6 (ø6)
R8 (ø8)



Code / Tube I.D.	**A** (mm)
ø8	92.2
ø6	83

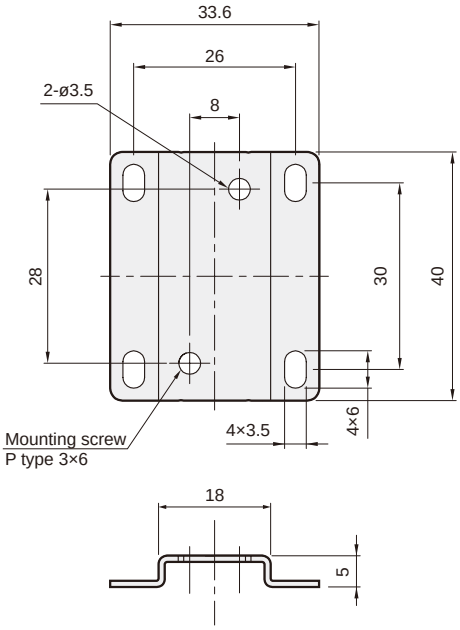
Port size
F1C (Rc1/8")
F4C (Rc1/4")

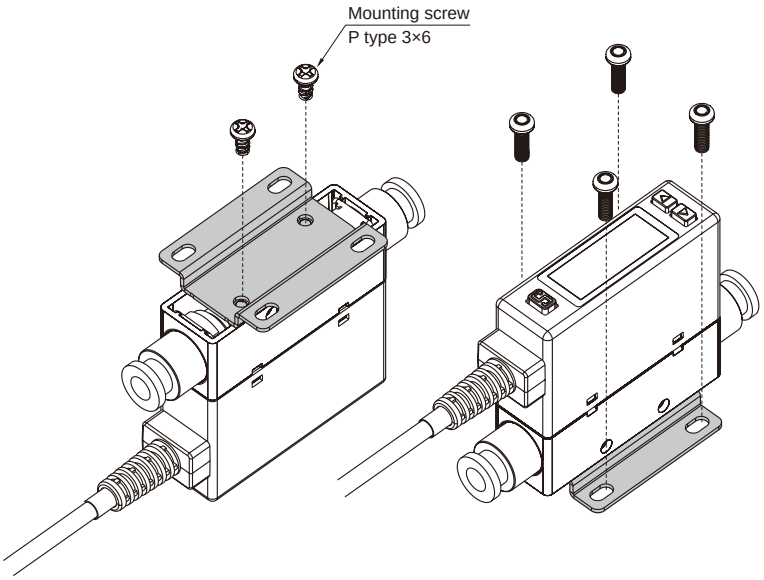


Code / Thread	**B** (mm)
Rc1/8"	76.2
Rc1/4"	76.2

Mounting bracket

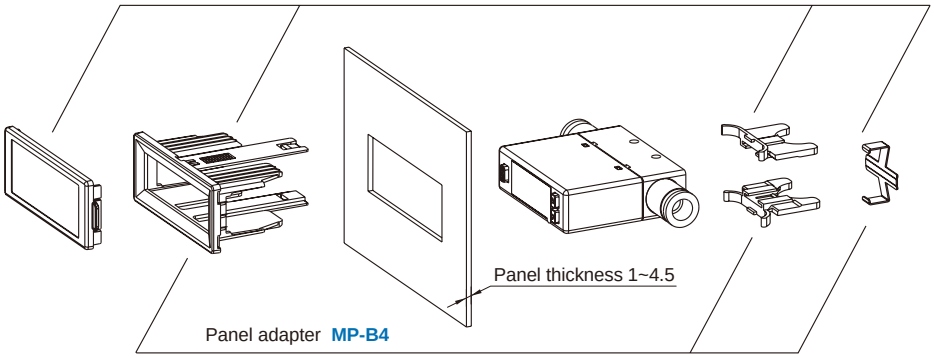
MP-A26



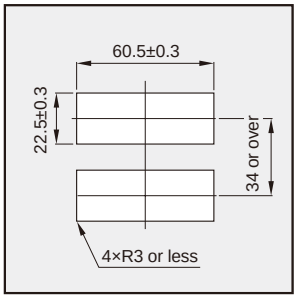


Panel type

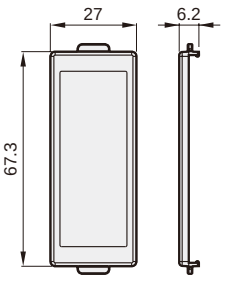
Front protective lid + Panel adapter **MP-C4**



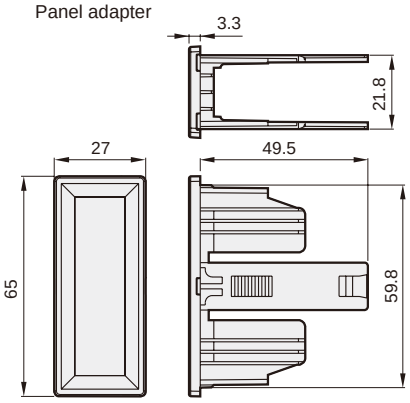
Panel cut dimensions



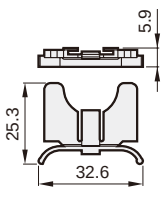
Front protective lid



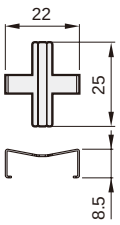
Panel adapter



Panel adapter



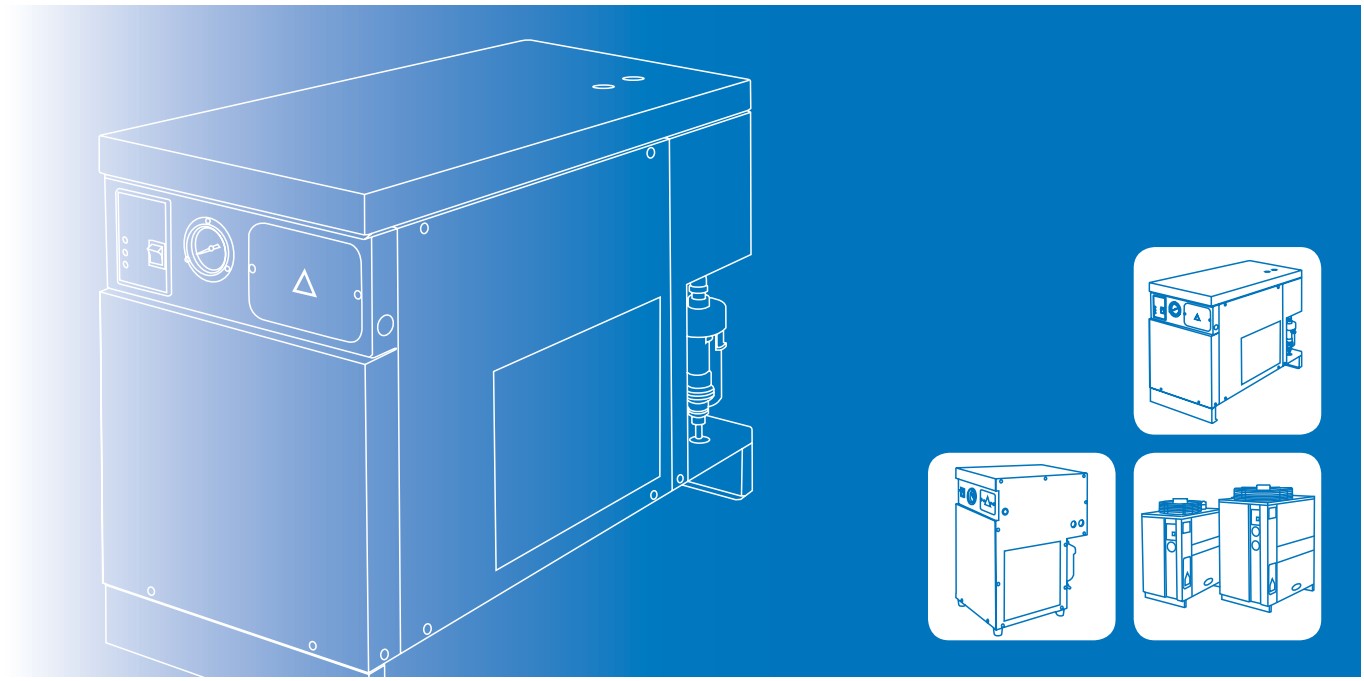
Panel adapter



MEMO

NOTE

COMPRESSED AIR DRYER



REFRIGERATION

MARD	05~08	6-2
	10~100	6-3
M2E	10~100	6-4



Features

- High thermal performance plate type heat exchangers.
- SUS304, corrosion resistance longer life.
- Eco-friendly HFCs. Reduce energy consumption also mitigating global warming damage.
- 3 in 1 heat exchanger, evaporator and molsture separator, low pressure drop.
- Fully automatic loading control by pressure switch and hot gas by-pass valve.
- External float auto drain, easy maintenance and service.

Specification

Model	MARD-05NP	MARD-08NP
Max. capacity (Nm^3/min)	0.8	1.2
Connection (inch)	Rc1/2	Rc1/2
Power supply	220V/1ø/60Hz	
Consumption (kw) ±5%	0.35	
Refrigerant	R134a	
Dimension (mm)	L420×W320×H525	
Net weight (kg)	24	25

Correction factor

Working pressure (MPa)	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Correction factor (Fp)	0.8	0.88	0.94	1.0	1.04	1.06	1.09
Inlet temperature(°C)	50	55	60	65	70		
Correction factor (Fti)	1.0	0.95	0.85	0.72	0.58		
Ambient temperature (°C)	30	38	40	45	50		
Correction factor (Fta)	1.1	1.0	0.9	0.79	0.63		
Dew point (°C)	3	5	7	10	15		
Correction factor (Ftd)	0.7	0.85	0.91	1.0	1.2		

Design condition

Capacity: @20°C 0.1 MPa (a)
Inlet temperature: 50°C
Working pressure: 0.7 MPa
Dew point: 10°C
Pressure drop: <0.025 MPa
Ambient temperature: 38°C

Operating scope

Inlet temperature: 70°C max.
Ambient temperature: 2~50°C
Operating pressure range: 0.4~1.0 MPa

Remarks

Customize products available.

Formula

= Fp × Fti × Fta × Ftd

MARD series 10~100

REFRIGERATION COMPRESSED AIR DRYER

mindman



Features

- Multi-function controller one touch ON/OFF, additional operating status, and alarm indicator.
- Eco-friendly HFCs. Reduce energy consumption also mitigating global warming damage.
- SUS304, corrosion resistance avoid pollution.
- Fully automatic loading control by pressure switch and hot gas by-pass valve.
- Epoxy treatment for aluminum fin surface. Extended lifetime.
- 2 in 1 compact heat exchanger and evaporator design. Low pressure drop.
- Reverse tube and fin heat exchanger design high efficiency and save space.
- External float auto drain, easy maintenance. With spare manual valve.

Specification

Model	MARD-10NP	MARD-15NP	MARD-25NP	MARD-40NP	MARD-50NP	MARD-60NP	MARD-75NP	MARD-100NP
Max. capacity (Nm^3/min)	1.6	2.8	4.0	5.5	7.0	8.1	10.6	15.0
Connection (inch)	Rc1	Rc1	Rc1	Rc1 1/2	Rc1 1/2	Rc1 1/2	Rc2	Rc2
Power supply	220V/1ø/60Hz						380V/3ø/60Hz	
Ref. comp. (kw) ±5%	0.43	0.70	1.06	1.58	1.58	1.58	3.5	3.5
Refrigerant	R134a			R410a				
Dimension L W H (mm)	800 430 690		850 430 796	1150 530 856			1350 630 890	1500 630 890
Net weight (kg)	55	63	74	111	114	118	178	186

Correction factor

Working pressure (MPa)	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Correction factor (Fp)	0.8	0.88	0.94	1.0	1.04	1.06	1.09
Inlet temperature(°C)	50	55	60	65	70		
Correction factor (Fti)	1.0	0.95	0.85	0.72	0.58		
Ambient temperature (°C)	30	38	40	45	50		
Correction factor (Fta)	1.1	1.0	0.9	0.79	0.63		
Dew point (°C)	3	5	7	10	15		
Correction factor (Ftd)	0.7	0.85	0.91	1.0	1.2		

Design condition

Capacity: @20°C 0.1 MPa (a)
Inlet temperature: 50°C
Working pressure: 0.7 MPa
Dew point: 10°C
Pressure drop: <0.025 MPa
Ambient temperature: 38°C

Operating scope

Inlet temperature: 70°C max.
Ambient temperature: 2~50°C
Operating pressure range: 0.4~1.0 MPa

Remarks

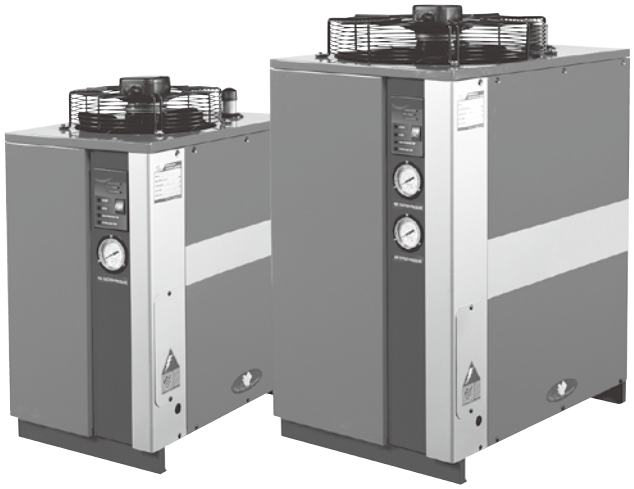
Customize products available.

Formula

= Fp × Fti × Fta × Ftd

M2E series 10~100

REFRIGERATION **COMPRESSED AIR DRYER**



Features

- The "FAN-UP" plus "TWO-IN-ONE" air-cooled precooler & condenser make better result in ventilation. Compact, state-of-the-art. (Screen mesh for precooler & condenser optional.)
- "TWO-IN-ONE" heat exchanger & evaporator plus multi-stage stainless steel water separator provide 99% water separation and 2~10 P.D.P., meets first compressed air quality class of ISO 8573.1.
- Manual - Electronic auto drain valve with screen mesh keeps you free from daily maintenance.
- Compact SCS mircoprocessor details the operation of dryer.
- Stainless steel air-side piping or high essure models optional.
- 0.02 MPa pressure drop helps energy saving.
- Reheating reversed air flow and sub-cooling design completely increase the cooling capacity by 20%.
- Environmental friendly refrigerant R-134 a partially adopted.

Specification

Model	M2E-10GP	M2E-15GP	M2E-25GP	M2E-40GP	M2E-60GP	M2E-75GP	M2E-100GP
Max. capacity (Nm³/min)	1.2	2.4	3.6	5.5	8.1	10.6	15
Connection (inch)	Rc3/4"	Rc1"	Rc1"	Rc1-1/2"	Rc1-1/2"	Rc2"	Rc2"
Power supply (50/60Hz)	220V/1ø					220V/3ø	
Ref. comp. (kw)	0.5	0.65	0.95	1.2	1.9	2.6	2.6
Operating current (A)	2.4	3	4.3	5	7.5	3.5	3.5
Full-load current (A)	2.75	3.35	4.9	5.7	8.7	4	4
Refrigerant	R134a			R-22			
Fan motor (W)	60	60	60	180	250	400	400
Dimension H (mm)	735	775	775	960	960	1050	1050
Dimension L (mm)	500	600	600	700	700	1020	1020
Dimension W (mm)	380	380	380	500	500	540	540
Net weight (kg)	40	50	54	83	93	127	173

Design condition

A. Working pressure: 0.7MPa	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Correction factor	0.63	0.75	0.87	1.00	1.06	1.12	1.17
B. Dew point : 10°C	2	5	> 10				
Correction factor	0.65	0.85	1.00				
C. Power source frequency : 60Hz	50	60					
Correction factor	0.83	1.00					
D. Ambient temperature: 38°C	42	40	< 38				
Correction factor	0.90	0.95	1.00				
E. Inlet temperature:60°C	80	70	< 60				
Correction factor	0.88	0.94	1.00				

Operating scope

Inlet temperature: 5~80°C (@60°C).
Ambient temperature: 2~42°C (@38°C).
Working pressure: ≤ 1.0MPa (@0.7MPa).
Dew point: 2~10°C (@10°C).

Remarks

- Design condition @60Hz:
  1. Ref. comp.(kw): @ET10°C, CT54°C.
  2. Operating current (A): @ET5°C,CT45°C.
  3. Full-load current (A): @ET10°C,CT54°C.
- Max. working pressure 1.0 MPa, high pressure available.
  H_1(1.1~2.0MPa) Designate NH_1P. ex: M2E-15NH_1P.
  H_2(2.1~3.0MPa) Designate NH_2P. ex: M2E-15NH_2P.
  H_3(3.1~4.0MPa) Designate NH_3P. ex: M2E-15NH_3P.
  H_4(4.1~5.0MPa) Designate NH_4P. ex: M2E-15NH_4P.
  PS: High pressure inlet temperature @42°C.
- M2E-08G differs from other models in design without explanation.

Formula

- Actual capacity =
  M2E capacity × (A×B×C×D×E)
- Corrected capacity =
  Demanded capacity ÷ (A×B×C×D×E)

Features

1. Control panel
- Logic controller, complete auto function and standard wiring.
- Complete automatic, no adjustment is required.

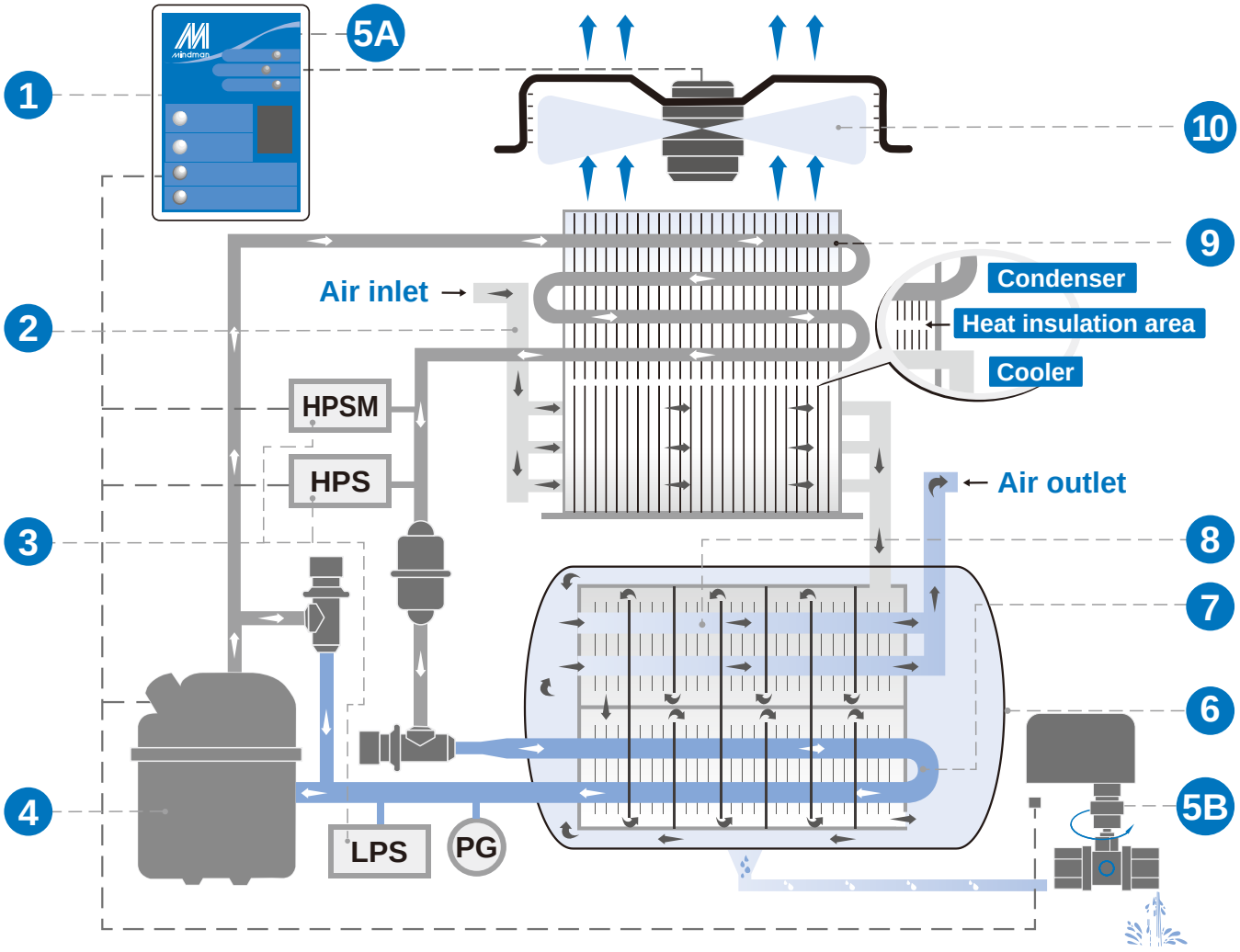
2. Pre-cooler
- Combined with air-to-refrigerant condenser by a heat insulation area. Compact of high technology.
- Excellent inlet air distribution results in high performance and low pressure drop.

3. Pressure control
- Pre-set type pressure switch (HPS&LPS) is used for better stability and fewer malfunctioning.
- Reset type high pressure switch (HPSM) is specially designed for models larger than M2E-75 to prevent compressor from overloading.

4. Refrigeration compressor
- Hermetic, High performance and efficiency.
- CE Certified.
- Class F, IP53.

5. Electronic drainage
- Timer control with manual drain test.
- Anti-blockage by a large ball valve.
- Driven by motor, no more coil burnt down concern.

6. Pressure vessel
- Stainless steel pressure vessel, antirust and life extend.
- Compact TWO-IN-ONE design:Air-to-air heat exchanger combined with evaporator.
- Leak test by high precision instrument, leakage free is guaranteed.
- CNS manufacturing standard;CE, ASME, CSQL standard upon request.



7. Evaporator

- Wave type aluminum fins with diversion plate increases the contact surface of air and refrigerant. The lower by-pass and higher cooling efficiency is easy to achieve.

8. Heat exchanger

- Thread type bronze tubes with aluminum fins and diversion plate plus Reversed-Channel design makes better cooling efficiency, higher outlet air temperature and lower energy consumption.

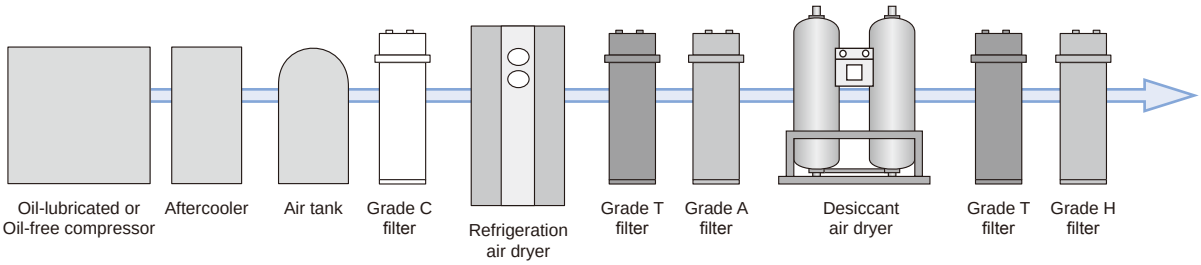
9. Condenser

- Large air intake area and Blow-Up design is greatly helpful for better heat rejection and good ventilation.

10. Fan motor

- Low noise, high speed, large flow and static pressure.
- CE Certified, IP54.

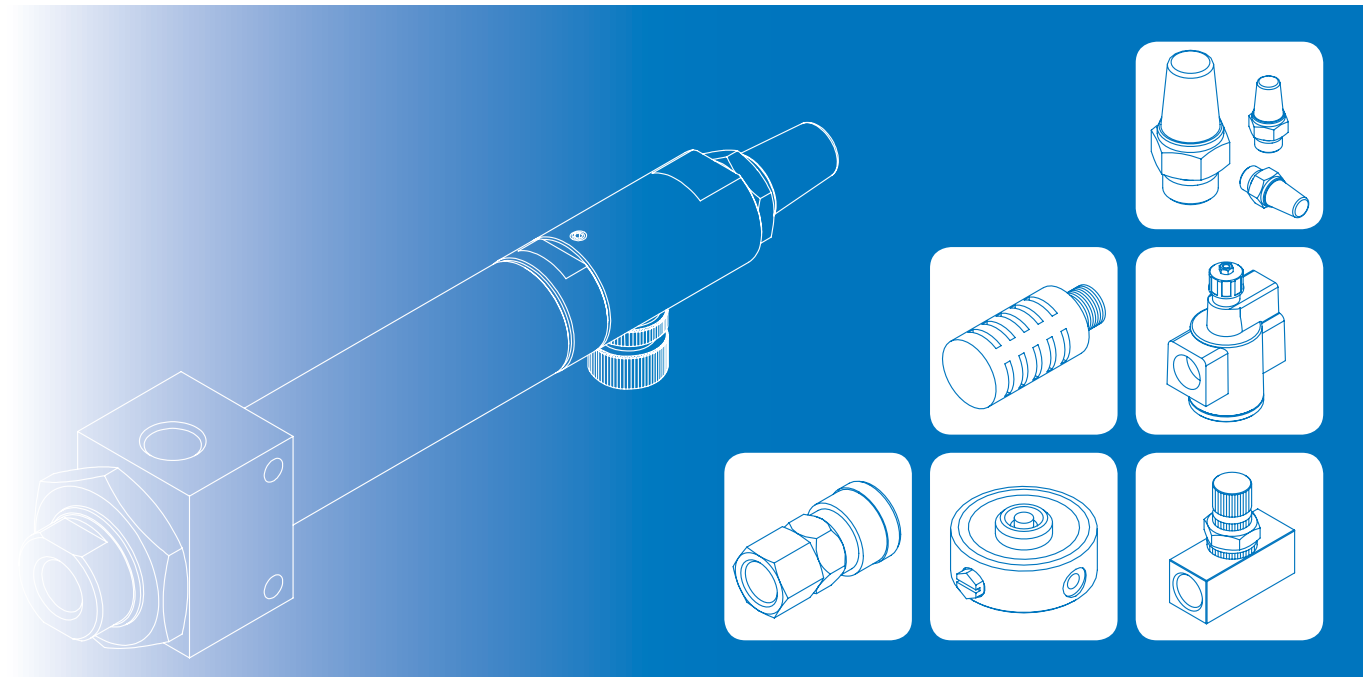
Application



MEMO

NOTE

AUXILIARY EQUIPMENT



EXHAUST CLEANER
MEF300 7-2

SILENCER
MSR* PLASTIC SILENCER 7-2
MSLE PLASTIC SILENCER 7-3
MSL BRASS SILENCER 7-4

CHECK VALVE
MJBV 7-4

SILENCER THROTTLE VALVE
MSLC2 7-4
MSLC 7-5

FLOW CONTROL VALVE
MSC 100 7-6
200 / 300 7-7
500 / 600 7-8

QUICK EXHAUST VALVE
MVQE 7-9

SHUTTLE VALVE
MVAS 7-11

SENSOR SWITCH
RDFE 7-12

CABLE WITH CONNECTOR
M8 M83R-F New 7-13
M12 M125R-WB New 7-14
M124R-FA New 7-15
M124R-MD / RJD New 7-16

CONNECTOR
M8 M83C-M New 7-17
M12 M124C-MA / MD New 7-18

PU TUBE
UM 7-19
UML 7-20

STAINLESS FITTING
MNS* 7-21

COUPLER
MS* SOCKET 7-22
MP* PLUG 7-23

JET COOLER
MJC 7-24

VACUUM GENERATOR
MVVA 7-27

MULTISTAGE VACUUM PUMP
MZL 112 7-30
212 7-33

NO CONTACT TRANSFER
MHPSC 7-35

MSR* series
PLASTIC SILENCER

MEF300 series
EXHAUST CLEANER





Order example

MSR01W — S

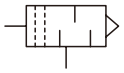
MODEL	01: R1/8 02: R1/4 03: R3/8	Blank: Black W: White	S: S type B: B type

Order example

MEF300 — 03

MODEL	03: Rc3/8

Symbol



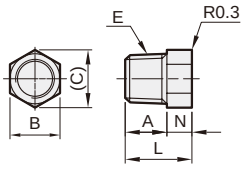
Specification

Model	MSR*
Medium	Air
Operating pressure range	0~0.9 MPa
Ambient temperature	0~+60°C

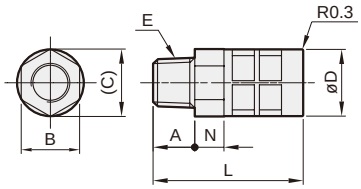
Specification

Model	MEF300
Port size	Rc3/8
Medium	Air
Operating pressure range	0~0.9 MPa
Filter element	6 μm
Ambient temperature	0~+60°C

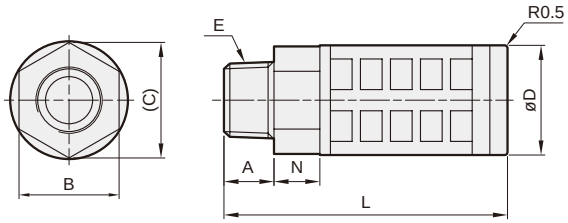
MSR01-S



MSR02-S

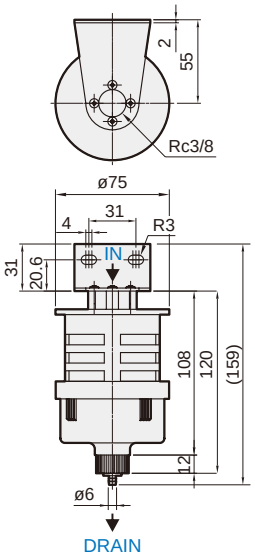


MSR*-B



Features

- The MEF300 can remove oil mist and dust in exhaust air for keeping environment clean.



MSR*-*

Model	Code / Port size	A	B	C	D	E	L	N
MSR01-S	R1/8	10	10	11.5	—	R1/8	16	6
MSR01-B	R1/8	7	14	16.2	16	R1/8	33	7
MSR02-S	R1/4	10	14	16.2	16	R1/4	36	7
MSR02-B	R1/4	10	17	19.6	20.3	R1/4	63	8.5
MSR03-B	R3/8	12	24	26.2	26.3	R3/8	67.5	11

MSLE series

PLASTIC SILENCER



Features

- Porous polyethylene moulded body allows high flow with low noise.
- Wide range of connecting threads available to screw into exhaust port of control valve.
- High noise reduction.

■ Significant noise reduction & high air flow

With double layer design, significant noise reduction and high air flow can be achieved at the same time.

■ Easy installation

With different adapter, silencers screw directly to the exhaust port.

■ High working pressures

Working pressures up to 1 MPa.

■ Chemical resistance

High chemical resistance & Rust free.

■ Maintenance free

Oil and water are not able to affect polyethylene silencers.

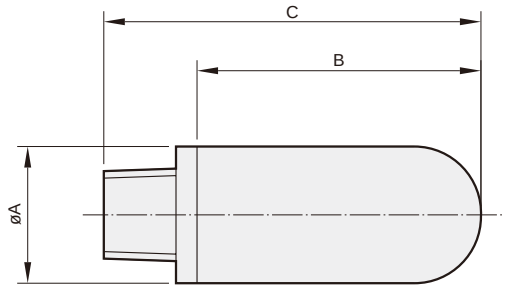
Order example

MSLE — 01— 70

- MODEL
- PORT SIZE
  - **01**: R1/8
  - **02**: R1/4
  - **03**: R3/8
  - **04**: R1/2
  - **06**: R3/4
  - **06D**: R3/4 (Double layer)
  - **08**: R1
- PORE SIZE
  - **70**: 70*μ*

Specification

Model	MSLE
Medium	Air
Operating pressure	1 MPa
Ambient temperature	0~+60°C



Model	Code / Port size	A	B	C
MSLE-01	R1/8	15.6	27.3	37.3
MSLE-02	R1/4	19	30.5	43.3
MSLE-03	R3/8	25	53	69
MSLE-04	R1/2	25	62.5	78.5
MSLE-06	R3/4	38	108.4	132.4
MSLE-06D	R3/4	50	107	127
MSLE-08	R1	50	107	139

- MSLE-04-70 means a R1/2 silencer with 70*μ* porous body.
- MSLE-06D-70 means a R3/4 double layer silencer with 70*μ* porous body.
- Port size out of specification is also available.

MSL / MSLC2 / MJBV series

BRASS SILENCER / SILENCER THROTTLE VALVE / CHECK VALVE



MSL-B

Model	A	CH	D1	D2	F	H	L	N
MSL-B-M5	M5	8	5	4	5	19	12	3
MSL-B-01	R1/8	12	8	7	6	24	14	4
MSL-B-02	R1/4	16	12	10	8	30	18	4
MSL-B-03	R3/8	18	14	11	9	35	21	5
MSL-B-04	R1/2	24	19	15	10	44	28	6
MSL-B-06	R3/4	30	25	20	10	50	32	8
MSL-B-08	R1	36	30	25	12	62	43	8

MSL-S

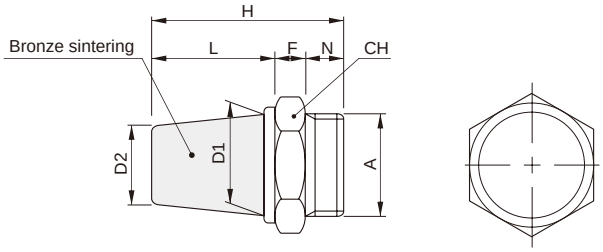
Model	A	CH	F	L	N
MSL-S-M5	M5	8	5	9.5	3
MSL-S-01	R1/8	12	6	12	4
MSL-S-02	R1/4	17	8	15	4
MSL-S-03	R3/8	19	9	17	5
MSL-S-04	R1/2	24	10	18.5	6
MSL-S-06	R3/4	30	10	21	8
MSL-S-08	R1	36	12	23	8

Order example

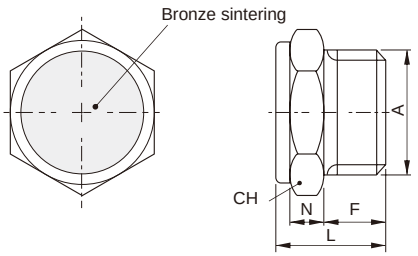
MSL — B — M5

- MODEL
- **S**: S type, **B**: B type
- PORT SIZE

MSL-B



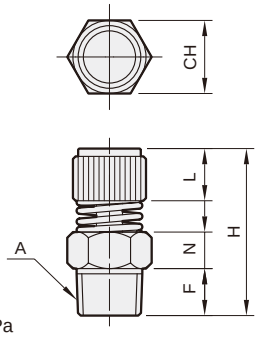
MSL-S



MSLC2-*

Silencer throttle valve





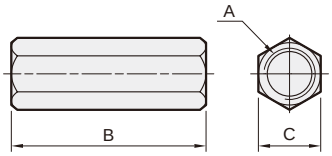
Operating pressure range: 0.1~0.7 MPa
Proof pressure: 1.5 MPa

Model	A	CH	F	H		L	N
				Min.	Max.		
MSLC2-01	R1/8	12	6	28	30	9	7
MSLC2-02	R1/4	14	9	31	35	10	7
MSLC2-03	R3/8	19	10	35.5	39	10	10
MSLC2-04	R1/2	22	10	36.5	40	10	10

MJBV-*

Check valve





Operating pressure range: 0.1~0.7 MPa
Proof pressure: 1.5 MPa

Order example

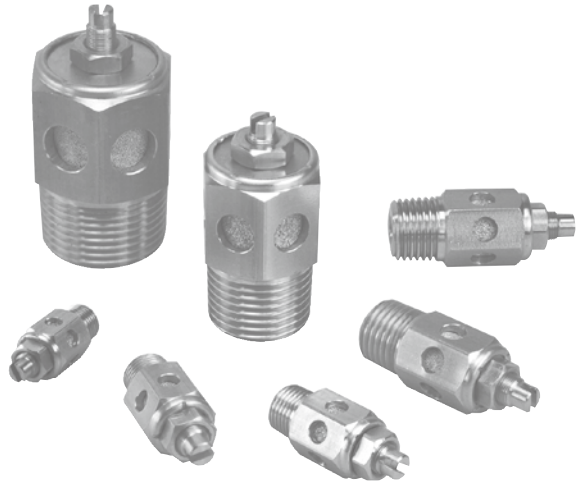
MJBV — 01 — □

- MODEL
- PORT SIZE
  - **01**: 1/8"
  - **02**: 1/4"
  - **03**: 3/8"
  - **04**: 1/2"
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Model	A	B	C
MJBV-01	1/8"	41	14
MJBV-02	1/4"	50	16
MJBV-03	3/8"	52	21
MJBV-04	1/2"	62.5	25

MSLC series

SILENCER THROTTLE VALVE



Specification

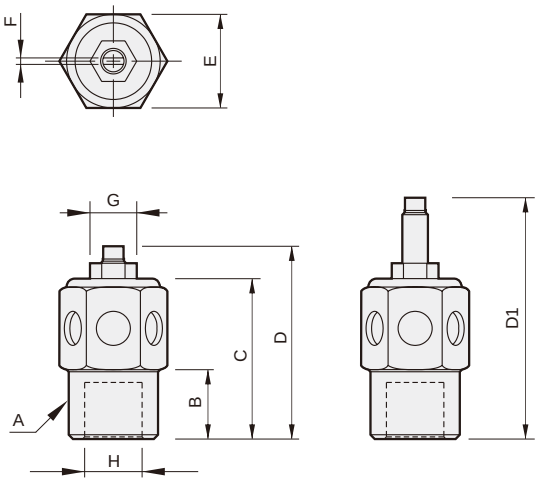
Model	MSLC					
Bore No.	01	02	03	04	06	08
Port size	1/8	1/4	3/8	1/2	3/4	1
Medium	Air					
Operating pressure	0~2.1 MPa					
Proof pressure	2.1 MPa					
Ambient temperature	+2~+140°C					
Weight (g)	18	30	44	72	119	188

Order example

MSLC — 02 — C — NPT

- MODEL
- PORT SIZE
  - **01**: 1/8
  - **02**: 1/4
  - **03**: 3/8
  - **04**: 1/2
  - **06**: 3/4
  - **08**: 1
- BODY MATERIAL
  - **C**: Brass (#C3604)
  - **S**: Stainless steel (#304)
- PORT THREAD
  - Blank: R thread
  - **G**: G thread
  - **NPT**: NPT thread

Dimensions



R thread

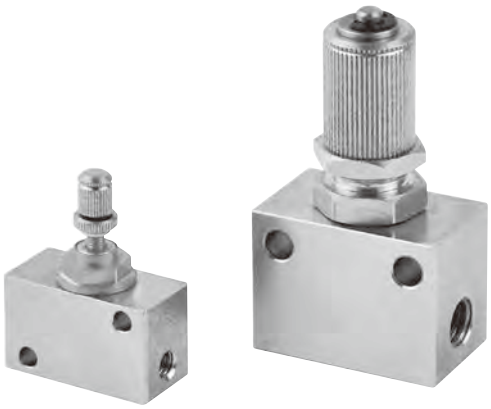
Code / Model	A	B ±0.20	C ±0.50	D ±0.50	D1 ±0.50	E ±0.20	F ±0.20	G	H ±0.20
MSLC-01	R1/8	6.9	21.0	28.3	37.2	12	1.2	9	3.5
MSLC-02	R1/4	10.5	28.5	37.0	48.0	14	1.2	9	5.0
MSLC-03	R3/8	12.5	30.0	38.4	50.0	17	1.2	11	7.0
MSLC-04	R1/2	16.0	37.7	45.3	56.7	22	1.2	11	9.5
MSLC-06	R3/4	16.9	42.5	50.4	67.3	27	1.2	11	13.0
MSLC-08	R1	20.3	46.6	54.5	70.2	34	1.2	11	17.5

G thread

Code / Model	A	B ±0.20	C ±0.50	D ±0.50	D1 ±0.50	E ±0.20 S.S #304	E ±0.20 Brass	F ±0.20	G	H ±0.20
MSLC-01	G1/8	5.3	21.0	28.3	37.2	12	12	1.5	9	5.2
MSLC-02	G1/4	8.6	28.5	37.0	48.0	17	16	1.5	9	5.2
MSLC-03	G3/8	10.6	30.0	38.4	50.0	19	18	1.5	11	9.4
MSLC-04	G1/2	14.1	37.7	45.3	56.7	24	24	1.5	11	13.4
MSLC-06	G3/4	14.1	42.5	50.4	67.3	30	30	1.5	11	17.5
MSLC-08	G1	17.6	46.6	54.5	70.2	36	36	1.5	11	22.6

NPT thread

Code / Model	A	B ±0.20	C ±0.50	D ±0.50	D1 ±0.50	E ±0.20	F ±0.20	G	H ±0.20
MSLC-01	NPT1/8	6.9	21.0	28.3	37.2	12	1.2	9	5.2
MSLC-02	NPT1/4	10.5	28.5	37.0	48.0	14	1.2	9	5.2
MSLC-03	NPT3/8	12.5	30.0	38.4	50.0	17	1.2	11	9.4
MSLC-04	NPT1/2	16.0	37.7	45.3	56.7	22	1.2	11	13.4
MSLC-06	NPT3/4	16.9	42.5	50.4	67.3	27	1.2	11	17.5
MSLC-08	NPT1	20.3	46.6	54.5	70.2	34	1.2	11	22.6



Specification

Model		MSC100	
Bore No.		M3	M5
Port size		M3×0.5	M5×0.8
Medium		Air	
Operating pressure range		0.1~0.7 MPa	
Proof pressure		1 MPa	
Ambient temperature		-5~+60°C (No freezing)	
Flow (ℓ/min)	Free flow	20	90
	Controlled flow	20	80
Number of needle rotations		6	8
Weight		3 g	34 g

* Supply pressure: 0.5 MPa, Temperature: 20°C

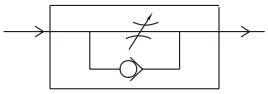
Order example

MSC100 — M5

MODEL

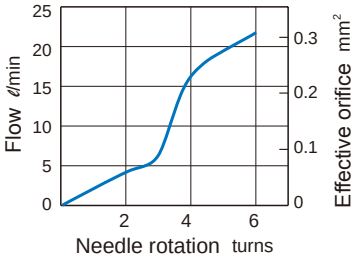
PORT SIZE
M3: M3×0.5
M5: M5×0.8

Symbol

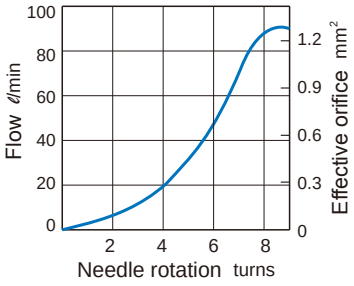


Flow features

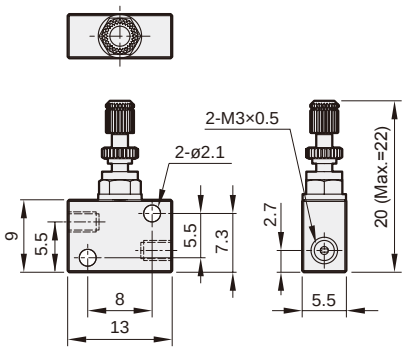
MSC100-M3



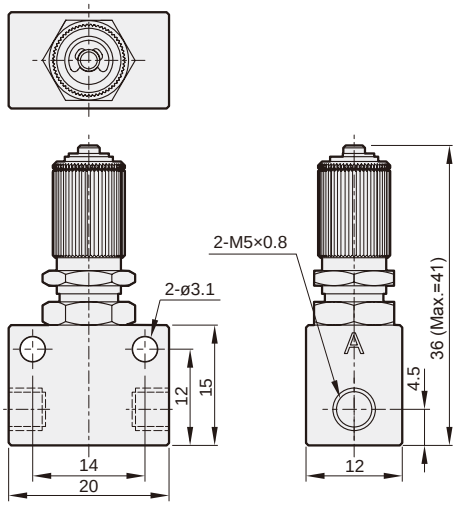
MSC100-M5



MSC100-M3

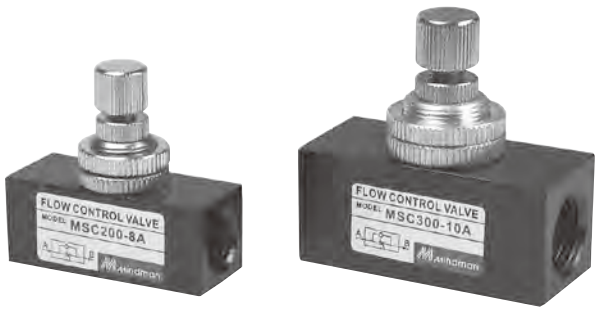


MSC100-M5



MSC200 / 300 series

FLOW CONTROL VALVE

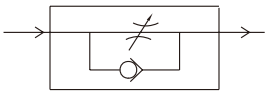


Specification

Model	MSC200		MSC300	
Bore No.	6A	8A	10A	15A
Port size	Rc1/8	Rc1/4	Rc3/8	Rc1/2
Medium	Air			
Operating pressure range	0~1 MPa			
Proof pressure	1.5 MPa			
Ambient temperature	-5~+60°C (No freezing)			
Flow (ℓ/min) Free flow	95	100	300	400
Flow (ℓ/min) Controlled flow	140	150	500	520
Number of needle rotations	8			
Weight	72 g		130 g	

* Supply pressure: 0.5 MPa, Temperature: 20°C

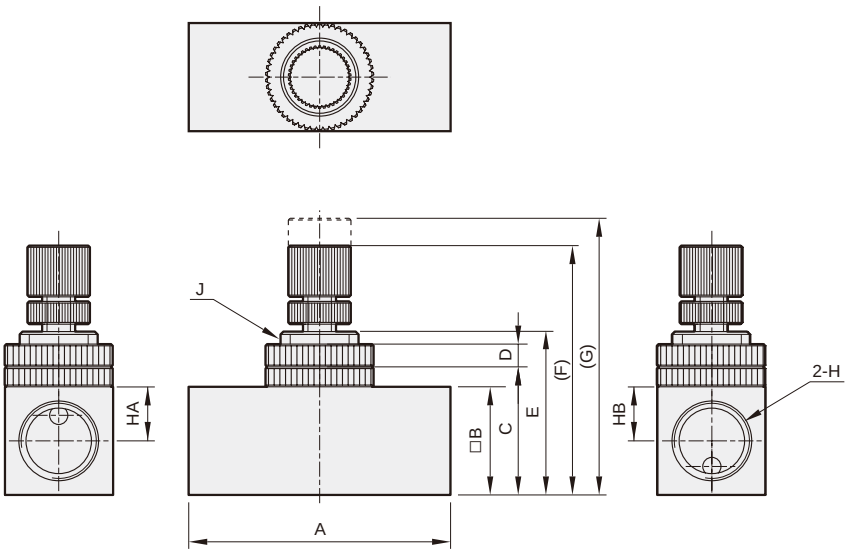
Symbol



Order example

MSC200 — 6A — G

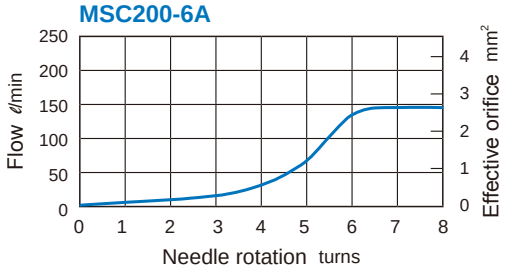
MODEL	PORT SIZE	PORT THREAD
MSC200 **MSC300**	**6A**: Rc1/8 **8A**: Rc1/4 **10A**: Rc3/8 **15A**: Rc1/2	Blank: Rc thread **G**: G thread **NPT**: NPT thread



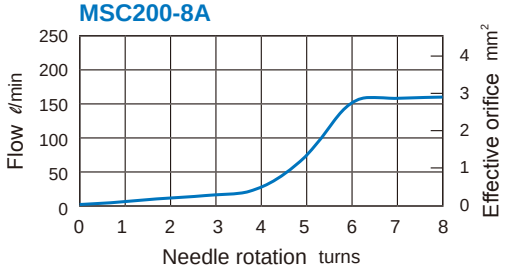
Code / Model		A	B	C	D	E	F	G	H	HA	HB	J
MSC200	6A	46	19	22.5	4	28.7	43.8	48.6	Rc1/8	10.3	11.3	M14×1.0
	8A	46	19	22.5	4	28.7	43.8	48.6	Rc1/4	10.3	10.3	M14×1.0
MSC300	10A	56	25.4	30	4	37	53.7	62.5	Rc3/8	13.8	13.8	M18×1.0
	15A	56	25.4	30	4	37	53.7	62.5	Rc1/2	12.7	12.7	M18×1.0

Flow features

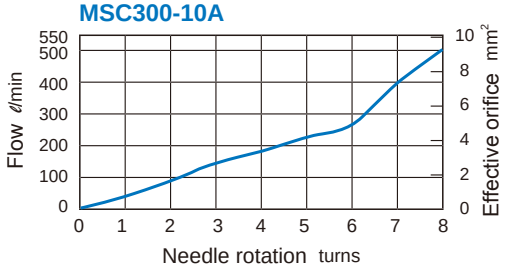
MSC200-6A



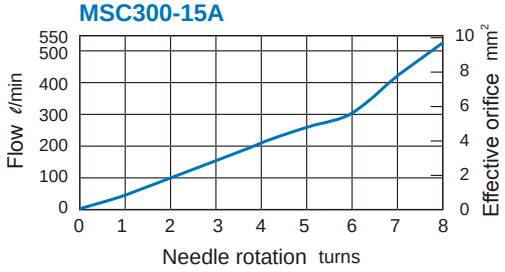
MSC200-8A



MSC300-10A



MSC300-15A





Specification

Model		MSC500		MSC600	
Bore No.		15A	20A	20A	25A
Port size		Rc1/2	Rc3/4	Rc3/4	Rc1
Medium		Air			
Operating pressure range		0~1 MPa			
Proof pressure		1.5 MPa			
Ambient temperature		-5~+60°C (No freezing)			
Effective orifice (mm^2)	Free flow	106	123	151	258
	Controlled flow	116	154	164	230
Weight		406 g	400 g	767 g	721 g

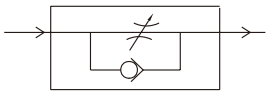
* Supply pressure: 0.5 MPa, Temperature: 20°C

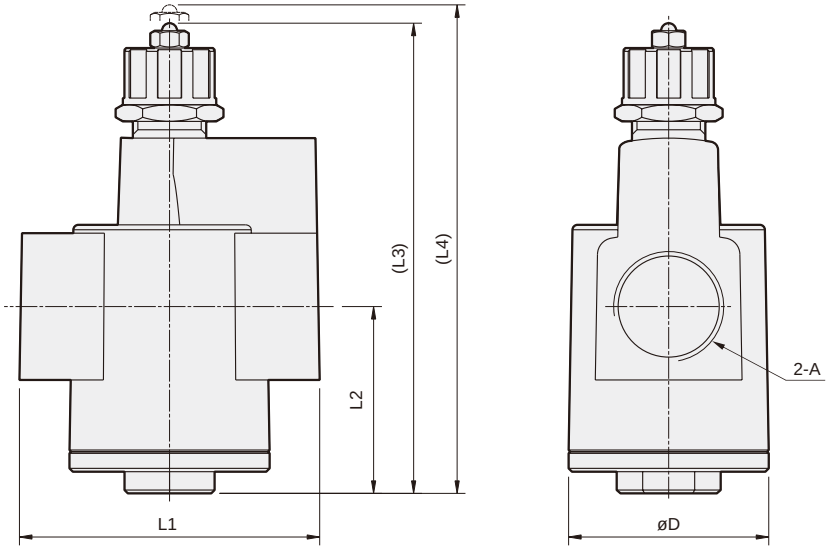
Order example

MSC500 — 20A — G

- MODEL
- PORT SIZE
  - **15A**: Rc1/2
  - **20A**: Rc3/4
  - **25A**: Rc1
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Symbol

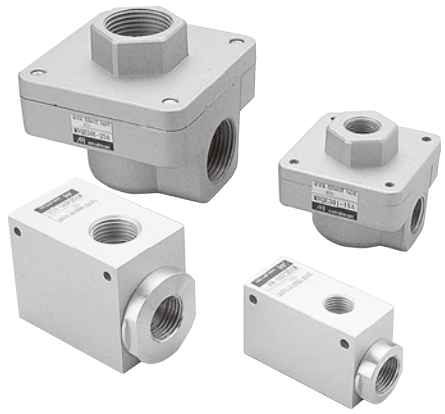




Code / Model		A	D	L1	L2	L3	L4
MSC500	15A	Rc1/2	48	74	43	105	115
	20A	Rc3/4	48	74	43	105	115
MSC600	20A	Rc3/4	60	90	56	148	158
	25A	Rc1	60	90	56	148	158

MVQE series

QUICK EXHAUST VALVE



Features

- This unit makes it possible to achieve increased piston speeds on the exhaust stroke with single acting and double acting cylinders.

Specification

Model	MVQE
Medium	Air
Operating pressure range	0.1~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)

Model	Port size	Effective orifice(mm^2)		Weight
		IN→OUT	OUT→EXH	
MVQE-100-6A	Rc1/8	9	19	40 g
MVQE-300-8A	Rc1/4	24	31	100 g
MVQE-300-10A	Rc3/8	25	33	80 g
MVQE-301-10A	Rc3/8	60	70	230 g
MVQE-301-15A	Rc1/2	110	110	212 g
MVQE-400-15A	Rc1/2	46	46	240 g
MVQE-501-20A	Rc3/4	135	180	765 g
MVQE-501-25A	Rc1	176	187	695 g

Order example

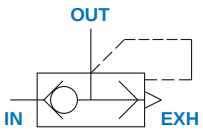
MVQE300 — 10A — G

- MODEL
- BODY SIZE
  - **1**: 1/8
  - **3**: 3/8
  - **4**: 1/2
  - **5**: 3/4
- STYLE
  - **0**: Lip (6A-15A)
  - **1**: Diaphragm (10A-25A)
- PORT SIZE

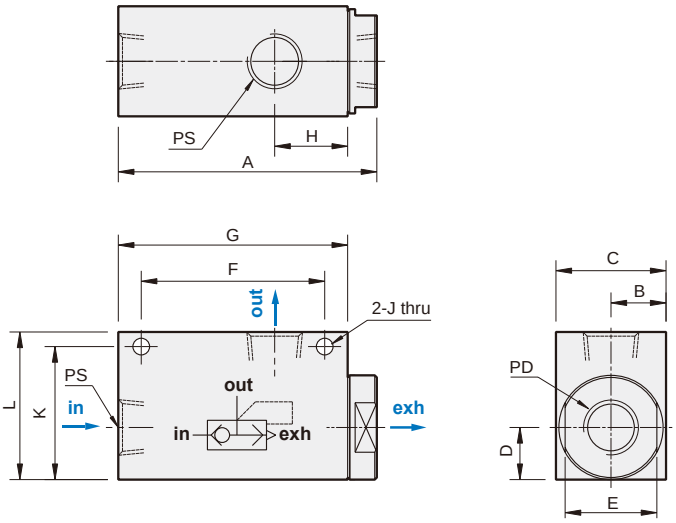
Port size		Applicable series
6A	Rc1/8	MVQE100
8A	Rc1/4	MVQE300
10A	Rc3/8	MVQE300, MVQE301
15A	Rc1/2	MVQE301, MVQE400
20A	Rc3/4	MVQE501
25A	Rc1	

- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Symbol

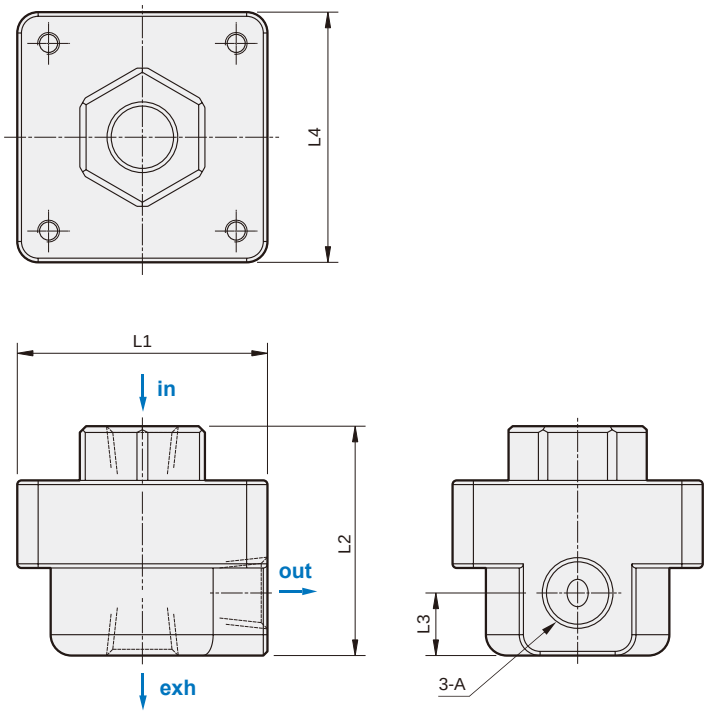


MVQE100/300/400



Code / Model		A	B	C	D	E	F	G	H	J	K	L	PS	PD
MVQE100	6A	40	8.25	16.5	9	14	26	35	12	ø3.4	22.6	26	Rc1/8	Rc1/8
MVQE300	8A	62	13.2	26.4	13	22	45	55	17.5	ø4	29.5	35.4	Rc1/4	Rc3/8
	10A	62	13.2	26.4	13	22	45	55	17.5	ø4	29.5	35.4	Rc3/8	Rc1/8
MVQE400	15A	69	20	40	20	36	51	62	20	ø4	46	52	Rc1/2	Rc1/2

MVQE301/501



Code / Model		A	L1	L2	L3	L4
MVQE301	10A	Rc3/8	60	55	15	60
	15A	Rc1/2	60	55	15	60
MVQE501	20A	Rc3/4	90	82.5	23	90
	25A	Rc1	90	82.5	23	90



Features

- This valve has two input inlets(E1,E2) and can be controlled in dirfferent position.
  First activated position can get through to output signal(A).

Specification

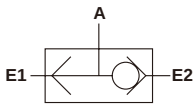
Model	MVAS	
Bore No.	6A	8A
Port size	Rc1/8	Rc1/4
Medium	Air	
Operating pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Effective orifice	11.5 mm^2	30.5 mm^2
Ambient temperature	-15~+60°C (No freezing)	
Weight	43 g	119 g

Order example

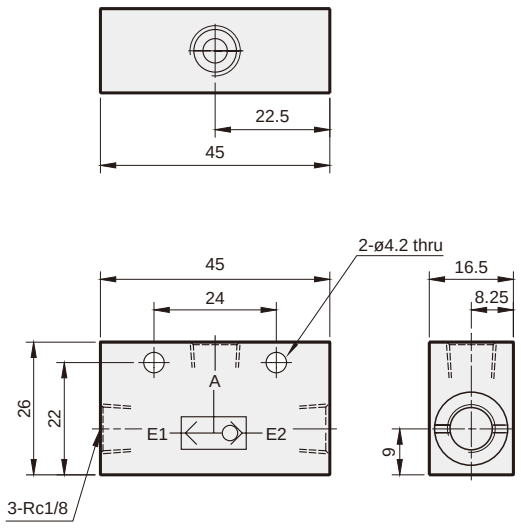
MVAS — 6A — G

MODEL	PORT SIZE	PORT THREAD
	6A: Rc1/8 **8A**: Rc1/4	Blank: Rc thread **G**: G thread **NPT**: NPT thread

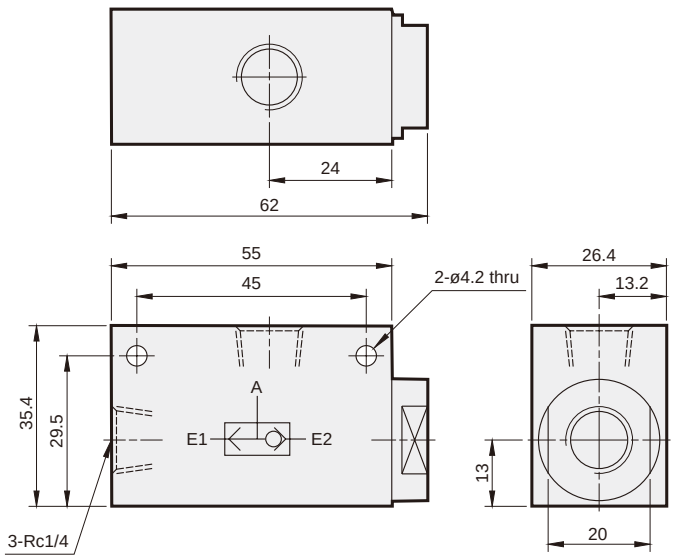
Symbol



MVAS-6A



MVAS-8A



RDFE series

SENSOR SWITCH





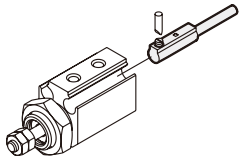
Order example

* Special order is available.

RDFE V — □

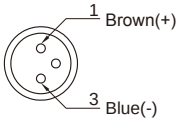
MODEL	AUTO SWITCH TYPE	WIRE LENGTH
RDFE: Non-contact **RNFE**: NPN **RPFE**: PNP	Blank: Straight cable **V**: Angle cable	Blank: L=2000mm **1M**: L=1000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector

Assembling style

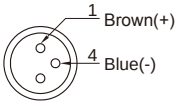
Cylinder type	Mounting clamp
MAM*, MCJU, MCFB, MCMJP, MCDJ, MSBE, MCRJ-S, MCRQ, MCRQ-S, MCHC-6, MCHD, MCHH, MCHU, MCHS, MCHX, MCHG2, MCHJ, MCHY, MEQI	

Wiring of the QD

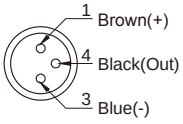
● 2 wire QD wiring



● 2 wire EQD wiring

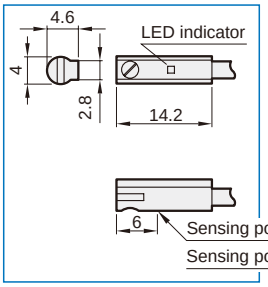


● 3 wire QD wiring



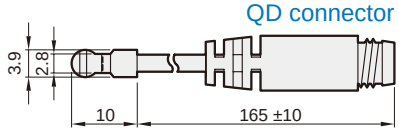
Dimension

Straight cable

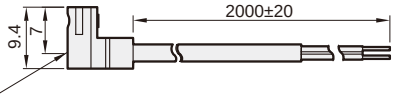


Angle cable

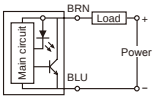
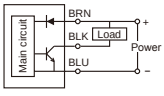
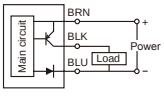
QD connector



Standard lead wire



Specification

Model	RDFE / RDFEV	RNFE	RNFEV	RPFE	RPFEV
Wiring method	2 wire	3 wire			
Switching logic	Solid state output, Normally open				
Switch type	Non-contact	NPN current sinking		PNP current sourcing	
Operating voltage	5~30V DC	5~30V DC		5~30V DC	
Switching current	50mA max.	50mA max.	80mA max.	50mA max.	80mA max.
Contact rating (*1)	1.5W max.	1.5W max.	2.2W max.	1.5W max.	2.2W max.
Current consumption	—	10mA @24V DC max.	6mA @24V DC max.	10mA @24V DC max.	6mA @24V DC max.
Voltage drop	3.5V max.	0.5V @ 50mA max.			
Leakage current	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED				
Cable	ø2.6, 2C, PVC	ø2.6, 3C, PVC			
Operating Frequency	1000 Hz				
Temperature range	–10~+70°C (No freezing)				
Shock (*2)	50G				
Vibration (*3)	9G				
Enclosure classification	IEC 60529 IP67				
Protection circuit (*4)	3, 4				
Weight	12.8 g (1m cable) / 23.8 g (2m cable)				
Connect diagram					

*1. Warning: Never exceed rating (watt=voltage×amperage). Permanent damage to sensor will occur.
*2. Sin wave / X.Y.Z. 3 directions / 3 times each direction / 11ms each time.
*3. Double amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X.Y.Z. 3 directions / 1 hour each time.
*4. 1=None / 2=Short-circuit / 3=Power source reverse polarity / 4=Surge suppression
*5. Caution for safety please refer to page 9-3~4.

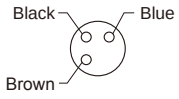
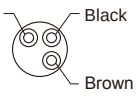
M83R-F series

CABLE WITH **CONNECTOR** / M8 (MALE) – M8 (FEMALE)

mindman



Specification

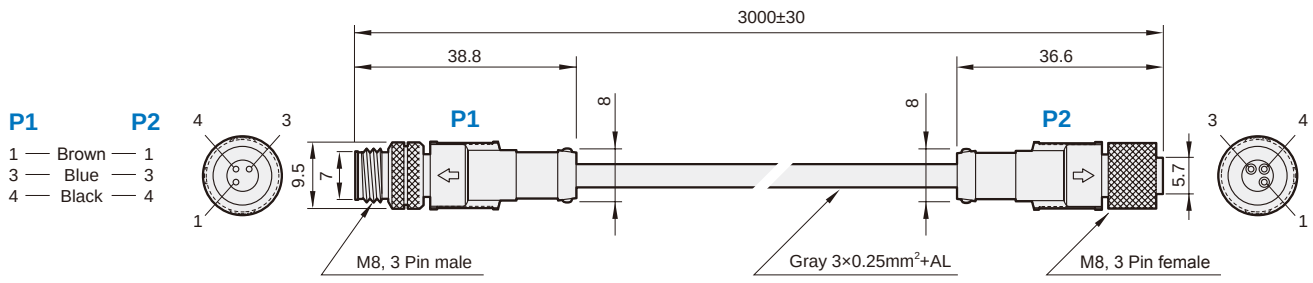
Model	M83R-F	
Male / Female pin out		
Number of contacts	3	3
Rated voltage	125V DC/AC	
Rated current	3A	
Contact material	Brass (Au plating)	
Contact bearer material	PVC	
Housing color	Gray	
Cable material	ø3.5, PVC	
Cable color	Gray	
Temperature	-20°C~+60°C (No freezing)	
Cable conductor	0.25mm^2 / 24AWG	
Protection class of contact	IP 67	

Order example

M83R — F — PVC — 3M

- MODEL — **M83**: M8, 3 Pin
- **F**: M8 (male) – M8 (female)
- CONNECTOR — **R**: Straight cable socket
- CABLE MATERIAL — **PVC**: ø3.5 PVC cable
- CABLE LENGTH — **3M**: 3000 mm

Dimension

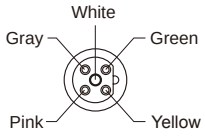


M125R-WB series

CABLE WITH **CONNECTOR** / M12 (FEMALE) – LEAD WIRE



Specification

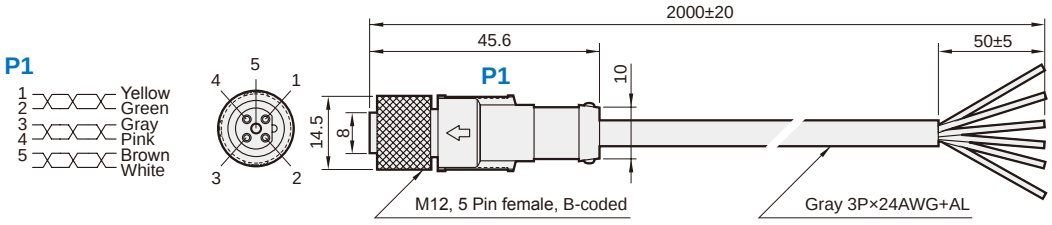
Model	M125R-WB
Female pin out	
Number of contacts	5
Rated voltage	125V DC/AC
Rated current	3A
Contact material	Brass (Au plating)
Contact bearer material	PVC
Housing color	Gray
Cable material	ø5.5, PVC
Cable color	Gray
Temperature	-20°C~+60°C (No freezing)
Cable conductor	0.25mm^2 / 24AWG
Protection class of contact	IP 67

Order example

M125R — WB — PVC — 2M

- MODEL — **M125**: M12, 5 Pin
- CONNECTOR — **R**: Straight cable socket
- **W**: M12 (female) – Lead wire
- **B**: B-coded
- CABLE MATERIAL — **PVC**: ø5.5 PVC cable
- CABLE LENGTH — **2M**: 2000 mm

Dimension

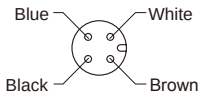
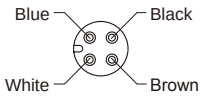


M124R-FA series

CABLE WITH CONNECTOR / M12 (MALE) – M12 (FEMALE)



Specification

Model	M124R-FA	
Female pin out		
Number of contacts	4	4
Rated voltage	125V DC/AC	
Rated current	3A	
Contact material	Brass (Au plating)	
Contact bearer material	PVC	
Housing color	Gray	
Cable material	ø4.2, PVC	
Cable color	Gray	
Temperature	-20°C~+60°C (No freezing)	
Cable conductor	0.34mm^2 / 22AWG	
Protection class of contact	IP 67	

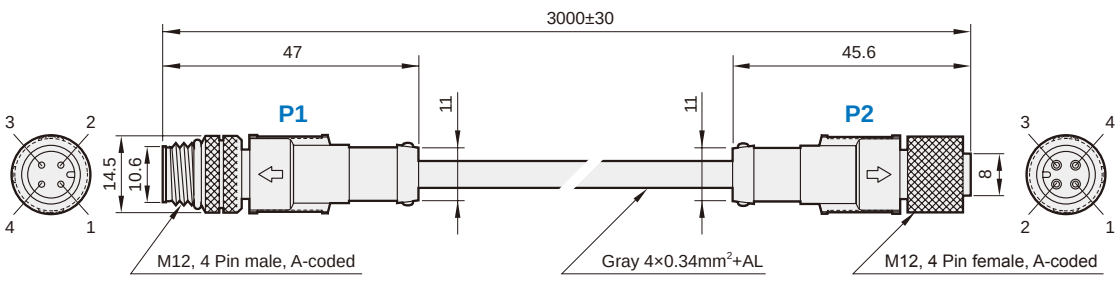
Order example

M124R — FA — PVC — 3M

- MODEL
  - **M125**: M12, 4 Pin
- CONNECTOR
  - **R**: Straight cable socket
- **F**: M12 (male) – M12 (female)
- **A**: A-coded
- CABLE MATERIAL
  - **PVC**: ø4.2 PVC cable
- CABLE LENGTH
  - **3M**: 3000 mm

Dimension

P1		P2
1	Brown	1
2	White	2
3	Blue	3
4	Black	4



M124R-*D series

COMMUNICATION CABLE (EtherNet/IP)



Specification

Model	M124R-RJD		M124R-MD	
Female pin out		 RJ45		
Number of contacts	4	8	4	4
Rated voltage	30V DC/AC			
Rated current	0.5A			
Contact material	Brass (Au plating)			
Contact bearer material	PVC			
Housing color	Gray			
Cable material	ø4.5, PVC			
Cable color	Gray			
Temperature	-20°C~+60°C (No freezing)			
Cable conductor	0.14mm^2 / 26AWG			
Protection class of contact	IP67	IP20	IP67	

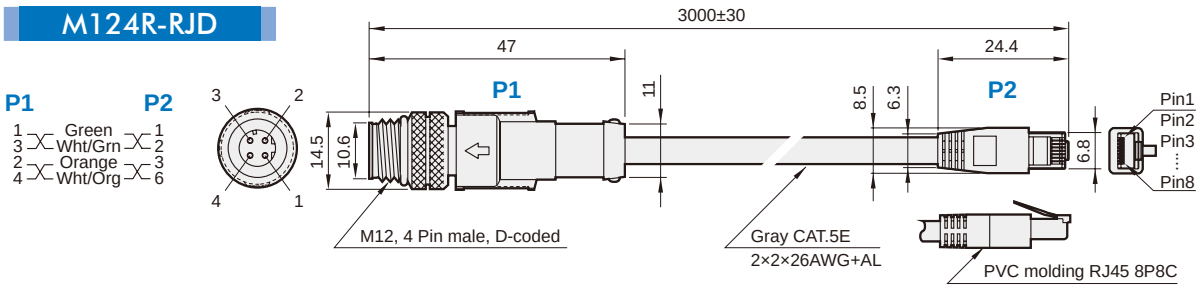
Order example

M124R — RJD — PVC — 3M

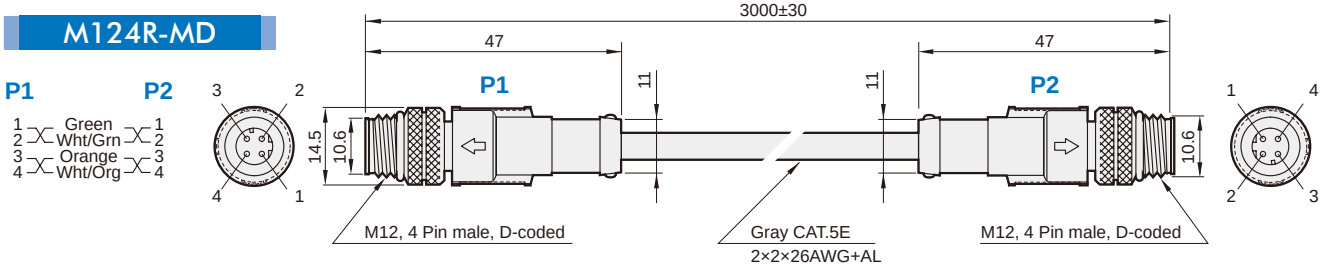
- MODEL
  - **M124**: M12, 4 Pin
- CONNECTOR
  - **R**: Straight cable socket
- **RJ**: M12(male) – RJ45
  M : M12(male) – M12(male)
- **D**: D-coded
- CABLE MATERIAL
  - **PVC**: ø4.5 PVC cable
- CABLE LENGTH
  - **3M**: 3000 mm

Dimension

M124R-RJD



M124R-MD



M83C-M series

CONNECTOR / M8 (MALE)



Specification

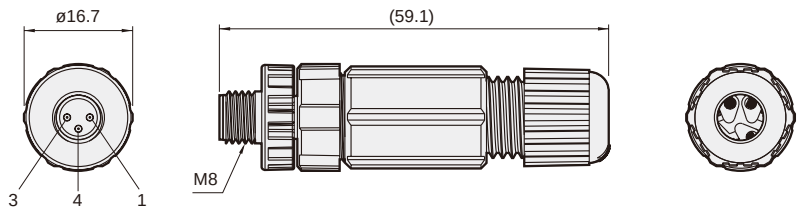
Model	M83C-M
Male pin out	
Number of contacts	3
Rated voltage	60V DC/AC
Rated current	5A
Temperature	-40°C~+105°C (No freezing)
Protection class of contact	IP 67
Suitable for AWG	20~26AWG
Seals for cable OD	ø4.5 mm ~ ø6.5 mm
Housing material	Nylon

Order example

M83 C – M

- M83 — MODEL
  - **M83**: M8, 3 Pin
- C — CONNECTOR
  - **C**: Straight cable
- M — **M**: M8 (male)

Dimension



M124C-M* series

CONNECTOR / M12(MALE)



Specification

Model	M124C-MA	M124C-MD
Male pin out		
Number of contacts	4	4
Code	A	D
Rated voltage	250V DC/AC	
Rated current	4A	
Temperature	-40°C~+105°C (No freezing)	
Protection class of contact	IP 67	
Suitable for AWG	22AWG	
Seals for cable OD	ø4 mm ~ ø8 mm	
Housing material	Nylon	

Order example

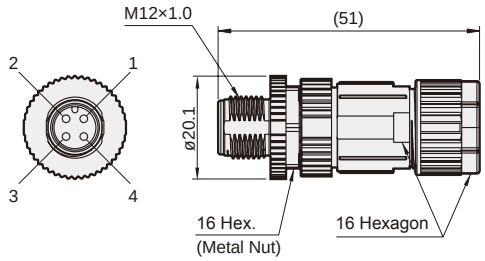
M124 C – M D

- MODEL
  - **M124**: M12, 4 Pin
- CONNECTOR
  - **C**: Straight cable
- **M**: M12 (male)
- **A**: A-coded
- **D**: D-coded

Dimensions

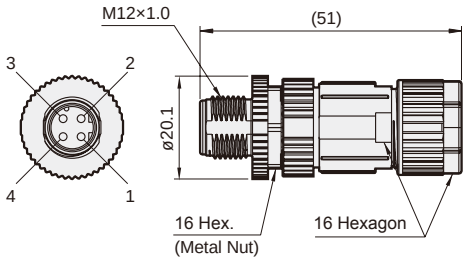
M124C-MA

A-coded



M124C-MD

D-coded





Specification

Model	UM*
Medium	Air
Max. operating pressure	116 psi (0.8 MPa)(65%RH at 20°C) (*1)
Working vacuum	−29.5in.Hg (−100 kPa)
Ambient temperature	−5~+140°F(−15~+60°C) (No freezing)

* 1. Max. operating pressure is the value at 65% RH at 20°C. When using on other temperatures. please take enough safety value judging from the burst pressure curve on the left. When the tube is applied to moving parts with vibration and bend, the temperature might rise due to self-heat generation due to molecule heat generation and lead to breakage of the tube.

Order example

UM0425 — 100 — B

- MODEL
- EACH ROLL (m)
- COLOR
  - **B**: Black
  - **BU**: Blue
  - **CB**: Transparent blue
  - **O**: Orange
  - **G**: Green
  - **Y**: Yellow
  - **R**: Red
  - **T**: Transparent

Mindman brand PU tube

Model	ID×OD (mm)	Each roll (m)	Available color
UM0425	2.5×4	100	B, BU, CB, O, G, Y, R, T
UM0640	4×6	100	B, BU, CB, O, G, Y, R, T
UM0850	5×8	100	B, BU, CB, O, G, Y, R, T
UM1065	6.5×10	100	B, BU, CB, O, G, Y, R, T
UM1280	8×12	100	B, BU, CB, O, G, Y, R, T

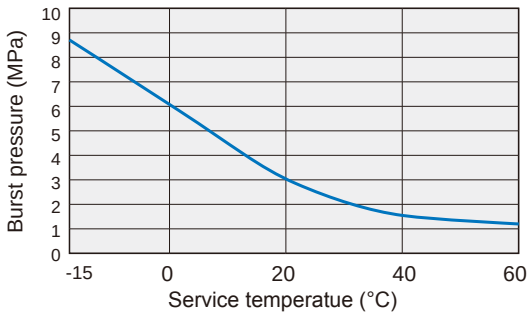
Available color

●Black(B), ●Blue(BU), ●Transparent blue(CB), ●Orange(O), ●Green(G), ●Yellow(Y), ●Red(R), ○Transparent(T)

Measurement of minimum bending radius and minimum mounting radius

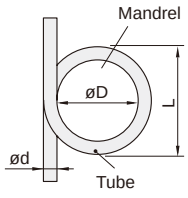
Model	Min.bending radius (mm)	Min.mounting radius (mm)	Weight (g/m)
UM0425	10	15	9
UM0640	15	23	19
UM0850	15	23	36
UM1065	20	30	54
UM1280	30	45	74

Burst pressure curve (Reference value)



Minimum bending radius (JIS method)

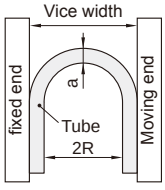
JIS method (based on JIS B8381)
The mandrel radius is measured when the tube is tightly wound around mandrel (round bar) and the deforming ratio becomes 25%.
Measurement condition: 20°C, 65%RH



$$N = 1 - \frac{L - D}{2d} \times 100$$

N=deforming ratio (%) standard value less than 25%
d=Tube diameter (mm)
L=Measurement amount (mm)
D=Mandrel diameter (mm)

Minimum mounting radius (Vice method)



- Fix the tube as shown on the left and bring moving end close to fixed end gradually.
- Measure R when "a" dimension deforms 25% from initial value.

UML series

PU TUBE-COILING TUBE

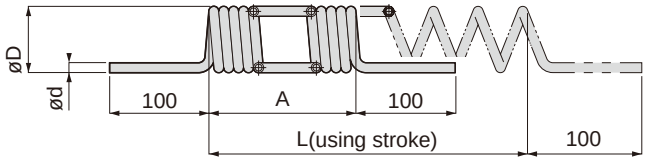


Specification

Model	UML
Medium	Air
Operating pressure range	0.8 MPa (20°C 65%RH) *1,2
Working vacuum	–100 kPa
Ambient temperature	−15~+60°C (No freezing)

*1. The value of max. operating pressure is measured at 20°C and 65%RH. When Tubes are used in different conditions, consider a safety ratio of the pressure with an enough margin, referring to Burst Pressure Curve.
*2. When Tubes are frequently swung and bent, there is a possibility of generating heat between molecules and damaging the products.

UML Polyurethane coiling tube



Model	ød	A	øD	L
UML03-1	3	70	16	210
UML03-2	3	150	16	450
UML03-3	3	230	16	700
UML03-5	3	390	16	1200
UML04-2	4	120	24	360
UML04-3	4	180	24	540
UML04-5	4	350	24	1100
UML04-7	4	480	24	1500
UML04-10	4	700	24	2100
UML04-14	4	1040	24	3200
UML04-20	4	1450	24	4400
UML06-2	6	160	30	500
UML06-3	6	230	30	700
UML06-5	6	430	30	1300
UML06-7	6	620	30	1900
UML06-10	6	910	30	2800
UML06-14	6	1300	30	3900
UML06-20	6	1850	30	5600
UML08-3	8	250	42	750
UML08-5	8	390	42	1200
UML08-7	8	540	42	1700
UML08-10	8	770	42	2400
UML08-14	8	1045	42	3200
UML08-20	8	1550	42	4700
UML10-5	10	330	58	1000
UML10-7	10	470	58	1400
UML10-10	10	680	58	2100
UML10-14	10	970	58	3000
UML10-20	10	1380	58	4200
UML12-5	12	310	72	1000
UML12-7	12	450	72	1400
UML12-10	12	660	72	2000
UML12-14	12	920	72	2800
UML12-20	12	1320	72	4000

Order example

UML — 06 — 10 — B

1 2 3 4

1. Name of tube

2. Tube dia.

Code	03	04	06	08	10	12
O.D. (mm)	ø3	ø4	ø6	ø8	ø10	ø12

3. Tube length

Code		1	2	3	5	7	10	14	20
Dimension(m)		1	2	3	5	7	10	14	20
Tube O.D.	ø3mm	○	○	○	○				
	ø4mm		○	○	○	○	○	○	○
	ø6mm		○	○	○	○	○	○	○
	ø8mm			○	○	○	○	○	○
	ø10mm				○	○	○	○	○
	ø12mm				○	○	○	○	○

4. Tube color

△ Make to order product

Code	B	R	O	YB	Y
Color	● Black	● Red	● Orange	● Ocher	● Yellow
UML	○	△	△	△	△
Code	G	BU	CB	C	W
Color	● Green	● Blue	● Clean blue	○ Transparent	○ Milky white
UML	△	△	△	△	△

MNS* series

STAINLESS SUS304 / 316 COMPRESSION FITTING



Features

- All materials are made of SUS304 / SUS316, which is highly resistant to corrosion, making this series suitable for not only chemical industries but also for airtight special environments (Medical, semiconductor, food, etc.)
- The tube insert part is tightened by a cap nut, ensuring a tight and stable tube.

Specification

Model	MNS*
Medium	Air, water
Max. pressure range	Depending on service range of tube
Working vacuum	−29.8in.Hg (−100 kPa)
Ambient temperature	Depending on service range of tube

Order example

MNSC 0425 — 01 — S

1 2 3 4

1. Model

2. Tube dia. (øO.D. / øI.D.) mm

Code	0420	0425	0640	0860	1080	1290	1210
O.D.	ø4	ø4	ø6	ø8	ø10	ø12	ø12
I.D.	ø2	ø2.5	ø4	ø6	ø8	ø9	ø10

Code	1/4	5/16	3/8	1/2
O.D.	ø6.35	ø7.94	ø9.53	ø12.7
I.D.	ø4.57	ø6	ø6.99	ø9.56

3. Thread size

Code	01	02	03	04
R	R1/8	R1/4	R3/8	R1/2
Rc	Rc1/8	Rc1/4	Rc3/8	Rc1/2

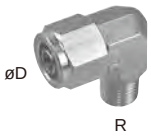
4. Material

Code	–	S
Material	SUS304	SUS316

MNSC Straight



MNSL Elbow



Model MNSC øD-R	Model MNSL øD-R
MNSC0420-01	MNSL0420-01
MNSC0420-02	MNSL0420-02
MNSC0425-01	MNSL0425-01
MNSC0425-02	MNSL0425-02
MNSC0640-01	MNSL0640-01
MNSC0640-02	MNSL0640-02
MNSC0640-03	MNSL0640-03
MNSC0860-01	MNSL0860-01
MNSC0860-02	MNSL0860-02
MNSC1080-02	MNSL1080-02
MNSC1080-03	MNSL1080-03
MNSC1080-04	MNSL1080-04
MNSC1290-02	MNSL1290-02
MNSC1290-03	MNSL1290-03
MNSC1290-04	MNSL1290-04
MNSC1210-02	MNSL1210-02
MNSC1210-03	MNSL1210-03
MNSC1210-04	MNSL1210-04
MNSC1/4-01	MNSL1/4-01
MNSC1/4-02	MNSL1/4-02
MNSC1/4-03	MNSL1/4-03
MNSC5/16-01	MNSL5/16-01
MNSC5/16-02	MNSL5/16-02
MNSC5/16-03	MNSL5/16-03
MNSC3/8-02	MNSL3/8-02
MNSC3/8-03	MNSL3/8-03
MNSC3/8-04	MNSL3/8-04
MNSC1/2-02	MNSL1/2-02
MNSC1/2-03	MNSL1/2-03
MNSC1/2-04	MNSL1/2-04

MNSU Union straight



MNSV Union elbow



MNSE Union tee



Model MNSU øD	Model MNSV øD	Model MNSE øD
MNSU0420	MNSV0420	MNSE0420
MNSU0425	MNSV0425	MNSE0425
MNSU0640	MNSV0640	MNSE0640
MNSU0860	MNSV0860	MNSE0860
MNSU1080	MNSV1080	MNSE1080
MNSU1290	MNSV1290	MNSE1290
MNSU1/4	MNSV1/4	MNSE1/4
MNSU5/16	MNSV5/16	MNSE5/16
MNSU3/8	MNSV3/8	MNSE3/8
MNSU1/2	MNSV1/2	MNSE1/2

MSM



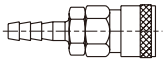
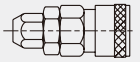
MSM-A (one touch type)



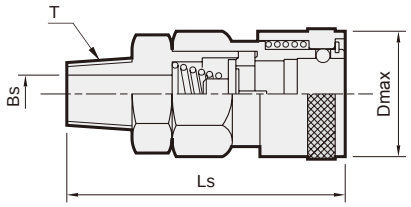
Order example

MSM – 20 – A – S

- MODEL
- 20 / 30 / 40
- MATERIAL: **S**: Steel, **B**: Brass
- Blank: Standard type, **A**: One touch type

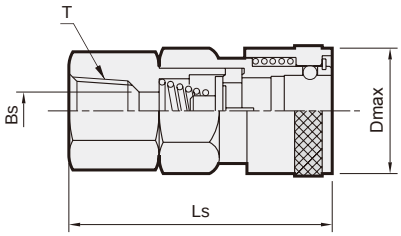
MSM	
MSF	
MSH	
MSP	

MSM (Male screw)



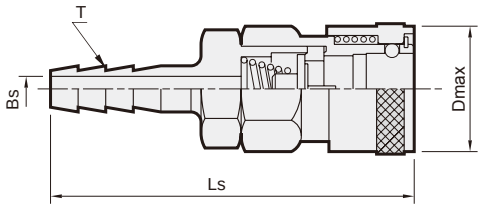
Model	Screw size T	Dimension (mm)			Weight (g)	
		Bs	D max.	Ls	Steel	Brass
MSM-20	R1/4	ø7.5	ø25	55.5	95	104
MSM-30	R3/8	ø7.5	ø25	57.5	100	109
MSM-40	R1/2	ø9	ø25	59.5	110	117

MSF (Female screw)



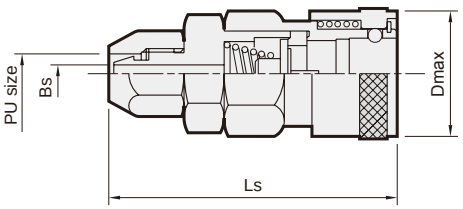
Model	Screw size T	Dimension (mm)			Weight (g)	
		Bs	D max.	Ls	Steel	Brass
MSF-20	Rc1/4	ø7.5	ø25	52.5	104	110
MSF-30	Rc3/8	ø7.5	ø25	54.5	103	111
MSF-40	Rc1/2	ø9	ø25	54.5	122	131

MSH (Hose screw)



Model	Hose size T	Dimension (mm)			Weight (g)	
		Bs	D max.	Ls	Steel	Brass
MSH-20	5/16"Hose	ø5	ø25	72.5	95	104
MSH-30	3/8"Hose	ø7.5	ø25	76.5	100	106
MSH-40	1/2"Hose	ø9	Hex.26/30	78.5	110	117

MSP (Nut style)



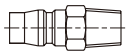
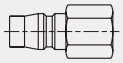
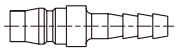
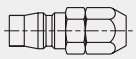
Model	PU size ID×OD (mm)	Dimension (mm)			Weight (g)	
		Bs	D max.	Ls	Steel	Brass
MSP-20	5×8	ø4	ø25	56.5	100	106
MSP-30	6.5×10	ø5	ø26	58	110	116
MSP-40	8×12	ø6	ø26	59	110	116



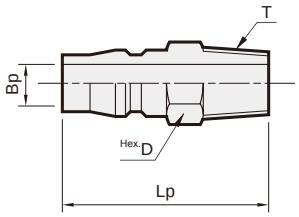
Order example

MPM – 20 – S

- MODEL
- 20 / 30 / 40
- MATERIAL
  - **S**: Steel
  - **B**: Brass

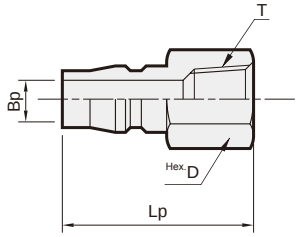
MPM	
MPF	
MPH	
MPP	

MPM (Male screw)



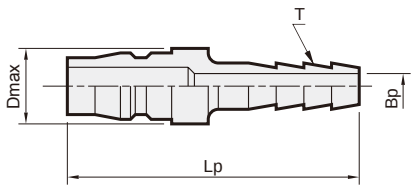
Model	Screw size T	Dimension (mm)			Weight (g)	
		Bp	Hex. D	Lp	Steel	Brass
MPM-20	R1/4	ø7.5	Hex. 14/16.2	41	25	27
MPM-30	R3/8	ø7.5	Hex. 17/19.6	43	40	45
MPM-40	R1/2	ø7.5	Hex. 21/24.2	46	65	70

MPF (Female screw)



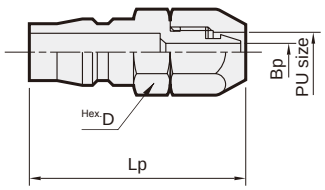
Model	Screw size T	Dimension (mm)			Weight (g)	
		Bp	Hex. D	Lp	Steel	Brass
MPF-20	Rc1/4	ø7.5	Hex. 17/19.6	38	30	32
MPF-30	Rc1/8	ø7.5	Hex. 21/24.2	41	45	48
MPF-40	Rc1/2	ø7.5	Hex. 26/30	43	65	70

MPH (Hose screw)



Model	Hose size T	Dimension (mm)			Weight (g)	
		Bp	D max.	Lp	Steel	Brass
MPH-20	5/16"Hose	ø5	ø16	58	27	29
MPH-30	3/8"Hose	ø7.5	ø16	62	35	38
MPH-40	1/2"Hose	ø7.5	ø18	64	50	55

MPP (Nut style)

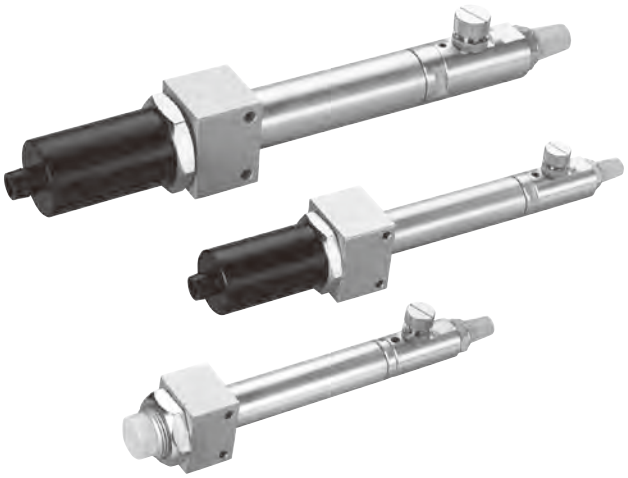


Model	PU size ID×OD (mm)	Dimension (mm)			Weight (g)	
		Bp	Hex. D	Lp	Steel	Brass
MPP-20	5×8	ø4	Hex. 14/16.2	42.5	30	33
MPP-30	6.5×10	ø5	Hex. 16/18.2	44.5	40	43
MPP-40	8×12	ø6	Hex. 17/19.2	45	40	43

MJC series

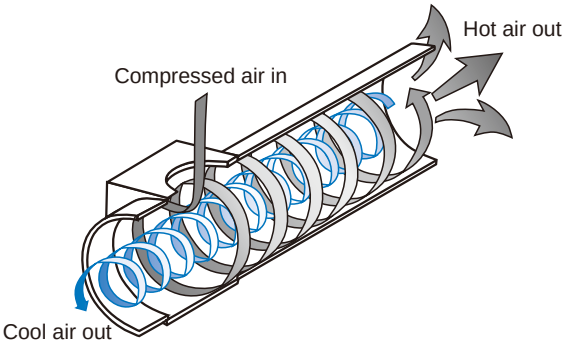
JET COOLER

1 Compressed air supply only
2 No electricity
3 Long life
4 User friendly
5 Two models



Features

- Jet out cooler air maximum 60°C(max. temp. drop) lower than the inlet air only by supplying compressed air.
- Uses the theory of vortex, no moving parts are used in the construction, hence long life sustainability.
- Does not require coolant or an electrical source, utilises the high speed flow of compressed air for generating cool air from hot air. Ideal for applications where rapid cooling is required, (ie) Spot Welding.
- Can produce consistent supply of cool air even when the supply in is 40 Degrees C. By changing air consumption you can simply change the cooling temperature.



Order example

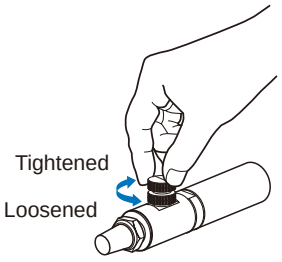
MJC — 150K — S — □

MODEL	ACCESSORY	PORT THREAD
MJC-150K **MJC-300K** **MJC-450K** **MJC-600K**	Blank: Standard type **S**: Silencer Decrease 8-12dB (Based on the flow rate)	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Cool air adjustment

Temperature drop 60°C

- Rapid temperature drop.
- Panel mounting option available.
- Can be fitted with silencer on cold side, thus reducing noise.
- Can be piped on the hot side.



Adj. screw(up)
Adj. nut (down)

* When the adj. screw has set, lock the adj. nut.

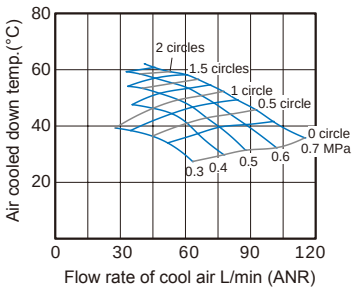
Specification

Model	Working pressure (MPa)	Max. temp. drop (°C)	Cool air out port	Weight (kg)
MJC-150K	0.3~0.7	60	Rc1/8	0.25
MJC-300K	0.3~0.7	60	Rc1/4	0.30
MJC-450K	0.3~0.7	60	Rc3/8	0.60
MJC-600K	0.3~0.7	60	Rc3/8	0.60

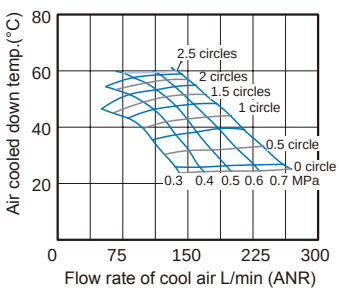
*The max. temp. drop is the difference in temp. between the input and the output.

Temperature drop of cool air

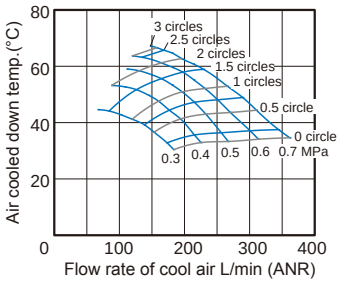
MJC-150K



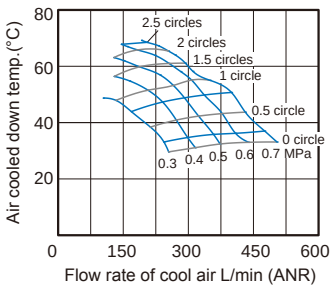
MJC-300K



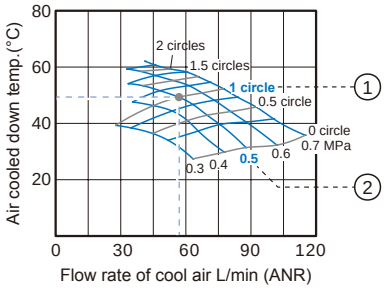
MJC-450K



MJC-600K



Graph description (MJC-150K)



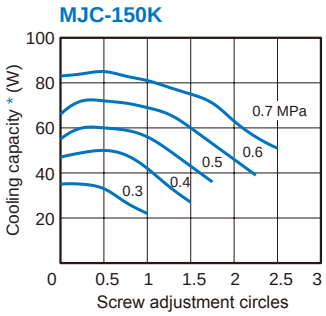
Cold air flow rate & temperature drop

1. One time of rotating the adjust screw from tightening condition.
2. Temperature drop is around 48°C under the condition of air pressure = 0.5 MPa and cold air flow rate = 58 L/min(ANR)

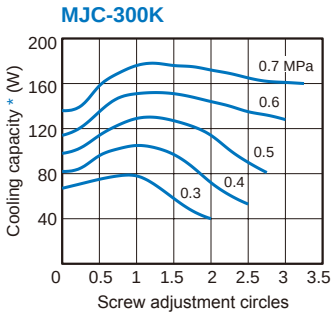
Cooling capacity

* The heat quantity which is able to be absorbed (cooling).

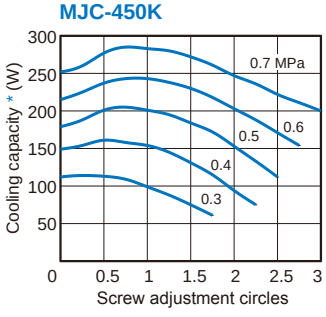
MJC-150K



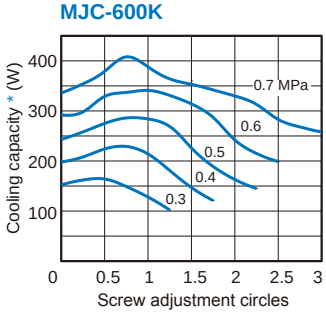
MJC-300K



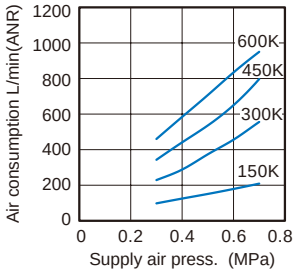
MJC-450K



MJC-600K

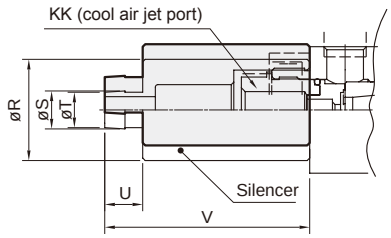


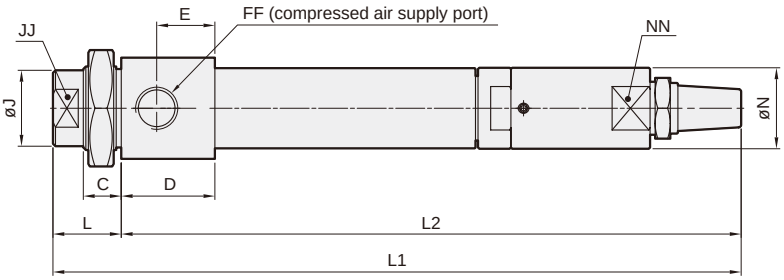
Air consumption

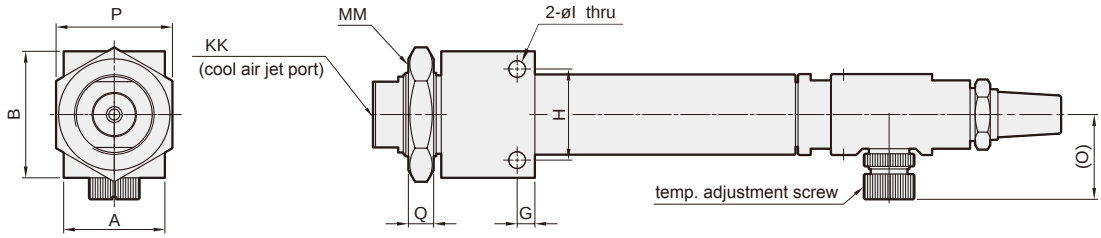


MJC-*K

Silencer (option)



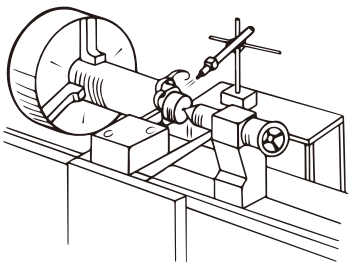




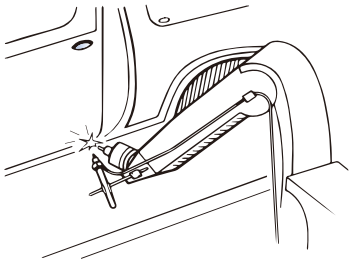
Code / Model	A	B	C	D	E	FF	G	H	I	J	JJ	KK	L	L1	L2	MM	N	NN	O	P	Q	R	S	T	U	V
150K	30	35	13	24	15	Rc1/8	5	24	4.5	20	17	Rc1/8	21	198	177	M24×1.5	20	18	22	32	7	30	11	10	10	60
300K	35	40	15	28	17	Rc1/4	5	30	4.5	22	19	Rc1/4	23	204	181	M27×1.5	22	19	22	36	7	32	13	12	10	63
450K / 600K	40	50	15	37	23	Rc3/8	7	36	6.6	30	26	Rc3/8	27	272	245	M33×1.5	32	27	31	46	10	40	15	14	15	81

Application

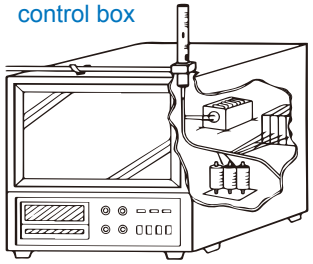
■ Plastic machining cool



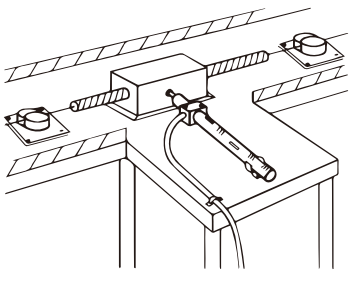
■ Spot welding cool



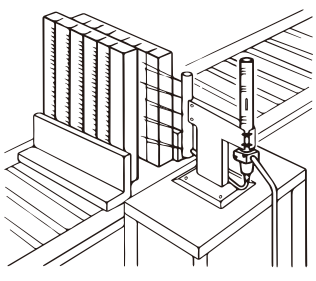
■ Monitoring camera case cool and dust-proof inside control box



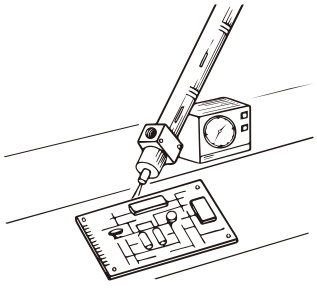
■ Wire cut harden



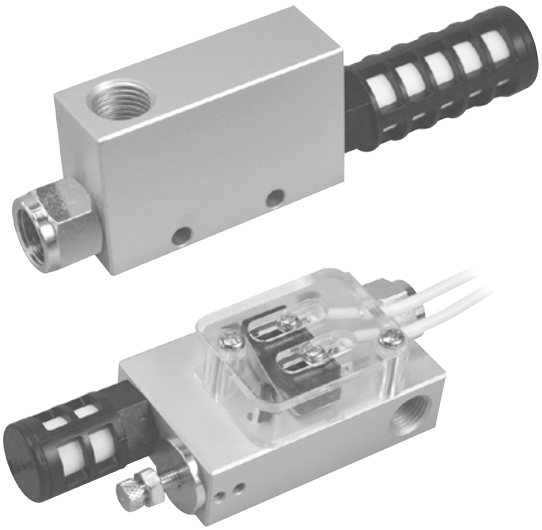
■ Adherent quick cool



■ Welding quick cool



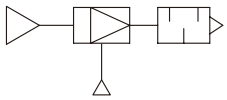
⚠ ● Please use filter and pressure regulator when piping.
● To prevent freezing at low temperatures, please use it with an air dryer.



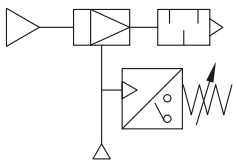
Specification

Model		MVVA				
Nozzle dia.	(mm)	1.0	1.5	2.0	2.5	3.0
Port size		G1/8	G1/4	G3/8	G3/8	G1/2
Medium		Air				
Operating pressure range		0.1~0.6 MPa				
Ambient temperature		0~+60°C (No freezing)				
Final vacuum		−91.8 kPa (−690mmHg)				
Suction flow	(ℓ/min)	32	63	130	160	225
Air consumption	(ℓ/min)	76	100	185	265	385
Supply pressure		0.5 MPa				
Lubricator		Not required				
Weight (g)	Standard	84	126	294	672	787
	SJ type	110	158	321	–	–
	EV type	162	197	353	–	–

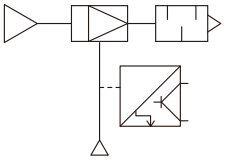
Symbol



SJ



EV*



Vacuum switch

Model		SJ	EV*
Medium		Air	
Pressure setting range	kPa (mm Hg)	–20.0 ~ –53 (–150 ~ –400)	–100 ~ 100 (–757.5 ~ 757.5)
Proof pressure	(MPa)	0.5	0.3
Ambient temperature		0~+60°C (No freezing)	–10~+50°C (No freezing)
Ambient humidity		35~+85%RH (No condensation)	
Switch type		Reed switch, N.O	PNP, NPN open collector
Rated voltage		AC125, AC250	12~24V DC ±10%
Max load current	(A)	5	0.125
Repeatability		±5.3 kPa	≤± 0.2% F.S. ±1 digit
Hysteresis	(kPa)	4.0~13.3	–
Cable length	(mm)	400	2000

*The rated pressure of the generator in the specifications is the value when the generator is activated. Please consider the pressure drop and ensure the specification value; If it does not meet specifications, it may cause noise, unstable characteristics, and malfunction of the sensor at a certain pressure. If this happens, please reset the rated pressure.

* The range of noise will change due to air pressure.

* For the detailed specifications of EV* type (MP41), please refer to page 5-13.

Order example

MVVA — 10 — SJ

MODEL

NOZZLE DIA.
10: 1.0 mm
15: 1.5 mm
20: 2.0 mm
25: 2.5 mm
30: 3.0 mm

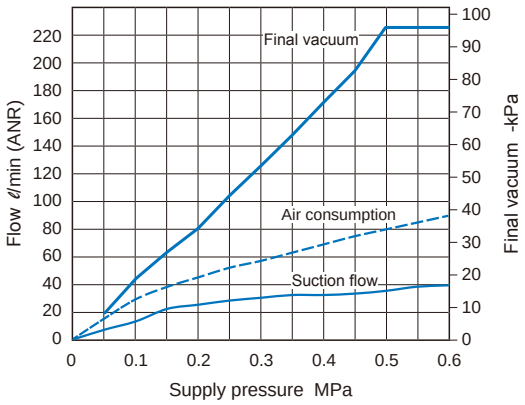
VACUUM SWITCH TYPE

Blank	Standard type
SJ	Adjustable switch
EV*	Pressure switch

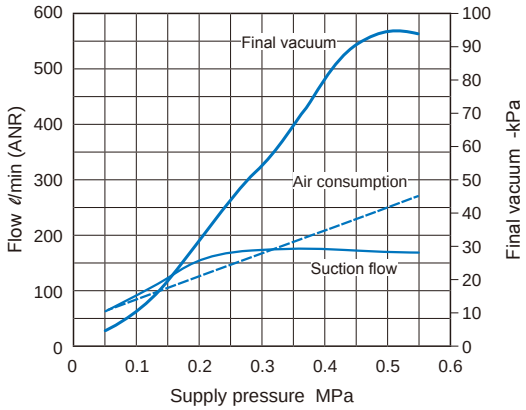
EV1: MP41C-022
EV5: MP41C-042
EV6: MP41C-042-QD

Vacuum characteristics

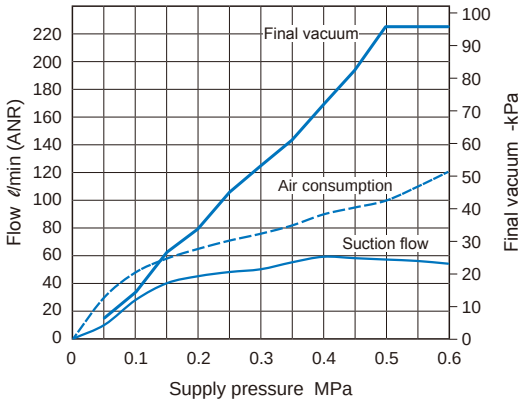
MVVA-10



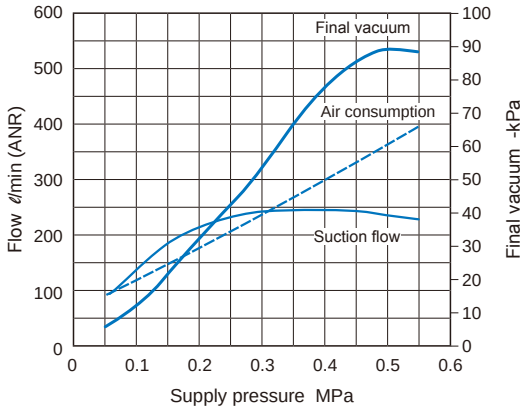
MVVA-25



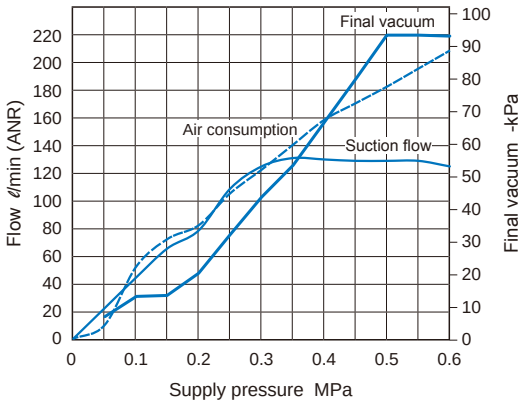
MVVA-15



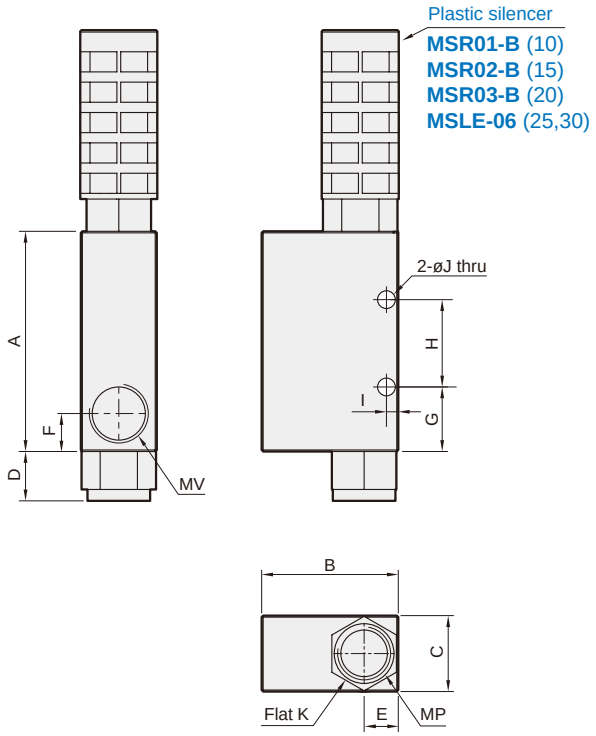
MVVA-30



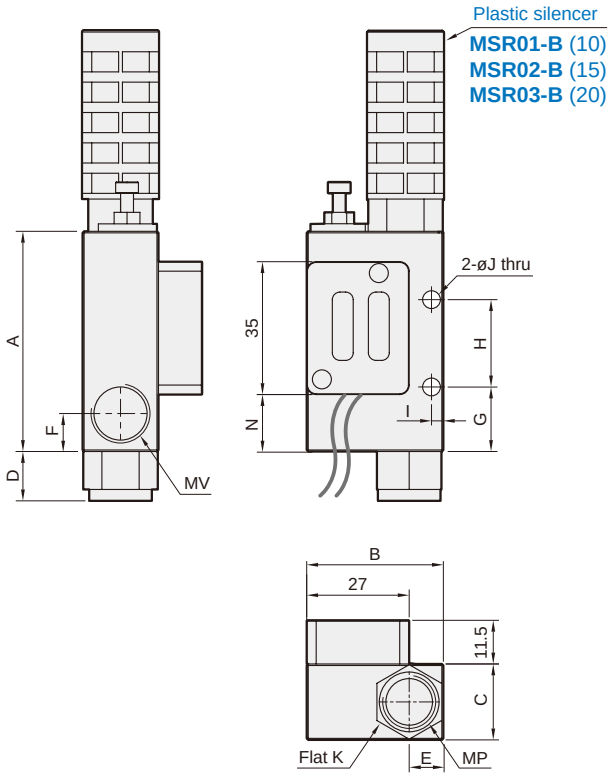
MVVA-20



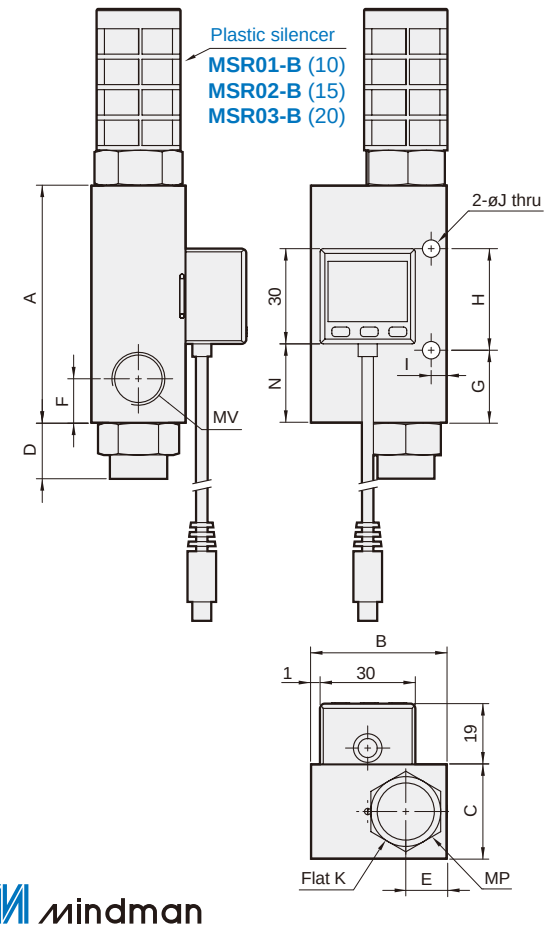
MVVA-**



MVVA-**-SJ

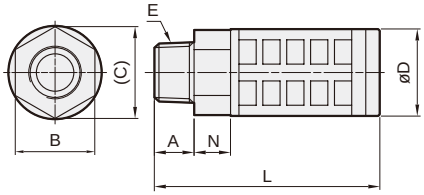


MVVA-**-EV*



Code / Model	A	B	C	D	E	F	G	H	I	J	K	N	MP	MV
MVVA-10	55	34	15.5	10	9	8	13	18	3	4.3	14	—	G1/8	G1/8
MVVA-10-SJ	55	34	15.5	10	9	8	13	18	3	4.3	14	10.5	G1/8	G1/8
MVVA-10-EV*	55	40	16	10	9	8	13	18	3	4.3	14	20	G1/8	G1/8
MVVA-15	58	36	20	13	10.5	10	17	23	3.5	4.3	17	—	G1/4	G1/4
MVVA-15-SJ	58	36	20	13	10	10	17	23	3.5	4.3	17	14	G1/4	G1/4
MVVA-15-EV*	58	39	20	13	10.5	10	17	23	3.5	4.3	17	20	G1/4	G1/4
MVVA-20	75	43	30	18	13	14	23	32	5	5.5	22	—	G3/8	G3/8
MVVA-20-SJ	75	43	30	18	13	14	23	32	5	5.5	22	30.5	G3/8	G3/8
MVVA-20-EV*	75	43	30	18	13	14	23	32	5	5.5	22	25	G3/8	G3/8
MVVA-25	100	60	40	17	20	16	20	50	5.5	6	28	—	G3/8	G1/2
MVVA-30	115	60	40	20	20	20	33	50	5.5	6	30	—	G1/2	G3/4

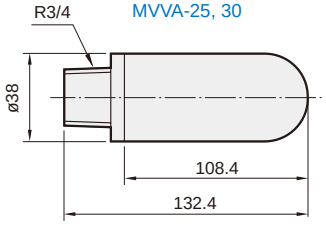
MSR*-B



Code / Model	A	B	C	D	E	L	N	Application model
MSR01-B	7	14	16.2	16	R1/8	33	7	MVVA-10
MSR02-B	10	17	19.6	20.3	R1/4	63	8.5	MVVA-15
MSR03-B	12	24	26.2	26.3	R3/8	67.5	11	MVVA-20

MSLE-06

Application model:
MVVA-25, 30





Specification

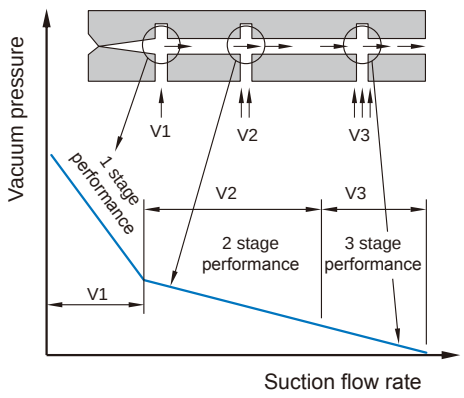
Model	MZL112
Nozzle dia.	1.2 mm
Max. suction flow	100 ℓ/min
Air consumption	63 ℓ/min
Max. vacuum pressure	–84 kPa
Max. operating pressure	0.7 MPa
Supply pressure range	0.2~0.5 MPa
Standard supply pressure	0.4 MPa
Operating temperature range	+5~+50°C
Weight	450 g

Order example

MZL112□ – □5LZD – □ – C1

- MODEL
- NOZZLE DIA.
  12: 1.2 mm
- EXHAUST TYPE
  Blank: Built-in silencer
  P: Port exhaust, Rc1/2 thread
  PF: Port exhaust, G1/2 thread
- VALVE COMBINATION
  Blank: Without valve (*)
  K1: With supply and release valves
  K2: With supply valve
  *Select without valve specifications not fill next options.
  EX: **MZL112P-GN-C1**
- RATED VOLTAGE
  5: DC24V
- LEAD WIRE
  L: L plug connector, lead wire length 0.3m
- LIGHT, SURGE SUPPRESSOR
  Z: With light, surge suppressor
- MANUAL OVERRIDE
  D: Locking slotted
- VACUUM PRESSURE SENSOR
  Blank: None
  GN: Vacuum adapter port Rc1/8
- HIGH PRECISION DIGITAL PRESSURE SWITCH
  C1: MP43C-010-F1
  C3: MP43C-030-F1
  V1: MP43V-010-F1
  V3: MP43V-030-F1
  * Refer to page 5-16 for the option of digital pressure switch MP43.

3 stage diffuser construction



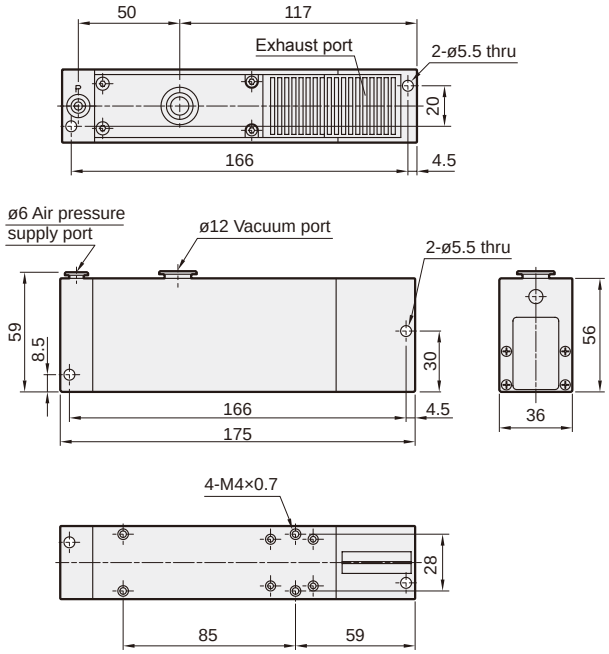
Supply / Release valve specifications

Type of valve actuation	Internal pilot type N.C.
Operating pressure range	0.2~0.5 MPa
Ambient and fluid temperature	-5~+50°C (No freezing)
Response time (for 0.5 MPa)	25ms or less
Max. operating frequency	5Hz
Manual operation	Non-locking push type, slotted locking type
Pilot exhaust type	Pilot valve individual exhaust type, Main valve / Pilot valve common exhaust.
Lubrication	Not required
Mounting position	Unrestricted
Impact / Vibration resistance	150 / 30 m/s^2
Enclosure	Dust proof

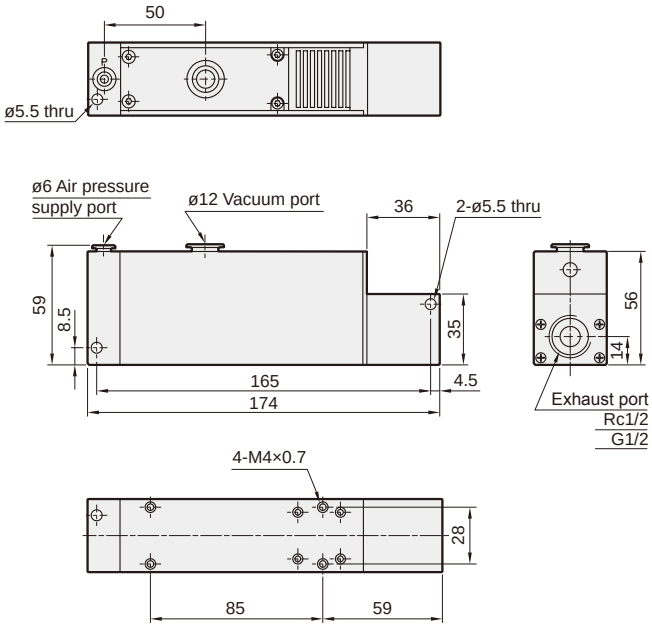
MZL112 Dimensions

MULTISTAGE VACUUM PUMP

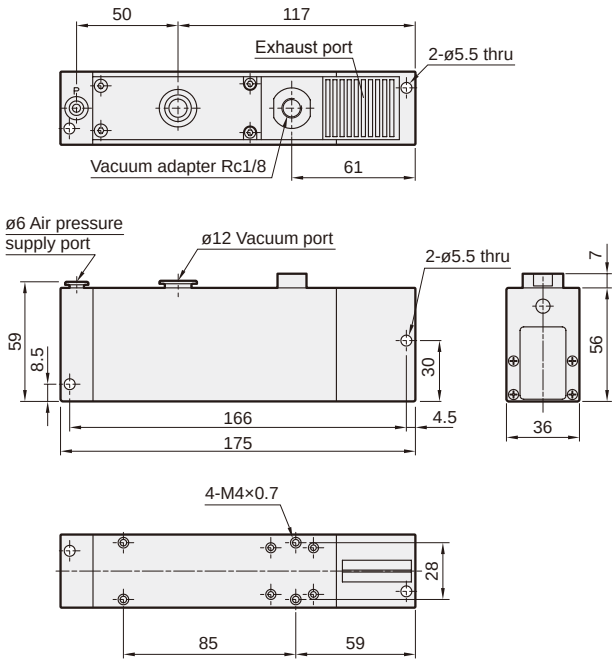
MZL112
Standard



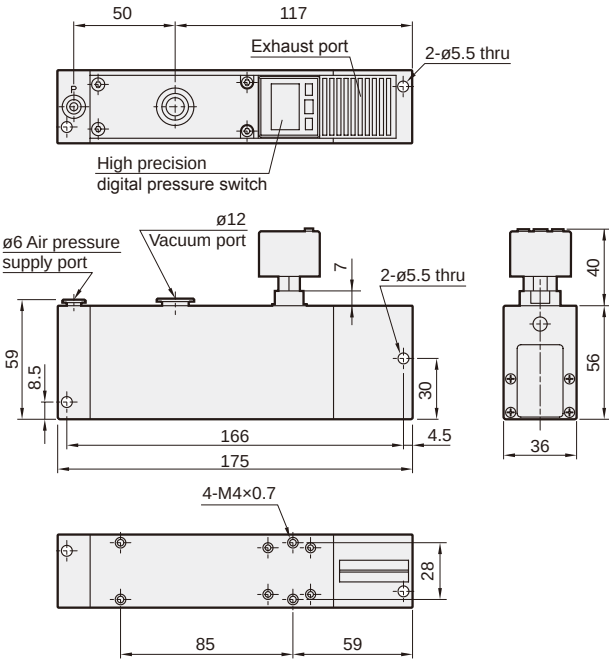
MZL112P
Port exhaust



MZL112-GN
With vacuum adapter

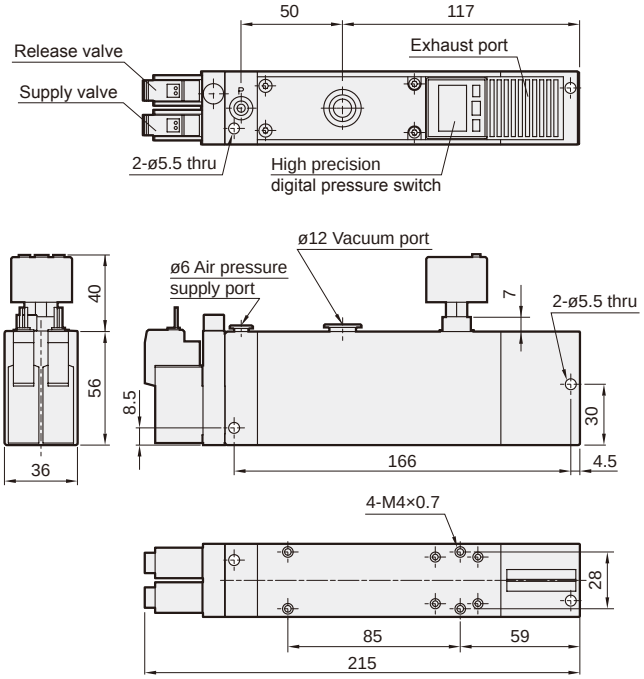


MZL112-GN-C*
With high precision digital pressure switch



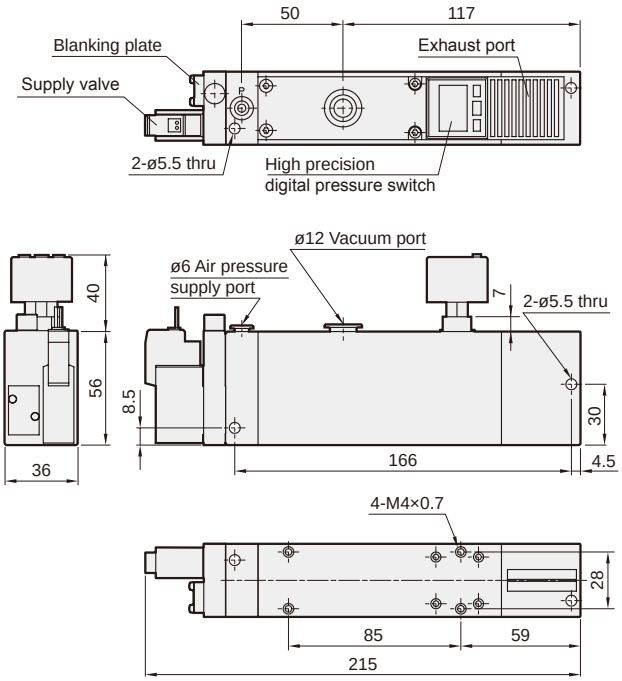
MZL112-K1-GN-C*

With supply and release valves



MZL112-K2-GN-C*

With supply valve



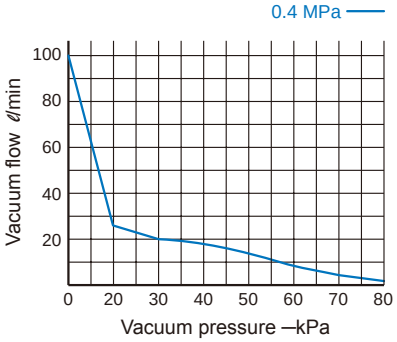
Vacuum flow(ℓ/min) at different vacuum levels (–kPa)

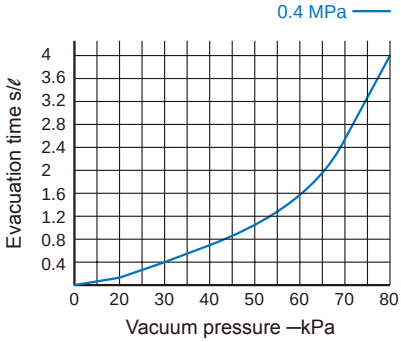
Supply pressure	Air consumption	Vacuum flow(ℓ/min) at different vacuum levels (–kPa)									Max. vacuum level
0.4 MPa	63 ℓ/min	0	10	20	30	40	50	60	70	80	–84 kPa
		100	65	26	20	18.5	13	8	5	2.8	

Evacuation time(s/ℓ) to reach different vacuum levels (–kPa)

Supply pressure	Air consumption	Evacuation time(s/ℓ) to reach different vacuum levels (–kPa)								Max. vacuum level
0.4 MPa	63 ℓ/min	10	20	30	40	50	60	70	80	–84 kPa
		0.05	0.17	0.4	0.67	1.07	1.63	2.46	3.9	

Vacuum characteristics





MZL212 series

MULTISTAGE VACUUM PUMP



Specification

Model	MZL212
Nozzle dia.	1.2 mm × 2
Max. suction flow	200 ℓ/min
Air consumption	126 ℓ/min
Max. vacuum pressure	–84 kPa
Max. operating pressure	0.7 MPa
Supply pressure range	0.2~0.5 MPa
Standard supply pressure	0.4 MPa
Operating temperature range	+5~+50°C
Weight	700 g

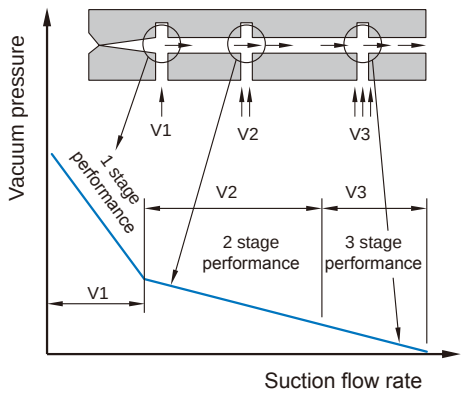
Order example

MZL212□ – □ – C1

- MODEL
- NOZZLE DIA.
  12: 1.2 mm
- EXHAUST TYPE
  Blank: Built-in silencer
  P: Port exhaust, Rc1 thread
- VACUUM PRESSURE SENSOR
  Blank: None
  GN: Vacuum adapter port Rc1/8
- HIGH PRECISION DIGITAL PRESSURE SWITCH
  C1: MP43C-010-F1
  C3: MP43C-030-F1
  V1: MP43V-010-F1
  V3: MP43V-030-F1

* Refer to page 5-16 for the option of digital pressure switch MP43.

3 stage diffuser construction



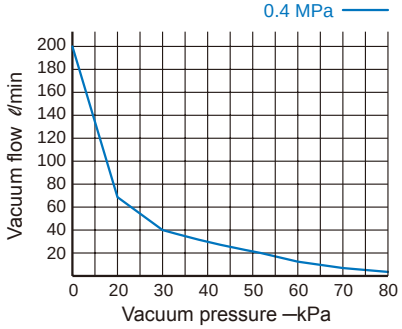
Vacuum flow(ℓ/min) at different vacuum levels (–kPa)

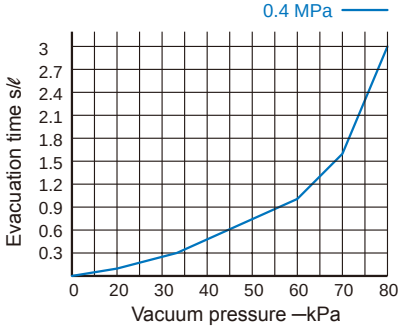
Supply pressure	Air consumption	Vacuum flow(ℓ/min) at different vacuum levels (–kPa)									Max. vacuum level
0.4 MPa	126 ℓ/min	0	10	20	30	40	50	60	70	80	–84 kPa
		200	150	52	40	30	25	15	8	3	

Evacuation time(s/ℓ) to reach different vacuum levels (–kPa)

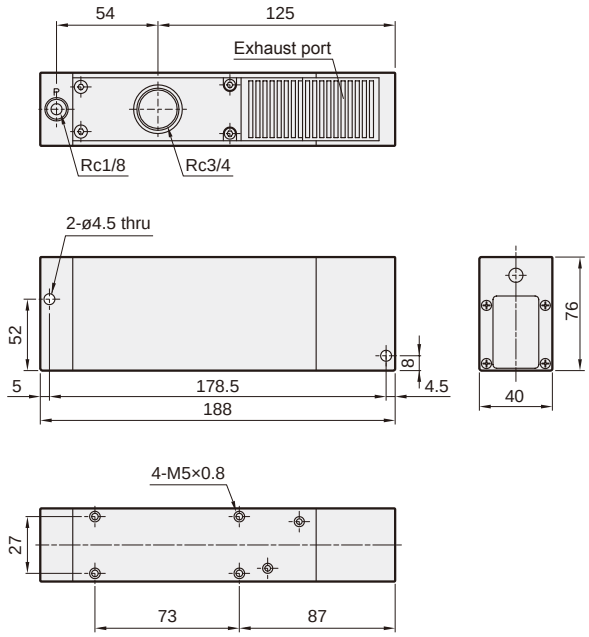
Supply pressure	Air consumption	Evacuation time(s/ℓ) to reach different vacuum levels (–kPa)								Max. vacuum level
0.4 MPa	126 ℓ/min	10	20	30	40	50	60	70	80	–84 kPa
		0.02	0.08	0.25	0.42	0.65	0.98	1.52	2.46	

Vacuum characteristics

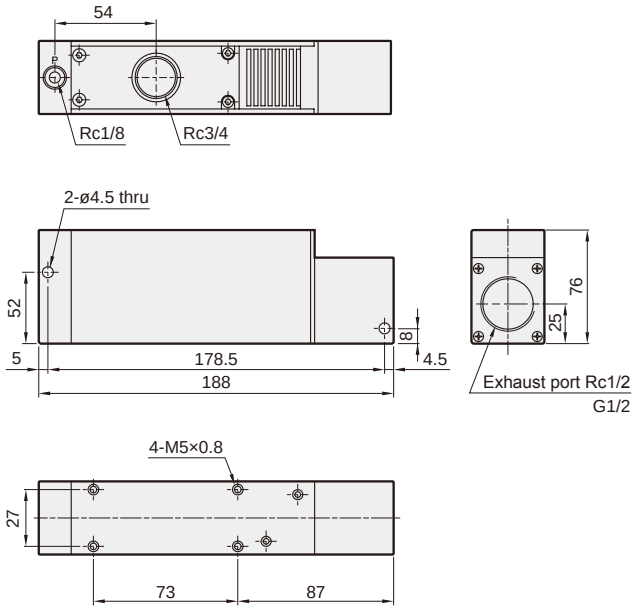




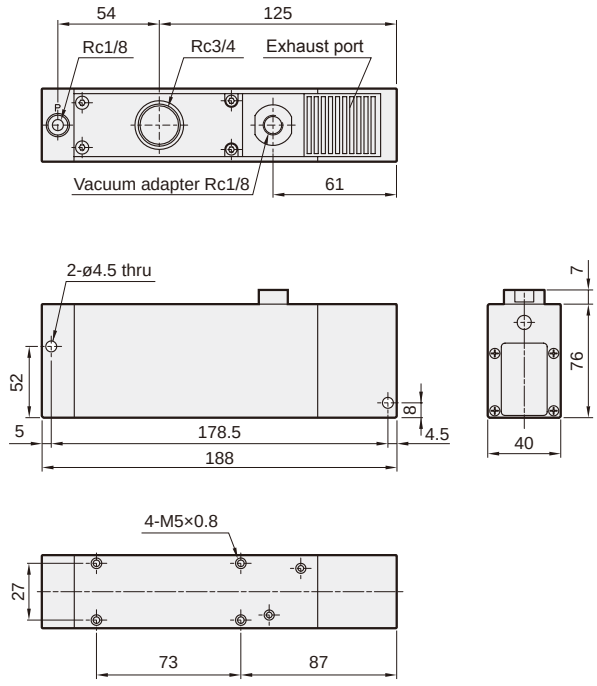
MZL212
Standard



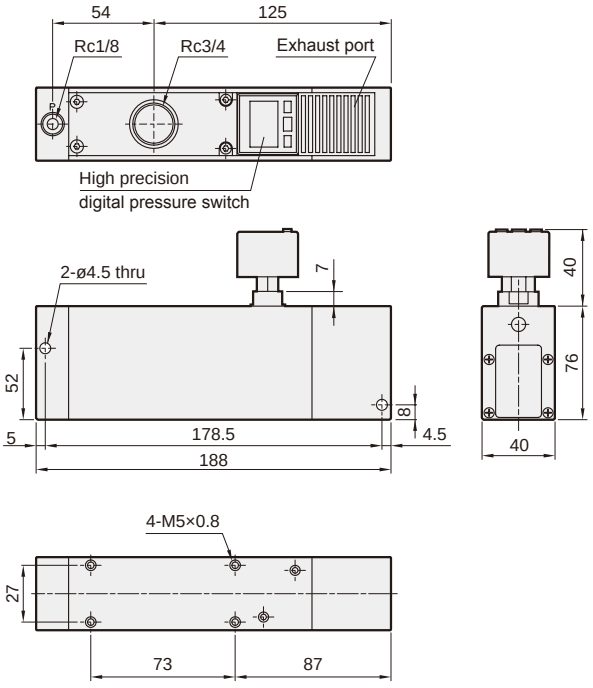
MZL112P
Port exhaust



MZL212-GN
With vacuum adapter

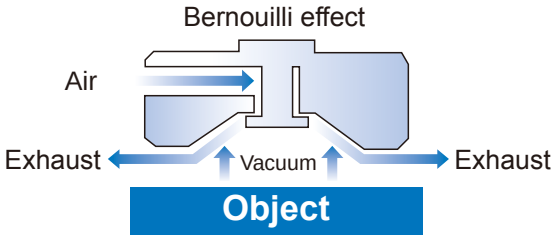


MZL212-GN-C*
With high precision
digital pressure switch





Principle



The principle of these prehension is based on the exploitation of the Bernouilli effect. A positive pressure is applied through form adequate (Insert + curve). The exhaust of this air goes through of low pressure and gets a vacuum aspiring any kind of object.

Order example

MHPSC — 20 — CD

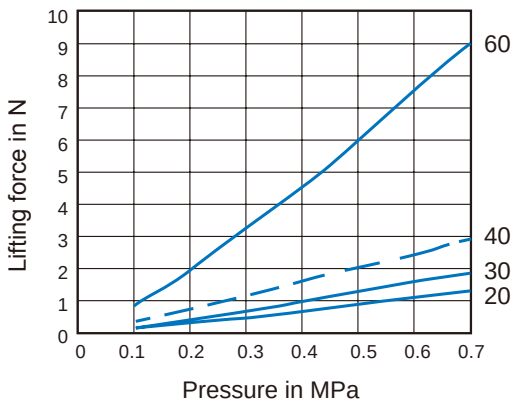
- MODEL
- SIZE
  - **20**
  - **30**
  - **40**
  - **60**
- TYPE
  - **CD**: For CD or DVD (Only with size 40)
  - **CI**: With 3 rubber absorber
  - **U**: Smooth surface (Only with size 40)

Specification

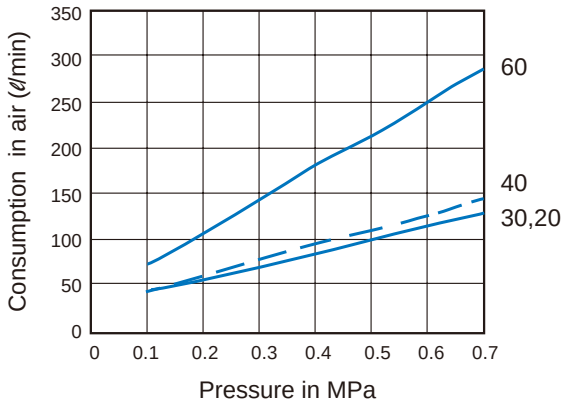
Model	MHPSC			
Size	20	30	40	60
Port size	M3	M5	M5	M5
Medium	Dry air filter 40μ			
Consumption in air (*) l/min	100	100	110	210
Lifting force (*) in N	0.9	1.3	2	6
Operating pressure range	0.2~0.7 MPa			
Ambient temperature	+5~+60°C			
Level of noise	25dB			
Material	Aluminum A5056 and stainless steel			
Weight	10 g	30 g	54 g	124 g

* Indicative value for sizes 20 and 30: Pressure of 0.5 MPa with an air supply by tube ø2,5×4 length: 1m. for sizes 40 and 60: Pressure of 0.5 MPa with an air supply by tubeø4×6 length: 1m.

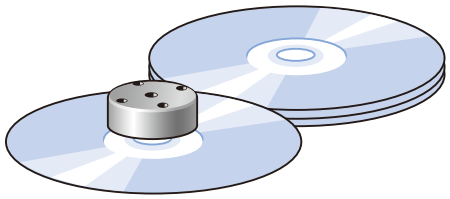
Lifting force



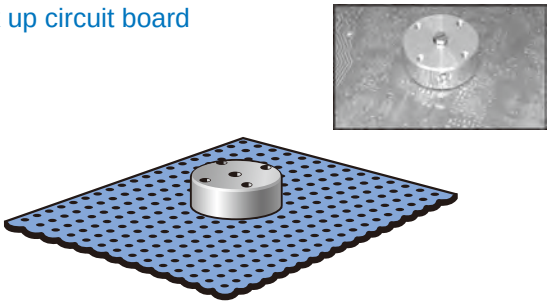
Consumption in air



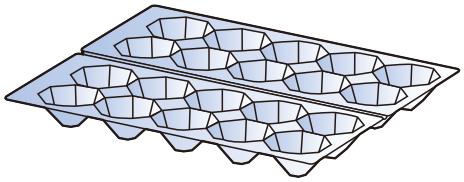
■ Transfer disc, CD, DVD



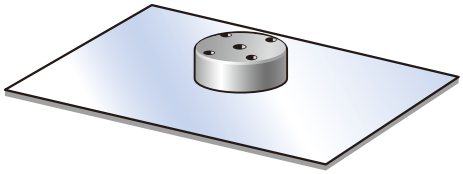
■ Pick up circuit board



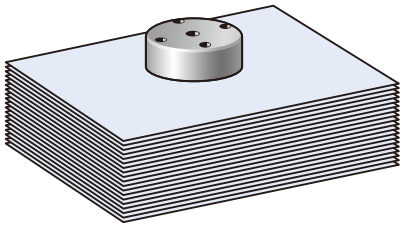
■ Eggs or fruits packaging



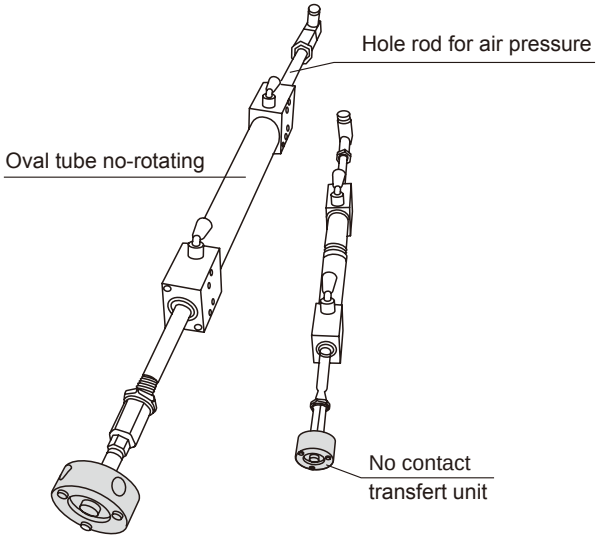
■ Glass sheet leave
(no mark on the face)



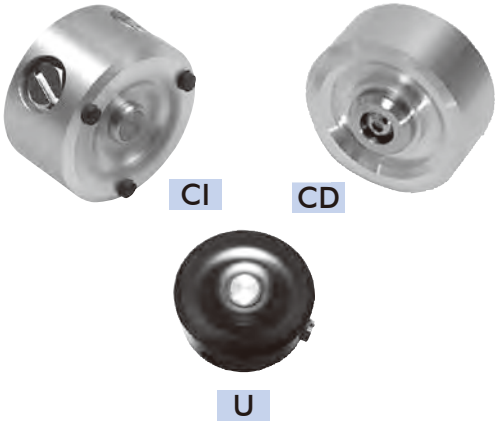
■ Paper sheet with small thickness.
(Transfer sheet by sheet)



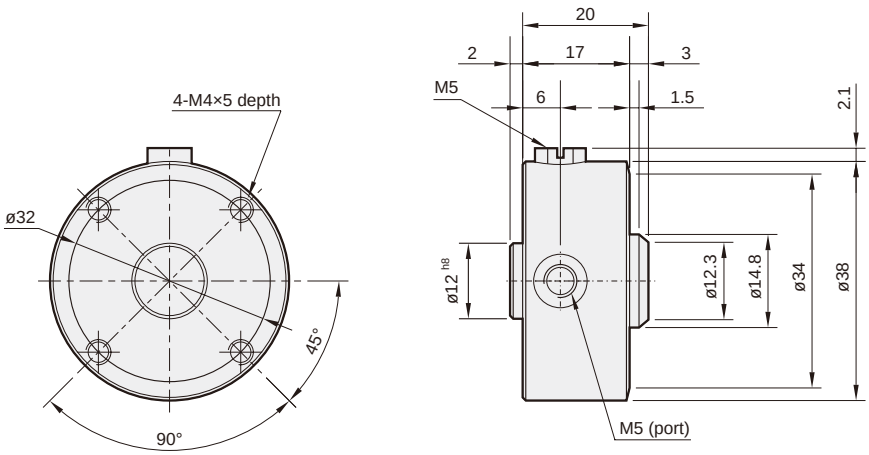
■ Handling of object on concave or convex surface. Handling of biscuit, wafer, paste, pastry making, membrane, sponge, textile, mirror, etc...



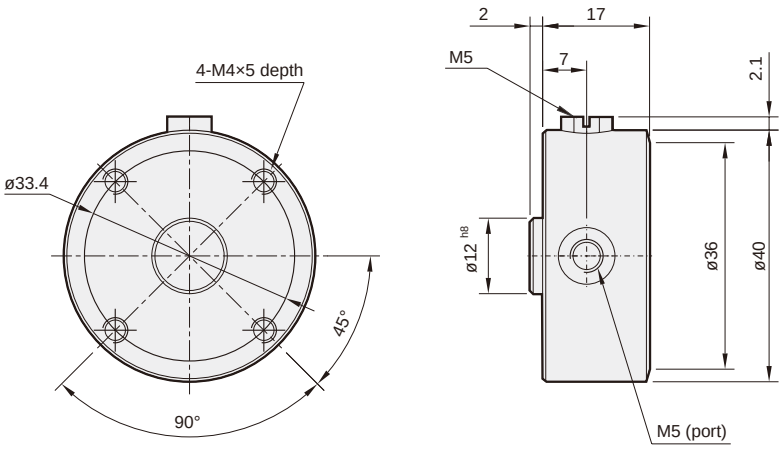
Type



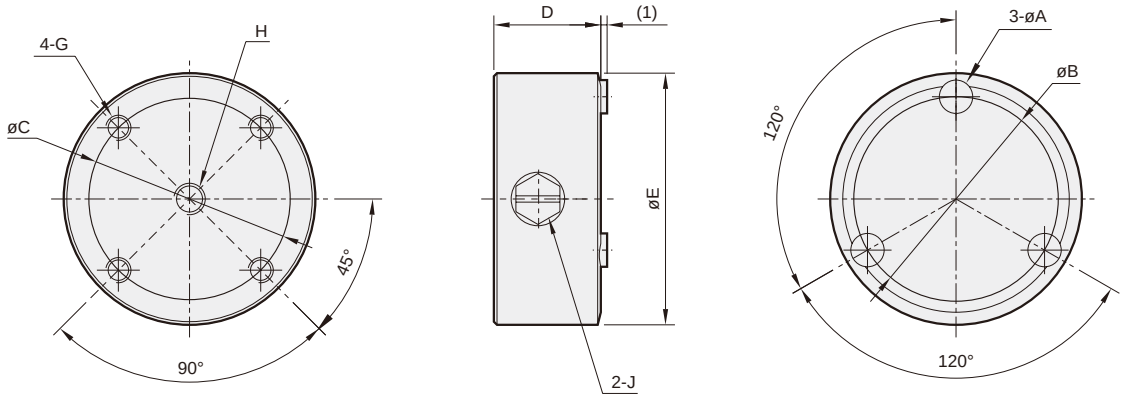
MHPSC-40CD Using for CD ro DVD (with centering part)



MHPSC-40U Smooth surface with treatment

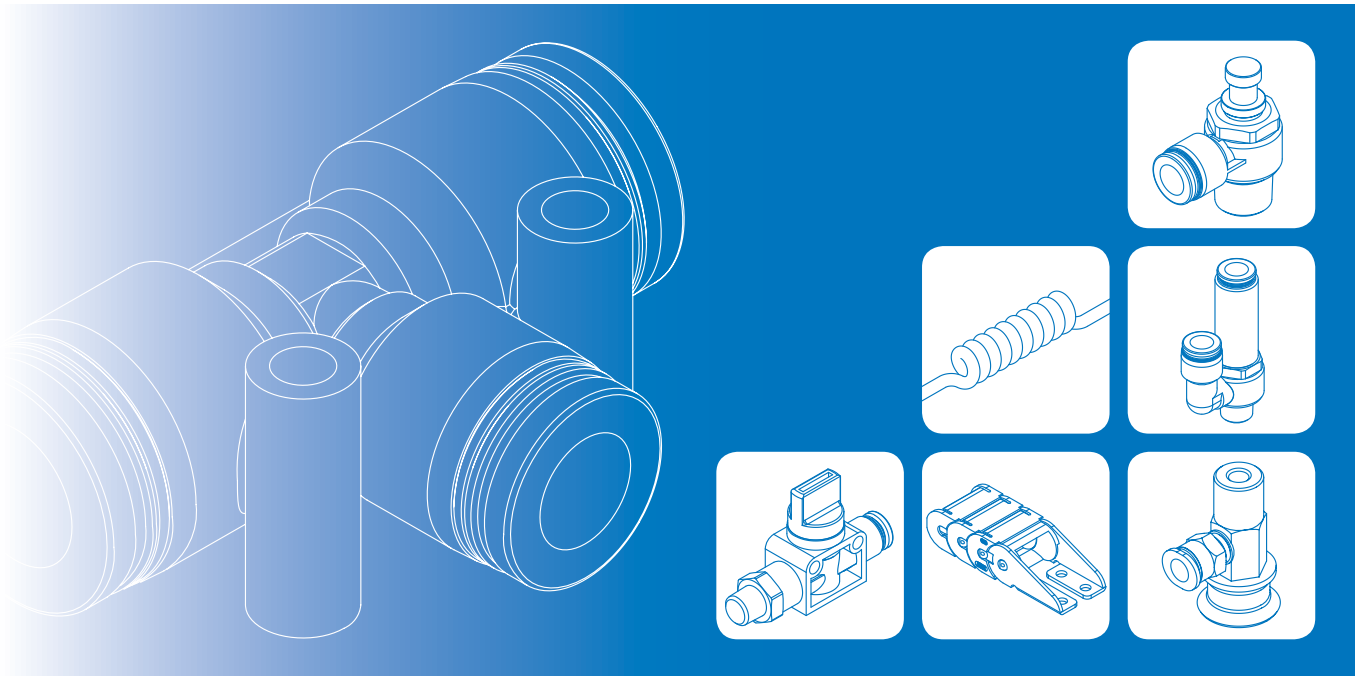


MHPSC-**CI Prehensor with three points of contact



Code / Model	A	B	C	D	E	G	H	J
20	2.2	16.6	14	12	20	M4x5	M3	Plug M3
30	3.4	24.4	22	17	30	M4x10	M5	Plug M5
40	5.3	32.5	32	17	40	M4x10	M5	Plug M5
60	5.3	48.8	44	17	60	M4x10	M5	Plug M5

PISCO® PRODUCTS



TUBE FITTING

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Information





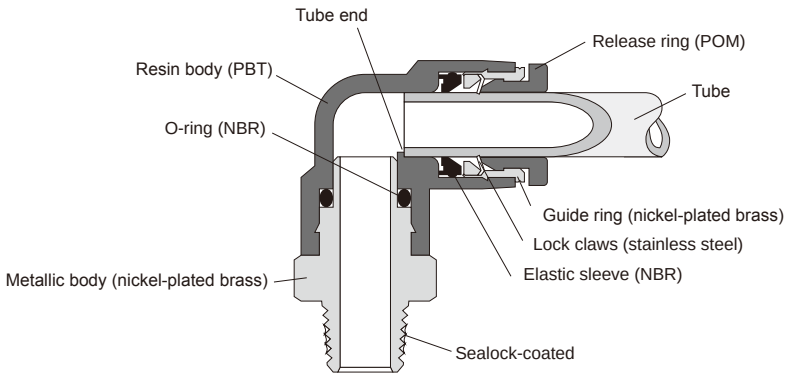


Maintaining basic functions, this low-cost quick-fitting joint achieves high-cost performance.



- The tube fitting comes in a wide variety of tube and thread sizes.
- Even after installation the direction of the tubing can be changed freely (Elbow, Long Elbow, Universal Elbow, etc.).

Construction



Specification

Type	Fitting
Fluid admitted	Air, water (conditional) (*1, *2, *3)
Max. service pressure	0.9 MPa
Negative pressure	-100 kPa (-750mmHg)
Service temperature range	0 ~ 60°C

*1. When it is used with water, please make sure that surge pressure is lower than Max. service pressure range.
*2. Fresh water is applicable. Please make an inquiry for other fluid uses.
*3. When it is used with water, be sure to install the insert ring.

Order example

PC 1/4 — N1 U T

MODEL

HEXAGON FLAT-TO-FLAT SPECIFICATION
Blank: Hexagon flat-to-flat mm spec.
U: Hexagon flat-to-flat inch spec. (NPT)

THREAD SIZE (R) OR TUBE DIA. (øD)

	Metric thread	Taper pipe thread			
Code	**M5**	**01**	**02**	**03**	**04**
Size	M5×0.8	R1/8	R1/4	R3/8	R1/2
	Unified fine thread	American standard taper pipe thread			
Code	**U10**	**N1**	**N2**	**N3**	**N4**
Size	10-32UNF	NPT1/8	NPT1/4	NPT3/8	NPT1/2

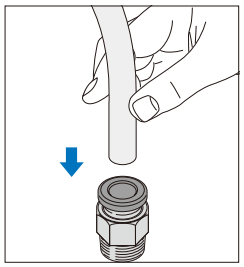
TUBE DIA. (øD) OR THREAD SIZE (R)

	mm size				
Code	**4**	**6**	**8**	**10**	**12**
Dia. (mm)	4	6	8	10	12
	inch size				
Code	**5/32**	**1/4**	**5/16**	**3/8**	**1/2**
Dia. (inch)	5/32	1/4	5/16	3/8	1/2

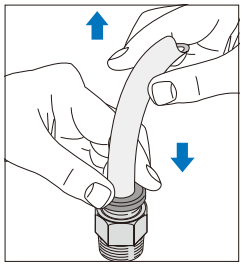
Connection and disconnection

1. How to fit and release tubing

(1) Tube insertion
Simply insert a tubing to the tube end of Tube Fitting. The lock claws automatically fix the tubing, and the elastic sleeve seals the tube surrounding.
Please refer to "2. Cautions on the fitting of tube" in "Common Safety Instructions for Quick-Fitting Joint" for other instructions.

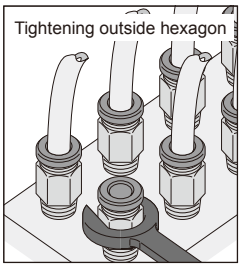


(2) Tube release
In case of releasing the tube, push the release ring. The lock claws open and the tube can be released. Before releasing the tube, make certain that the pressure inside the tube is zero pressure.



2. How to tighten the screw

For the type of tightening outside hexagon, apply a spanner or an impact wrench.
For the type of tightening inside hexagon (This enables to space Tube Fittings closer), apply a Hex Keys. (Please refer to the text for detail.)
Please refer to Table 3 Tightening Torque, Sealock color and Gasket Material in "4. Cautions on the installation of joint body" in "Common Safety Instructions for Quick-Fitting Joint".



⚠ Detailed safety instructions

Before using the PISCO device, be sure to read the "Safety Instructions", "Common Safety Instructions for Products Listed in This Manual" on page 8-20 to 22 and "Common Safety Instructions for Quick-Fitting Joint" on page 8-23 to 24.

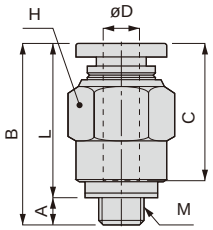
Warning

1.When the fluid admitted is water, do not use the PISCO device unless the application satisfies all the conditions required in specifications, Otherwise damage may be caused to the joint body, the tube may come off or leakage may result.

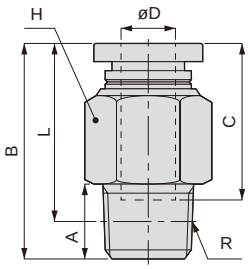
PC
Straight



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

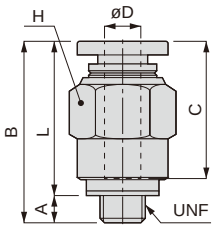


Unit: mm

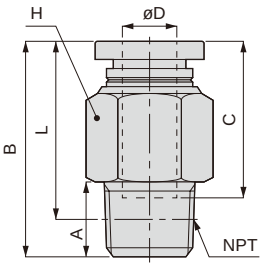
Model	øD (Tube dia.)	M/R	A	B	L	C	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PC4-M5T	4	M5×0.8	3	20	17	14.9	10	6.2	1.8	1.9	0.10
PC4-01T		R1/8	8	21				8.2	3	5.3	0.29
PC6-M5T	6	M5×0.8	3	21.1	19.1	17	12	9.2	1.8	1.9	0.10
PC6-01T		R1/8	8	22.6	18.6			9.1	4.6	12.5	0.68
PC6-02T		R1/4	11	24.6	18.5		14	17.2			
PC8-01T	8	R1/8	8	27.9	23.9	18.2	14	15.5	6	20	1.08
PC8-02T		R1/4	11	26.6	20.6			15.6	7		
PC8-03T		R3/8	12	23.9	17.6		17	23.6			
PC10-02T	10	R1/4	11	29.8	23.8	20.7	17	20.5	8.5	35	1.90
PC10-03T		R3/8	12	29.3	23			26			
PC12-03T	12	R3/8	12	31.9	25.6	23.3	21	35.7	11	59	3.20
PC12-04T		R1/2	15	33.9	25.7			50.1			



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)

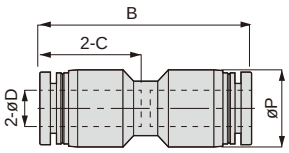


Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	C	H (Hex.)	Weight (g)	Oriice dia (mm)	Eff. sect. Area (mm^2)	Cv
PC5/32-U10UT	5/32	No.10-32UNF	3	20	17	14.9	7/16	6.2	1.8	1.9	0.10
PC5/32-N1UT		NPT1/8	8	21	16.9			8.2	3	5.3	0.29
PC5/32-N2UT		NPT1/4						16.5			
PC1/4-U10UT	1/4	No.10-32UNF	3	22.1	19.1	17	1/2	9	1.8	1.9	0.10
PC1/4-N1UT		NPT1/8	8	22.6	18.4			9.1	4.6	12.5	0.68
PC1/4-N2UT		NPT1/4	11	24.6	18.8		9/16	17.2			
PC1/4-N3UT		NPT3/8	12	23.6	17.5		11/16	27.8	4		
PC5/16-N1UT	5/16	NPT1/8	8	27.9	23.8	18.2	9/16	15.5	6	20	1.08
PC5/16-N2UT		NPT1/4	11	26.6	20.8			15.6	7		
PC5/16-N3UT		NPT3/8	12	23.9	17.8		11/16	23.6			
PC3/8-N1UT	3/8	NPT1/8	8	30.3	26.2	20.7	11/16	25.5	6	23	1.90
PC3/8-N2UT		NPT1/4	11	29.8	24			20.5	8.5	35	
PC3/8-N3UT		NPT3/8	12	29.3	23.2			26			
PC3/8-N4UT		NPT1/2	15	30.3	22.2		7/8	52.2			
PC1/2-N2UT	1/2	NPT1/4	11	35.7	29.9	23.1	7/8	47.9	8.5	35	1.90
PC1/2-N3UT		NPT3/8	12	31.9	25.8	23.3		35.7	11	59	3.20
PC1/2-N4UT		NPT1/2	15	33.9				50.1			

PU
Union Straight

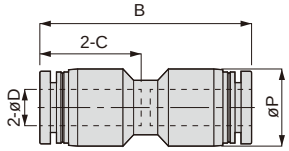




Unit: mm

Model	øD (Tube dia.)	B	C	øP	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PU4T	4	30.8	14.9	10	4.9	2.8	3.8	0.21
PU6T	6	34.9	17	12.5	6.8	4.3	11.4	0.62
PU8T	8	37.8	18.4	14.5	9.3	5.9	25.4	1.38
PU10T	10	41.4	20.2	17.5	15.5	8.3	36.7	1.99
PU12T	12	47.8	23.4	21	22.6	9.9	47.4	2.57



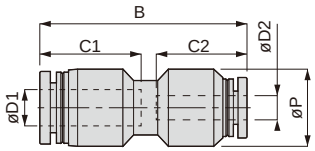


Unit: mm

Model	øD (Tube dia.)	B	C	øP	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PU5/32T	5/32	30.8	14.9	10	4.9	2.8	3.8	0.21
PU1/4T	1/4	34.9	17	12.5	6.8	4.3	11.4	0.62
PU5/16T	5/16	37.8	18.4	14.5	9.3	5.9	25.4	1.38
PU3/8T	3/8	41.4	20.2	17.5	15.5	8.3	36.7	1.99
PU1/2T	1/2	47.8	23.4	21	22.6	9.9	47.4	2.57

PG
Unequal Union Straight

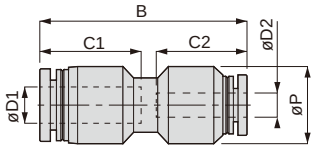




Unit: mm

Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PG6-4T	6	4	34.4	17	14.9	12.5	6.6	2.8	4.9	0.27
PG8-6T	8	6	37.9	18.4	17	14.5	8.8	4.3	6.3	0.34
PG10-8T	10	8	41.1	20.2	18.4	17.5	13.9	5.9	28.8	1.56
PG12-10T	12	10	47.6	23.4	20.2	21	21.7	8.3	39.9	2.16





Unit: mm

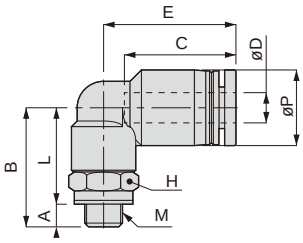
Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PG1/4-5/32T	1/4	5/32	34.4	17	14.9	12.5	6.6	2.8	4.9	0.27
PG5/16-1/4T	5/16	1/4	37.9	18.4	17	14.5	8.8	4.3	6.3	0.34
PG3/8-5/16T	3/8	5/16	41.1	20.2	18.4	17.5	13.9	5.9	28.8	1.56
PG1/2-3/8T	1/2	3/8	47.6	23.4	20.2	21	21.7	8.3	39.9	2.16

PL

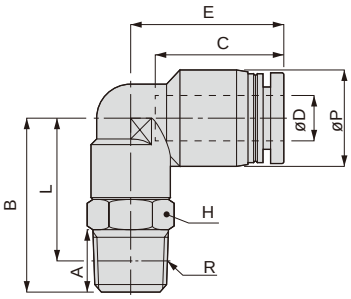
Elbow



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

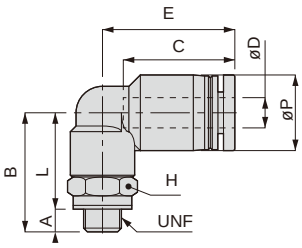


Unit: mm

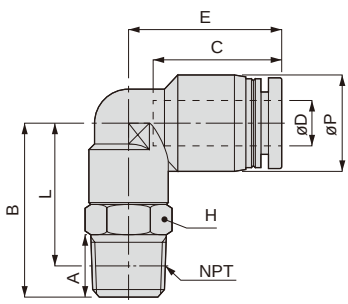
Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PL4-M5T	4	M5×0.8	3	16	13	17.7	14.9	10	8	5.7	2.4	3.7	0.20
PL4-01T		R1/8	8	22	18	18.7			10	10.9	2.8	4.5	0.24
PL6-M5T	6	M5×0.8	3	19.5	16.6	20.3	17	12.5	10	13	1.8	1.5	0.08
PL6-01T		R1/8	8	22.5	18.5					11.9	4	9	0.49
PL6-02T		R1/4	11	28	22	21.8			14	20	4.3	10	0.54
PL8-01T	8	R1/8	8	23	19	22.7	18.4	14.5	12	13.7	6	18.8	1.02
PL8-02T		R1/4	11	28	22	23.7			14	21.5	6.4	23.5	1.27
PL8-03T		R3/8	12	31	24.7	24.7			17	34.5		20.3	1.10
PL10-02T	10	R1/4	11	28.5	22.5	26	20.2	17.5	14	24.7	7.5	29.5	1.60
PL10-03T		R3/8	12	32	25.7	27			17	37.7	8.2	32.1	1.74
PL12-03T	12	R3/8	12	32.5	26.2	29.7	23.4	21	17	41.4	9	43	2.33
PL12-04T		R1/2	15	36.5	28.3				21				



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



Unit: mm

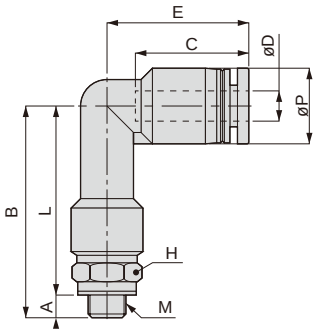
Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PL5/32-U10UT	5/32	No.10-32UNF	3	16	13	17.7	14.9	10	5/16	5.7	2.4	3.7	0.20
PL5/32-N1UT		NPT1/8	8	22	17.9	18.7			7/16	10.9	2.8	4.5	0.24
PL5/32-N2UT		NPT1/4			17.4	17.9				21.2			
PL1/4-U10UT	1/4	No.10-32UNF	3	19.5	16.6	20.3	17	12.5	7/16	13	1.8	1.9	0.10
PL1/4-N1UT		NPT1/8	8	22.5	18.4					11.9	4	9	0.49
PL1/4-N2UT		NPT1/4	11	28	22.2	21.8			9/16	20	4.3	10	0.54
PL1/4-N3UT		NPT3/8	12	30	23.4				7/16	33.7			
PL5/16-N1UT	5/16	NPT1/8	8	23	18.9	22.7	18.4	14.5	1/2	13.7	6	18.8	1.02
PL5/16-N2UT		NPT1/4	11	28	22.2	23.7			9/16	21.5	6.4	23.5	1.27
PL5/16-N3UT		NPT3/8	12	31	24.9	24.7			11/16	34.5		20.3	1.10
PL3/8-N1UT	3/8	NPT1/8	8	28	23.4	27	20.2	17.5	9/16	31.4	6	18.8	1.02
PL3/8-N2UT		NPT1/4	11	28.5	22.7	26				24.7	7.5	29.5	1.60
PL3/8-N3UT		NPT3/8	12	32	25.9	27			11/16	37.7	8.2	32.1	1.74
PL3/8-N4UT		NPT1/2	15	36	27.4				1/2	65.6			
PL1/2-N2UT	1/2	NPT1/4	11	26.2	26.2	29.7	23.4	21	9/16	42.6	9	43	2.33
PL1/2-N3UT		NPT3/8	12	32.5	26.4				11/16	41.4			
PL1/2-N4UT		NPT1/2	15	36.5	28.4				7/8				

PLL

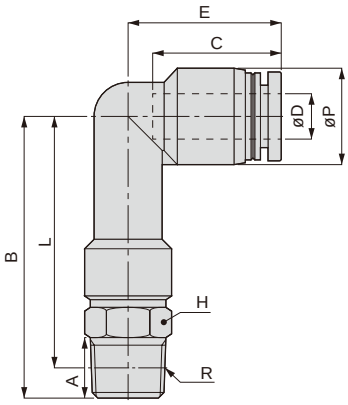
Long Elbow



Appearance dimension for metric thread



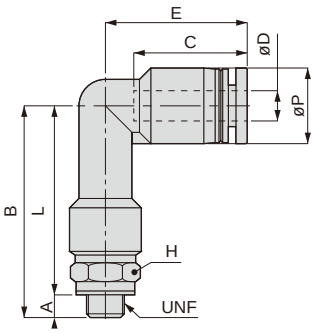
Appearance dimension for taper pipe thread (R)



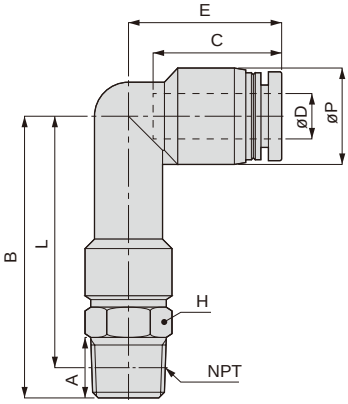
Unit: mm

Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PLL4-M5T	4	M5×0.8	3	28	25	18.7	14.9	10	8	6.7	2.4	3.5	0.19
PLL4-01T		R1/8	8	34	30				10	12	2.8	4.3	0.23
PLL6-01T	6	R1/8	8	37	33	20.3	17	12.5	10	13.4	4	7.9	0.43
PLL6-02T		R1/4	11	42.5	36.5	21.8			14	22.9	4.3	10.4	0.56
PLL8-01T	8	R1/8	8	39.5	35.5	22.7	18.2	14.5	12	17	6	18.5	1.00
PLL8-02T		R1/4	11	44.5	38.5	23.7			14	24.8	6.5	19.3	1.05
PLL8-03T		R3/8	12	47.5	41.2	24.7			17	39.1		19.2	1.04
PLL10-02T	10	R1/4	11	48	42	26	20.7	17.5	14	28.8	7.5	27.8	1.51
PLL10-03T		R3/8	12	51.5	45.2	27			17	43	8.3	31.8	1.72
PLL12-03T	12	R3/8	12	55.5	49.2	29.7	23.3	21	17	47.1	9	43.5	2.36
PLL12-04T		R1/2	15	59.5	51.3				21				

Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)

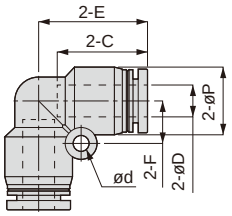


Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PLL5/32-U10UT	5/32	No.10-32UNF	3	28	25	18.7	14.9	10	5/16	6.7	2.4	3.5	0.19
PLL5/32-N1UT		NPT1/8	8	34	29.9				7/16	12	2.8	4.3	0.23
PLL1/4-N1UT	1/4	NPT1/8	8	37	32.9	20.3	17	12.5	7/16	13.4	4	7.9	0.43
PLL1/4-N2UT		NPT1/4	11	42.5	36.7	21.8			9/16	22.9	4.3	10.4	0.56
PLL5/16-N1UT	5/16	NPT1/8	8	39.5	35.4	22.7	18.2	14.5	1/2	17	6	18.5	1.00
PLL5/16-N2UT		NPT1/4	11	44.5	38.7	23.7			9/16	24.8	6.5	19.3	1.05
PLL5/16-N3UT		NPT3/8	12	47.5	41.4	24.7			11/16	39.1		19.2	1.04
PLL3/8-N2UT	3/8	NPT1/4	11	48	42.2	26	20.7	17.5	9/16	28.8	7.5	27.8	1.51
PLL3/8-N3UT		NPT3/8	12	51.5	45.4	27			11/16	43	8.3	31.8	1.72
PLL1/2-N3UT	1/2	NPT3/8	12	55.5	49.4	29.7	23.3	21	11/16	47.1	9	43.5	2.36
PLL1/2-N4UT		NPT1/2	15	59.5	51.4				7/8				

PV
Union Elbow

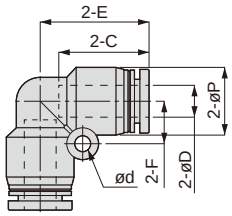




Unit: mm

Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PV4T	4	17.2	14.9	10	7	3.2	5.3	2.8	3.5	0.19
PV6T	6	20.5	17	12.5	8	3.2	7.5	4.3	8.7	0.47
PV8T	8	22.9	18.4	14.5	9.5	3.2	10.4	5.9	18.6	1.01
PV10T	10	26.2	20.2	17.5	11	4.2	17.4	8.3	28.4	1.54
PV12T	12	30.5	20.4	21	12.5	4.2	24.8	8.9	40.6	2.20



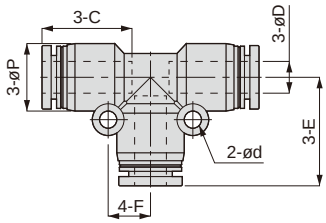


Unit: mm

Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PV5/32T	5/32	17.2	14.9	10	7	3.2	5.3	2.8	3.5	0.19
PV1/4T	1/4	20.5	17	12.5	8	3.2	7.5	4.3	8.7	0.47
PV5/16T	5/16	22.9	18.4	14.5	9.5	3.2	10.4	5.9	18.6	1.01
PV3/8T	3/8	26.2	20.2	17.5	11	4.2	17.4	8.3	28.4	1.54
PV1/2T	1/2	30.5	20.4	21	12.5	4.2	24.8	8.9	40.6	2.20

PE
Union Tee

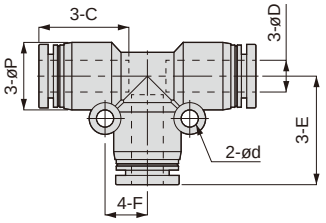




Unit: mm

Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PE4T	4	17.2	14.9	10	7	3.2	8	2.8	4	0.22
PE6T	6	20.5	17	12.5	8	3.2	11.2	4.3	11.3	0.61
PE8T	8	22.9	18.4	14.5	9.5	3.2	15.7	5.9	25.5	1.38
PE10T	10	26.2	20.2	17.5	11	4.2	25.5	8.3	37.5	2.03
PE12T	12	30.5	20.4	21	12.5	4.2	36.7	9.9	47.3	2.56





Unit: mm

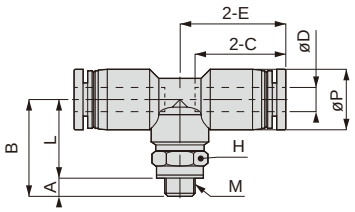
Model	øD (Tube dia.)	E	C	øP	F	ød	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm²)	Cv
PE5/32T	5/32	17.2	14.9	10	7	3.2	8	2.8	4	0.22
PE1/4T	1/4	20.5	17	12.5	8	3.2	11.2	4.3	11.3	0.61
PE5/16T	5/16	22.9	18.4	14.5	9.5	3.2	15.7	5.9	25.5	1.38
PE3/8T	3/8	26.2	20.2	17.5	11	4.2	25.5	8.3	37.5	2.03
PE1/2T	1/2	30.5	20.4	21	12.5	4.2	36.7	9.9	47.3	2.56

PB

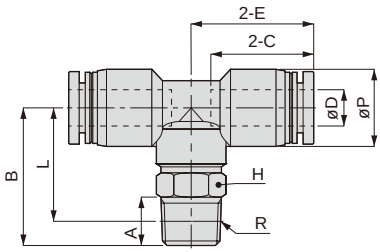
Branch Tee



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

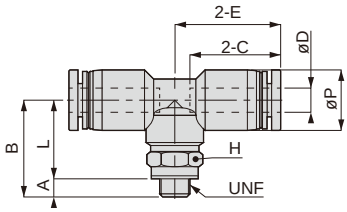


Unit: mm

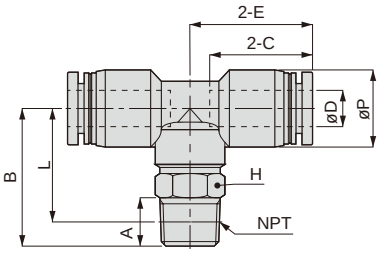
Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PB4-M5T	4	M5×0.8	3	16	13	17.7	14.9	10	8	8.2	2.4	3.6	0.20
PB4-01T		R1/8	8	22	18	18.7			10	13.3	2.8	6.1	0.33
PB6-01T	6	R1/8	8	22.5	18.5	20.3	17	12.5	10	15.2	4	10.2	0.55
PB6-02T		R1/4	11	28	22	21.8			14	23.5	4.3	13	0.70
PB8-01T	8	R1/8	8	23	19	22.7	18.2	14.5	12	18.3	6	23.8	1.29
PB8-02T		R1/4	11	28	22	23.7			14	25.9	6.4	34.3	1.86
PB8-03T		R3/8	12	31	24.7	24.7			17	39.3		33	1.79
PB10-02T	10	R1/4	11	28.5	22.5	26	20.7	17.5	14	32.6	7.5	37.3	2.02
PB10-03T		R3/8	12	32	25.7	27			17	45.8	8.2	46.4	2.51
PB12-03T	12	R3/8	12	32.5	26.2	29.7	23.3	21	17	52.7	9	45.6	2.47
PB12-04T		R1/2	15	36.5	28.3				21				



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



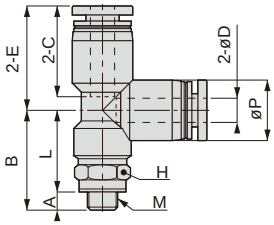
Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PB5/32-U10UT	5/32	No.10-32UNF	3	16	13	17.7	14.9	10	5/16	8.2	2.4	3.6	0.20
PB5/32-N1UT		NPT1/8	8	22	17.9	18.7			7/16	13.3	2.8	6.1	0.33
PB1/4-N1UT	1/4	NPT1/8	8	22.5	18.4	20.3	17	12.5	7/16	15.2	4	10.2	0.55
PB1/4-N2UT		NPT1/4	11	28	22.2	21.8			9/16	23.5	4.3	13	0.70
PB5/16-N1UT	5/16	NPT1/8	8	23	18.9	22.7	18.2	14.5	1/2	18.3	6	23.8	1.29
PB5/16-N2UT		NPT1/4	11	28	22.2	23.7			9/16	25.9	6.4	34.3	1.86
PB5/16-N3UT		NPT3/8	12	31	24.9	24.7			11/16	39.3		33	1.79
PB3/8-N2UT	3/8	NPT1/4	11	28.5	22.7	26	20.7	17.5	9/16	32.6	7.5	37.3	2.02
PB3/8-N3UT		NPT3/8	12	32	25.9	27			11/16	45.8	8.2	46.4	2.51
PB1/2-N3UT	1/2	NPT3/8	12	32.5	26.4	29.7	23.3	21	11/16	52.7	9	45.6	2.47
PB1/2-N4UT		NPT1/2	15	36.5	28.4				7/8				

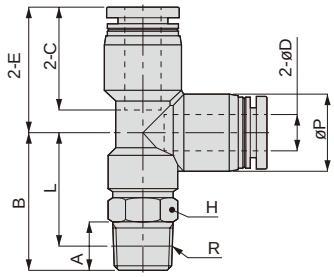
PD
Run Tee



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

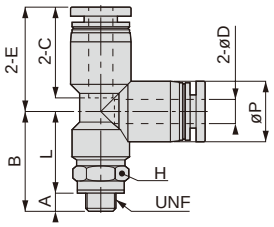


Unit: mm

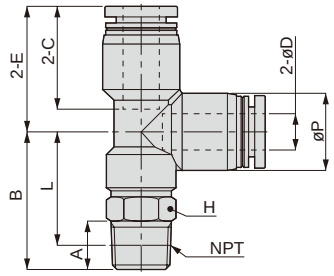
Model	øD (Tube dia.)	M/R	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PD4-M5T	4	M5×0.8	3	16.5	13.5	17.2	14.9	10	8	8.2	2.4	3.4	0.18
PD4-01T		R1/8	8	23	19				10	13.3	2.8	5.2	0.28
PD6-01T	6	R1/8	8	22.8	18.8	20.5	17	12.5	10	15.2	4	10.4	0.56
PD6-02T		R1/4	11	28.3	22.2				14	23.3	4.3	13	0.70
PD8-01T	8	R1/8	8	23	19	22.9	18.4	14.5	12	18.4	6	24.3	1.32
PD8-02T		R1/4	11	28.8	22.8				14	26.1	6.5	33.4	1.81
PD8-03T		R3/8	12	31.5	25.2				17	39		32.3	1.75
PD10-02T	10	R1/4	11	28.5	22.5	26.2	20.2	17.5	14	32.5	7.5	38.2	2.07
PD10-03T		R3/8	12	32	25.7				17	45.7	8.3	46.6	2.53
PD12-03T	12	R3/8	12	33	26.7	30.5	23.4	21	17	53	9	45.9	2.49
PD12-04T		R1/2	15	37	28.8				21				



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



Unit: mm

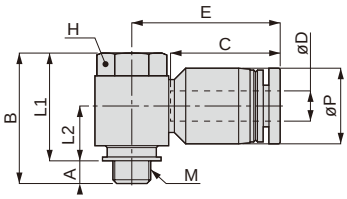
Model	øD (Tube dia.)	UNF/NPT	A	B	L	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PD5/32-U10UT	5/32	No.10-32UNF	3	16.5	13.5	17.2	14.9	10	5/16	8.2	2.4	3.4	0.18
PD5/32-N1UT		NPT1/8	8	22	18.9				7/16	13.3	2.8	5.2	0.28
PD1/4-N1UT	1/4	NPT1/8	8	22.8	18.6	20.5	17	12.5	7/16	15.2	4	10.4	0.56
PD1/4-N2UT		NPT1/4	11	28.3	22.5				9/16	23.3	4.3	13	0.70
PD5/16-N1UT	5/16	NPT1/8	8	23	18.9	22.9	18.4	14.5	1/2	18.4	6	24.3	1.32
PD5/16-N2UT		NPT1/4	11	28.8	23				9/16	26.1	6.5	33.4	1.81
PD5/16-N3UT		NPT3/8	12	31.5	25.4				11/16	39		32.3	1.75
PD3/8-N2UT	3/8	NPT1/4	11	28.5	22.7	26.2	20.2	17.5	9/16	32.5	7.5	38.2	2.07
PD3/8-N3UT		NPT3/8	12	32	25.9				11/16	45.7	8.3	46.6	2.53
PD1/2-N3UT	1/2	NPT3/8	12	33	26.9	30.5	23.4	21	11/16	53	9	45.9	2.49
PD1/2-N4UT		NPT1/2	15	37	28.9				7/8				

PH

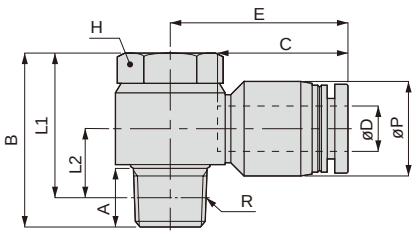
Single Banjo



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

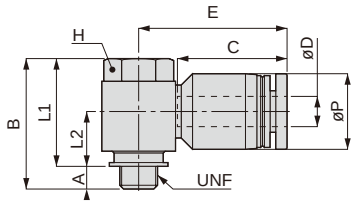


Unit: mm

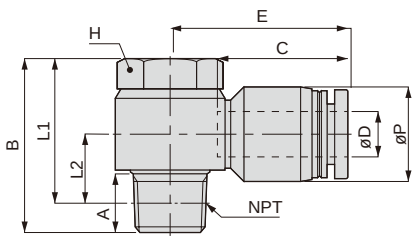
Model	øD (Tube dia.)	M/R	A	B	L1	L2	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PH4-M5T	4	M5×0.8	3	17.1	14.1	7.1	19.9	14.9	10	8	7.5	2.4	2.6	0.14
PH4-01T		R1/8	8	24.7	20.7	10.7	21.4			12	17.8	2.8	4.1	0.22
PH6-01T	6	R1/8	8	24.7	20.7	10.9	23.5	17	12.5	12	18.6	4.3	7.1	0.38
PH6-02T		R1/4	11	28.7	22.7	12.1	25.5			14	28.4	6.2	8.6	0.47
PH8-01T	8	R1/8	8	24.7	20.7	11.9	26.9	18.4	14.5	12	20.1	6	9.9	0.54
PH8-02T		R1/4	11	28.7	22.7	13.1	28.4			14	29.9	7	10.7	0.58
PH10-02T	10	R1/4	11	28.7	22.7	14.7	30.9	20.2	17.5	14	33	7.3	10.2	0.55
PH10-03T		R3/8	12	34.5	28.2	15.5	31.2			19	61	9	20.3	1.10
PH12-03T	12	R3/8	12	34.5	28.2	17.2	36.9	23.4	21	19	65	9	20.3	1.10
PH12-04T		R1/2	15	41.2	33	18.8	36.4			24	122		25	1.36



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



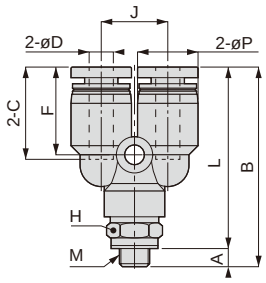
Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L1	L2	E	C	øP	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PH5/32-U10UT	5/32	No.10-32UNF	3	17.1	14.1	7.1	19.9	14.9	10	5/16	7.5	2.4	2.6	0.14
PH5/32-N1UT		NPT1/8	8	24.7	20.6	10.6	21.4			7/16	17.8	2.8	4.1	0.22
PH1/4-N1UT	1/4	NPT1/8	8	24.7	20.6	10.8	23.5	17	12.5	7/16	18.6	4.3	7.1	0.38
PH1/4-N2UT		NPT1/4	11	28.7	22.9	12.3	25.5			9/16	28.4	6.2	8.6	0.47
PH5/16-N1UT	5/16	NPT1/8	8	24.7	20.6	11.8	26.9	18.4	14.5	7/16	20.1	6	9.9	0.54
PH5/16-N2UT		NPT1/4	11	28.7	22.9	13.3	28.4			9/16	29.9	7	10.7	0.58
PH3/8-N2UT	3/8	NPT1/4	11	28.7	22.9	14.9	30.9	20.2	17.5	9/16	33	7.3	10.2	0.55
PH3/8-N3UT		NPT3/8	12	34.5	28.4	15.7	31.2			3/4	61	9	20.3	1.10
PH1/2-N3UT	1/2	NPT3/8	12	34.5	28.4	17.4	36.9	23.4	21	3/4	65	9	20.3	1.10
PH1/2-N4UT		NPT1/2	15	41.2	33.1	18.9	36.4			1	122		25	1.36

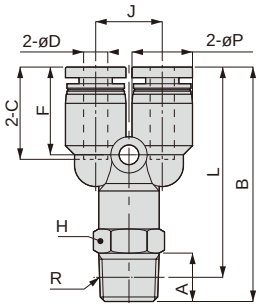
PX
Branch Y



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

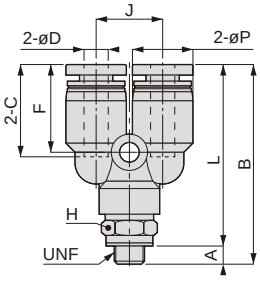


Unit: mm

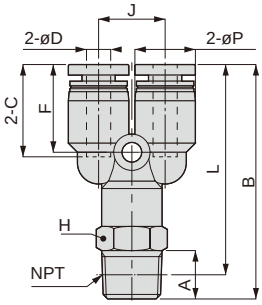
Model	øD (Tube dia.)	M/R	A	B	L	ød	C	øP	F	J	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PX4-M5T	4	M5×0.8	3	32.9	29.9	3.2	14.9	10	14.2	11	8	8.7	2.1	3.4	0.18
PX4-01T		R1/8	8	38.4	34.4						10	13.4		4.7	0.25
PX6-01T	6	R1/8	8	41.3	37.3	3.2	17	12.5	15.8	12	10	15.9	4	10.3	0.56
PX6-02T		R1/4	11	51.8	45.7	4.2		14.5	17.3	14	14	26.2	5	9.9	0.54
PX8-01T	8	R1/8	8	47.7	43.7	4.2	18.4	14.5	17.2	14	12	19.9	5.4	20	1.08
PX8-02T		R1/4	11	51.7	45.7						14	27.2		23.6	1.28
PX8-03T		R3/8	12	58.1	51.8			17.5	19.2	18	17	44.4	7.3	36.5	1.98
PX10-02T	10	R1/4	11	56.4	50.4	4.2	20.2	17.5	19.5	18	14	35	7.5	35.9	1.95
PX10-03T		R3/8	12	58.4	52.1						17	47.7	8.3	42.5	2.30
PX12-03T	12	R3/8	12	60.6	54.3	4.2	23.4	21	22.2	20	17	55.3	8.9	45.7	2.48
PX12-04T		R1/2	15	64.6	56.4						21				



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)

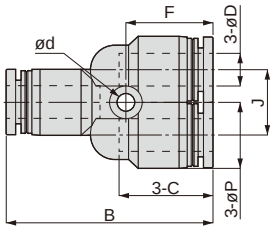


Unit: mm

Model	øD (Tube dia.)	UNF/NPT	A	B	L	ød	C	øP	F	J	H (Hex.)	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PX5/32-U10UT	5/32	No.10-32UNF	3	32.9	29.9	3.2	14.9	10	14.2	11	5/16	8.7	2.1	3.4	0.18
PX5/32-N1UT		NPT1/8	8	38.4	34.3						7/16	13.4		4.7	0.25
PX1/4-N1UT	1/4	NPT1/8	8	41.3	37.1	3.2	17	12.5	15.8	12	7/16	15.9	4	10.3	0.56
PX1/4-N2UT		NPT1/4	11	51.8	46	4.2		14.5	17.3	14	9/16	26.2	5	9.9	0.54
PX5/16-N1UT	5/16	NPT1/8	8	47.7	43.6	4.2	18.4	14.5	17.2	14	1/2	19.9	5.4	20	1.08
PX5/16-N2UT		NPT1/4	11	51.7	45.9						9/16	27.2		23.6	1.28
PX5/16-N3UT		NPT3/8	12	58.1	52			17.5	19.2	18	11/16	44.4	7.3	36.5	1.98
PX3/8-N2UT	3/8	NPT1/4	11	56.4	50.6	4.2	20.2	17.5	19.5	18	9/16	35	7.5	35.9	1.95
PX3/8-N3UT		NPT3/8	12	58.4	52.3						11/16	47.7	8.3	42.5	2.30
PX1/2-N3UT	1/2	NPT3/8	12	60.6	54.5	4.2	23.4	21	22.2	20	11/16	55.3	8.9	45.7	2.48
PX1/2-N4UT		NPT1/2	15	64.6	56.5						7/8				

PY
Union Y

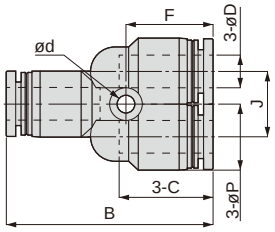




Unit: mm

Model	øD (Tube dia.)	B	C	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PY4T	4	32.8	14.9	10	3.2	11	14.1	7.7	2.1	2.5	0.14
PY6T	6	37.7	17	12.5	3.2	12	15.8	10.8	4.1	8.7	0.47
PY8T	8	42.4	18.4	14.5	3.2	14	17.2	15.2	5.3	16.7	0.91
PY10T	10	48.4	20.2	17.5	4.2	18	19.5	25.3	8.1	33.1	1.79
PY12T	12	54.8	23.4	21	4.2	20	22.2	36.3	8.6	37.8	2.05



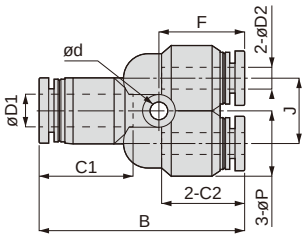


Unit: mm

Model	øD (Tube dia.)	B	C	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PY5/32T	5/32	32.8	14.9	10	3.2	11	14.1	7.7	2.1	2.5	0.14
PY1/4T	1/4	37.7	17	12.5	3.2	12	15.8	10.8	4.1	8.7	0.47
PY5/16T	5/16	42.4	18.4	14.5	3.2	14	17.2	15.2	5.3	16.7	0.91
PY3/8T	3/8	48.4	20.2	17.5	4.2	18	19.5	25.3	8.1	33.1	1.79
PY1/2T	1/2	54.8	23.4	21	4.2	20	22.2	36.3	8.6	37.8	2.05

PW
Unequal Union Y

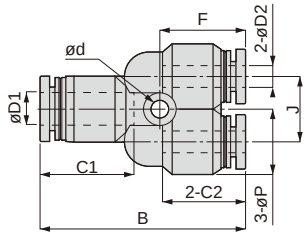




Unit: mm

Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PW6-4T	6	4	37.2	17	14.9	12.5	3.2	12	15.2	10.4	3.8	4	0.22
PW8-6T	8	6	42.5	18.4	17	14.5	3.2	14	17.3	14.4	5.8	6.3	0.34
PW10-8T	10	8	48.1	20.2	18.4	17.5	4.2	18	19.2	22.2	8.2	22	1.19
PW12-10T	12	10	54.6	23.4	20.2	21	4.2	20	22	34.8	7.9	35.9	1.95

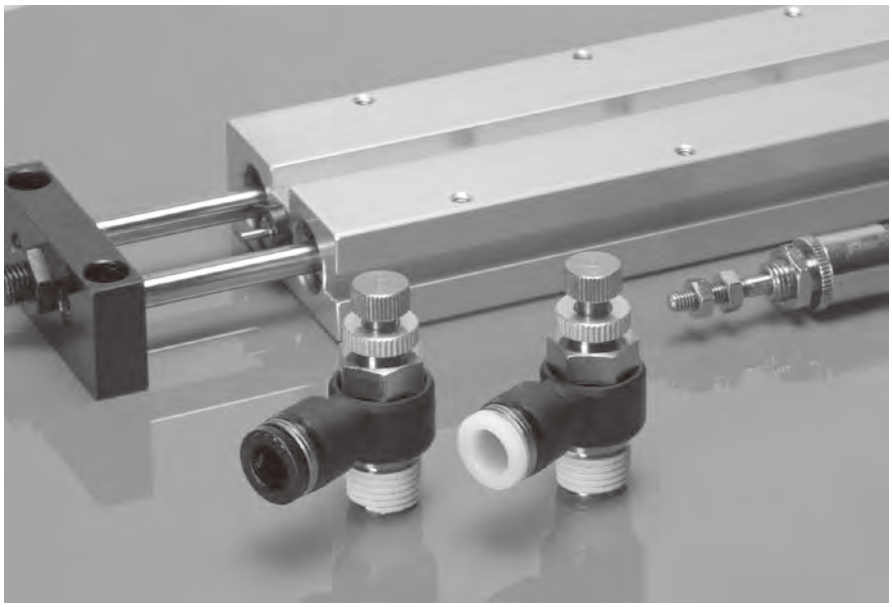




Unit: mm

Model	øD1 (Tube dia.)	øD2 (Tube dia.)	B	C1	C2	øP	ød	J	F	Weight (g)	Oriice dia. (mm)	Eff. sect. Area (mm^2)	Cv
PW1/4-5/32T	1/4	5/32	37.2	17	14.9	12.5	3.2	12	15.2	10.4	3.8	4	0.22
PW5/16-1/4T	5/16	1/4	42.5	18.4	17	14.5	3.2	14	17.3	14.4	5.8	6.3	0.34
PW3/8-5/16T	3/8	5/16	48.1	20.2	18.4	17.5	4.2	18	19.2	22.2	8.2	22	1.19
PW1/2-3/8T	1/2	3/8	54.6	23.4	20.2	21	4.2	20	22	34.8	7.9	35.9	1.95

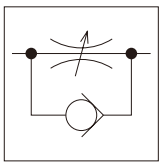
Maintaining basic functions, this low-cost Speed controller achieves high-cost performance.

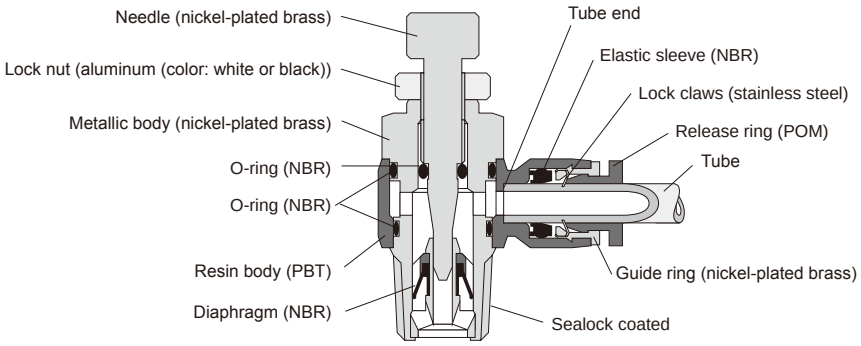


- The speed controller controls the operation speed of a driving device.
- The lead-out directions are free thanks to rotation of the resin body and joint.

Construction

Marking symbol





Specification

Type	Fitting
Fluid admitted	Air
Max. service pressure	0.9 MPa
Check valve operating pressure	0.05 MPa
Service temperature range	0 ~+60°C

Order example

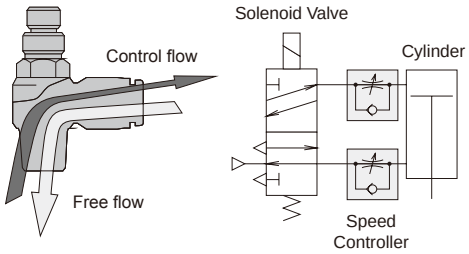
JSC 1/4 — N1 A U T

MODEL

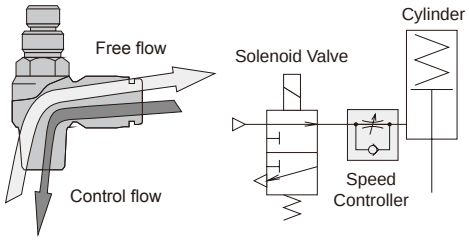
HEXAGON FLAT-TO-FLAT SPECIFICATION
U: Hexagon flat-to-flat inch spec. (NPT)
Blank: Hexagon flat-to-flat mm spec.

CONTROL DIRECTION
A: Meter-out control (Color of lock nut: white (primary color)) (*1)
B: Meter-in control (Color of lock nut: black) (*2)

*1. Meter-out control
- The flow rate of air entering from the thread side can be controlled, whereas air entering from the joint side is not controlled.



*2. Meter-in control
- The flow rate of air entering from the joint side can be controlled, whereas air entering from the joint side is not controlled.



THREAD SIZE (R)

	Metric thread	Taper pipe thread			
Code	**M5**	**01**	**02**	**03**	**04**
Size	M5×0.8	R1/8	R1/4	R3/8	R1/2
	Unified fine thread	American standard taper pipe thread			
Code	**U10**	**N1**	**N2**	**N3**	**N4**
Size	10-32UNF	NPT1/8	NPT1/4	NPT3/8	NPT1/2

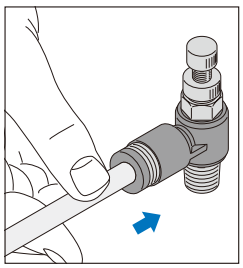
TUBE DIA. (øD)

	mm size				
Code	**4**	**6**	**8**	**10**	**12**
Dia. (mm)	4	6	8	10	12
	inch size				
Code	**5/32**	**1/4**	**5/16**	**3/8**	**1/2**
Dia. (inch)	5/32	1/4	5/16	3/8	1/2

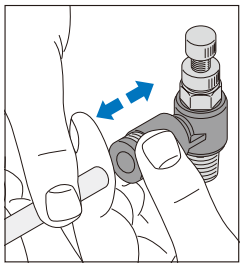
Connection and disconnection

1. How to fit and release tubing

(1) Tube insertion
Simply insert a tubing to the end of Speed Controller. The lock claws automatically fix the tubing and the elastic sleeve seals the tube surround.
Please refer to "2. Cautions on the fitting of tube" in "Common Safety Instructions for Quick-Fitting Joint" for other instructions.

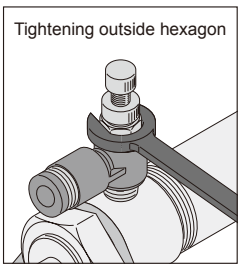


(2) Tube release
In case of releasing the tube, push the release ring. The lock claws open and the tube can be released. Before releasing the tube, make certain that the pressure inside the tube is zero.



2. How to tighten the screw

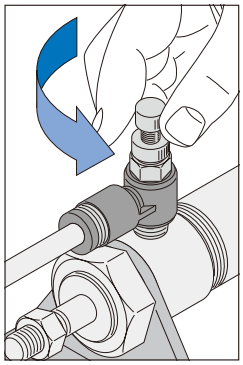
Tighten the outside hexagon by a spanner. (Please refer to the text for detail.)
Please refer to "Table. Recommended Tightening Torque" in "1. Notes on installation" on "Common Safety Instructions for Controllers".



Speed adjustment

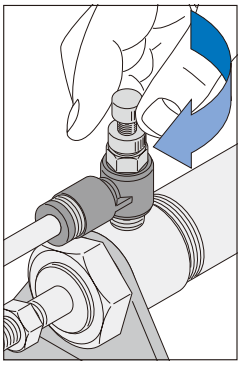
1. How to run the driving devise faster

Turn the needle counterclockwise from fully closed position, and the driving devise will run faster. Tighten the Lock nut at desirable speed in order to keep same speed.



2. How to run the driving devise slower

Turn the needle clockwise, and the driving devise will run slower. Tighten the Lock nut at desirable speed in order to keep same speed.



⚠ Detailed safety instructions

Before using the PISCO device, be sure to read the "Safety Instructions", "Common Safety Instructions for Products Listed in This Manual" on page 8-20 to 22 and "Common Safety Instructions for Controllers" on page 8-25.

Warning

1. Adjust the speed of the actuator by opening the needle gradually from the fully closed position. With the needle open, there are chances of the actuator flying out. Turn the needle clockwise to close or counterclockwise to open.
2. Do not subject the product with a rotatable resin to forcible swinging or rotation. Otherwise the body may suffer damage or develop leakage.

Caution

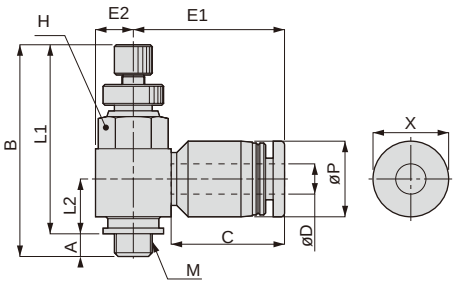
1. The Speed Controller is designed to tolerate some air flow at fully closed position. Therefore do not use it for applications that permits no air flow.

JSC

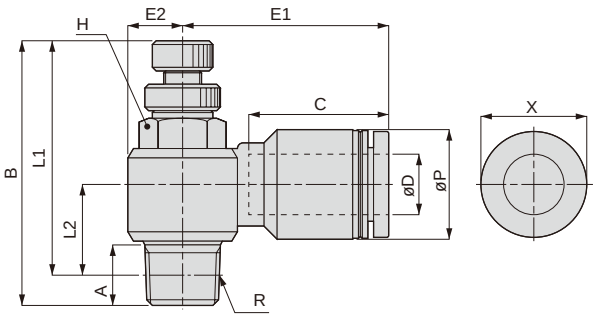
Elbow



Appearance dimension for metric thread



Appearance dimension for taper pipe thread (R)

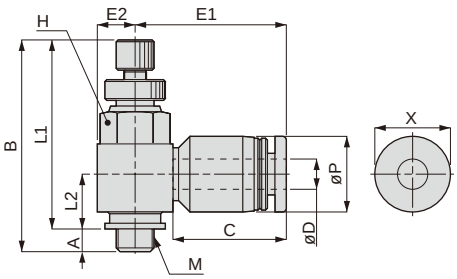


Unit: mm

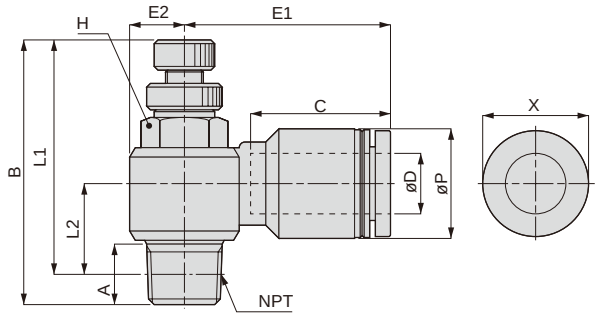
Model	øD (Tube dia.)	M/R	A	B		L1		L2	øP	C	E1	E2	H (Hex.)	X	Weight (g)
				max	min	max	min								
JSC4-M5□T	4	M5×0.8	2.9	29.7	27	26.8	24.1	7.2	10	14.9	19.9	4.9	8	9.9	8.5
JSC4-01□T		R1/8	8	40.7	34.4	36.7	30.4	10.7			21.4	7.2	10		18
JSC6-M5□T	6	M5×0.8	2.9	29.7	27	26.8	24.1	8.4	12.5	17	24	4.9	8	11.8	9.5
JSC6-01□T		R1/8	8	40.7	34.4	36.7	30.4	10.9			23.5	7.2	10		19
JSC6-02□T		R1/4	11	47.8	41.4	41.8	35.4	12.2			25.5	9.2	14		36
JSC8-01□T	8	R1/8	8	40.7	34.4	36.7	30.4	11.9	14.5	18.1	26.9	7.2	10	13.8	20
JSC8-02□T		R1/4	11	47.8	41.4	41.8	35.4	13.2			28.4	9.2	14		38
JSC10-02□T	10	R1/4	11	47.8	41.4	41.8	35.4	14.8	17.5	20.2	30.9	9.2	14	16.8	41
JSC10-03□T		R3/8	12	53.7	46.5	47.3	40.1	16.7			31.2	11	19		68
JSC12-03□T	12	R3/8	12	53.7	46.5	47.3	40.1	18.4	21	23.4	36.9	11	19	19.8	71
JSC12-04□T		R1/2	15	59.3	52.3	51.1	44.1	19.7			36.4	14	24		108



Appearance dimension for unified thread



Appearance dimension for pipe thread general purpose (NPT)



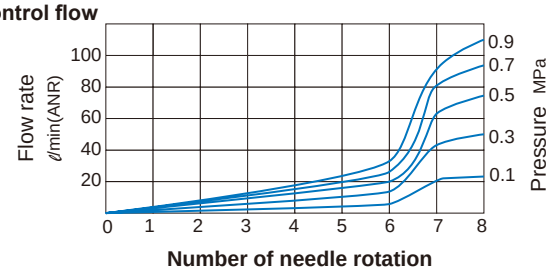
Unit: mm

Model	øD (Tube dia.)	UBF/NPT	A	B		L1		L2	øP	C	E1	E2	H (Hex.)	X	Weight (g)
				max	min	max	min								
JSC5/32-U10□UT	5/32	No.10-32UNF	2.9	29.7	27	26.8	24.1	7.2	10	14.9	19.9	4.9	5/16	9.9	8.5
JSC5/32-N1□UT		NPT1/8	8	40.7	34.4	36.7	30.4	10.7			21.4	7.2	7/16		18
JSC1/4-U10□UT	1/4	No.10-32UNF	2.9	29.7	27	26.8	24.1	8.4	12.5	17	24	4.9	5/16	11.8	9.5
JSC1/4-N1□UT		NPT1/8	8	40.7	34.4	36.7	30.4	10.9			23.5	7.2	7/16		19
JSC1/4-N2□UT		NPT1/4	11	47.8	41.4	41.8	35.4	12.2			25.5	9.2	9/16		36
JSC5/16-N1□UT	5/16	NPT1/8	8	40.7	34.4	36.7	30.4	11.9	14.5	18.1	26.9	7.2	7/16	13.8	20
JSC5/16-N2□UT		NPT1/4	11	47.8	41.4	41.8	35.4	13.2			28.4	9.2	9/16		38
JSC3/8-N2□UT	3/8	NPT1/4	11	47.8	41.4	41.8	35.4	14.8	17.5	20.2	30.9	9.2	9/16	16.8	41
JSC3/8-N3□UT		NPT3/8	12	53.7	46.5	47.3	40.1	16.7			31.2	11	3/4		68
JSC1/2-N3□UT	1/2	NPT3/8	12	53.7	46.5	47.3	40.1	18.4	21	23.4	36.9	11	3/4	19.8	71
JSC1/2-N4□UT		NPT1/2	15	59.3	52.3	51.1	44.1	19.7			36.4	14	1		108

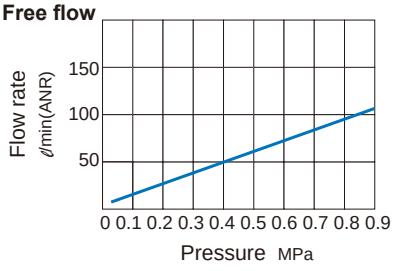
Characteristics

JSC 4-M5□T
6-M5□T
5/32-U10□UT
1/4-U10□UT

Control flow

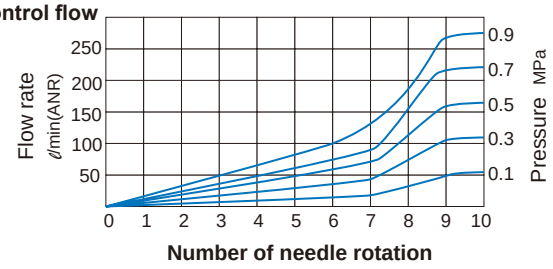


Free flow

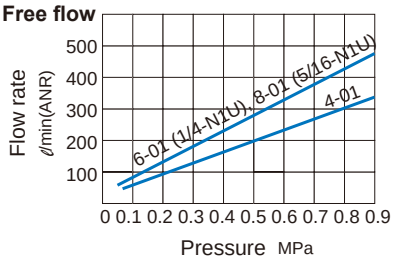


JSC 4-01□T
6-01□T
8-01□T
5/32-N1□UT
1/4-N1□UT
5/16-N1□UT

Control flow

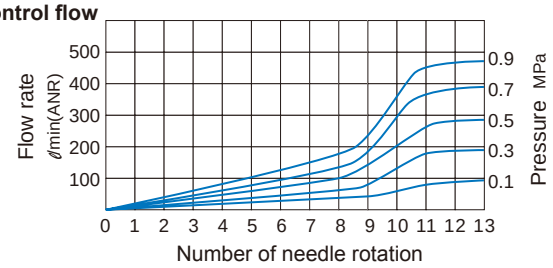


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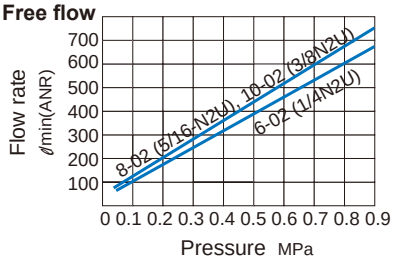


JSC 6-02□T
8-02□T
10-02□T
1/4-N2□UT
5/16-N2□UT
3/8-N2□UT

Control flow

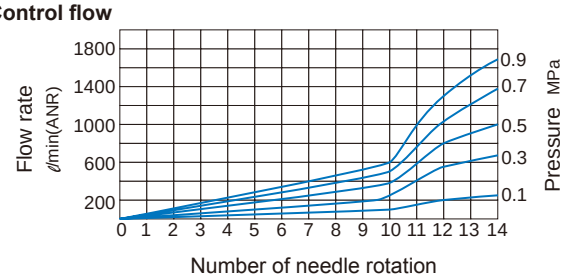


Free flow

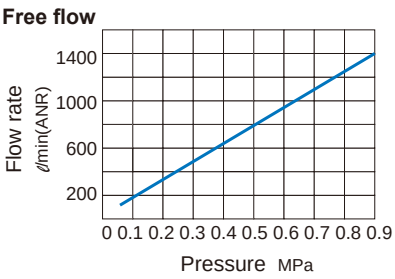


JSC 10-03□T
12-03□T
3/8-N3□UT
1/2-N3□UT

Control flow

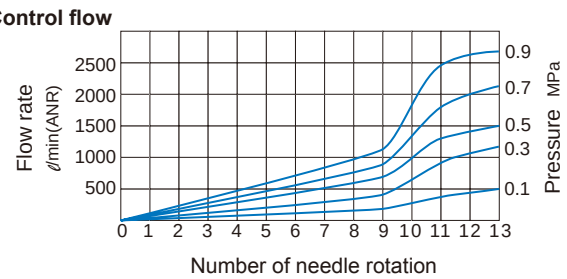


Free flow

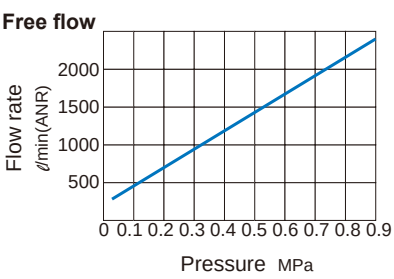


JSC 12-04□T
1/2-N4□UT

Control flow



Free flow



These Safety Instructions aim to prevent injuries to human bodies and damage to properties by requiring proper use of PISCO devices.

Also the relevant requirements of ISO 4414 and JIS B8370 must be observed.

ISO 4414: Pneumatic fluid power... Recommendations for the application of equipment to transmission and control systems.

JIS B 8370: General standards for pneumatic systems

Safety instructions are classified into "Danger", "Warning" and "Caution", categories depending on the degree of danger or damage involved when the safety instructions are not complied with in handling the equipment.

Danger	Failure to heed the warning of apparent danger may result in death or serious injuries.
Warning	Failure to heed the warning of conditionally dangerous situations may result in death or serious injuries.
Caution	Failure to heed the warning of conditionally dangerous situations may result in minor or not too serious injuries or damage to properties.

* Safety Instructions are subject to change without advance notice.

⚠ Common Safety Instructions for Products Listed in This Manual

PISCO products are designed and manufactured for use with general industrial machinery and equipment. Therefore be sure to observe the following safety instructions.

⚠ Danger

1. Do not use PISCO devices with the following equipment.
   (1) Equipment used for the sustenance or control of people's health or lives.
   (2) Equipment used for the movement or transport of people.
   (3) Equipment used specifically to ensure safety.

⚠ Warning

1. Avoid the following uses for PISCO devices.
   (1) Use under conditions not specified for the device
   (2) Use in any outdoor environment
   (3) Use in locations where the device is exposed to excessive vibration or shocks
   (4) Use in locations where the device is exposed to any corrosive gas, inflammable gas, chemicals, seawater, or vapor.
   - Certain PISCO devices, however, can be used in environments as described above. Therefore check on the specifications for the use of individual devices.
2. Do not disassemble or remodel the PISCO devices in such a way as may affect the basic structure, performance or function of them.
3. Carry out maintenance and checks of the PISCO devices only after turning power off, shutting air off and making certain that the pressure in the piping has dropped to zero.
4. Never touch the release ring of the Quick-Fitting Joint when there is pressure working on it. Touching may release the ring, which in turn may cause the tube to fall out.
5. Avoid too frequent switching of air pressure. Otherwise the device body may heat up to cause burns on you.
6. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.
7. For applications in which the threaded side or the tube connection side is subject to vibration, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
8. For applications with hot water of 60 or above or thermal oil, use no other joints than Die Temperature Control Fitting. Heat or hydrolysis may damage the joint body.
9. For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.

⚠ Caution

1. In installing the piping, be sure to remove dust or drainage from within the piping. Dust or drainage left unremoved may enter other equipment, thus causing troubles.
2. When using an ultrasoft tube to connect to a Quick-Fitting Joint, be sure to use an insert ring in the bore of the tube. Otherwise the tube may fall out to cause leakage.
3. When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified (Table 1).

Table 1. Tube O.D. tolerance

mm size	Nylon tube	Urethane tube
ø1.8 mm	—	±0.05mm
ø3 mm	—	±0.15mm
ø4 mm	±0.1mm	±0.15mm
ø6 mm	±0.1mm	±0.15mm
ø8 mm	±0.1mm	±0.15mm
ø10 mm	±0.1mm	±0.15mm
ø12 mm	±0.1mm	±0.15mm
ø16 mm	±0.1mm	±0.15mm

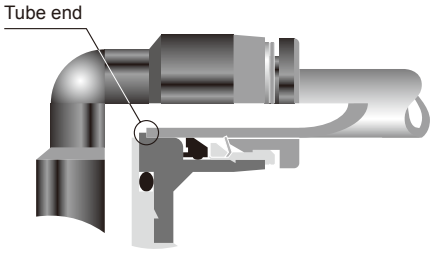
inch size	Nylon tube	Urethane tube
ø1/8	±0.0039in.	±0.0059in.
ø5/32	±0.0039in.	±0.0059in.
ø3/16	±0.0039in.	±0.0059in.
ø1/4	±0.0039in.	±0.0059in.
ø5/16	±0.0039in.	±0.0059in.
ø3/8	±0.0039in.	±0.0059in.
ø1/2	±0.0039in.	±0.0059in.
ø5/8	±0.0039in.	±0.0059in.

⚠ Caution

4. Cautions on the fitting of tube

(1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.

(2) When fitting a tube, refer to the dimensional specification of (Table 2). To prevent leaks, insert the tube to end (C) completely.



(3) On completion of fitting, make certain that the tube does not come out at your pulling.

5. Cautions on the release of tube

(1) Before releasing the tube, make certain that the pressure inside the tube is zero.

(2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

6. Cautions on the installation of joint body

(1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.

(2) In tightening the screw, use the tightening torque recommended in (Table 2).

- Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
- Use of a torque lower than the recommended level may cause loose screw and leakage.

(3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 2. Tightening torque, sealock color and gasket material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material
Metric thread	M3×0.5 M5×0.8 M6×1.0 M6×0.75 M8×0.75 M5×0.8	0.7N·m (0.52lbf·ft) 1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft) 1.8 ~ 2.3N·m (1.33 ~ 1.70lbf·ft) 0.8 ~ 1.0N·m (0.59 ~ 0.74lbf·ft) 1.0 ~ 2.0N·m (0.74 ~ 1.48lbf·ft) 1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)	—	SUS304, NBR POM (Polyacetal)
Taper pipe thread	R1/8 R1/4 R3/8 R1/2	7 ~ 9N·m (5.16 ~ 6.64lbf·ft) 12 ~ 14N·m (8.85 ~ 10.33lbf·ft) 22 ~ 24N·m (16.23 ~ 17.70lbf·ft) 28 ~ 30N·m (20.65 ~ 22.13lbf·ft)	White	—
Uniied thread	No.10~32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)	—	SUS304, NBR
Pipe thread General purpose (inch)	1/16-28NPT 1/8-27NPT 1/4-18NPT 3/8-18NPT 1/2-14NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft) 7 ~ 9N·m (5.16 ~ 6.64lbf·ft) 12 ~ 14N·m (8.85 ~ 10.33lbf·ft) 22 ~ 24N·m (16.23 ~ 17.70lbf·ft) 28 ~ 30N·m (20.65 ~ 22.13lbf·ft)	Gray	—

7. Cautions on the removal of joint body

(1) When removing the joint body, loosen it with a proper tool, using the outside or inside hexagon.

(2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

⚠ Common Safety Instructions for Quick-Fitting Joint

Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

⚠ Warning

1. Never use the Quick-Fitting Joint with fluids other than air or water (usable with some models). For applications with fluids other than air or water, contact PISCO for instructions.
2. Never use joints other than Spatter Joint or Brass Joint where they are exposed to spatter. Otherwise spatter can cause fire.
3. For applications in which the threaded side or the tube connection side is subject to vibration or rotation, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
4. For applications with hot water of 60°C (140°F) or above or thermal oil, use no other joints than Die Temperature Control Fittings. Heat or hydrolysis may damage the joint body.
5. For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.
6. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.

⚠ Caution

1. When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified in (Table 1).

Table 1. Tube O.D. tolerance

mm size	Nylon tube	Urethane tube
ø1.8 mm	—	±0.05mm
ø3 mm	—	±0.15mm
ø4 mm	±0.1mm	±0.15mm
ø6 mm	±0.1mm	±0.15mm
ø8 mm	±0.1mm	±0.15mm
ø10 mm	±0.1mm	±0.15mm
ø12 mm	±0.1mm	±0.15mm
ø16 mm	±0.1mm	±0.15mm

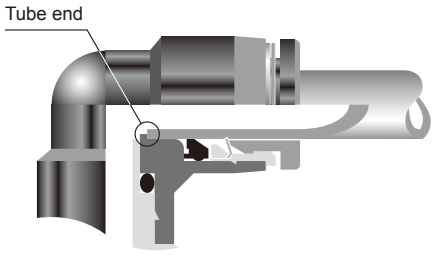
inch size	Nylon tube	Urethane tube
ø1/8	±0.0039in.	±0.0059in.
ø5/32	±0.0039in.	±0.0059in.
ø3/16	±0.0039in.	±0.0059in.
ø1/4	±0.0039in.	±0.0059in.
ø5/16	±0.0039in.	±0.0059in.
ø3/8	±0.0039in.	±0.0059in.
ø1/2	±0.0039in.	±0.0059in.
ø5/8	±0.0039in.	±0.0059in.

2. Cautions on the fitting of tube

(1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.

(2) When fitting a tube, refer to the dimensional specification of (Table 2). To prevent leaks, insert the tube to end (C) completely.

(3) On completion of fitting, make certain that the tube does not come out at your pulling.



3. Cautions on the release of tube

(1) Before releasing the tube, make certain that the pressure inside the tube is zero.

(2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

⚠ Caution

4. Cautions on the installation of joint body

(1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.

(2) In tightening the screw, use the tightening torque recommended in (Table 2).

- Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
- Use of a torque lower than the recommended level may cause loose screw and leakage.

(3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 2. Tightening torque, sealock color and gasket material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material
Metric thread	M3×0.5 M5×0.8 M6×1.0 M6×0.75 M8×0.75 M5×0.8	0.7N·m (0.52lbf·ft) 1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft) 1.8 ~ 2.3N·m (1.33 ~ 1.70lbf·ft) 0.8 ~ 1.0N·m (0.59 ~ 0.74lbf·ft) 1.0 ~ 2.0N·m (0.74 ~ 1.48lbf·ft) 1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)	—	SUS304, NBR POM (Polyacetal)
Taper pipe thread	R1/8 R1/4 R3/8 R1/2	7 ~ 9N·m (5.16 ~ 6.64lbf·ft) 12 ~ 14N·m (8.85 ~ 10.33lbf·ft) 22 ~ 24N·m (16.23 ~ 17.70lbf·ft) 28 ~ 30N·m (20.65 ~ 22.13lbf·ft)	White	—
Uniied thread	No.10~32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)	—	SUS304, NBR
Pipe thread General purpose (inch)	1/16-28NPT 1/8-27NPT 1/4-18NPT 3/8-18NPT 1/2-14NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft) 7 ~ 9N·m (5.16 ~ 6.64lbf·ft) 12 ~ 14N·m (8.85 ~ 10.33lbf·ft) 22 ~ 24N·m (16.23 ~ 17.70lbf·ft) 28 ~ 30N·m (20.65 ~ 22.13lbf·ft)	Gray	—

5. Cautions on the removal of joint body

(1) When removing the joint body, loose it with a proper tool, using the outside or inside hexagon.

(2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

⚠ Warning

1. Each device has its control direction, so check it is manual and by the mark on the device before use. Mistaking the control direction may cause injuries on the operator or damage to the equipment.
2. Do not give tension, twist or bending to the controllers. Also, do not drop or give excessive shocks to them. Such careless handling can inflict damage to them.
3. When the controller has a lock nut on it, tighten it by hand without using a tool. Tightening with a tool may damage the lock nut or the controller body. Also, incomplete may lead to a loose lock nut, which in turn may render the initial setting useless.
4. Use clean air as the pressure source. Dust or sludge may upset the control setting.

⚠ Caution

1. Notes on installation

(1)Tighten with a proper tool, using hexagonal or knurled part.

(2) In tightening the screw, use the tightening torque recommended in the following table. Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks. Use of a torque lower than the recommended level may cause loose screw and leakage.

Table. Recommended tightening torque

■ Hexagonal part

Thread type	Thread size	Tightening torque
Metric thread	M3×0.5	0.7N·m (0.52lbf·ft)
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)
	M6×1.0	1.8 ~ 2.3N·m (1.33 ~ 1.70lbf·ft)
Taper pipe thread	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)
	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)
Uniied thread	No.10~32UNF	1.5 ~ 1.9N·m (1.11 ~ 1.40lbf·ft)
Pipe thread General purpose (inch)	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)
Parallel pipe thread	G3/8	1/2 ~ 1 turn after hand-tightening
	G1/2	

■ Knurled part

Thread type	Thread size	Tightening torque
Metric thread	M5×0.8	1/6 turn after hand-tightening
	M6×1.0	
	M10×1.0	
Parallel pipe thread	G1/8	1/2 ~ 1 turn after hand-tightening
	G1/4	

2. Notes on removal

(1) Loosen it with a proper tool, using the hexagonal or knurled part.

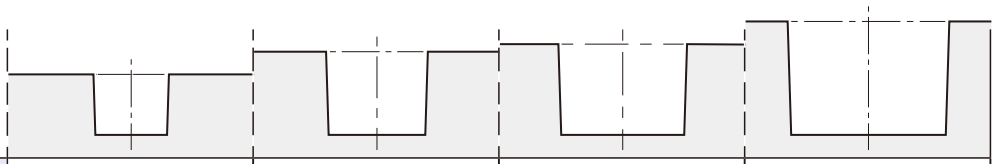
(2) Remove sealant sticking to the thread on the mated equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

⚠ Thread and Tube Size Full Scale Chart

- If you do not know exact size of your equipment, confirm it by using reference table below.

Taper pipe thread & Pipe thread general purpose (inch)

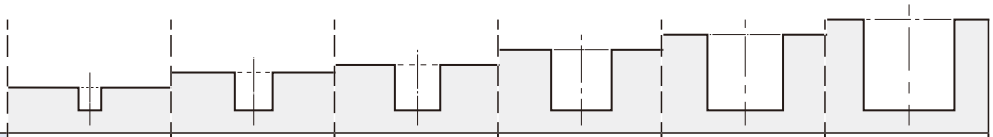




Taper pipe thread	Size	R (Rc)1/8	R (Rc)1/4	R (Rc)3/8	R (Rc)1/2
	Code	01	02	03	04
Pipe thread General purpose (inch)	Size	NPT1/8	NPT1/4	NPT3/8	NPT1/2
	Code	N1	N2	N3	N4

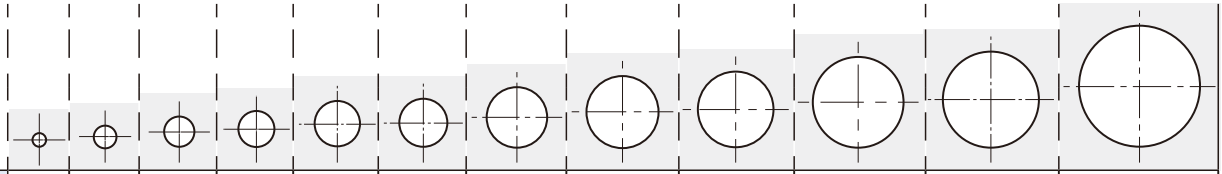
Metric thread & Unified thread





Metric thread	Size	M3×0.5	M5×0.8	M6×1.0	M8×0.75	M10×1.0	M12×1.0
	Code	M3	M5	M6	M8	—	—
Unified thread	Size	—	No.10-32UNF	—	—	—	—
	Code	—	U10	—	—	—	—

Tube diameter (mm size & inch size)



mm size	ø1.8	ø3	ø4		ø6		ø8		ø10	ø12		ø16
inch size		ø1/8	ø5/32	ø3/16		ø1/4	ø5/16	ø3/8			ø1/2	ø5/8

MEMO

NOTE

Caution for safety

⚠ PLEASE READ **BEFORE USING**

Before selecting model and servicing of the product, read throughly this CAUTIONS for SAFETY for the proper usage.

- The following cautions are for the purpose of preventing your personnel from suffering injury, by following the proper usage of the products.
- Items are classified in three categories, DANGER, WARNING, and CAUTION. All items are crucial for the safety and need to be followed without exception.

DANGER ⚠	Obviously dangerous, which may cause death or serious injury of personnel, and damage or destruction of property.
WARNING ⚠	Not immediately subject to danger, however not avoiding the displayed danger when mishandling the product may cause death or serious injury of personnel and damage or destruction of property.
CAUTION ⚠	Not immediately subject to danger, however not avoiding the displayed danger when mishandling the product may cause injury of personnel and damage or destruction of property.

For the correct handling, please read the instruction manual before installing and servicing of the product.

⚠ DANGER

(Applies to all products on the catalogue)

❶ Do not use any of our products for the purpose of maintenance and care of human life or body.

❷ Do not use any product in the condition or the environment other than stipulated in the specification or where the hazardous stuff exists.

❸ When installing a product, refer to the instruction manual for mounting style and fix securely (including the work carrier). Otherwise products may topple, fall, and operates out of control causing the injury of personnel.

❹ Disassembling and reassembling of products should be made by the personnel who has enough knowledge and experience.

❺ Depressurize products before disassembling or reassembling.

❻ Do not remodel the products.

⚠ WARNING

(Applies to all products on the catalogue)

❶ When servicing, keep within the working pressure range and voltage.

❷ At a place where water or oil drops and where is much dust, cover the equipment. Otherwise damage and trouble will be caused.

❸ Do not operate if the fluid or atmosphere contains the substance which may cause corrosion. Otherwise damage and trouble will be caused.

❹ Do not touch the terminal part or switches, etc. when the product is energized. It may cause the inaccurate operation and the electric shock from the short circuit and the circuit trouble.

❺ Do not stand on, use as a footing, or put things on the product. You may miss your step and fall, and the falling product may cause the injury of personnel. Also the product may get damaged causing the inaccurate operation and hazardous moves out of control.

(Pneumatic Actuator)

❶ When starting operation, pay the full attention to the cylinder's moving direction.

❷ Do not put hands where the cylinder moves.

❸ Please use a speed control valve to adjust the piston speed within the limited value in our catalogue.

❹ The value of dividing operation time into cylinder stroke is the average speed rather than max speed.

The max. speed of cushion pad type cylinders occur at the end of the stroke.

The max. speed of air cushion type cylinders occur at the start poiont of cusioning structure.

❺ The max. speed of cylinders usually uses the value of average speed times 1.4~1.5.

❻ When the load on cylinder is large, we suggest to use ourter shock absorber - even the max speed is within the limited value.

❼ Cords such as the sensor switch's lead wire should not be damaged. Damaging, forcing, twisting tugging, winding, putting on a heavy object, and pinching will cause fire, electric shock abnormal operation by short circuit or circuit error.

(Pneumatic Valve. Pneumatic Accessories. Sensor Switch)

❶ Cords such as the pressure switch's lead wire, solenoid valve's power supply cord should not be damaged. Damaging, forcing, twisting, tugging, winding, putting heavy object on, and pinching will cause fire, electric shock, abnormal operation by short circuit or circuit error.

❷ Do not use filter or lubricator without a case guard.

❸ For filter and lubricator, do not use a flawed or stained case.

Caution for safety

PLEASE READ **BEFORE USING**

CAUTION

(Applies to all products on the catalogue)

❶ If necessary, use protection glove, protection glasses, and safety shoes to secure the safety when operating products.

❷ For the easy maintenance, enough space around the product should be provided.

❸ When mounting, flush inside throughly to remove chips from piping, and seal tape, rust and dusts, in order to prevent troubles such as air leak.

❹ When screwing in the fittings, fasten with the tie torque of proper size to the connection size.

❺ Use clean air. Equip an air filter near the equipment to remove drain, dusts and etc. Periodically remove drain from the filter.

❻ Spindle oil and machine oil must not be used for lubrication, or the swelled packings will cause operation troubles.

❼ Operation below the temperature 5°C must be paid the full attention since it may cause the freezing of drain.

❽ Magnetic products such as disk card, tape, and tester must be kept away from the magnet-equipped cylinder and solenoid valve's solenoid part.

❾ When the product is no longer available for operation or needed, discard in a proper way as an industrial waste.

❿ Do not throw the product into fire. The product may explode or the toxic gas may be generated.

(Pneumatic Actuator)

❶ Products should be mounted on the plane face. Mounting on the warped face causes poor accuracy, air leak and troubles.

❷ Flaw or dent on the mounting part of the cylinder may make the uneven face.

❸ The chafing parts of piston rod and guide rod must be free from flaw or dent. Otherwise packings got damaged and air will leak.

❹ When the cylinder draws, be careful not to put yourself between the cylinder and the link bar at the top (Twin guide cylinder).

❺ Products do not need lubrication since they are initially lubricated. For lubrication, use turbine oil first class (ISO VG32) or the equivalent.

❻ Sensor switch which senses the cylinder position must not be operated in the magnetically disturbed area. It will react to the magnetism and the sensing accuracy will be disturbed.

❼ If the two switch-equipped cylinders are mounted close in parallel, a switch may react to the another cylinder's moving magnet, and effects on the sensing accuracy.

❽ Avoid the load over the switch 's allowable maximum load.

(Pneumatic Valve. Pneumatic Accessories. Sensor Switch)

❶ Flaw or dent on the mounting part of the cylinder may make the uneven face.

❷ Do not use solenoid valve, pressure switch, flow switch, on foot switch in the environment where the large electric current or the strong magnetism exist.

❸ As for solenoid valve, check in the instruction manual whether the lubrication is needed. If needed, use turbine oil first class ISO VG32 on the equivalent.

❹ In the case of double solenoid valve, do not energize both solenoids.

❺ Avoid the load over the switch's allowable maximum load.

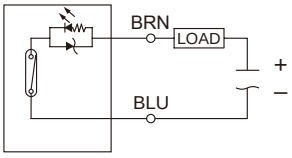
Technical information

CAUTION

Do not exceed specification, permanent damage to the sensor may occur.

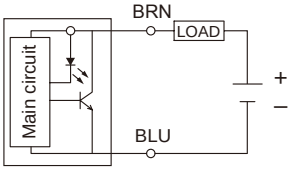
1. The 2-wire type magnetic sensor must be connected in series with load. Or the sensor may malfunction.

2. For reed switch type sensors, polarity must also be observed for the proper function of LED. Connect the brown wire in series with load to positive (+) and the blue wire to negative (-) of DC power soure. If the polarity is reversed, reed sensor remain functional but LED will remain in "OFF" state.



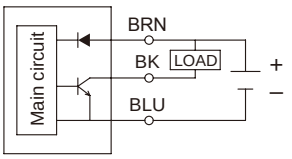
3. For solid-state type sensors, connect brown wire to the positive (+) and the blue to the negative (-) of DC power source. For 3-wire type, the black wire must be connected to the load only. If the black wire is accidentally connected to the power source, sensor may malfunction.

2-wire type

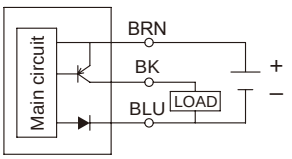


3-wire type

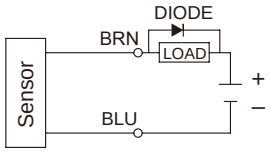
(NPN Output)

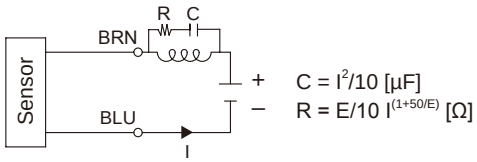


(PNP Output)



4. An external protection circuit may be required if the magnetic sensor is used with inductive load, such as relay or solenoid. For DC inductive load, attach an external diode parallel to the load and use R-C circuit parallel with AC inductive load as illustrated below.





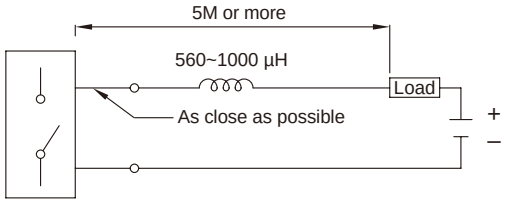
C: Capacitor I: Load current
R: Resistance E: AC power

5. Keep sensors away form strong magnetic field to prevent malfunction.

6. Reed sensors are without protection circuit.
When a reed sensor is used with a capacitive load or with more than 5 meters lead wire, the life of the contact will be shortened. (especially when the switch is always ON)

Note

Please install a surge suppressor within 1 meter or an inductor (560~1000μH) in series of the sensor to prevent damage.

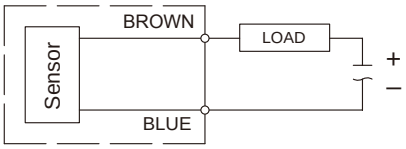


Connection method

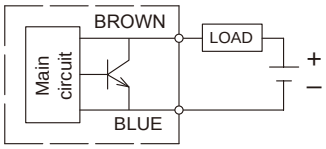
2 wire sensor connection

▶ General connection

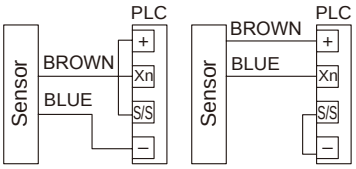
Reed switch



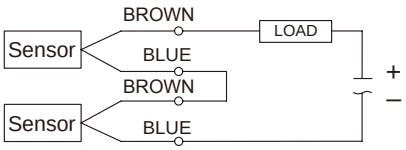
Solid-state type



PLC



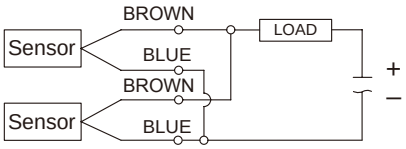
▶ Series connection (AND)



Note

1. When connecting 2-wire sensors in series (AND), don't exceed more than two sensors due to the internal voltage drop (Typical V drop=2.5~4V per switch). Excessive Voltage drop will cause the load fail to operate.

▶ Parallel connection (OR)



Note

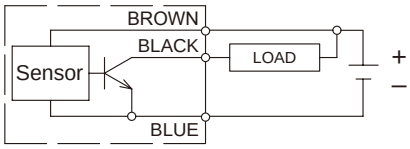
1. When connecting solid state 2-wire sensors in parallel (OR), current leakage will increase and cause improper load operation.
2. When connecting two magnetic sensors in parallel (OR), possible concurrent operation will cause dim LED illumination due to lower current distribution.

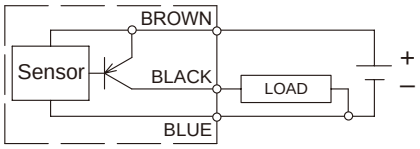
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3 wire NPN connection

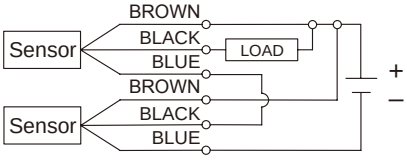
3 wire PNP connection

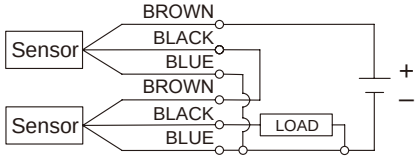
▶ General connection



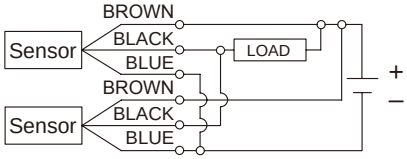


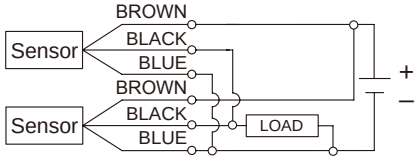
▶ Series connection (AND)





▶ Parallel connection (OR)





The specifications are subject to change without advence notice.

CAT. NO.: MD2006-E1



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