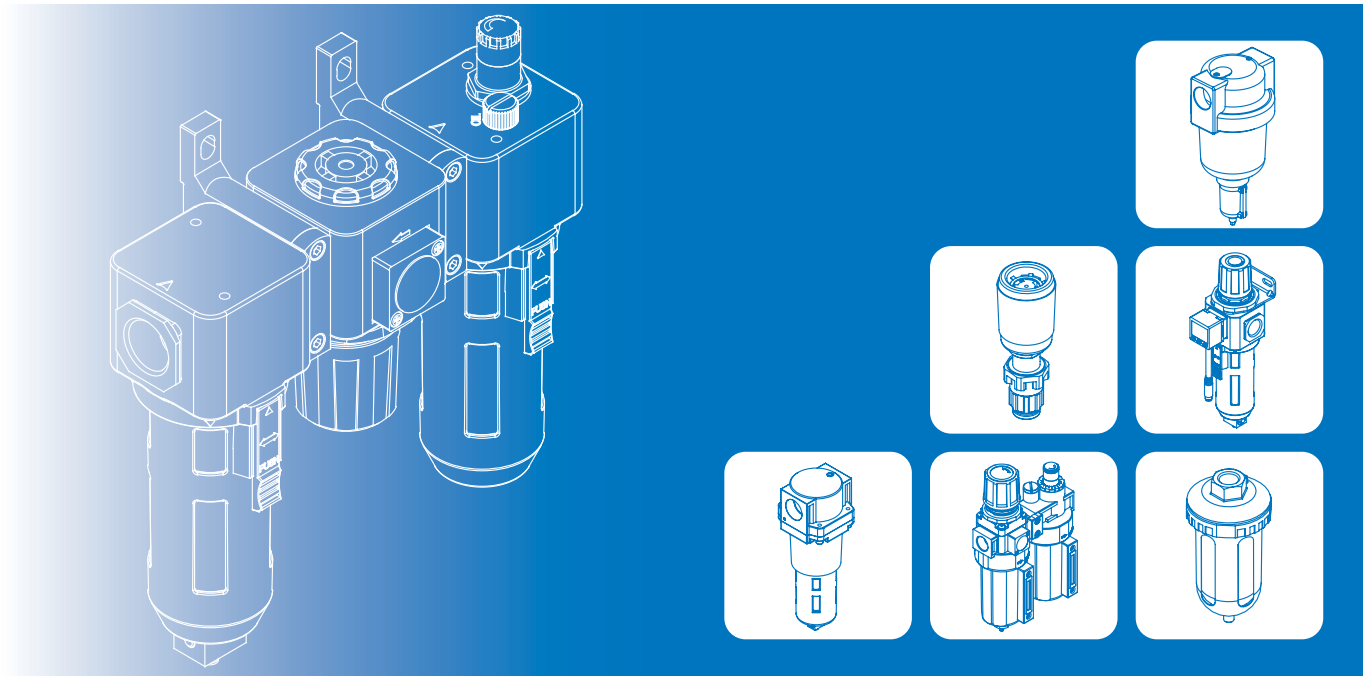
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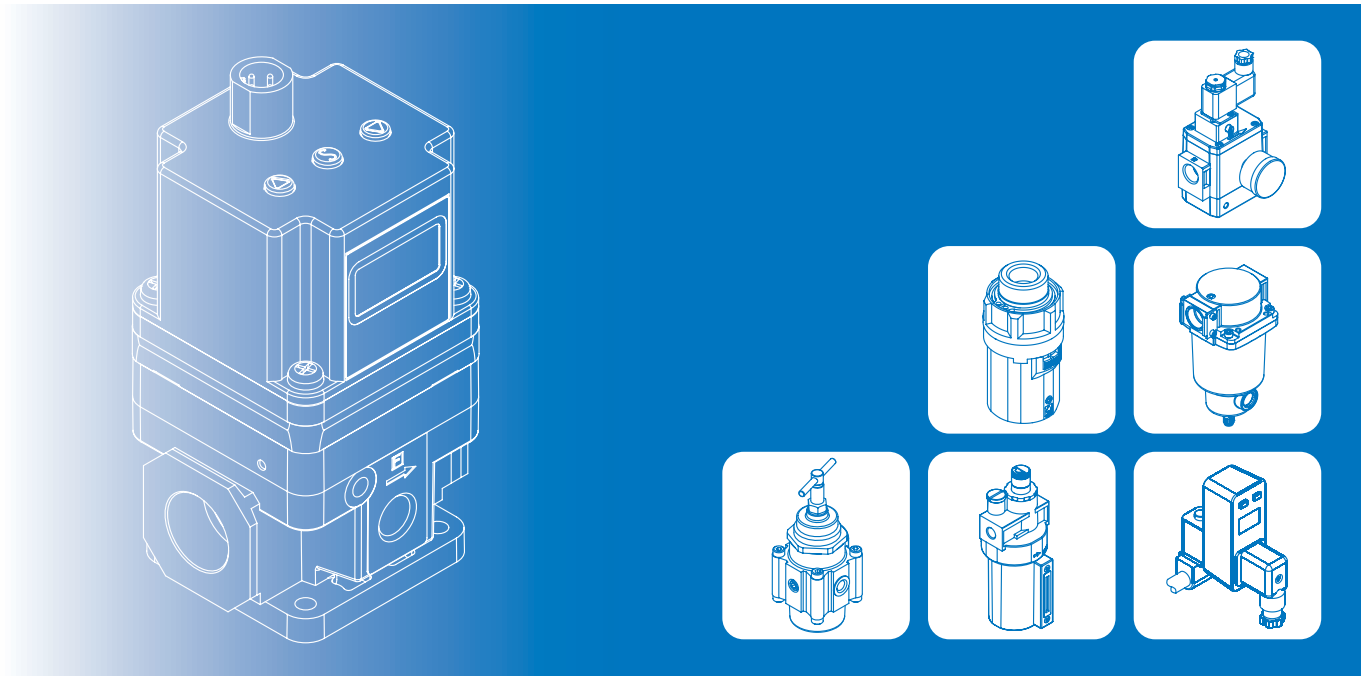
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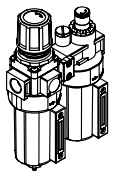
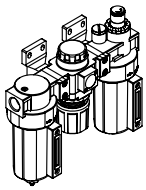
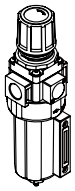
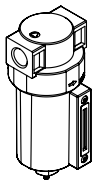
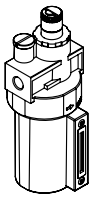
BOOSTER REGULATOR

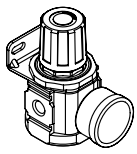
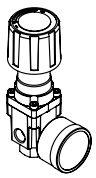
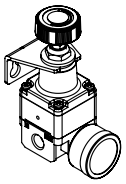
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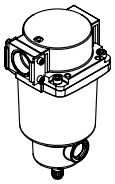
PRESSURE GAUGE

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Family

Model	MACP	MACT	MAFR	MAF	MAL
Pictures					
100			●		
200	●	●	●	●	●
200L	●	●	●	●	●
302	●	●	●	●	●
400	●	●	●	●	●
401	●	●	●	●	●
403	●	●	●	●	●
501	●	●	●	●	●
900				●	●
901				●	

Model	MAR	MAHR	MAIR
Pictures			
100	●		●
200	●	●	●
300			●
302	●		
400	●		
401	●		
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		●	
		●	●	●					302		●	◎
		●	●	●					400		●	◎
		●	●	●					401		●	◎
		●	●	●					403		●	◎
					●	●			501		●	◎
							●		900	●		◎
								●	901	●		◎
		●	●						25		●	◎
			●	●					35		●	◎
				●	●				45		●	◎
					●	●			55		●	◎

Selector table

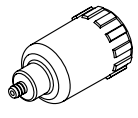
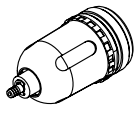
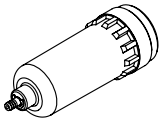
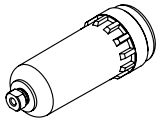
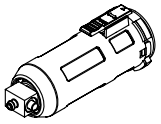
● Standard type ◎ Option

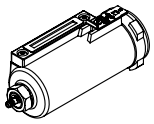
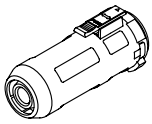
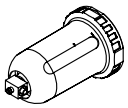
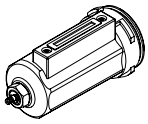
MAR Regulation (Adjustable pressure)						Series	MAF / MAM* Filter (Filter element)								
1K	2K	3K	4K	8.5K	15K		0.01 μ	0.3 μ	3 μ	5 μ	20 μ	40 μ	50 μ	Water separator	0.01 μ + Deodorization
				●		100				●		◎			
◎	◎	◎	◎	●		200	◎	◎		◎		●			
				●		200L	◎	◎		◎		●			
				●		302	◎	◎		●		◎		●	
				●		400				◎		●			
				●	◎	401	◎	◎		◎		●			
				●		403				◎		●			
				●		501	◎	◎				●			
				●		900							●		
				●		901							●		
						25	●	●	●					●	●
						35	●	●	●					●	●
						45	●	●	●					●	●
						55	●	●	●					●	●

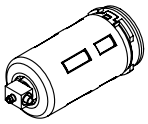
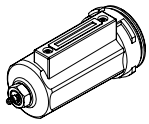
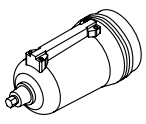
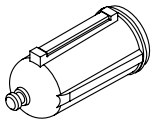
MAHR / MAIR Regulation (Adjustable pressure)					Series
2K	4K	8K	10K	27K	
			●	◎	MAHR200
●	●	●			MAIR100
●	●	●			MAIR200
●	●	●			MAIR300

Bowl assembly (MAFR, MAF, MAFV series)

● Standard type ◎ Option

Series			100	200	200L	200L	302
Fig							
Order example			BOWL–MAFR100	BOWL–MAF200–[1][2]	BOWL–MAF200L–[1]	BOWL–MAF200L–[3]	BOWL–MAF302–[1][2][3]
Applicable model			MAFR100	MAFR200, MAF200	MAFR200L, MAF200L	MAFR200L, MAF200L	MAFR302, MAF302
[1] Bowl	PC	–	●	●	●	●	●
	Metal	M			◎		
	Nylon	N		◎	◎		◎
[2] Bowl	None	–		◎			◎
	Guard	U		●			●
[3] Drain valve		–	●	●	●		●
		D2					◎
		D8				◎	

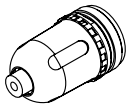
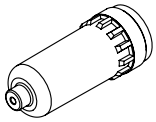
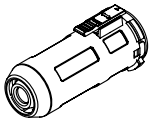
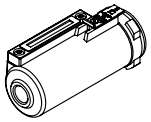
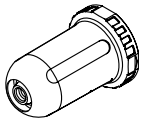
Series			302	302	400	401
Fig						
Order example			BOWL–MAF302–M[3]	BOWL–MAFV302-NU	BOWL–MAF400–[1][2][3]	BOWL–MAF401(-W)–[3]
Applicable model			MAFR302, MAF302	MAFV302	MAFR400, MAF400	MAFR401(-W), MAF401(-W)
[1] Bowl	PC	–			●	
	Metal	M	●			●
	Nylon	N		●	◎	
[2] Bowl	None	–			◎	
	Guard	U		●	●	
[3] Drain valve		–	●		●	●
		D2	◎		◎	◎
		D3			◎	◎
		D4			◎	◎

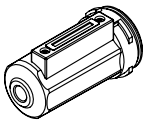
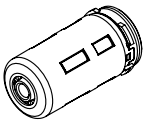
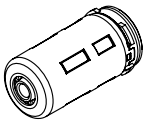
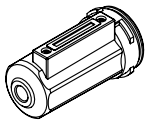
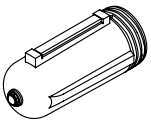
Series			403	501	900	901
Fig						
Order example			BOWL–MAF403–[1][2][3]	BOWL–MAF401-W–[3]	BOWL–MAF900–[3]	BOWL–MAF901–[3]
Applicable model			MAFR403, MAF403 / MAFR501, MAF501	MAFR501-M, MAF501-M	MAF900	MAF901
[1] Bowl	PC	–	●			
	Metal	M		●	●	●
	Nylon	N	◎			
[2] Bowl	None	–	◎			
	Guard	U	●			
[3] Drain valve		–	●	●	●	●
		D2	◎	◎		
		D3		◎		
		D4	◎	◎		
		D7			◎	◎

*Order example: **BOWL–MAF400–NUD2** (N: Nylon, U: Bowl guard, D2: Auto drain valve)

Bowl assembly (MAL series)

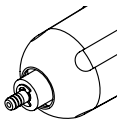
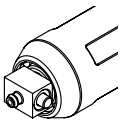
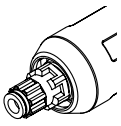
● Standard type ◎ Option

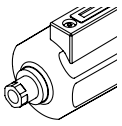
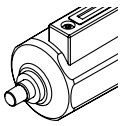
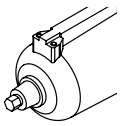
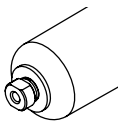
Series			200	200L	302	302	400
Fig							
Order example			BOWL–MAL200–1 2	BOWL–MAL200L–1	BOWL–MAL302–1 2 3	BOWL–MAL302–M3	BOWL–MAL400–1 2
Applicable model			MAL200	MAL200L	MAL302	MAL302-M	MAL400
1 Bowl	PC	–	●	●	●		●
	Metal	M		◎	◎	●	
	Nylon	N	◎	◎	◎		◎
2 Bowl	None	–	◎		◎		◎
	Guard	U	●		●		●
3 Float switch		F1			◎	◎	

Series			401	403	501		900
Fig							
Order example			BOWL–MAL401(-W)–3	BOWL–MAL403–1 2 3	BOWL–MAL403–1 2	BOWL–MAL401–W	BOWL–MAL900
Applicable model			MAL401(-W)	MAL403	MAL501	MAL501-M	MAL900
1 Bowl	PC	–		●	●		
	Metal	M	●			●	●
	Nylon	N		◎	◎		
2 Bowl	None	–		◎	◎		
	Guard	U		●	●		
3 Float switch		F1	◎	◎			

*Order example: **BOWL–MAL302-NU** (N: Nylon, U: Bowl guard)

Drain valve (for MAFR, MAF series)

	Blank		D2
Fig			
Description	Semi-auto drain		FMRF300

	D3	D4	D7	D8
Fig				
Description	MADV400-WA (Female thread)	MADV400-WB (Male thread)	SN-2636-01	MADV201

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.

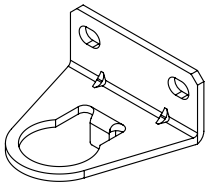
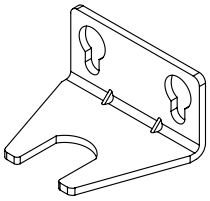
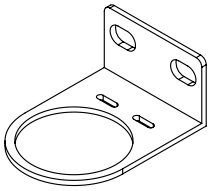
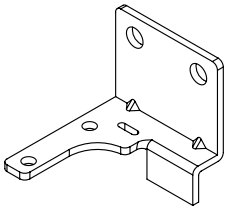
MAL lubrication (Caution for safety)

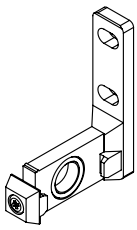
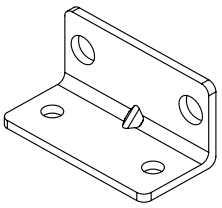
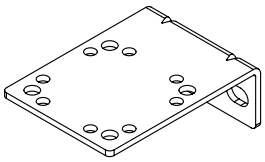
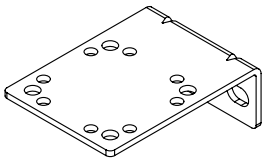
When supplying lubrication, use class 1 turbine oil (with no additive) ISO VG32, or class 2 turbine oil ISO VG32 in the following table. Without continued lubrication during manufacturing, malfunctions could occur. If turbine oil is used, refer to the Material Safety Data sheet (SDS) of the turbine oil. (Reference)

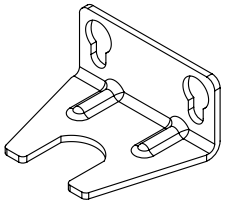
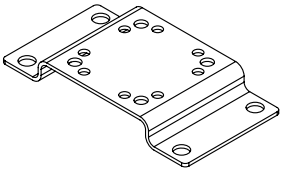
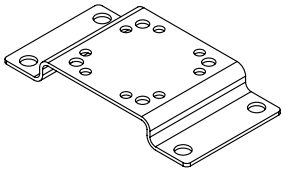
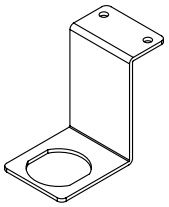
Lubricant brands	Manufacturer	Viscosity Grades
Super turbine oil 32	Idemitsu Kosan	ISO VG32
Mobil DTE LIGHT	Exxon Mobil Corporation	ISO VG32
Mobil rarus 424	Exxon Mobil Corporation	ISO VG32
GII 32	Formosa Petrochemical Corporation	ISO VG32
Turbo T 32	Royal Dutch Shell	ISO VG32
R32	CPC Corporation	ISO VG32

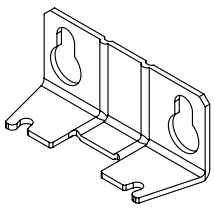
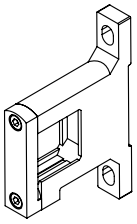
* Do not add additives. This may affect the operation of the product.
* The name of the lubricant manufacturer and the lubricant brand may change. Please contact each of the companies for details.

Bracket

Order example	B1-MAR100	B1-MAIR100	B1-MAR200	B1-MAL200 (*)
Pictures				
Applicable model	MAR100, MAFR100	MAIR100	MACP200, MACT200 MAFR200, MAR200	MAL200

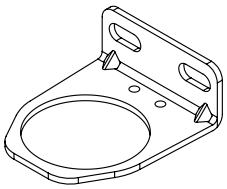
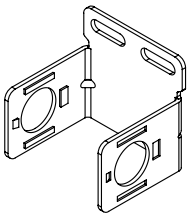
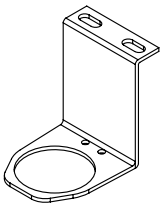
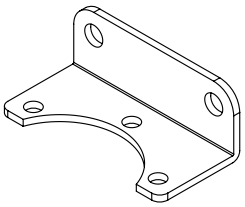
Order example	BL-MACP200	B1-MAF200	B1-MAER100	B1-MAER200
Pictures			 (M4×0.7×8L screws included)	 (M5×0.8×10L screws included)
Applicable model	MACP200, MACT200	MAF200	MAER100, MAER110	MAER200, MAER210 MAER300, MAER310

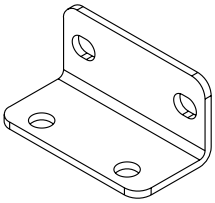
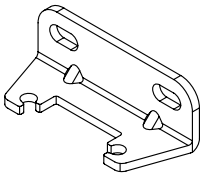
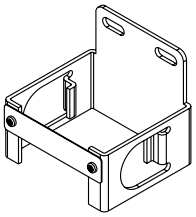
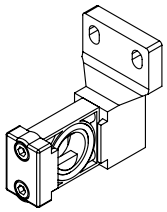
Order example	B1-MAIR200	B2-MAER100	B2-MAER200	B3-MAR200
Pictures		 (M4×0.7×8L screws included)	 (M5×0.8×10L screws included)	
Applicable model	MAIR200	MAER100, MAER110	MAER200, MAER210 MAER300, MAER310	MAFR200, MAR200

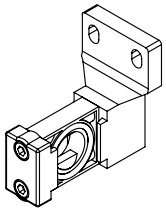
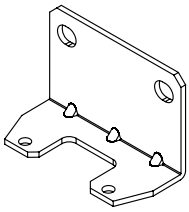
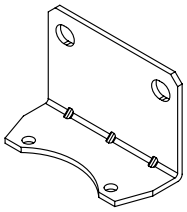
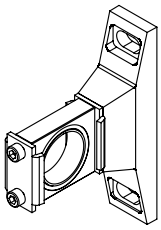
Order example	B1-MAIR300	BT-MACP302
Pictures		
Applicable model	MAIR300	MACP302, MACT302 MAIR200, MAER200

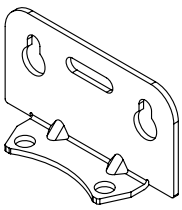
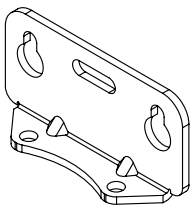
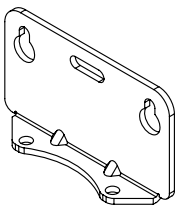
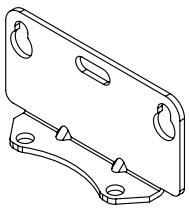
* For order **B1−MAL200**, please note that the body needs to have fixed threaded holes collocating with bracket.

Bracket

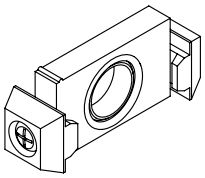
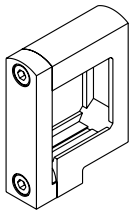
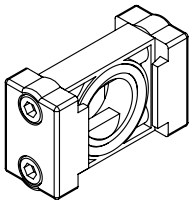
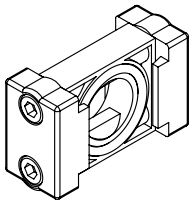
Order example	B1-MAR302	B2-MAF302	B3-MAR302	B1-MAR400
Pictures				
Applicable model	MAFR302, MAR302 MARV302	MAL302, MAF302 MAFV302	MAFR302, MAR302	MACP400, MACT400 MAFR400, MAR400

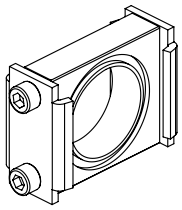
Order example	B1-MAF400	B2-MAR401	B2-MAF401	BL-MACP401
Pictures				
Applicable model	MAF400, MAL400	MAFR401, MAR401 MAFR403, MAR403	MAF401, MAL401 MAF403, MAL403	MACP401, MACT401

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 example	B1-MAMG25	B1-MAMG35	B1-MAMG45	B1-MAMG55
Pictures				
Applicable model	MAM*25	MAM*35	MAM*45	MAM*55

Joiner set

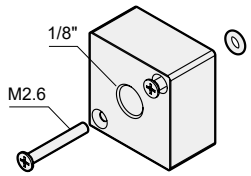
Order example	BS-MACP200	BS-MACP302	BS-MACP401	BS-MACP403
Pictures				
Applicable model	MACP200, MACT200, MAER100	MACP302, MACT302 MAIR200, MAER200	MACP401, MACT401	MACP401-W, MACT401-W MACP403, MACT403, MAM*25, MAM*35

Order example	BS-MACP501
Pictures	
Applicable model	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
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—**☐			

MACP200 series

AIR UNIT (F.R.L.UNIT)

Technical data

Filter element

T-bracket

User manual

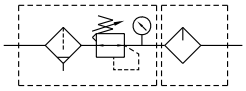
Caution for safety
(Read before installing)



MACP200L



Symbol



Specification

Model		MACP200	
Components		MAFR200, MAL200	
Bore No.		6A	8A
Port size		1/8	1/4
Medium		Air	
Operating perssure range (*1,2)		0.05~1 MPa 0.15~1 MPa (MACP200L-D)	
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		9.5cm^3, 25cm^3 (MACP200L), 18 cm^3 (MACP200L-D)	
Lubricating oil capacity		20cm^3, 35cm^3 (MACP200L)	
Min. flow for oil drip		35 ℓ/min	50 ℓ/min
Recommended lubricating oil		Turbine oil ISO-VG32	
Attachment	Standard	Pressure gauge (PG-40), L type bracket	
	Optional	T type bracket	
Weight		432 g, 380 g (MACP200L)	

*1. Semi-auto drain (N.O. type): The drain port automatically discharges accumulated water when pressure is below 0.05 MPa.

*2. Auto drain (N.C. type): Residual water remaining in the bowl after air shut-off or drainage is normal.

*3 Poor air quality may cause product malfunction. Installing an upstream pre-filter (e.g., 40 μm) is recommended.

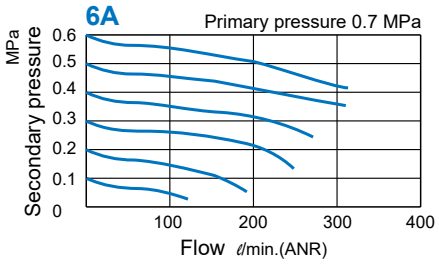
*4. Bowls for semi-auto drain and auto drain valve (D) are not interchangeable.

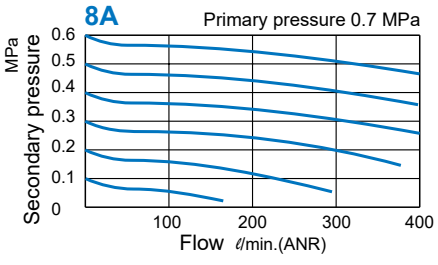
Order example

MACP200L – 6A – □□□ – □ – □ – □

- MODEL
- Blank: Standard type
  L: Longer case, no case guard
- PORT SIZE
  6A: 1/8
  8A: 1/4
- FLOW DIRECTION
  Blank: Left to right
  R: Right to left
- FILTER ELEMENT
  Blank: 40μm
  5u: 5μm
- BRACKET
  Blank: L type
  B: T type
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
- BOWL
  Blank: PC bowl
  M: Metal bowl (*)
  N: Nylon bowl
  * Only for 200L.
- DRAIN VALVE
  Blank: Semi-auto drain
  D: Auto drain valve (MADV201)(**)
  **Only for 200L PC bowl.

Flow feature

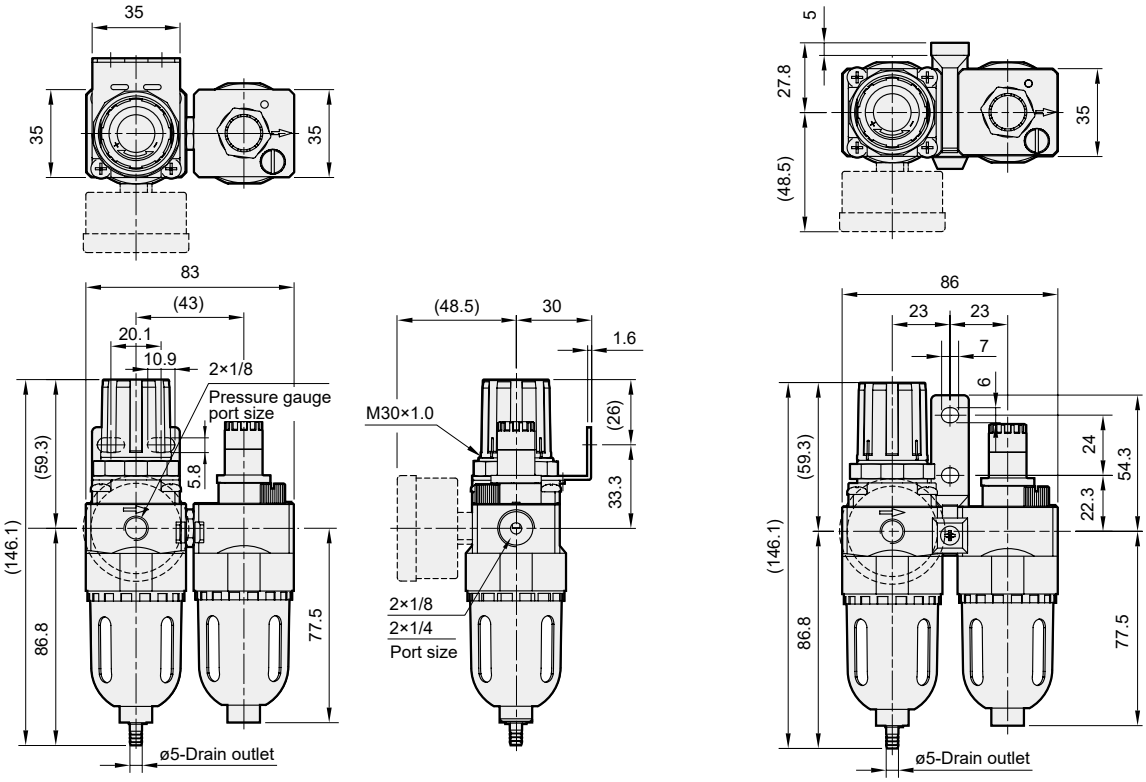




Dimensions

MACP200-B

T type bracket



MACP200L-M-B

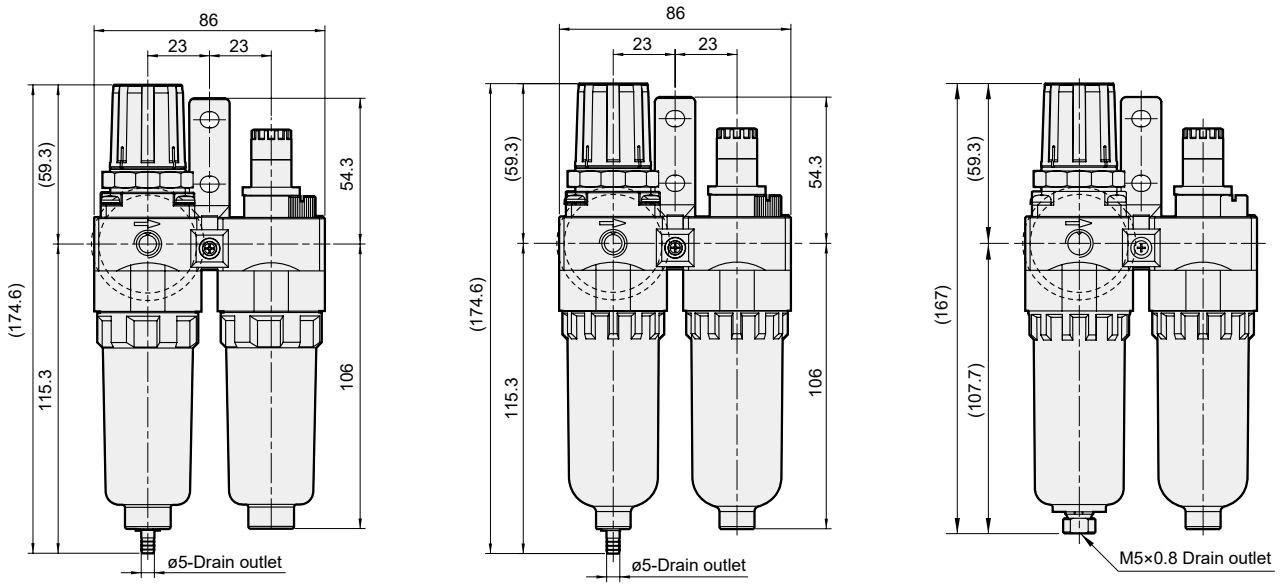
Metal bowl + T type bracket

MACP200L-B

T type bracket

MACP200L-D

PC bowl + Auto drain valve



MACP302 series

AIR UNIT (F.R.L.UNIT)

mindman

Technical data

Filter element

User manual

Caution for safety
(Read before installing)



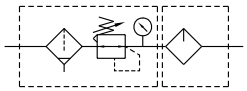


Option: **MP41**



Option: **MLF300**

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		
Drain capacity	35 cm^3		
Lubricating oil capacity	65 cm^3		
Min. flow for oil drip	50 ℓ/min	60 ℓ/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard 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 – HR – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

FILTER ELEMENT
Blank: 5μm
40u: 40μm

BY-PASS PORT SIZE

Blank	without
T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve (*2)	**K8**: 1/4 **K10**: 3/8

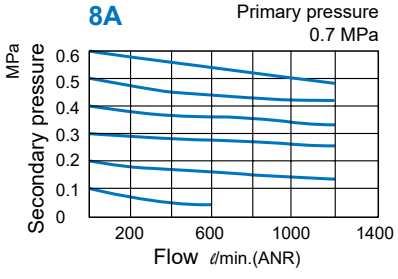
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

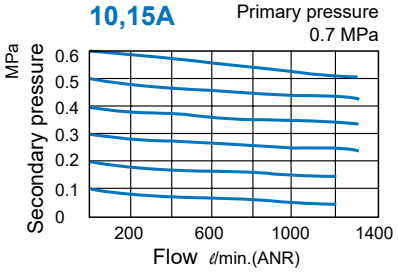
SHUTOFF VALVE
Blank: without
HR: MVHR-302-3H
1: MVHR-302S-3H-AC110
1L: MVHR-302S-3H-AC110-L
1E: MVHR-302S-3H-AC110-E
2: MVHR-302S-3H-AC220
2L: MVHR-302S-3H-AC220-L
2E: MVHR-302S-3H-AC220-E
4: MVHR-302S-3H-DC24
4L: MVHR-302S-3H-DC24-L
4E: MVHR-302S-3H-DC24-E
* 302: Manual type, 302S: Solenoid type
* MVHR series .

Bowl	Pressure gauge (*1)	Drain valve (for MAFR302)	Float switch (for MAL302)	Flow direction
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 **D**: Auto (FMRF302)	Blank: without **F**: with (MLF300)	Blank: Left to right **R**: Right to left

1.PG-40 (C), A-MAR302 (A) and MP41 (E) can not be selected at the same time.
*2. Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

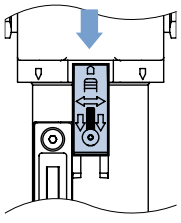




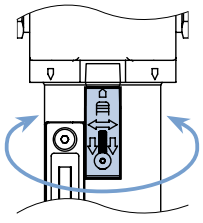
Caution

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

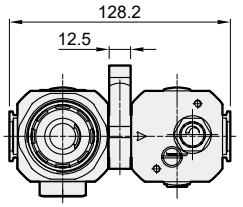


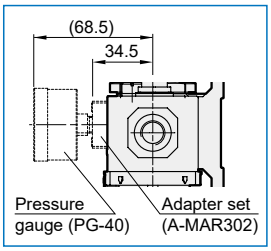
MACP302 Dimensions

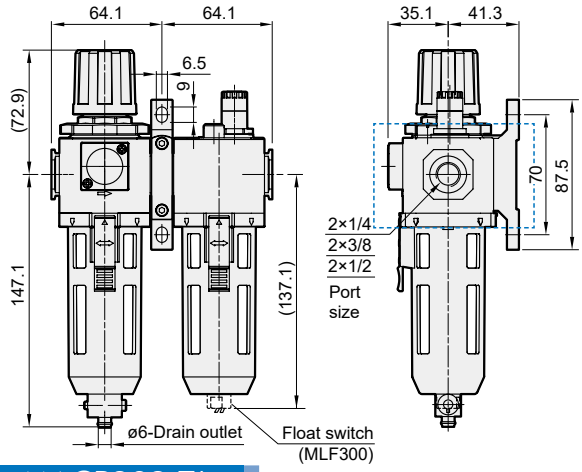
AIR UNIT (F.R.L.UNIT)

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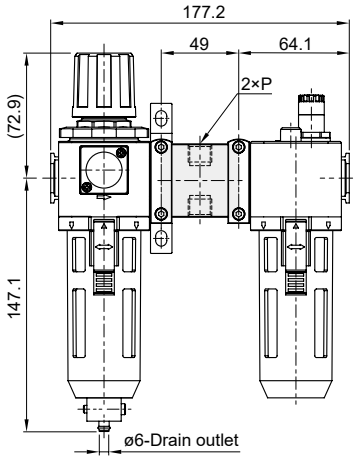
Accessories

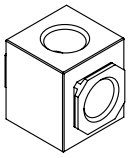






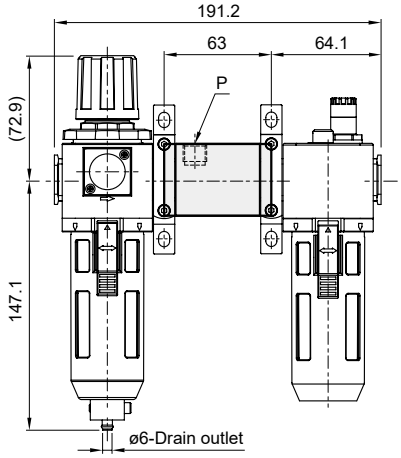
MACP302-T* T type bracket

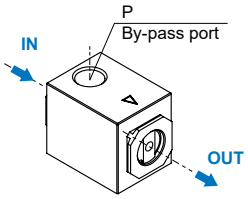




Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP302-K* Check valve



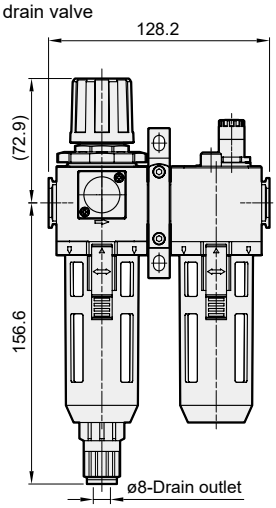


* Threads for **IN** and **OUT** ports are not machined.

Port / Check valve	P
K8	1/4
K10	3/8

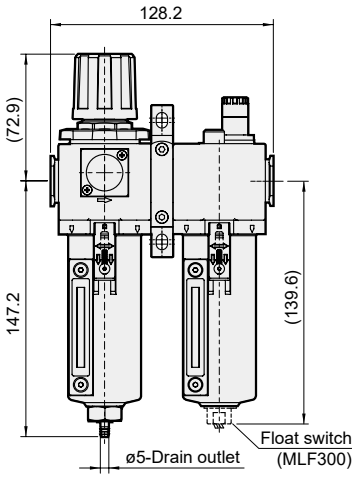
MACP302-D

Auto drain valve



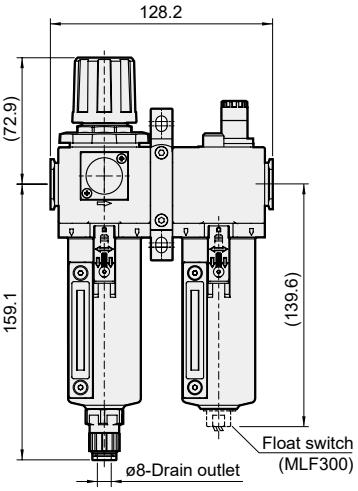
MACP302-M

Metal bowl



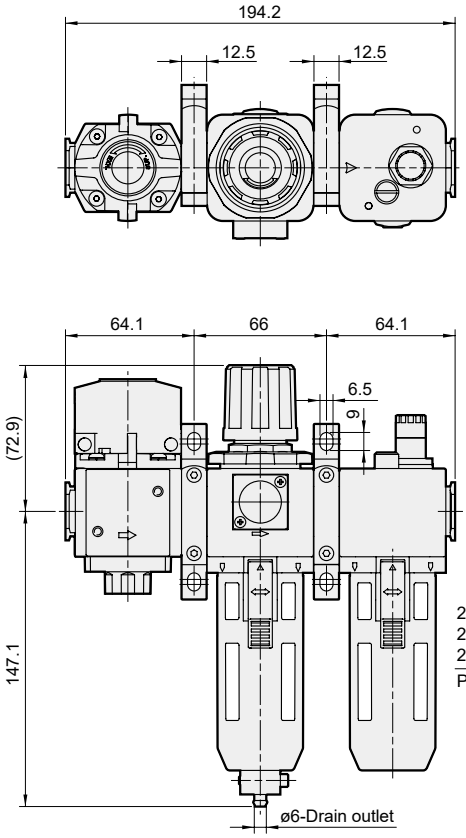
MACP302-MD

Metal bowl + Auto drain valve

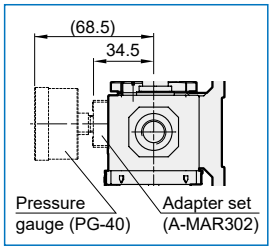


MACP302-HR

With shutoff valve (MVHR-302)

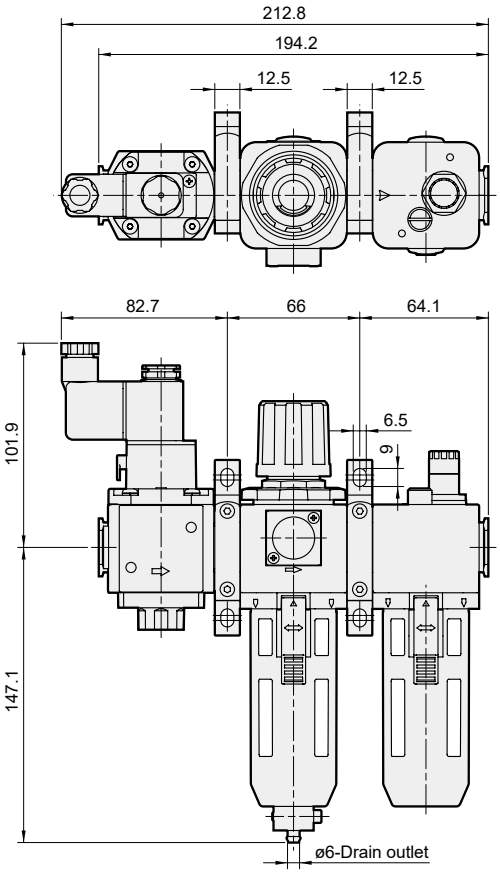


Accessories



MACP302-1*/2*/4*

With shutoff valve (MVHR-302S)



MACP400 series

AIR UNIT (F.R.L.UNIT)

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Technical data

Filter element

User manual

Caution for safety
(Read before installing)



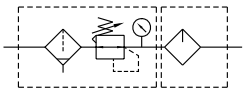
Specification

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		
Drain capacity	100 cm^3		
Lubricating oil capacity	200 cm^3		
Min. flow for oil drip	100 ℓ/min	200 ℓ/min	400 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard attachment	Pressure gauge (PG-50), L type 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.

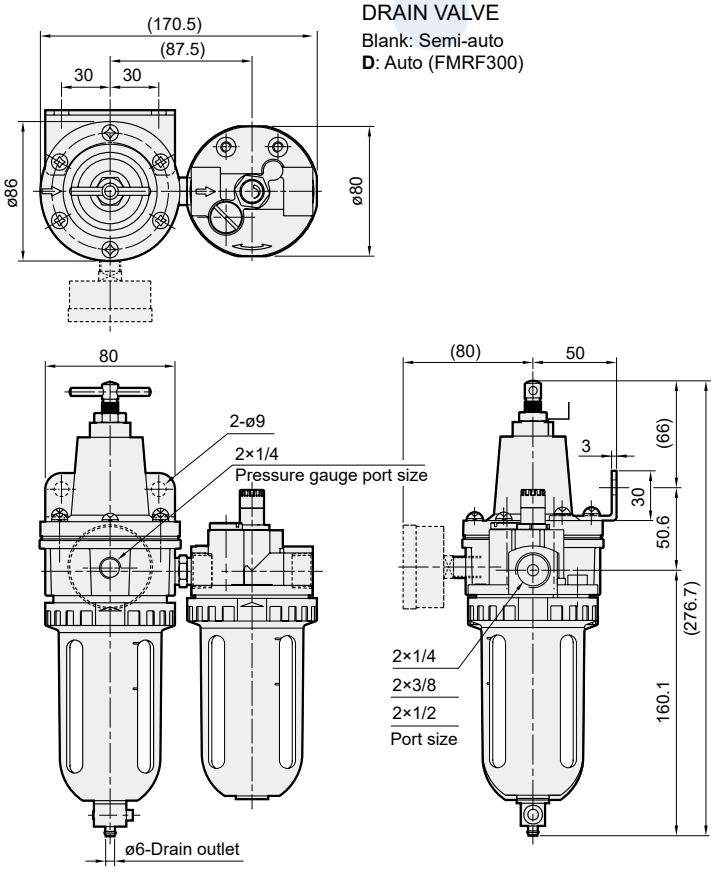
Symbol



Order example

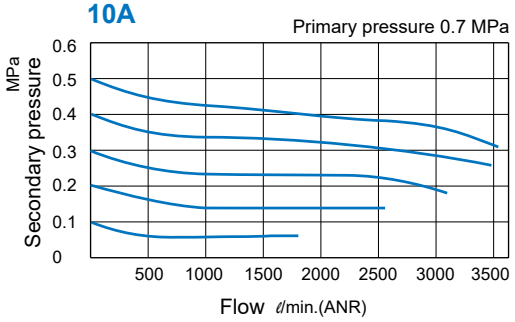
MACP400 – 8A – ND□ – □ – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

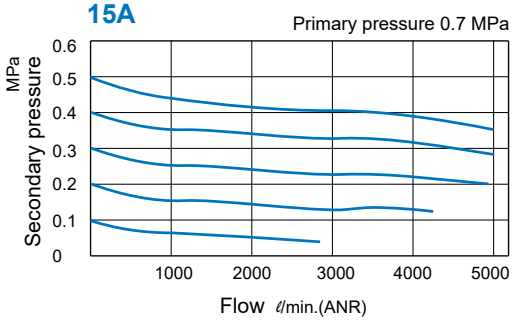


Flow feature

10A



15A



MACP401 series

AIR UNIT (F.R.L.UNIT)

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Technical data

Filter element

User manual

Caution for safety
(Read before installing)



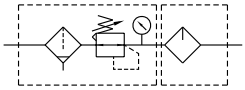


Option: **MP41**



Option: **MLF400**

Symbol



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		
Drain capacity	70 cm^3		
Lubricating oil capacity	200 cm^3		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard 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.

Order example

MACP401– 8A – □ – HA□□P□ – E1 – □ – T8 – HR – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

BY-PASS PORT SIZE

Blank	without
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

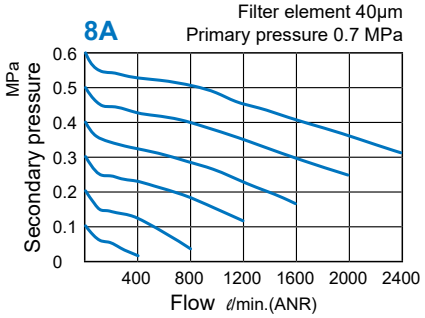
Type	Pressure gauge	Drain valve (for MAFR401)	Float switch (for MAL401)	Pressure switch	Flow direction
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **F**: with (MLF400)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto		–	

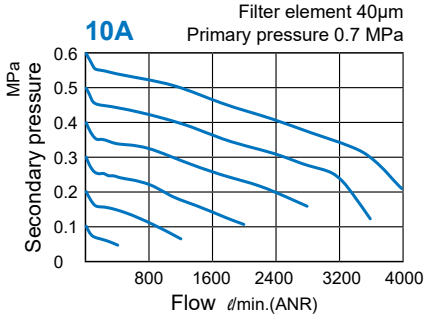
* Specification (W) gauge adapter set (A-MAR302).
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

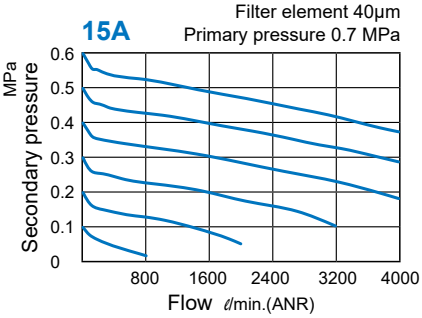
SHUTOFF VALVE
Blank: without
HR: MVHR-400-3H
1: MVHR-400S-3H-AC110
1L: MVHR-400S-3H-AC110-L
1E: MVHR-400S-3H-AC110-E
2: MVHR-400S-3H-AC220
2L: MVHR-400S-3H-AC220-L
2E: MVHR-400S-3H-AC220-E
4: MVHR-400S-3H-DC24
4L: MVHR-400S-3H-DC24-L
4E: MVHR-400S-3H-DC24-E

* 400: Manual type, 400S: Solenoid type
* MVHR series .

Flow feature

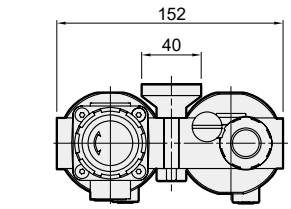




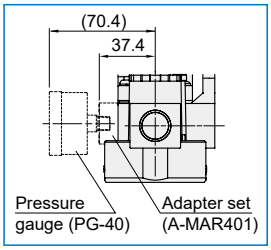


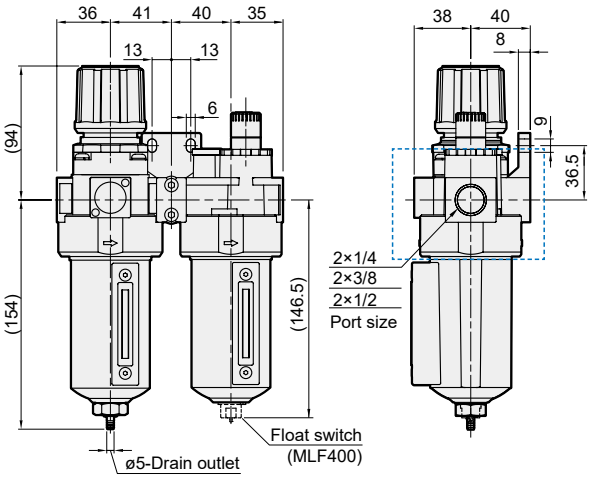
MACP401 Dimensions

AIR UNIT (F.R.L.UNIT)



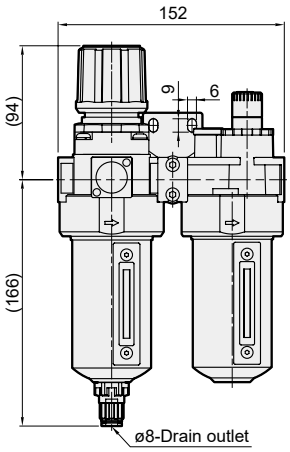
Accessories





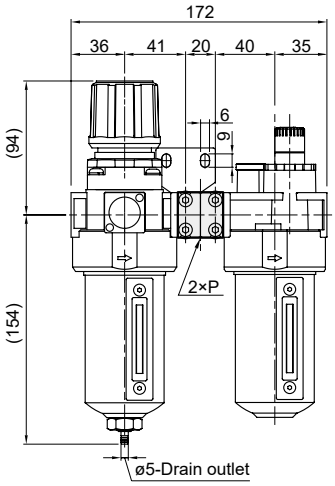
MACP401-D

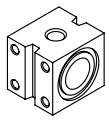
Auto drain valve



MACP401-T*

T type bracket

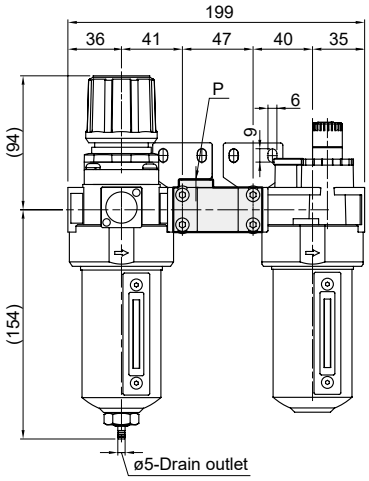


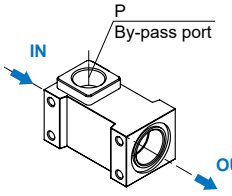


Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP401-K*

Check valve



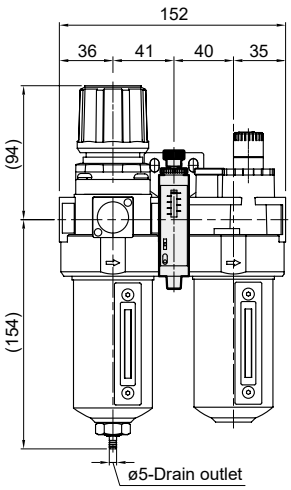


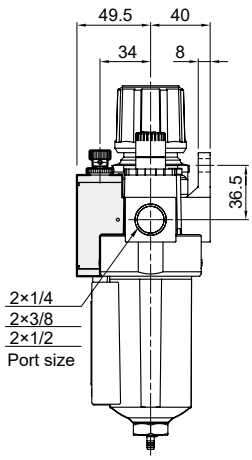
Port Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

MACP401-P

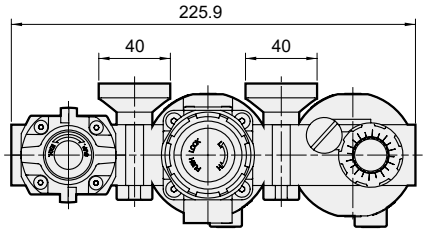
MPS Series
pneumatic pressure switch

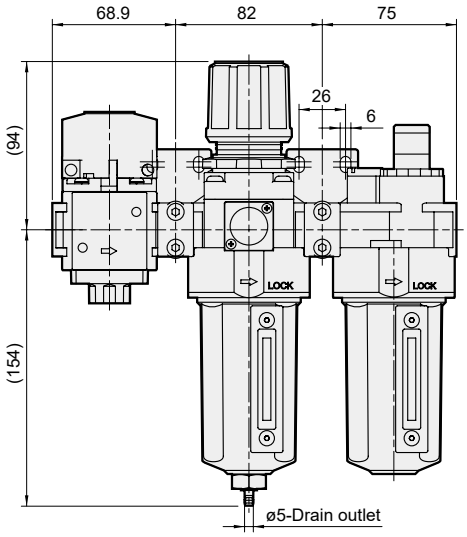




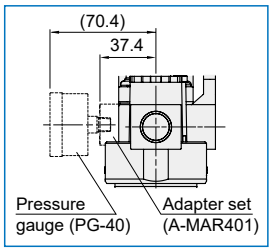
MACP401-HR

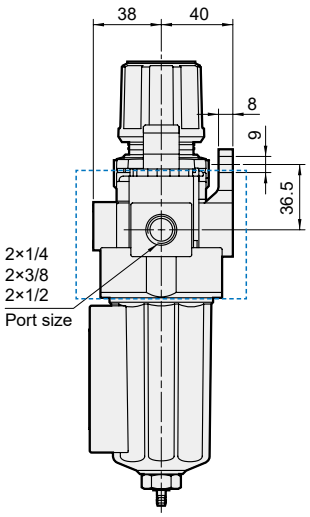
With shutoff valve (MVHR-400)





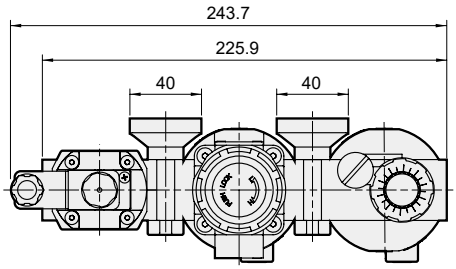
Accessories

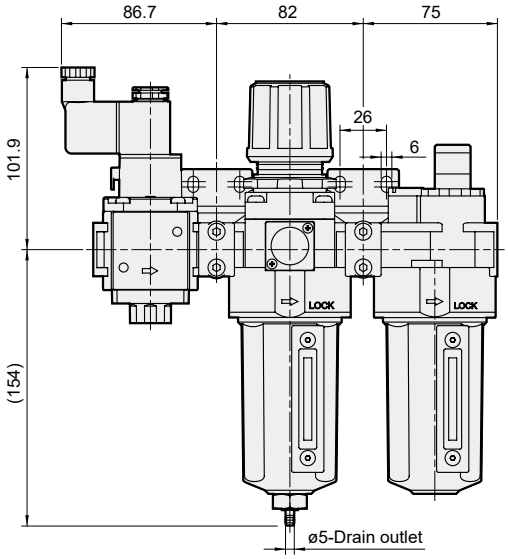




MACP401-1*/2*/4*

With shutoff valve (MVHR-400S)





MACP403 series

AIR UNIT (F.R.L.UNIT)

Technical data

Filter element

User manual

Caution for safety
(Read before installing)



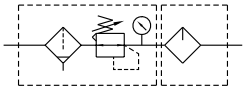


Option: **MP41**



Option: **MLF400**

Symbol



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		
Drain capacity	75 cm^3		
Lubricating oil capacity	200 cm^3		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard 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.

Order example

MACP403 – 8A – NC□□P□ – E1 – □ – T8 – HR – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

BY-PASS PORT SIZE

Blank	without
T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

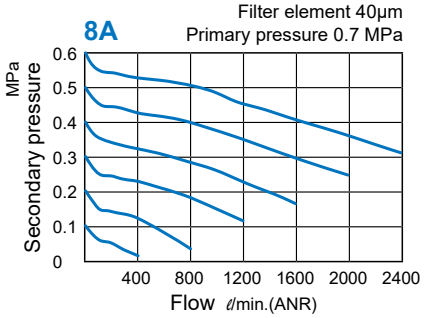
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

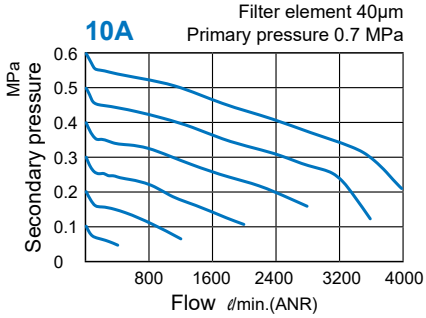
SHUTOFF VALVE
Blank: without
HR: MVHR-400-3H
1: MVHR-400S-3H-AC110
1L: MVHR-400S-3H-AC110-L
1E: MVHR-400S-3H-AC110-E
2: MVHR-400S-3H-AC220
2L: MVHR-400S-3H-AC220-L
2E: MVHR-400S-3H-AC220-E
4: MVHR-400S-3H-DC24
4L: MVHR-400S-3H-DC24-L
4E: MVHR-400S-3H-DC24-E
* 400: Manual type, 400S: Solenoid type.
* MVHR series.

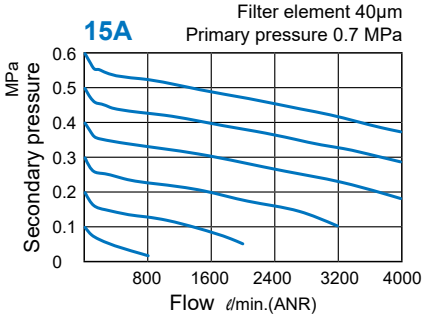
Bowl	Pressure gauge	Drain valve	Float switch (for MAL403)	Pressure switch	Flow direction
Blank: PC bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **F**: with (MLF400)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left

* 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.

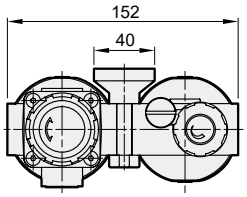
Flow feature

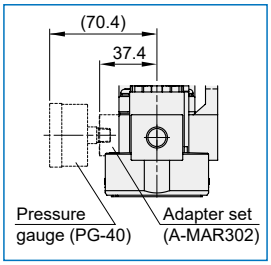


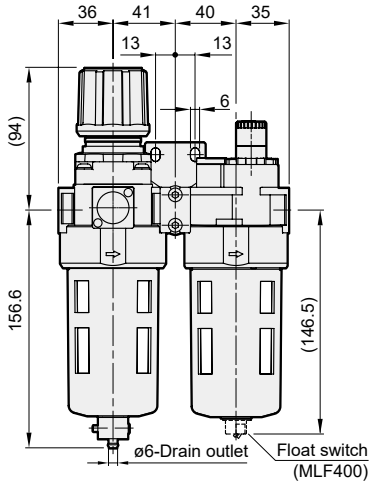


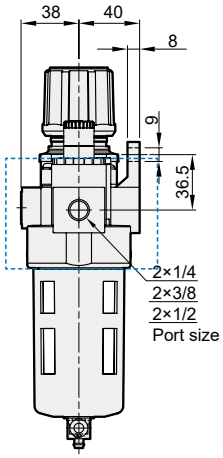


Accessories



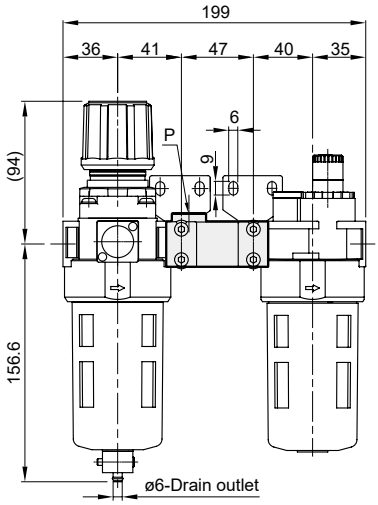


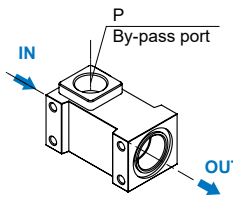




MACP403-K*

Check valve



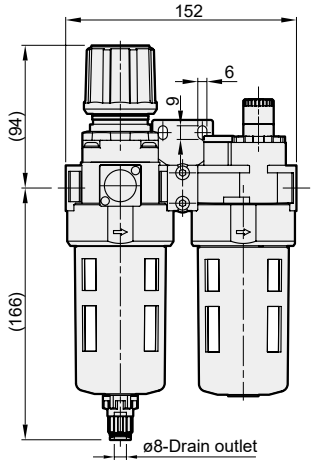


Port / Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

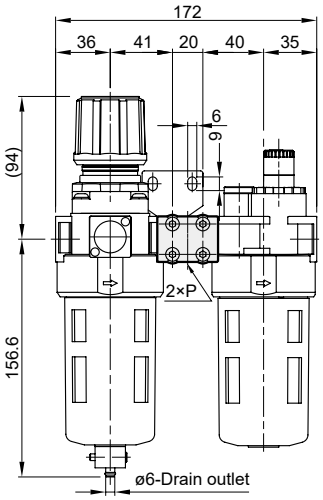
MACP403-D

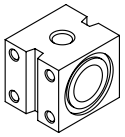
Auto drain valve



MACP403-T*

T type bracket

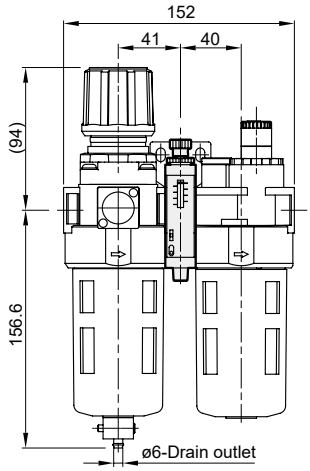


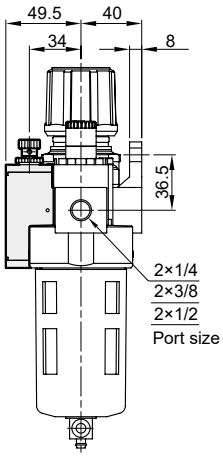


Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP403-P

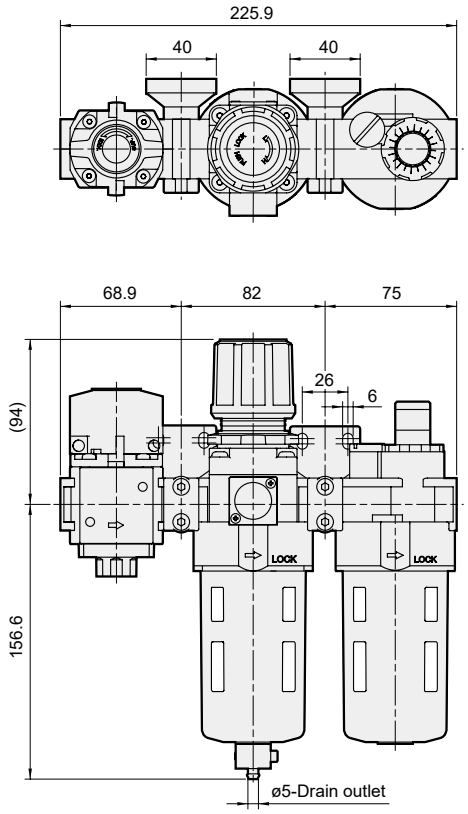
MPS Series
pneumatic pressure switch



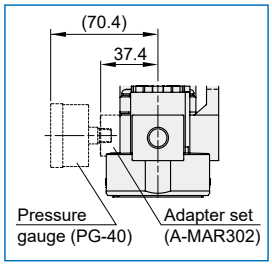


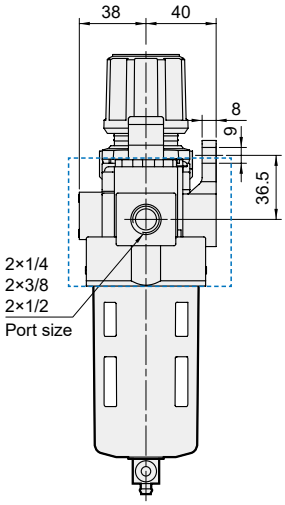
MACP403-HR

With shutoff valve (MVHR-400)



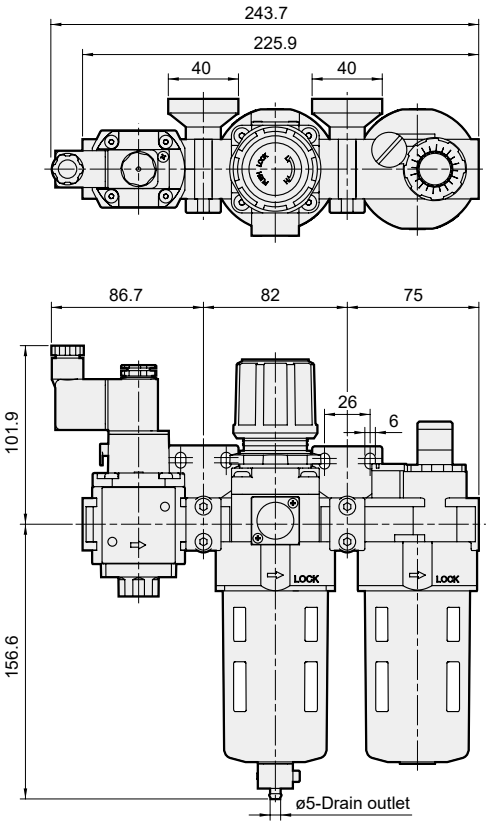
Accessories





MACP403-1*/2*/4*

With shutoff valve (MVHR-400S)



MACP501 series

AIR UNIT (F.R.L.UNIT)

Technical data

Filter element

User manual

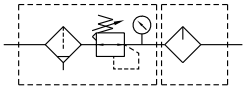
Caution for safety
(Read before installing)





Option: **MP41**

Symbol



Specification

Model		MACP501	
Components		MAFR501, MAL501	
Bore No.		20A	25A
Port size		3/4	1
Medium		Air	
Operating perssure range (*)	PC, Nylon	0.05~1 MPa	
	Metal bowl	0.05~1.5 MPa	
Proof pressure	PC, Nylon	1.5 MPa	
	Metal bowl	2 MPa	
Regulated pressure range		0.05~0.85 MPa	
Ambient temperature		– 5~+60°C (No freezing)	
Filter element		40 μm	
Drain capacity		PC, Nylon: 75cm^3, Metal: 70cm^3	
Lubricating oil capacity		200 cm^3	
Min. flow for oil drip		25 ℓ/min	33 ℓ/min
Recommended lubricating oil		Turbine oil ISO-VG32	
Standard attachment		Pressure gauge (PG-20), T type 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

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

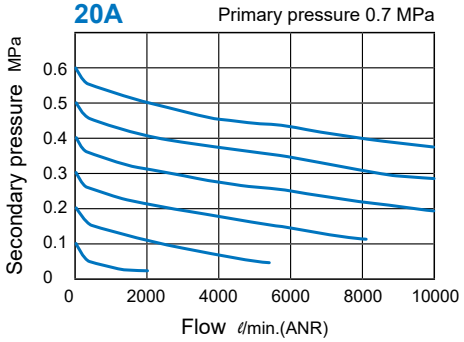
MODULE MOUNTING BRACKET
Blank: without
T8: 1/4
T10: 3/8
T15: 1/2

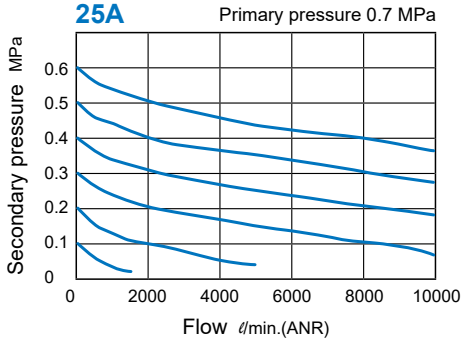
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

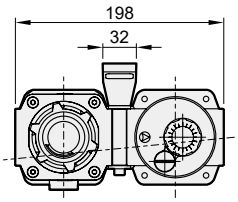
Bowl	Pressure gauge	Drain valve	Flow direction
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: Left to right **R**: Right to left

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

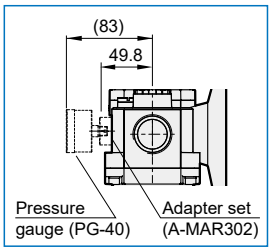
Flow feature

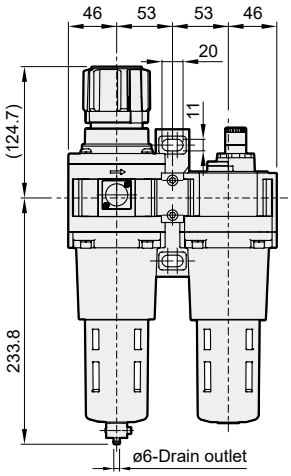


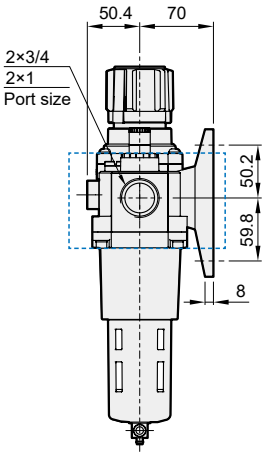




Accessories

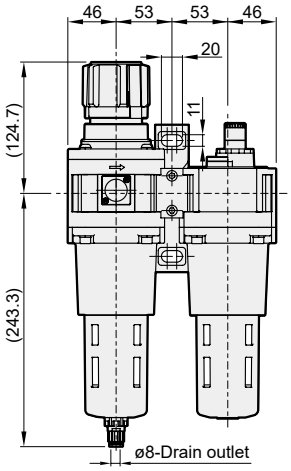






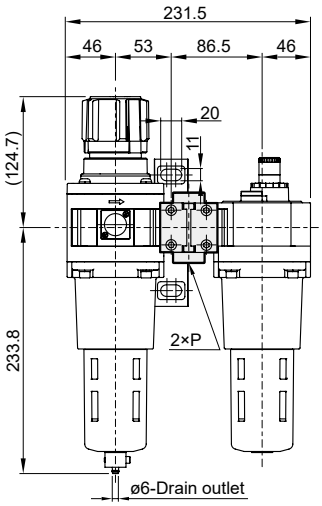
MACP501-D

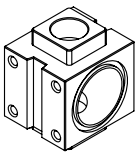
Auto drain valve



MACP501-T*

T type bracket

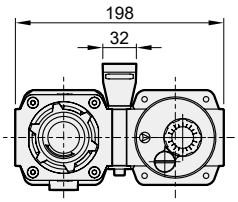


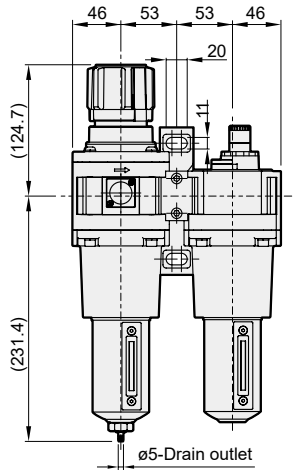


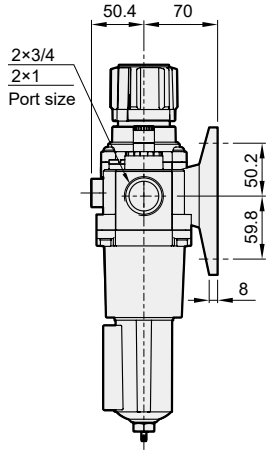
Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACP501-M

Metal bowl

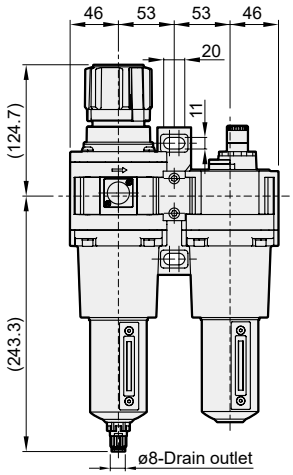


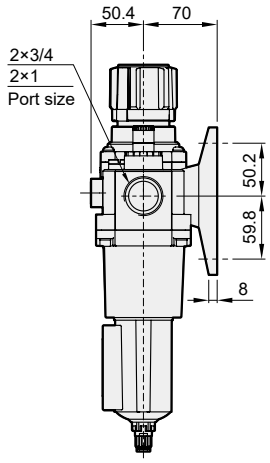




MACP501-MD

Metal bowl + auto drain valve





Technical data

Filter element

T-bracket

User manual

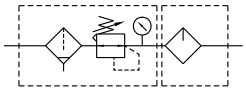
Caution for safety
(Read before installing)



MACT200L



Symbol



Specification

Model		MACT200	
Components		MAF200, MAR201, MAL200	
Bore No.		6A	8A
Port size		1/8	1/4
Medium		Air	
Operating perssure range (*1,2)		0.05~1 MPa 0.15~1 MPa (MACT200L-D)	
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		9.5cm^3, 25cm^3 (MACT200L), 18 cm^3 (MACT200L-D)	
Lubricating oil capacity		20cm^3, 35cm^3 (MACT200L)	
Min. flow for oil drip		35 ℓ/min	50 ℓ/min
Recommended lubricating oil		Turbine oil ISO-VG32	
Attachment	Standard	Pressure gauge(PG-40), L type bracket	
	Optional	T type bracket	
Weight		505 g, 465 g (MACT200L)	

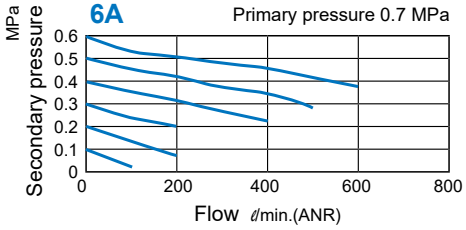
*1. Semi-auto drain (N.O. type): The drain port automatically discharges accumulated water when pressure is below 0.05 MPa.
*2. Auto drain (N.C. type): Residual water remaining in the bowl after air shut-off or drainage is normal.
*3 Poor air quality may cause product malfunction. Installing an upstream pre-filter (e.g., 40 μm) is recommended.
*4. Bowls for semi-auto drain and auto drain valve (D) are not interchangeable.

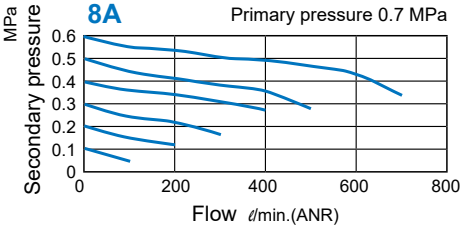
Order example

MACT200L – 8A – □□□ – □ – B – □

- MODEL: Blank: Standard type; **L**: Longer case, no case guard
- PORT SIZE: **6A**: 1/8; **8A**: 1/4
- FLOW DIRECTION: Blank: Left to right; **R**: Right to left
- FILTER ELEMENT: Blank: 40μm; **5u**: 5μm
- BRACKET: Blank: L type; **B**: T type
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread
- BOWL: Blank: PC bowl; **M**: Metal bowl (*); **N**: Nylon bowl
  * Only for 200L.
- DRAIN VALVE: Blank: Semi-auto drain; **D**: Auto drain valve (MADV201)(**)
  **Only for 200L PC bowl.

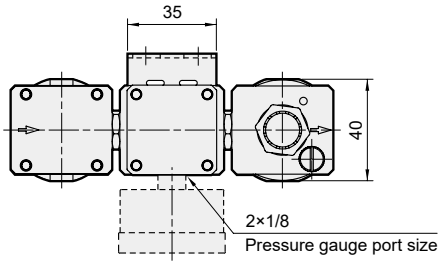
Flow feature

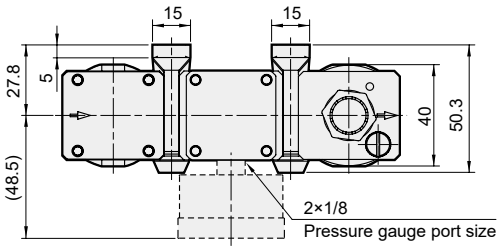


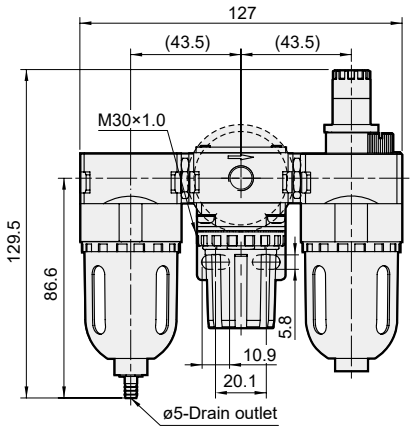


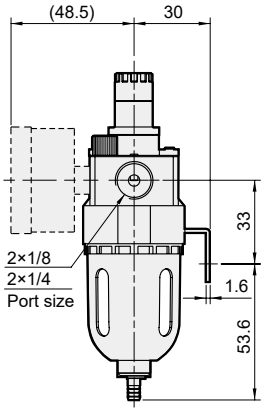
MACT200-B

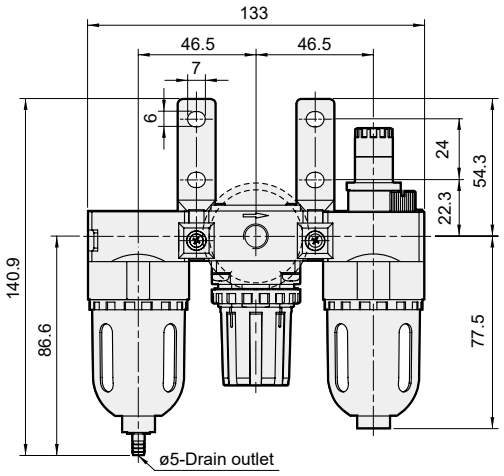
T type bracket





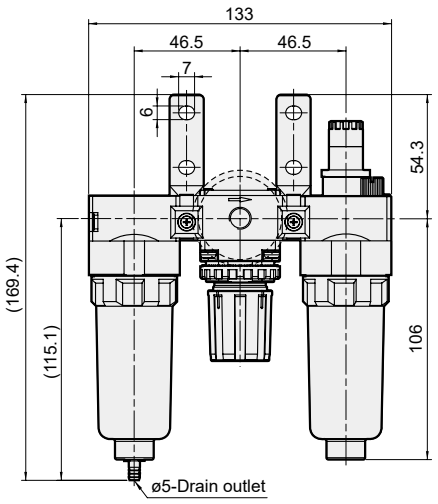






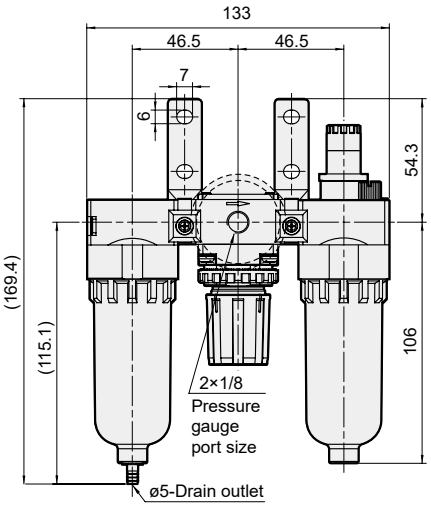
MACT200L-M-B

Metal bowl + T type bracket



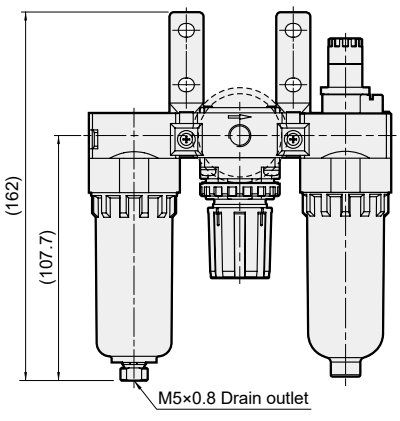
MACT200L-B

T type bracket



MACT200L-D

PC bowl + Auto drain valve



MACT302 series

AIR UNIT (F.R.L.UNIT)

mindman

Technical data

Filter element

User manual

Caution for safety
(Read before installing)



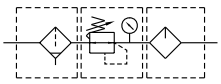


Option: **MP41**



Option: **MLF300**

Symbol



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	32 mm^2	34 mm^2	
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		
Lubricating oil capacity	65 cm^3		
Min. flow for oil drip	50 l/min	60 l/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard 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.

Order example

MACT302 – 8A – NC□□□ – E1 – □ – T8– □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required.
Please contact us.

FILTER ELEMENT
Blank: 5μm
40u: 40μm

BY-PASS PORT SIZE

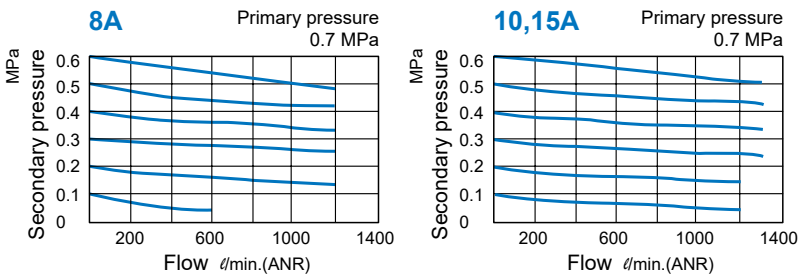
Blank	without
T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve (*2)	**K8**: 1/4 **K10**: 3/8

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

Bowl	Pressure gauge (*1)	Drain valve (for MAF302)	Float switch (for MAL302)	Flow direction
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 **D**: Auto (FMRF300)	Blank: without **F**: with (MLF300)	Blank: Left to right **R**: Right to left

1. PG-40 (C), A-MAR302 (A) and MP41 (E) can not be selected at the same time.
*2. Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

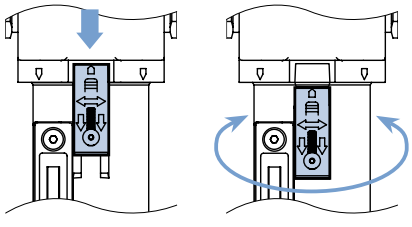


Caution

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

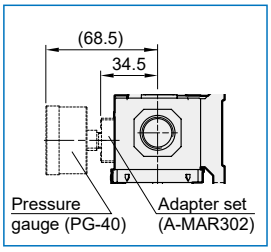


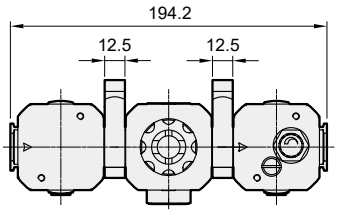
MACT302 Dimensions

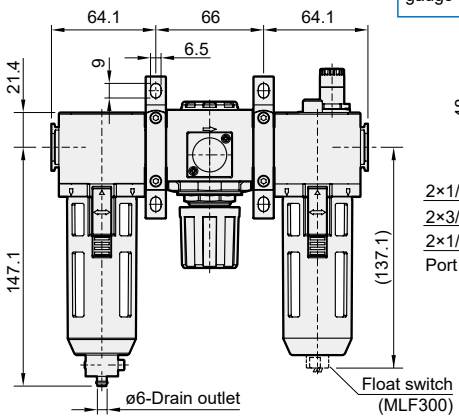
AIR UNIT (F.R.L.UNIT)

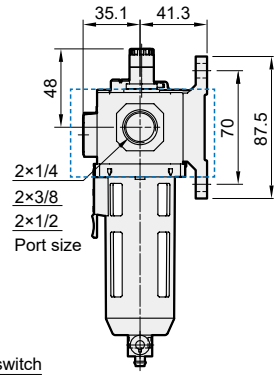
mindman

Accessories



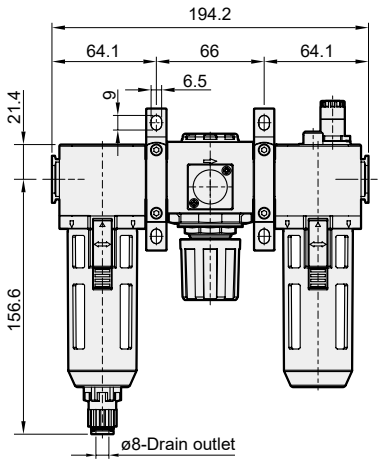






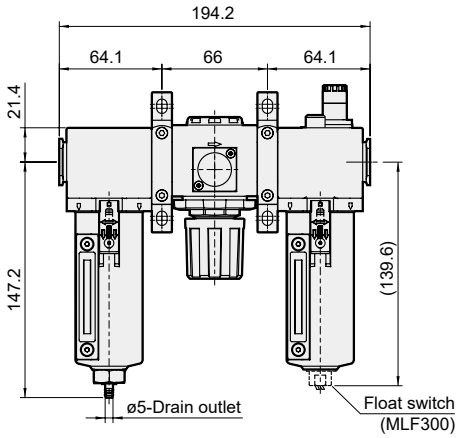
MACT302-D

Auto drain valve



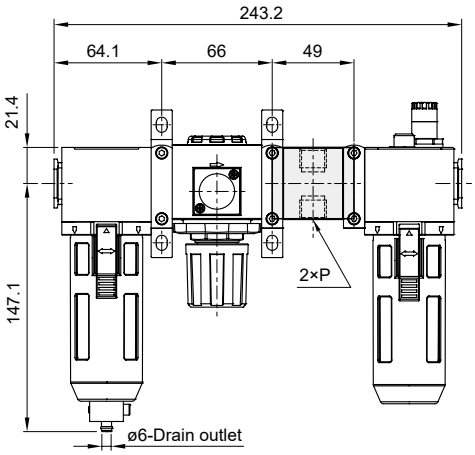
MACT302-M

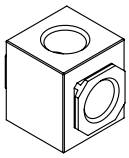
Metal bowl



MACT302-T*

T type bracket

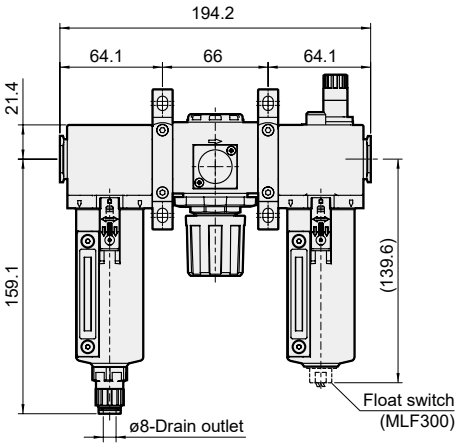




Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

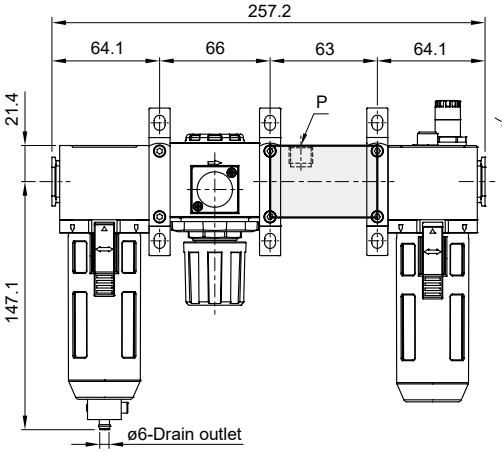
MACT302-MD

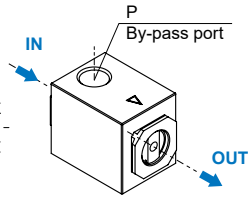
Metal bowl + Auto drain valve



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)

Technical data

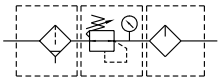
Filter element

User manual

Caution for safety
(Read before installing)



Symbol



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	24 mm^2	35 mm^2	40 mm^2
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		
Lubricating oil capacity	200 cm^3		
Min. flow for oil drip	100 ℓ/min	200 ℓ/min	400 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard attachment	Pressure gauge (PG-50), L type bracket		
Weight	2000 g		

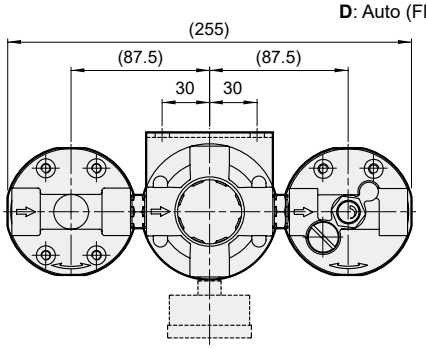
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

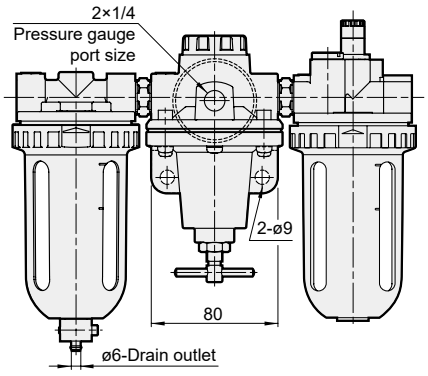
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

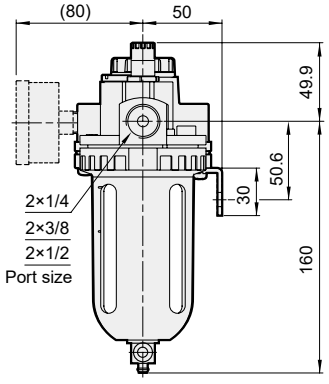
Order example

MACT400 – 8A – ND□ – □ – □

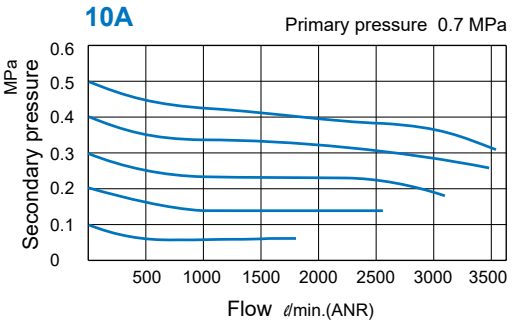
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- DRAIN VALVE
  - Blank: Semi-auto
  - **D**: Auto (FMRF300)
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

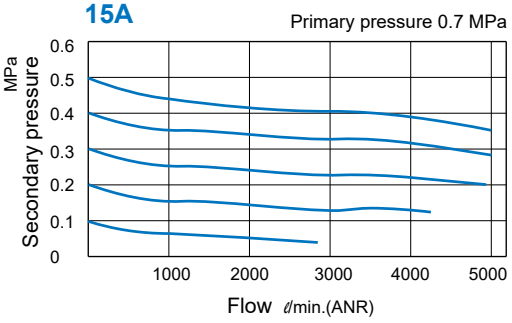






Flow feature





MACT401 series

AIR UNIT (F.R.L.UNIT)

Technical data

Filter element

User manual

Caution for safety
(Read before installing)





Option: **MP41**



Option: **MLF400**

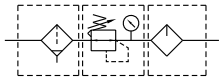
Specification

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		
Drain capacity	70 cm^3		
Lubricating oil capacity	200 cm^3		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard 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

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

BY-PASS PORT SIZE

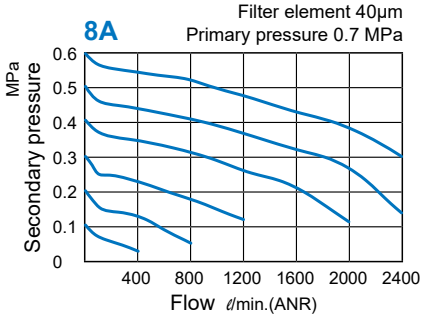
Blank	without
T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

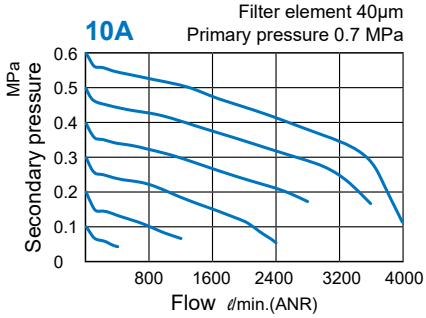
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

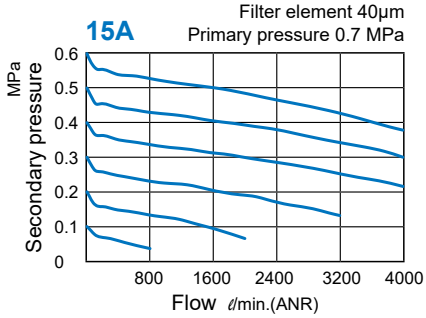
Type	Pressure gauge	Drain valve (for MAF401)	Float switch (for MAL401)	Pressure switch	Flow direction
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **F**: with (MLF400)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto		–	

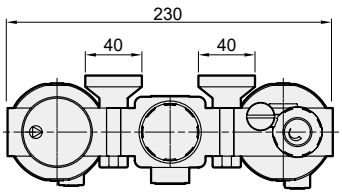
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

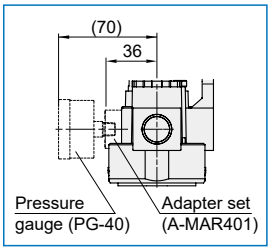


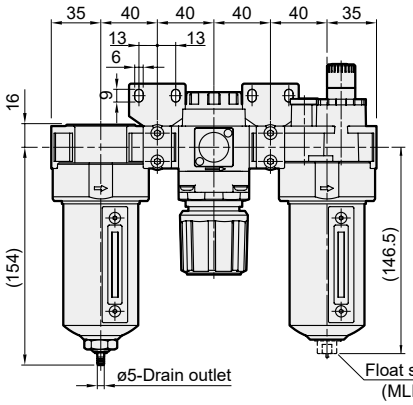


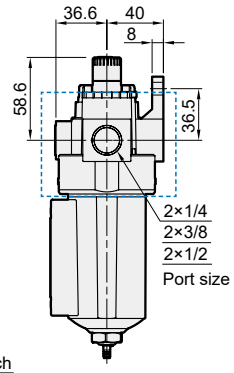




Accessories

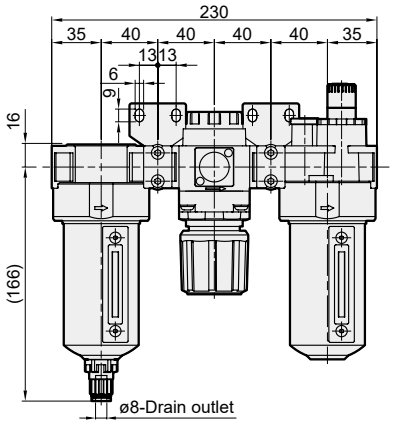






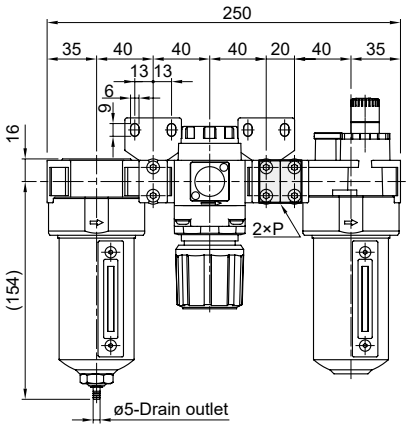
MACT401-D

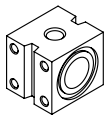
Auto drain valve



MACT401-T*

T type bracket

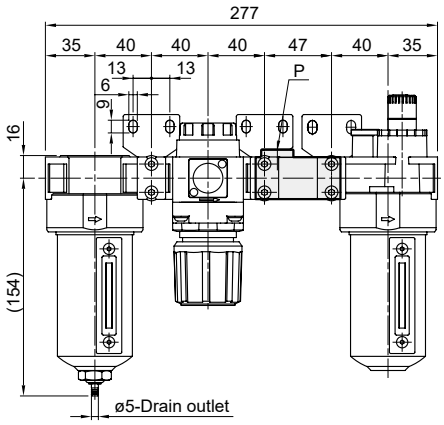


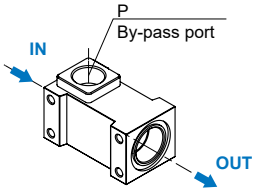


Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACT401-K*

Check valve



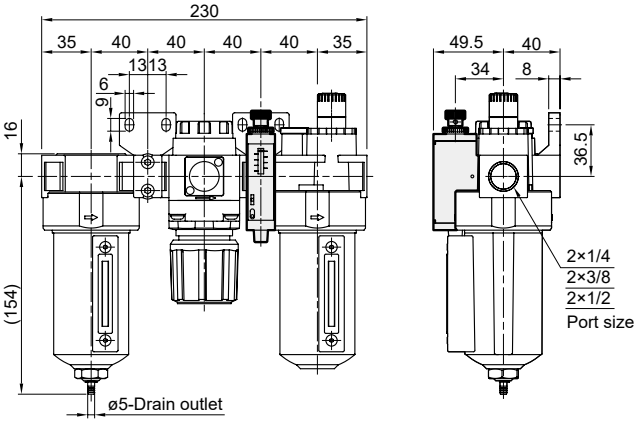


Port Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

MACT401-P

MPS Series
pneumatic pressure switch



MACT403 series

AIR UNIT (F.R.L.UNIT)

Technical data

Filter element

User manual

Caution for safety
(Read before installing)





Option: **MP41**



Option: **MLF400**

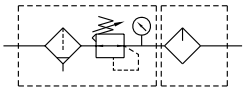
Specification

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		
Drain capacity	75 cm^3		
Lubricating oil capacity	200 cm^3		
Min. flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Standard 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

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required.
Please contact us.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

BY-PASS PORT SIZE

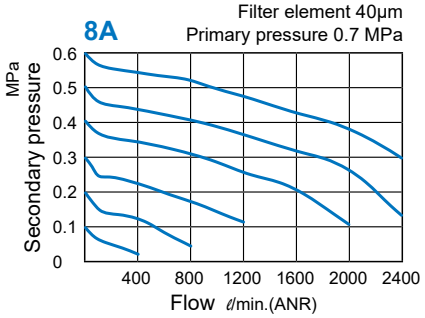
Blank	without
T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

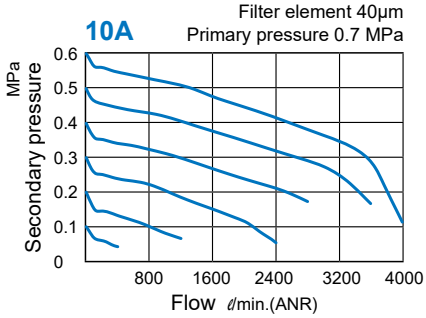
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

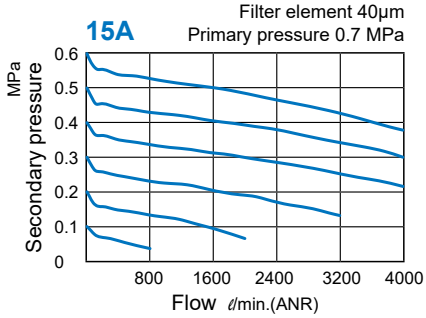
Bowl	Pressure gauge	Drain valve	Float switch (for MAL403)	Pressure switch	Flow direction
Blank: PC bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **F**: with (MLF400)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left

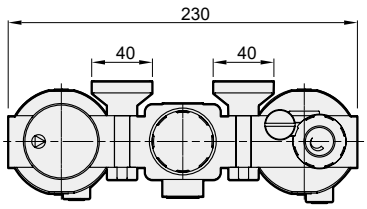
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature

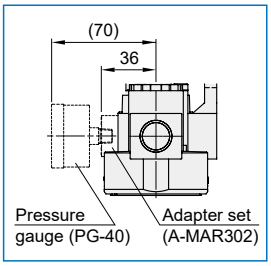


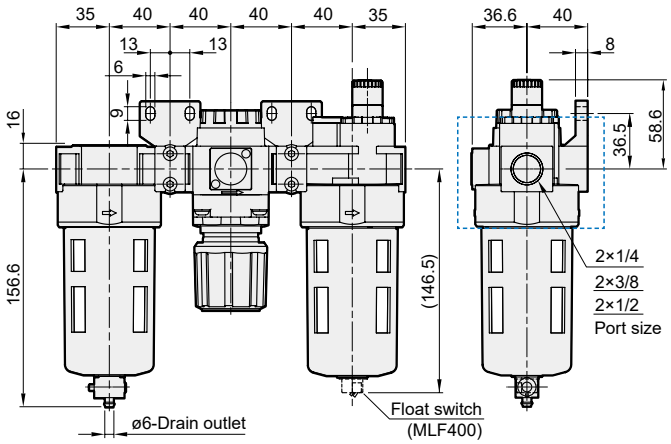






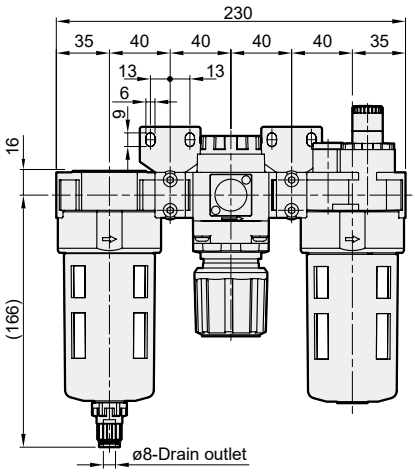
Accessories





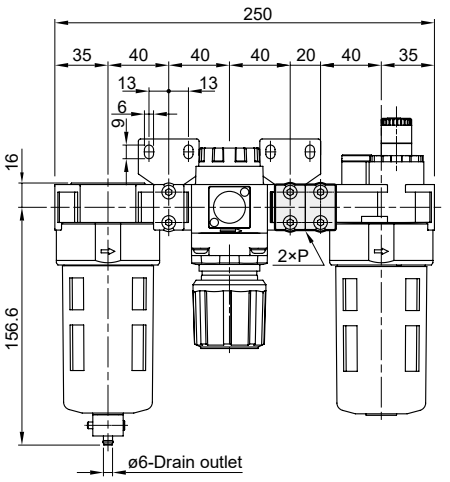
MACT403-D

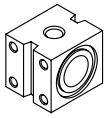
Auto drain valve



MACT403-T*

T type bracket

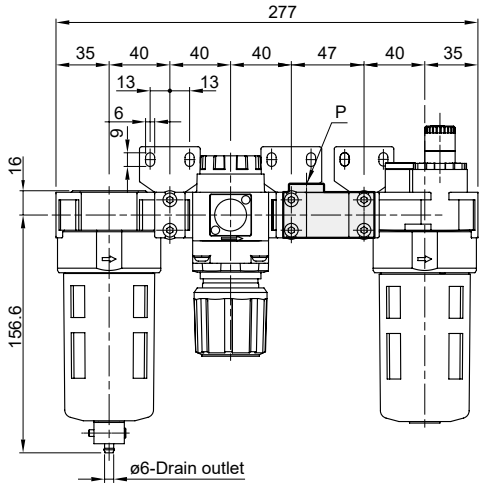


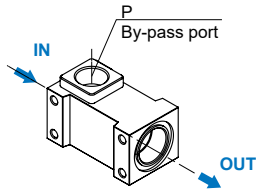


Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

MACT403-K*

Check valve



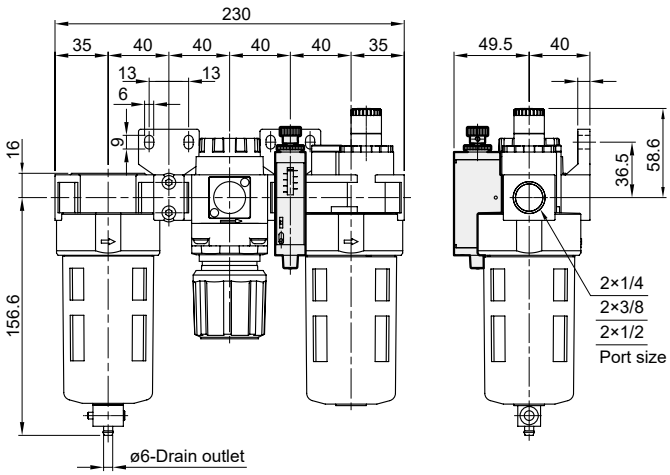


Port / Check valve	P
K8	1/4
K10	3/8

* Threads for **IN** and **OUT** ports are not machined.

MACT403-P

MPS Series
pneumatic pressure switch



MACT501 series

AIR UNIT (F.R.L.UNIT)

mindman

Technical data

Filter element

User manual

Caution for safety
(Read before installing)





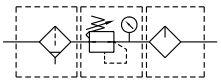
Option: **MP41**

Specification

Model		MACT501	
Components		MAF501, MAR501, MAL501	
Bore No.		20A	25A
Port size		3/4	1
Medium		Air	
Operating perssure range (*)	PC, Nylon	0.05~1 MPa	
	Metal bowl	0.05~1.5 MPa	
Proof pressure	PC, Nylon	1.5 MPa	
	Metal bowl	2 MPa	
Regulated pressure range		0.05~0.85 MPa	
Ambient temperature		– 5~+60°C (No freezing)	
Filter element		40 μm	
Drain capacity		PC, Nylon: 75cm^3, Metal: 70cm^3	
Lubricating oil capacity		200 cm^3	
Min. flow for oil drip		25 ℓ/min	33 ℓ/min
Recommended lubricating oil		Turbine oil ISO-VG32	
Standard 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

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required.
Please contact us.

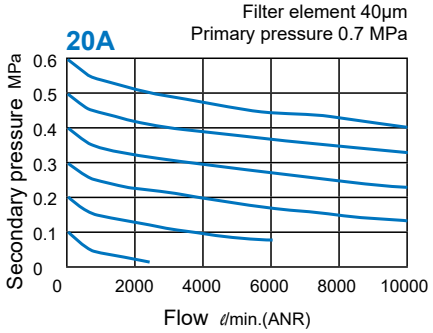
MODULE MOUNTING BRACKET
Blank: without
T8: 1/4
T10: 3/8
T15: 1/2

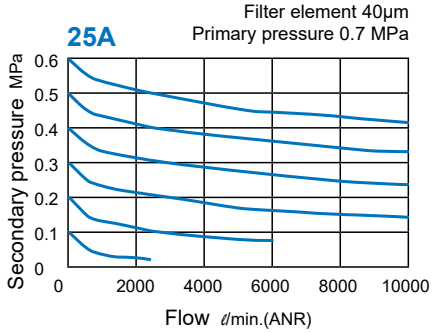
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

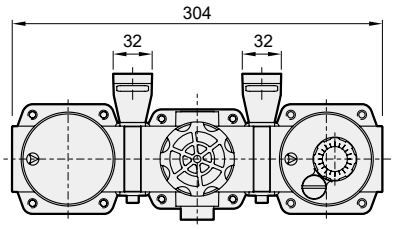
Bowl	Pressure gauge	Drain valve	Flow direction
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: Left to right **R**: Right to left

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

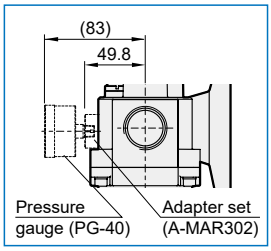
Flow feature





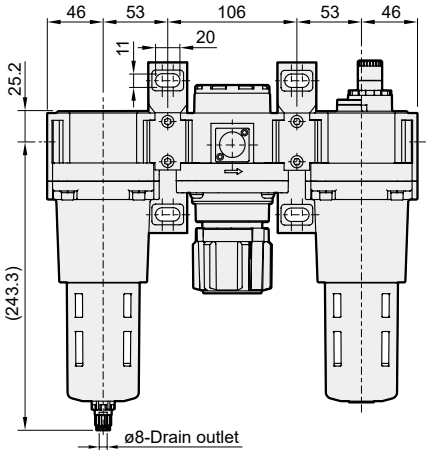


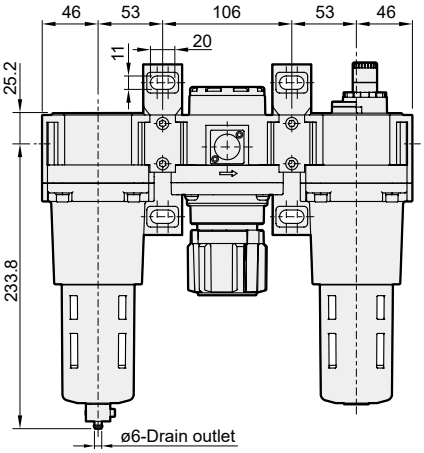
Accessories

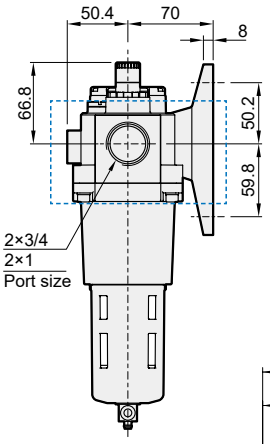


MACT501-D

Auto drain valve

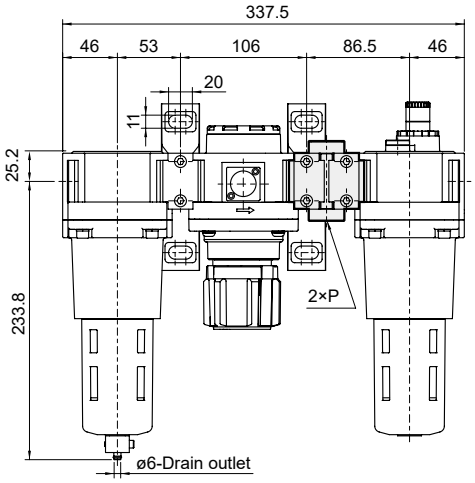


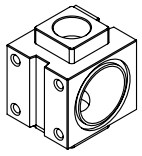




MACT501-T*

T type bracket

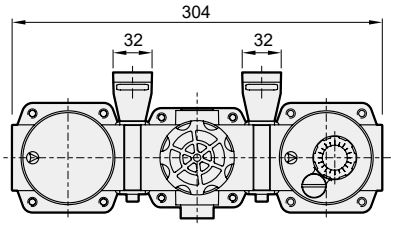




Port / Bracket	P
T8	1/4
T10	3/8
T15	1/2

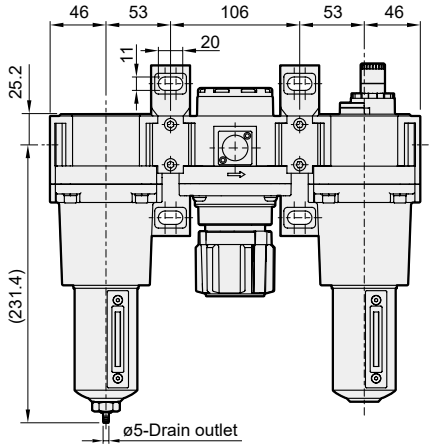
MACT501-M

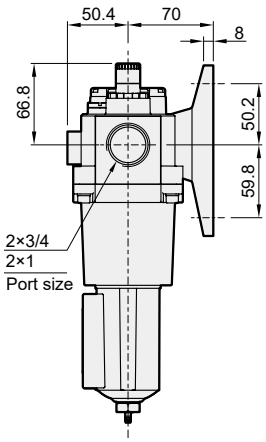
Metal bowl

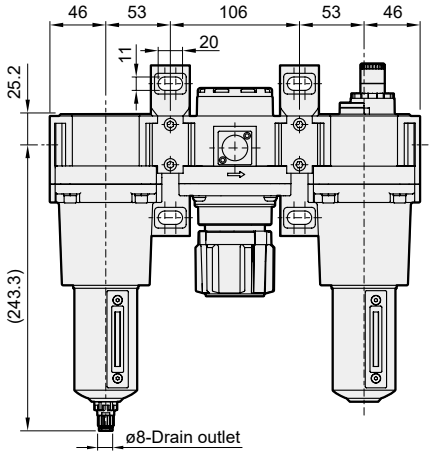


MACT501-MD

Metal bowl + auto drain valve







MAFR100 series

AIR UNIT (F.R.UNIT)

mindman

Technical data

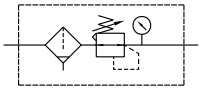
Filter element

User manual

Caution for safety
(Read before installing)



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
Standard attachment	Pressure gauge (PG-25), L type bracket
Weight	130 g

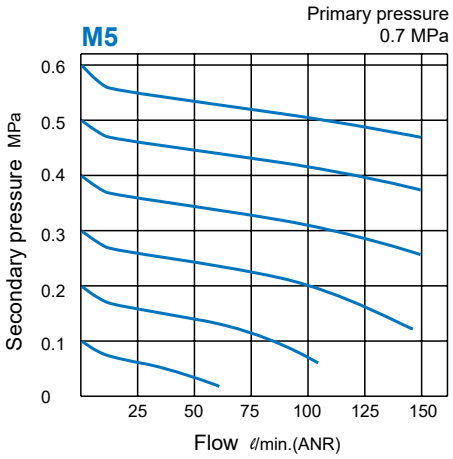
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

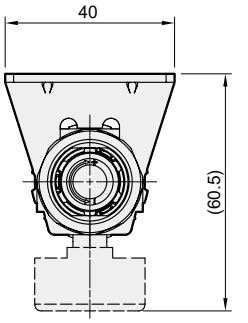
Order example

MAFR100 — M5 — □ — □

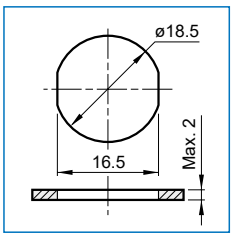
MODEL	PORT SIZE	FLOW DIRECTION	FILTER ELEMENT
		Blank: Left to right **R**: Right to left	Blank: 5μm **40u**: 40μm

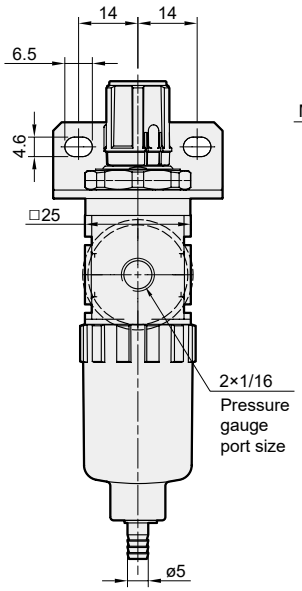
Flow feature

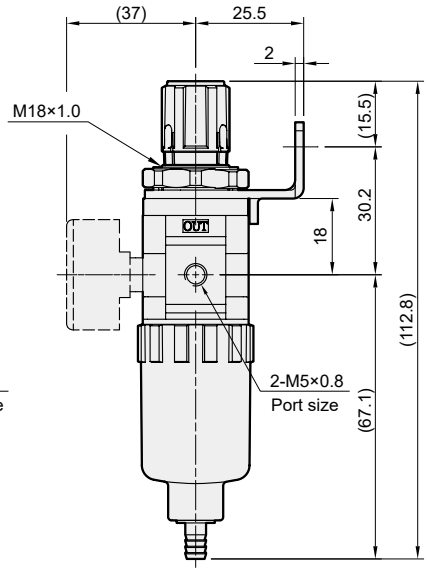




Panel mounting hole







MAFR200 series

AIR UNIT (F.R.UNIT)

mindman

Technical data

Filter element

User manual

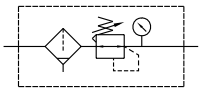
Caution for safety
(Read before installing)



MAFR200L



Symbol



Specification

Model		MAFR200	
Bore No.		6A	8A
Port size		1/8	1/4
Medium		Air	
Operating perssure range (*1,2)		0.05~1 MPa, 0.15~1 MPa (MAFR200L-D)	
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), 18 cm^3 (MAFR200L-D)	
Attachment	Standard	Pressure gauge (PG-40), L type bracket	
	Optional	Z type bracket	
Weight		257 g, 226 g (MAFR200L)	

*1. Semi-auto drain (N.O. type): The drain port automatically discharges accumulated water when pressure is below 0.05 MPa.

*2. Auto drain (N.C. type): Residual water remaining in the bowl after air shut-off or drainage is normal.

*3 Poor air quality may cause product malfunction. Installing an upstream pre-filter (e.g., 40 μm) is recommended.

*4. Bowls for semi-auto drain and auto drain valve (D) are not interchangeable.

Order example

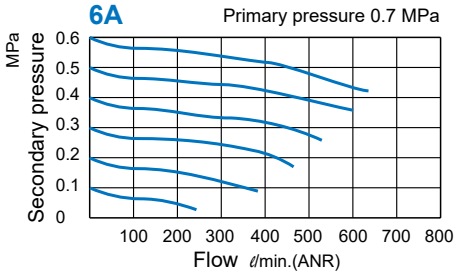
MAFR200L K – 6A – □ – 1K – □ □ □ – □ – □ – □

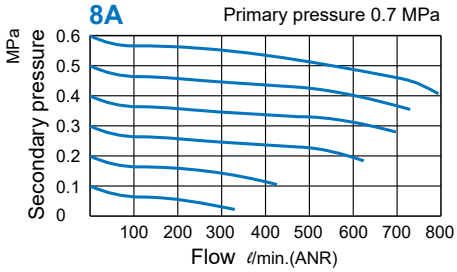
- MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- (*1)
  - Blank: Standard
  - **K**: Backflow function
  - ⚠ Caution
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- (*2) EXHAUST MECHANISM
  - Blank: Relieving type
  - **Q**: Non-relieving type
- ADJUSTABLE PRESS. RANGE
  - Blank: 0.05~0.85 MPa
  - **1K**: 0.01~0.1 MPa
  - **2K**: 0.01~0.2 MPa
  - **3K**: 0.01~0.3 MPa
  - **4K**: 0.01~0.4 MPa
- BOWL
  - Blank: PC bowl
  - **M**: Metal bowl (*)
  - **N**: Nylon bowl
  - * Only for 200L.
- DRAIN VALVE
  - Blank: Semi-auto drain
  - **D**: Auto drain valve (MADV201)(**)
  - **Only for 200L PC bowl.
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- BRACKET
  - Blank: L type
  - **B3**: Z type
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

*1. 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.

*2. 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.

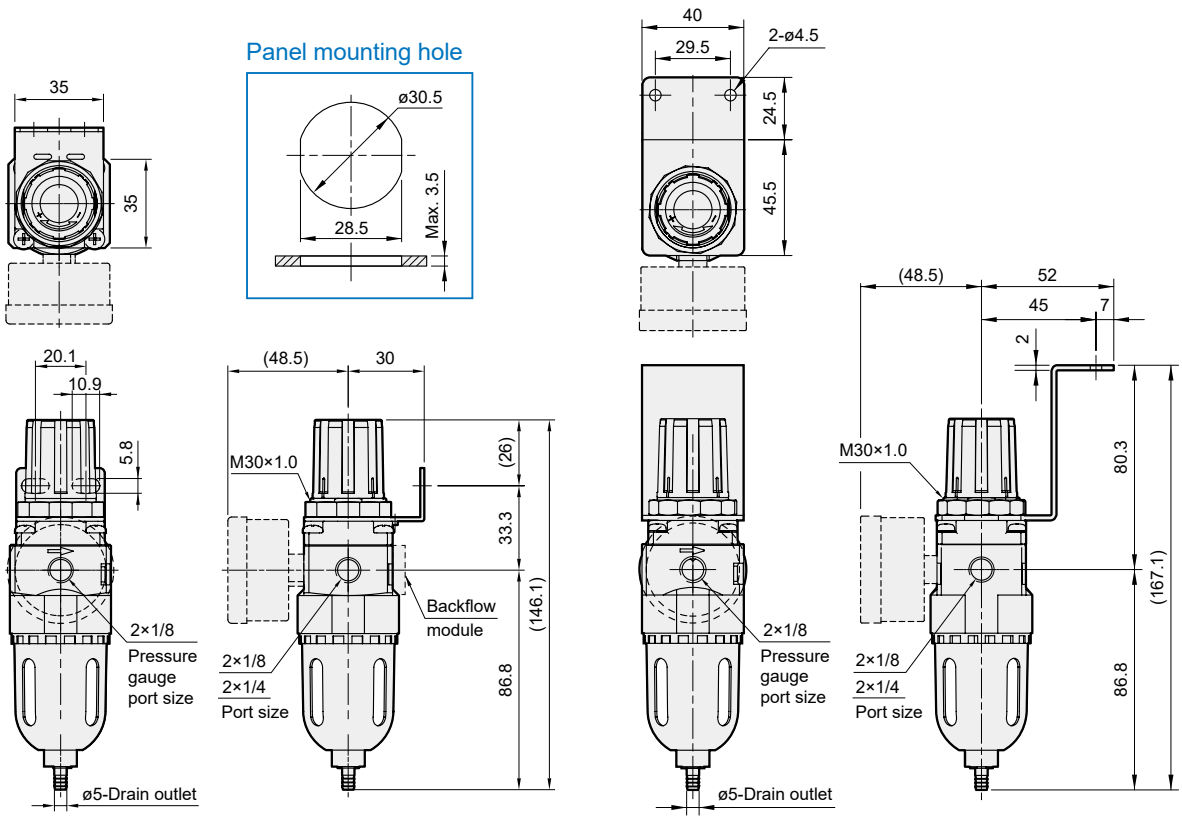
Flow feature





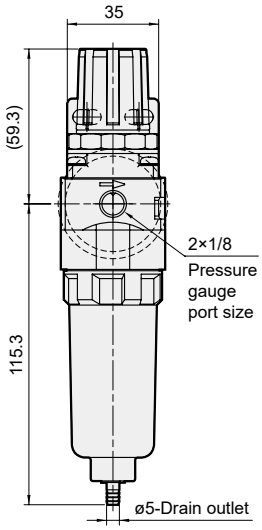
MAFR200-B3

Z type bracket



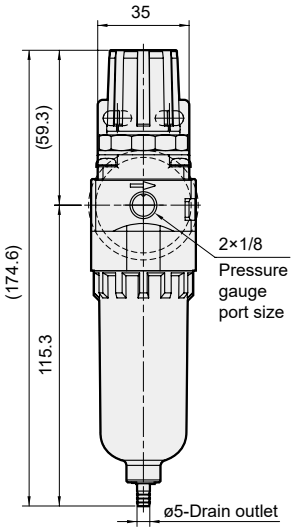
MAFR200L-M

Metal bowl + L type bracket



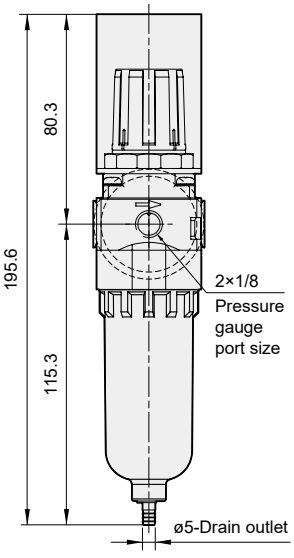
MAFR200L

L type bracket



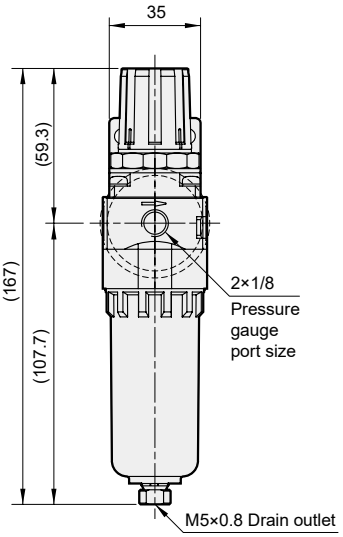
MAFR200L-B3

Z type bracket



MAFR200L-D

PC bowl + Auto drain valve



MAFR302 series

AIR UNIT (F.R.UNIT)

mindman

Technical data

Filter element

User manual

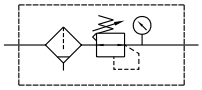
Caution for safety
(Read before installing)





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	Standard	Pressure gauge (PG-20), L type bracket		
	Optional	Z type 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 K – 8A – □ – NC□□ – E1 – □ – HR – □

MODEL

Blank: Standard
K: Backflow function ⚠ Caution

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

EXHAUST MECHANISM

Blank: Relieving type
Q: Non-relieving type

PRESSURE SWITCH

Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

FILTER ELEMENT

Blank: 5μm
40u: 40μm

BRACKET

Blank: L type
B3: Z type

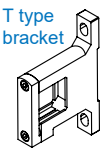
PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

SHUTOFF VALVE

Blank: without
HR: MVHR-302-3H
1: MVHR-302S-3H-AC110
1L: MVHR-302S-3H-AC110-L
1E: MVHR-302S-3H-AC110-E
2: MVHR-302S-3H-AC220
2L: MVHR-302S-3H-AC220-L
2E: MVHR-302S-3H-AC220-E
4: MVHR-302S-3H-DC24
4L: MVHR-302S-3H-DC24-L
4E: MVHR-302S-3H-DC24-E

T type bracket

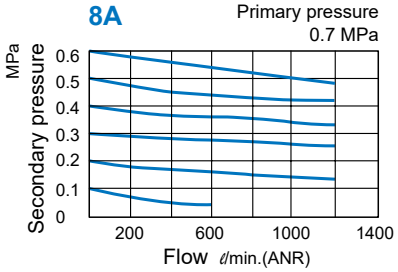


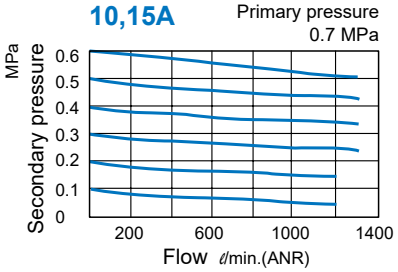
* 302: Manual type, 302S: Solenoid type
* Shutoff valve with T type bracket, no need to choose another bracket.
* MVHR series.

Bowl	Pressure gauge	Drain valve	Flow direction
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 **D**: Auto (FMRF300)	Blank: Left to right **R**: Right to left

* 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.
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature



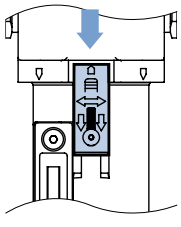


⚠ Caution

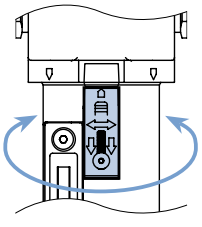
Metal bowl

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.

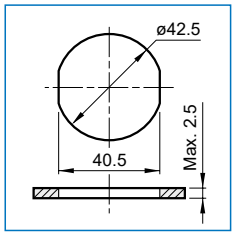
1.Sliding plate down

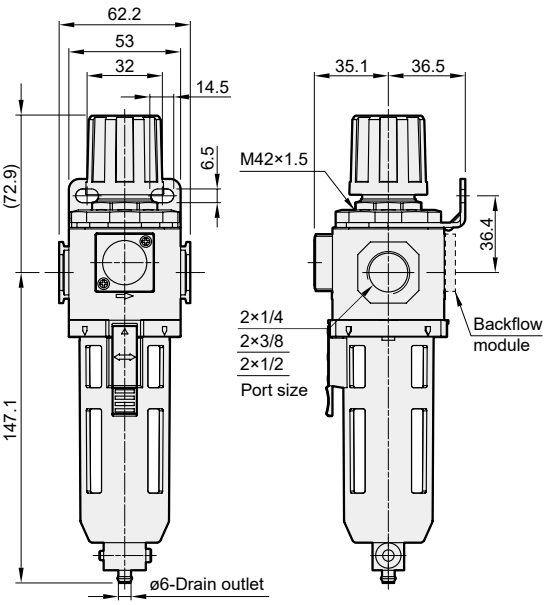


2. Rotating the bowl



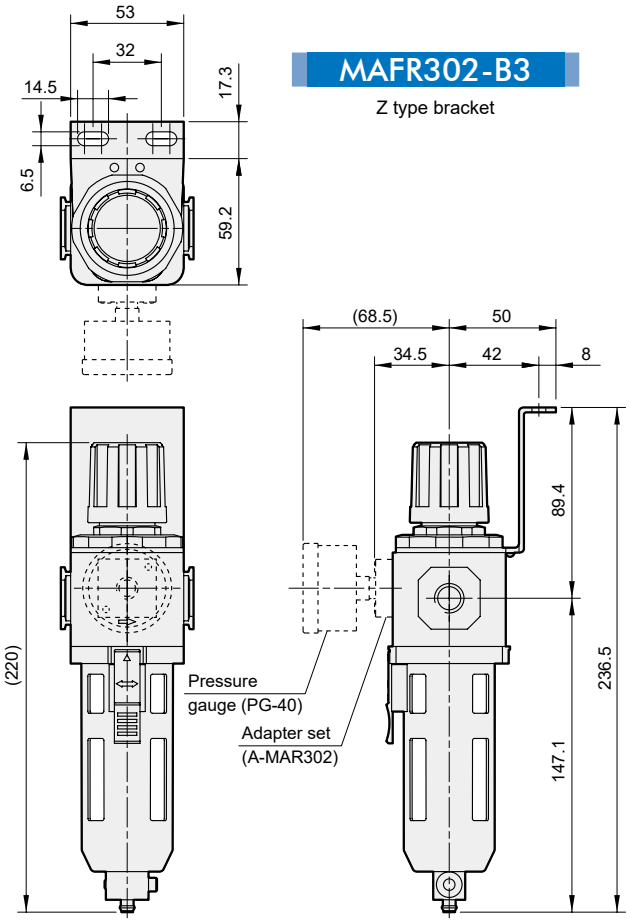
Panel mounting hole





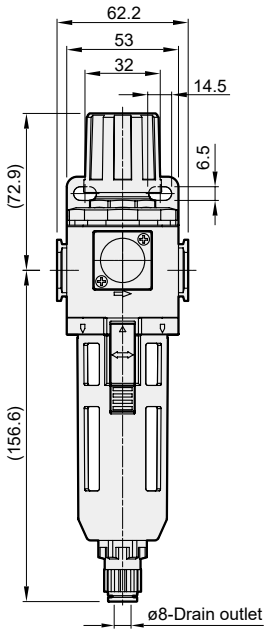
MAFR302-B3

Z type bracket



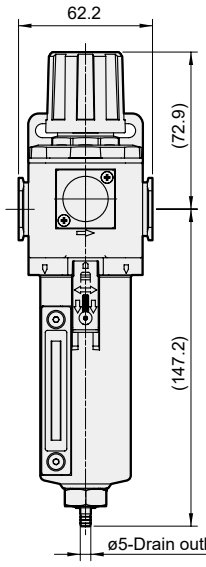
MAFR302-D

Auto drain valve



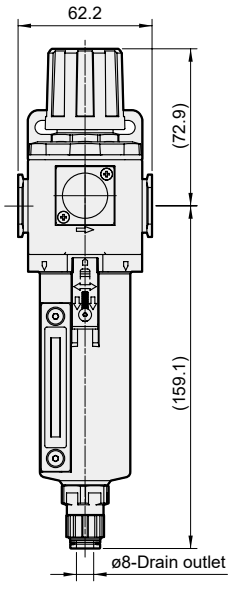
MAFR302-M

Metal bowl



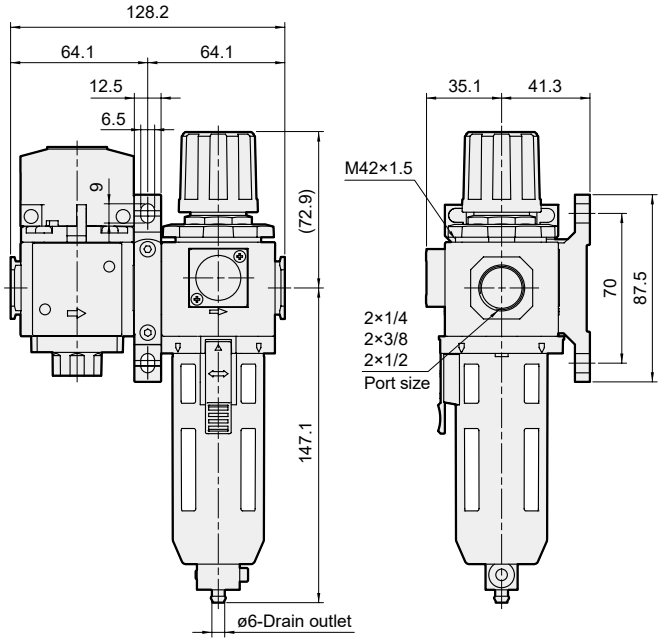
MAFR302-MD

Metal bowl + Auto drain valve



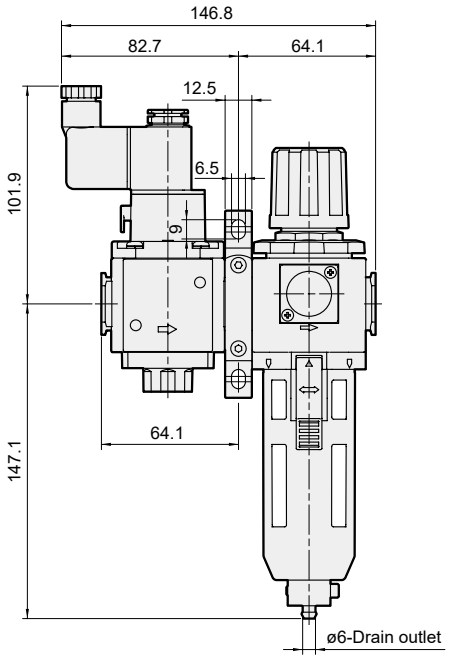
MAFR302-HR

With shutoff valve (MVHR-302)

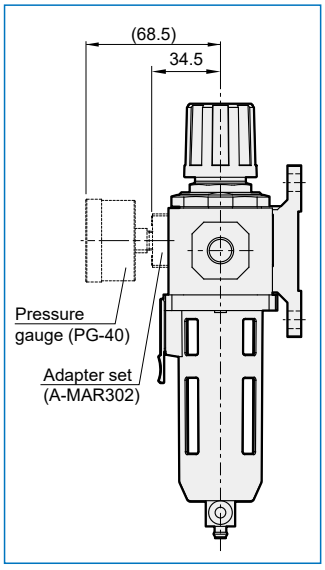


MAFR302-1*/2*/4*

With shutoff valve (MVHR-302S)



Accessories



MAFR400 series

AIR UNIT (F.R.UNIT)

mindman

Technical data

Filter element

User manual

Caution for safety
(Read before installing)



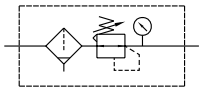
Specification

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		
Standard attachment	Pressure gauge (PG-50), L type 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.

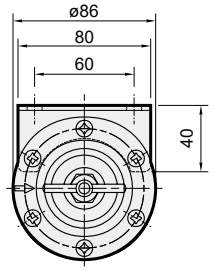
Symbol

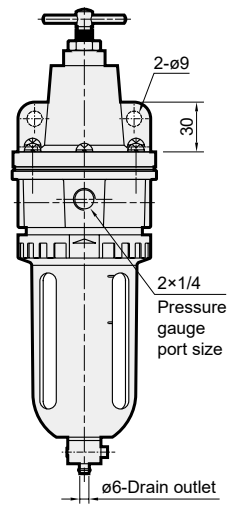


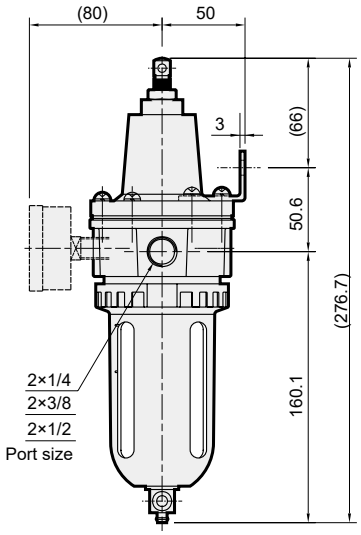
Order example

MAFR400 – 8A – ND□ – □ – □

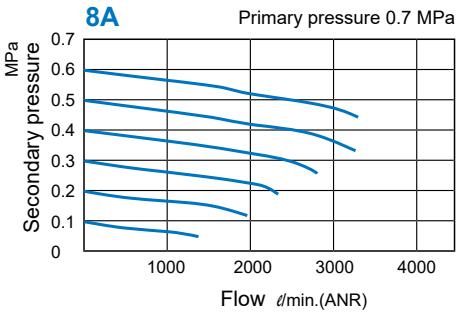
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread
- DRAIN VALVE
  - Blank: Semi-auto
  - **D**: Auto (FMRF300)

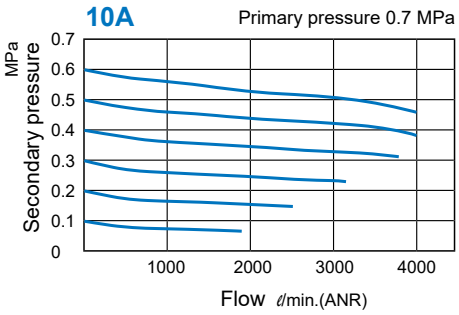


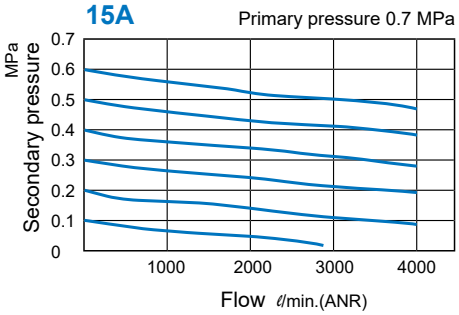




Flow feature







MAFR401 series

AIR UNIT (F.R.UNIT)

Technical data

Filter element

User manual

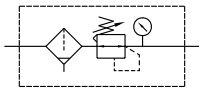
Caution for safety
(Read before installing)





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	Standard	Pressure gauge (PG-20)		
	Optional	Screw fixed 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 K – 8A – □ – □ – HA□P□ – E1 – □ – HR – □

MODEL
Blank: Standard
K: Backflow function
⚠ Caution

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

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required.
Please contact us.

FILTER ELEMENT
Blank: 40μm
5u: 5μm

BRACKET
Blank: without
B2: Screw fixed

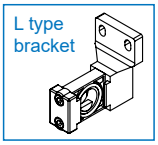
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

SHUTOFF VALVE
Blank: without
HR: MVHR-400-3H
1: MVHR-400S-3H-AC110
1L: MVHR-400S-3H-AC110-L
1E: MVHR-400S-3H-AC110-E
2: MVHR-400S-3H-AC220
2L: MVHR-400S-3H-AC220-L
2E: MVHR-400S-3H-AC220-E
4: MVHR-400S-3H-DC24
4L: MVHR-400S-3H-DC24-L
4E: MVHR-400S-3H-DC24-E

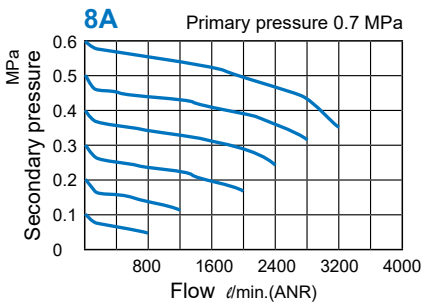
Type	Pressure gauge	Drain valve	Pressure switch	Flow direction
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto	–	

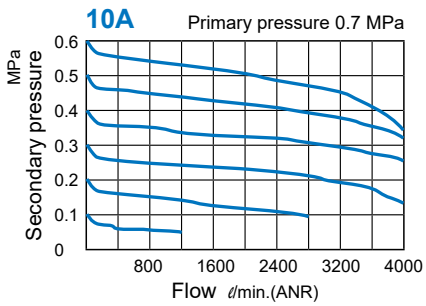
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, 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.
* Specification (W) gauge adapter set (A-MAR302).
* There is no pressure gauge in option (A), please purchase if necessary.

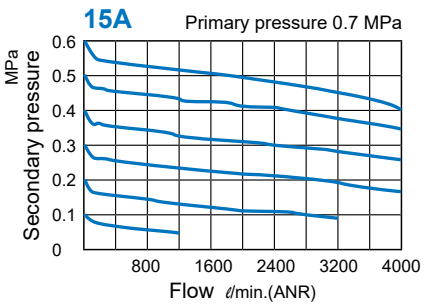
* 400: Manual type, 400S: Solenoid type
* Shutoff valve with L type bracket, no need to choose another bracket.
* MVHR series.



Flow feature





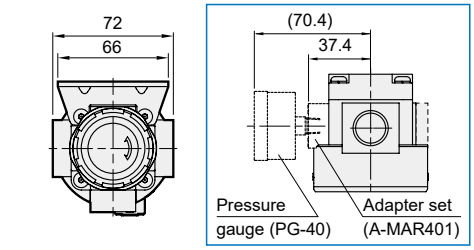


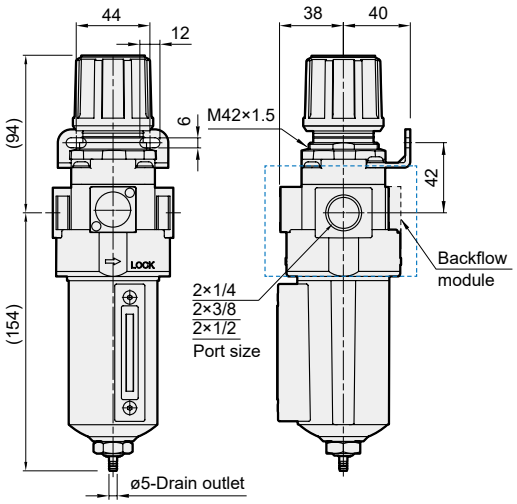
MAFR401 / MAFR401-HR Dimensions

AIR UNIT (F.R.UNIT)

mindman

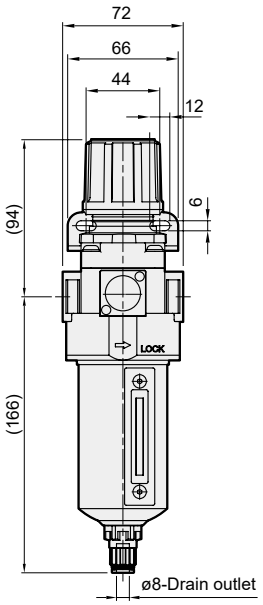
Accessories





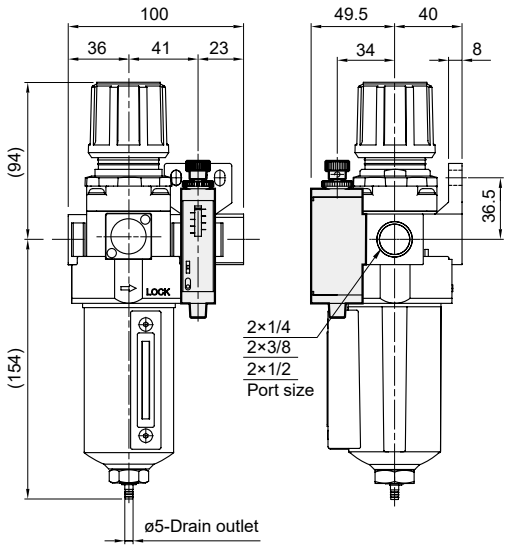
MAFR401-D

Auto drain valve



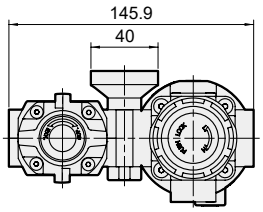
MAFR401-P

MPS Series
pneumatic pressure switch

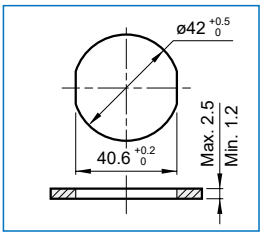


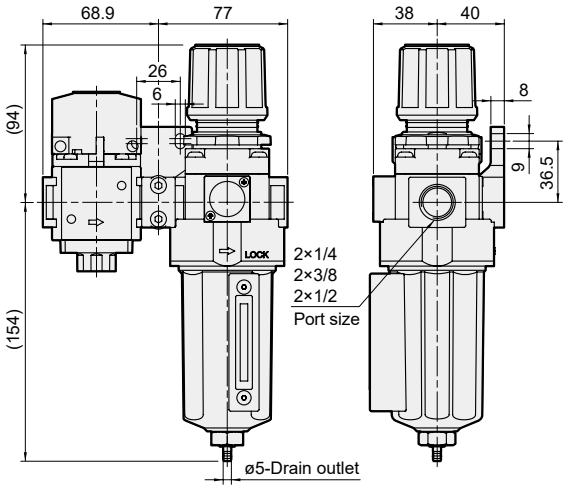
MAFR401-HR

With shutoff valve (MVHR-400)



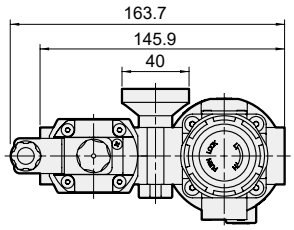
Panel mounting hole

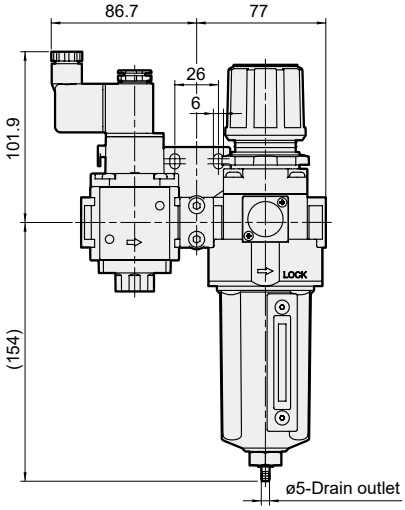




MAFR401-1*/2*/4*

With shutoff valve (MVHR-400S)





MAFR403 series

AIR UNIT (F.R.UNIT)

Technical data

Filter element

User manual

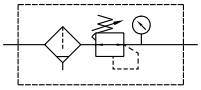
Caution for safety
(Read before installing)





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	Standard	Pressure gauge (PG-20)		
	Optional	Screw fixed 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 K – 8A – □ – NC□P□ – E1 – □ – HR – □

MODEL

Blank: Standard
K: Backflow function
Caution

PORT SIZE

8A: 1/4
10A: 3/8
15A: 1/2

EXHAUST MECHANISM

Blank: Relieving type
Q: Non-relieving type

PRESSURE SWITCH

Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

FILTER ELEMENT

Blank: 40μm
5u: 5μm

BRACKET

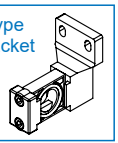
Blank: without
B2: Screw fixed

SHUTOFF VALVE

Blank: without
HR: MVHR-400-3H
1: MVHR-400S-3H-AC110
1L: MVHR-400S-3H-AC110-L
1E: MVHR-400S-3H-AC110-E
2: MVHR-400S-3H-AC220
2L: MVHR-400S-3H-AC220-L
2E: MVHR-400S-3H-AC220-E
4: MVHR-400S-3H-DC24
4L: MVHR-400S-3H-DC24-L
4E: MVHR-400S-3H-DC24-E

* 400: Manual type, 400S: Solenoid type
* Shutoff valve with L type bracket, no need to choose another bracket.
* MVHR series .

L type bracket



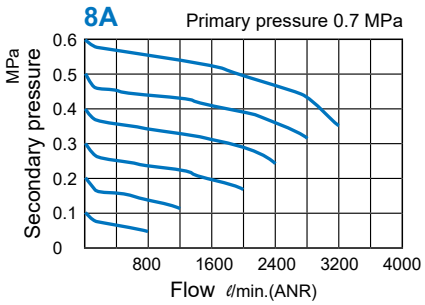
PORT THREAD

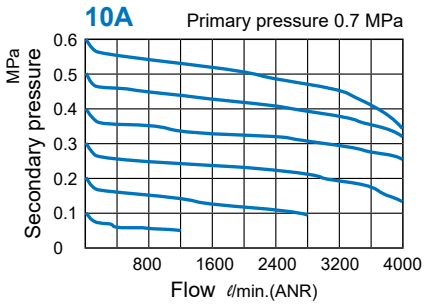
Blank: Rc thread
G: G thread
NPT: NPT thread

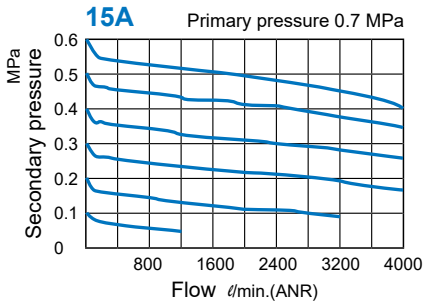
Bowl	Pressure gauge	Drain valve	Pressure switch	Flow direction
Blank: PC bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left

* 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.
* There is no pressure gauge in option (A), please purchase if necessary.

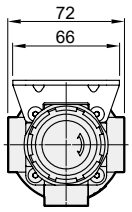
Flow feature

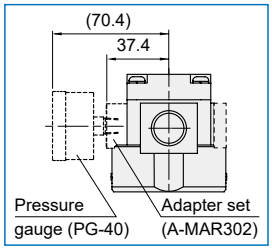






Accessories



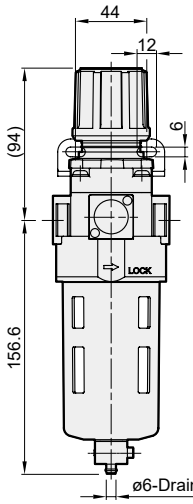


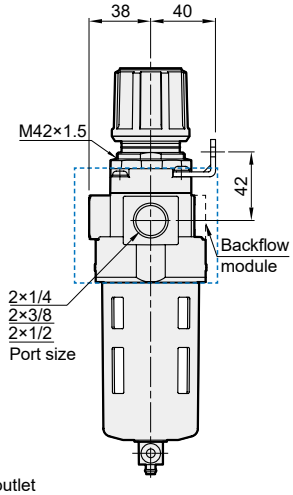
MAFR403-D

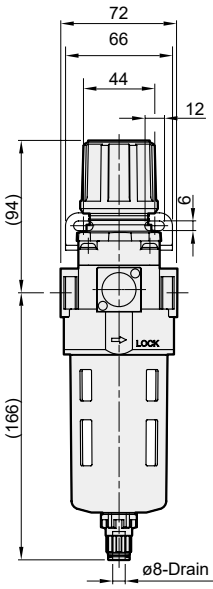
Auto drain valve

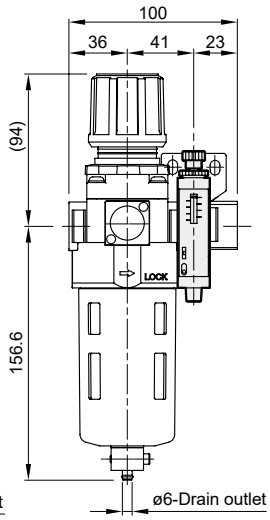
MAFR403-P

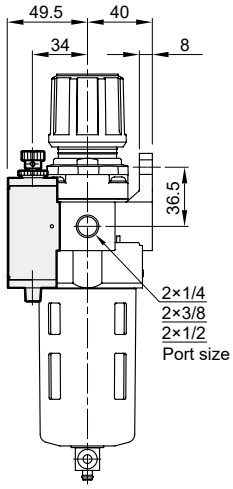
MPS Series
pneumatic pressure switch





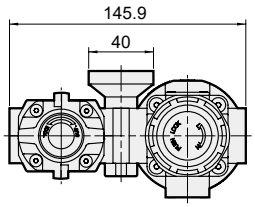




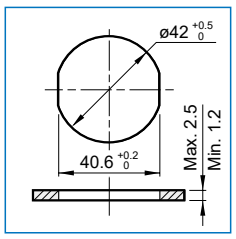


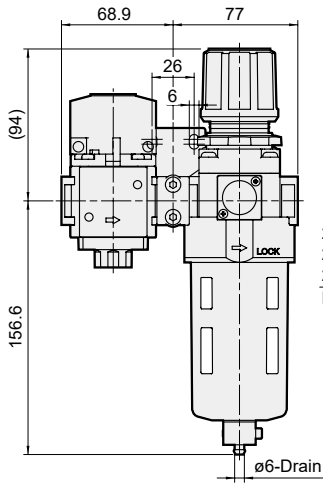
MAFR403-HR

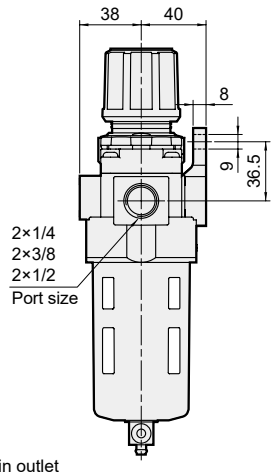
With shutoff valve (MVHR-400)



Panel mounting hole

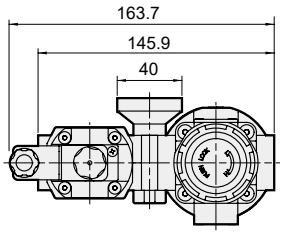


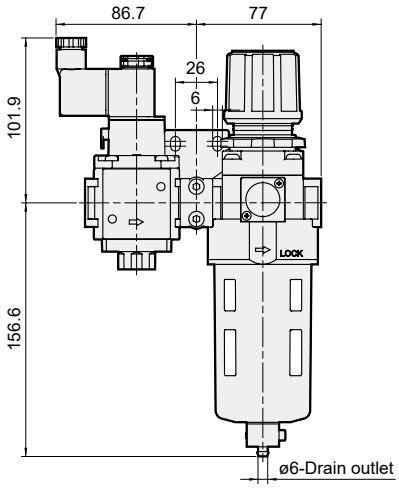




MAFR403-1*/2*/4*

With shutoff valve (MVHR-400S)





MAFR501 series

AIR UNIT (F.R.UNIT)

Technical data

Filter element

User manual

Caution for safety
(Read before installing)





Option: **MP41**

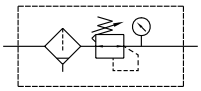
Specification

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	
Standard 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.

Symbol



Order example

MAFR501 – 20A – MC□J□ – E1 – □

MODEL

PORT SIZE
20A: 3/4
25A: 1

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**

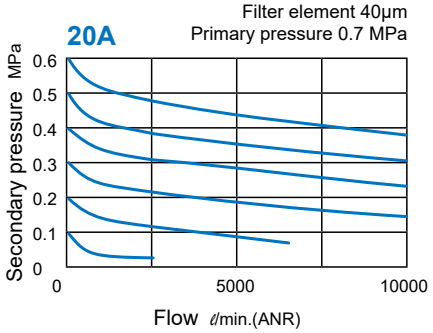
** MOQ required. Please contact us.

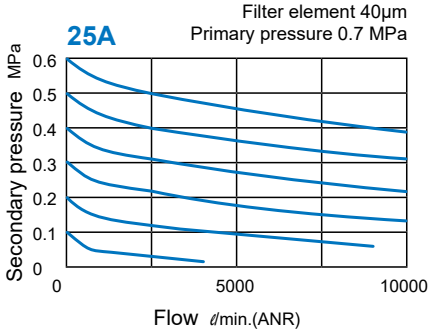
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

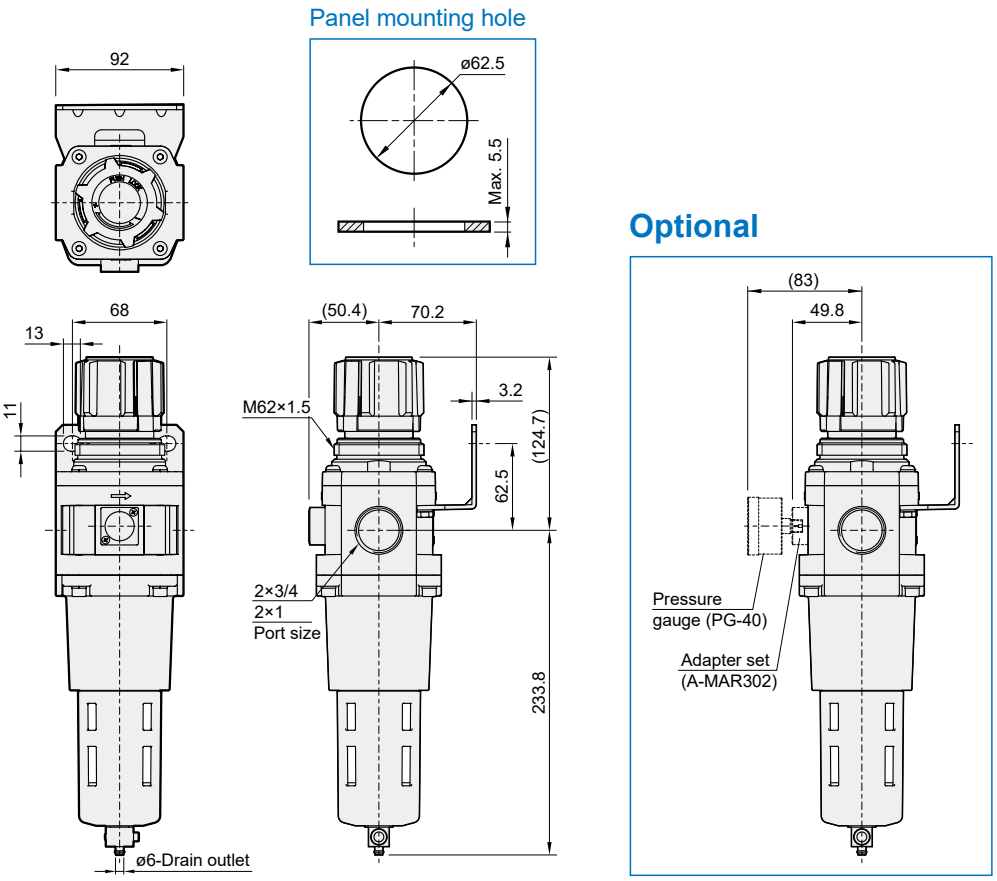
Bowl	Pressure gauge	Drain valve	Panel nuts	Flow direction
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: without **J**: Panel nuts	Blank: Left to right **R**: Right to left

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.

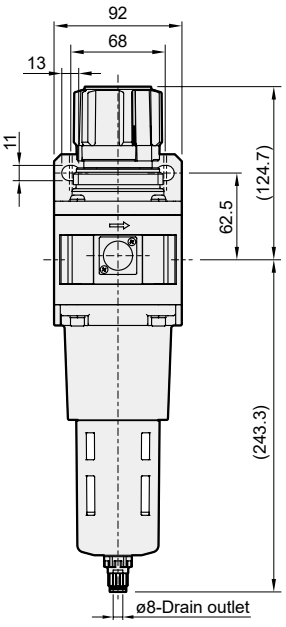
Flow feature



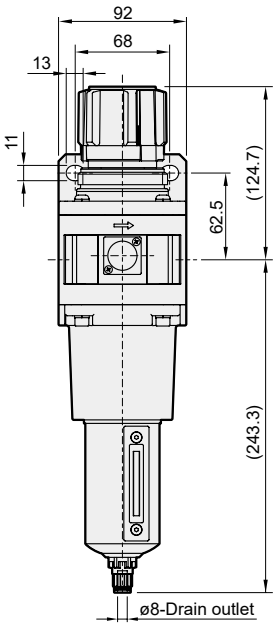




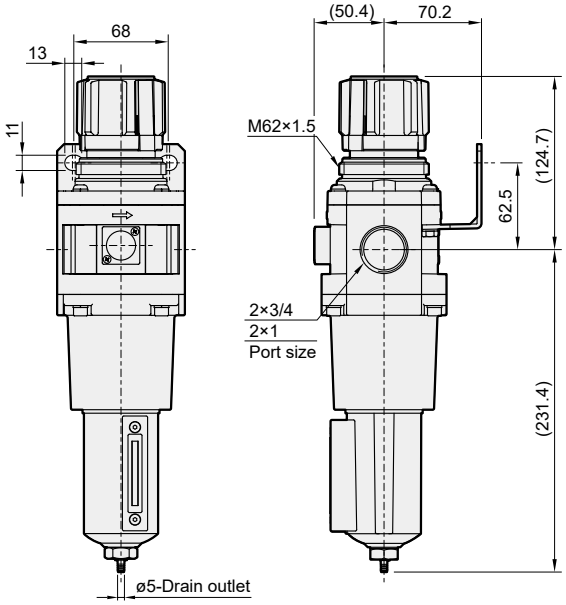
MAFR501-D
Auto drain valve



MAFR501-MD
Metal bowl + auto drain valve



MAFR501-M
Metal bowl



MAF200 series

AIR UNIT (FILTER)

Technical data

Filter element

User manual

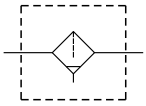
Caution for safety
(Read before installing)



MAF200L



Symbol



Specification

Model	MAF200	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*1,2)	0.05~1 MPa, 0.15~1 MPa (MAF200L-D)	
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), 18 cm^3 (MAF200L-D)	
Optional attachment	L type bracket	
Weight	187 g, 155 g (MAF200L)	

*1. Semi-auto drain (N.O. type): The drain port automatically discharges accumulated water when pressure is below 0.05 MPa.

*2. Auto drain (N.C. type): Residual water remaining in the bowl after air shut-off or drainage is normal.

*3 Poor air quality may cause product malfunction. Installing an upstream pre-filter (e.g., 40 μm) is recommended.

*4. Bowls for semi-auto drain and auto drain valve (D) are not interchangeable.

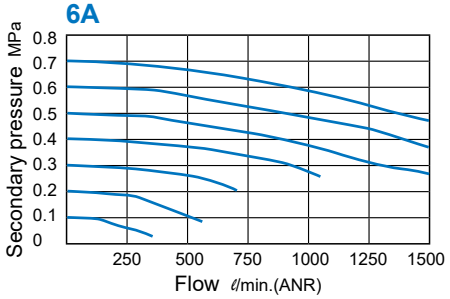
Order example

MAF200L – 6A – □□□ – □ – B – □

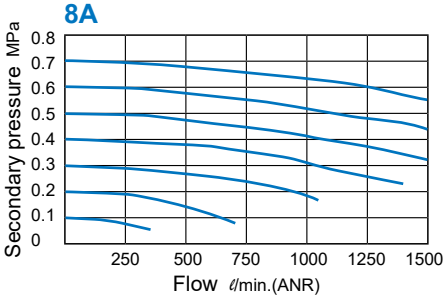
- MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- BOWL
  - Blank: PC bowl
  - **M**: Metal bowl (*)
  - **N**: Nylon bowl
  - * Only for 200L.
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- DRAIN VALVE
  - Blank: Semi-auto drain
  - **D**: Auto drain valve (MADV201)(**)
  - **Only for 200L PC bowl.
- FILTER ELEMENT
  - Blank: 40μm
  - **5u**: 5μm
- BRACKET
  - Blank: without
  - **B**: with bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

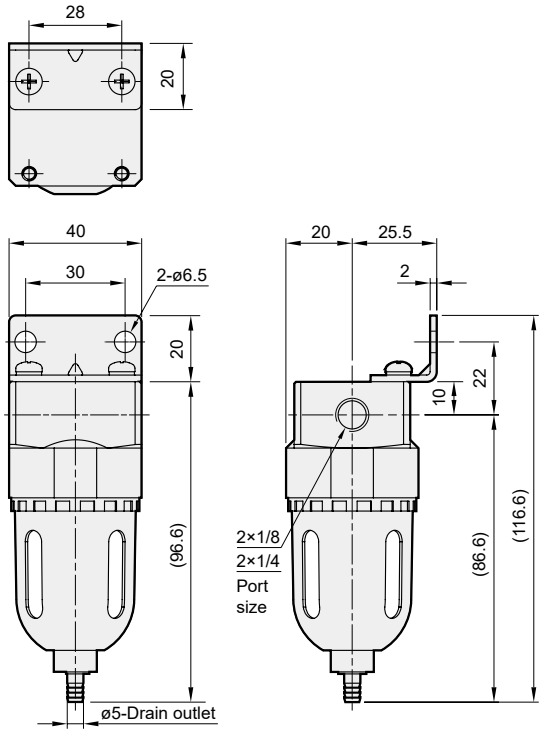
Flow feature

6A



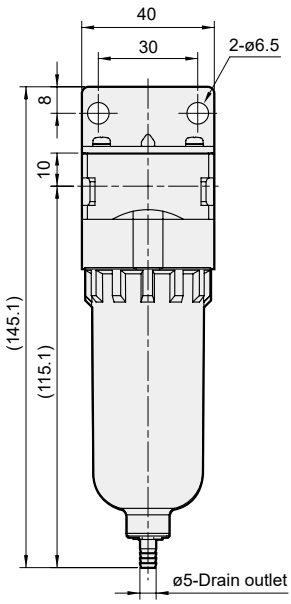
8A





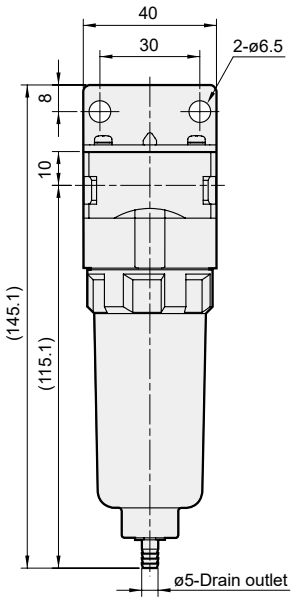
MAF200L-□

PC / Nylon bowl



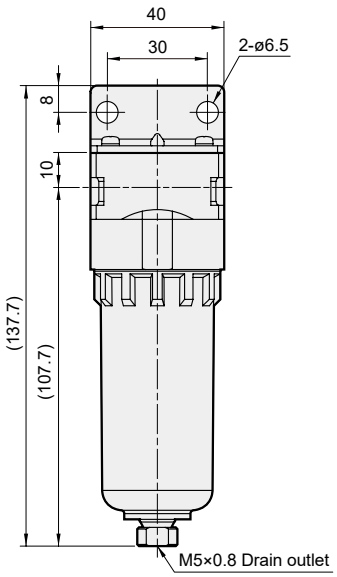
MAF200L-M

Metal bowl



MAF200L-D

PC bowl + Auto drain valve



MAF302 series

AIR UNIT (FILTER / WATER SEPARATOR)

Technical data

Filter element

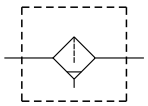
User manual

Caution for safety
(Read before installing)

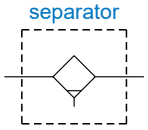


Symbol

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		
Optional attachment	C type bracket		

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□ – □ – □ – □

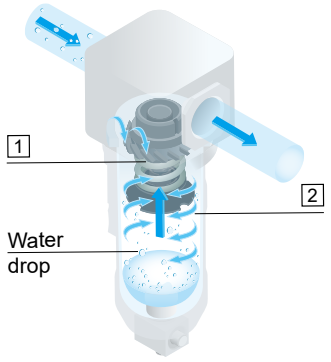
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **M**: Metal bowl, **N**: Nylon bowl
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- (*) FILTER ELEMENT: Blank: 5μm, **40u**: 40μm
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread
- Blank: Filter, **G**: Water separator (Removal ratio 99%±1)
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- BRACKET: Blank: without, **B**: C type bracket

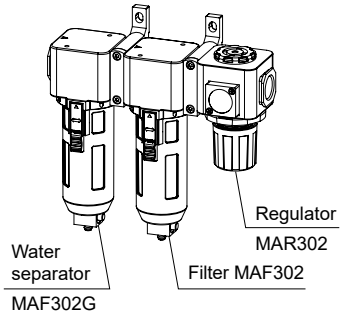
* There is not filter element in MAF302G series.

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%



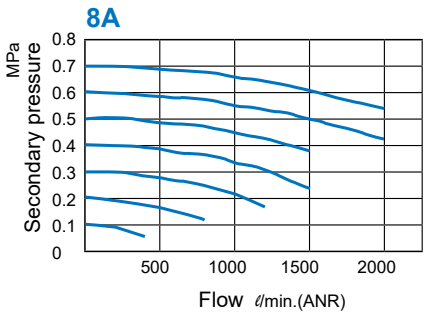


Assembly example

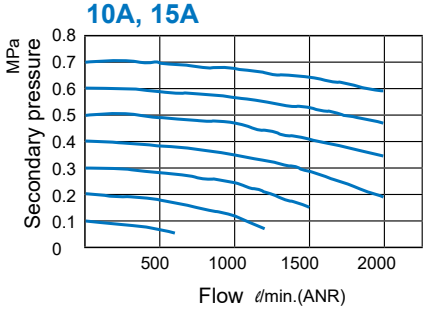
Flow feature

MAF302 (Filter)

8A

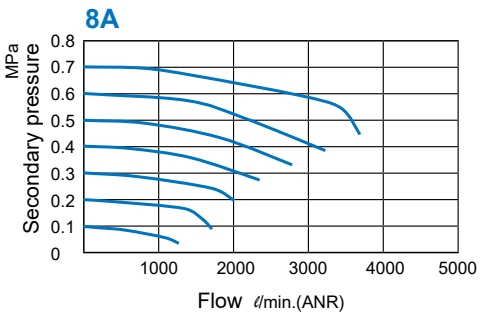


10A, 15A

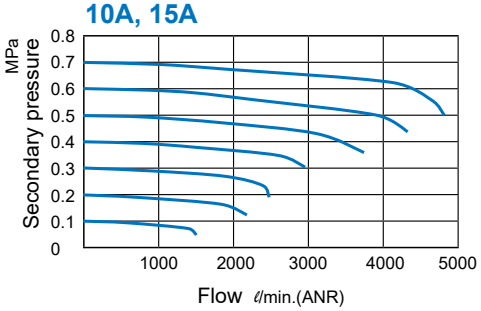


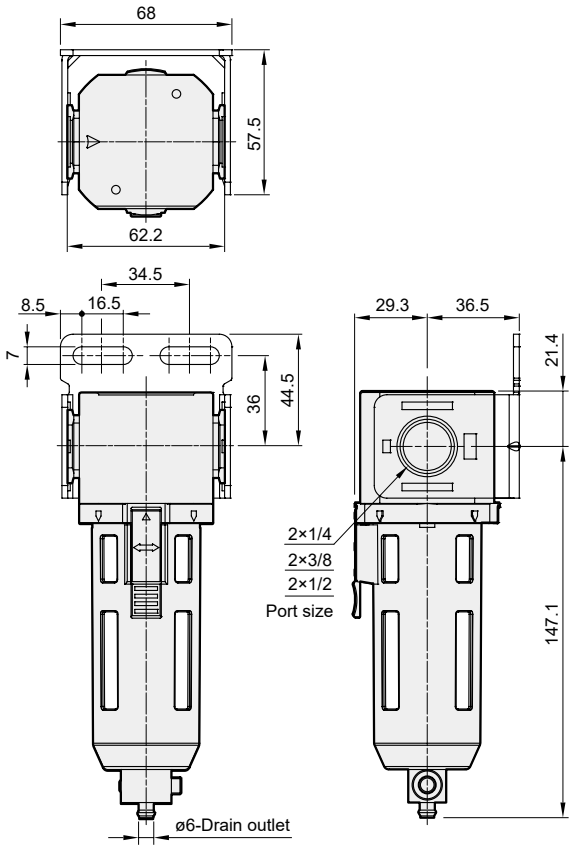
MAF302G (Water separator)

8A



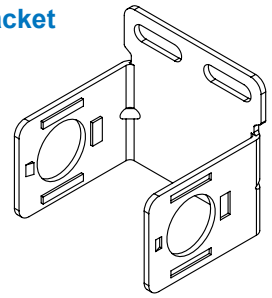
10A, 15A





Optional

C type bracket

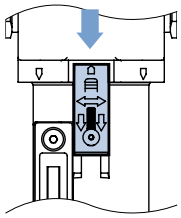


Caution

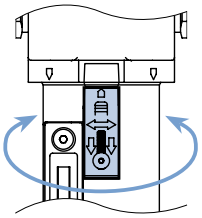
Metal bowl

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

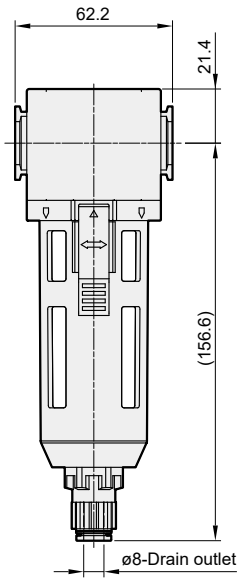


2. Rotating the bowl



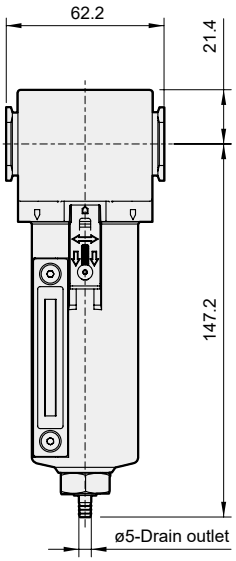
MAF302-D

Auto drain valve



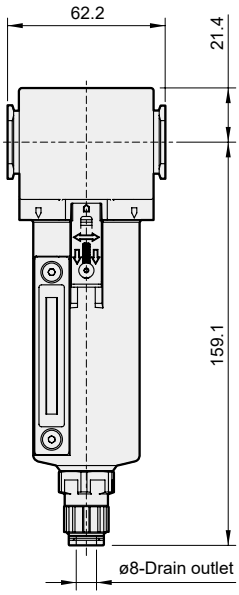
MAF302-M

Metal bowl



MAF302-MD

Metal bowl + Auto drain valve



Technical data

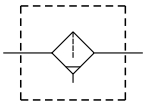
Filter element

User manual

Caution for safety
(Read before installing)



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
Optional attachment	L type bracket		
Weight	550 g		

*1. Sandard unit contains semi-auto-drain function when operating ressure below 0.05 MPa.

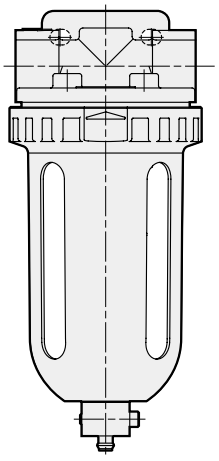
*2. Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

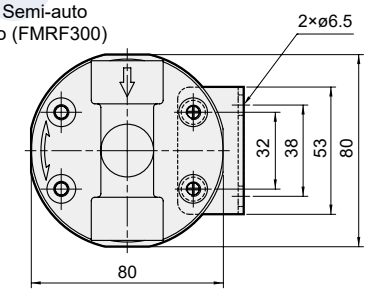
*3. Flow is at pressure P=0.7 MPa with pressure drop △ P=0.03 MPa.

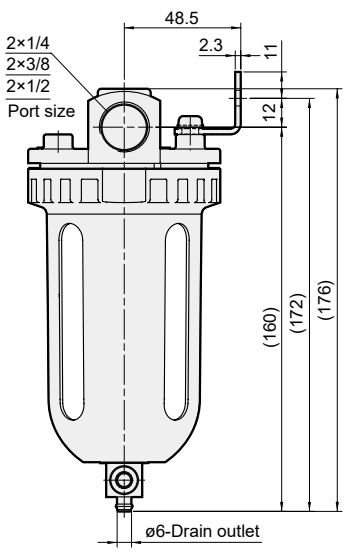
Order example

MAF400 – 8A – ND□ – □ – B – □

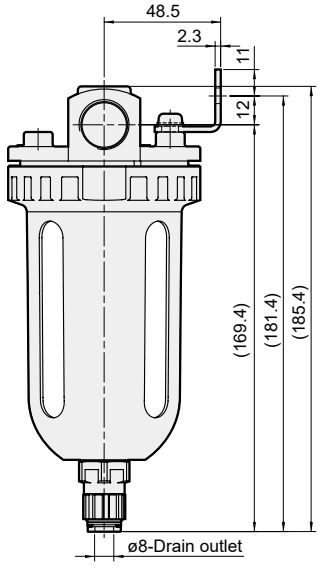
- MODEL: MAF400
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- BRACKET: Blank: without, **B**: with bracket
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread







MAF400-D
Auto drain valve



MAF401 series

AIR UNIT (FILITER)

mindman

Technical data

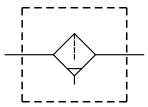
Filter element

User manual

Caution for safety
(Read before installing)



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
Optional attachment	C type bracket		
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.

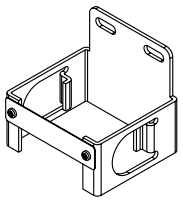
Order example

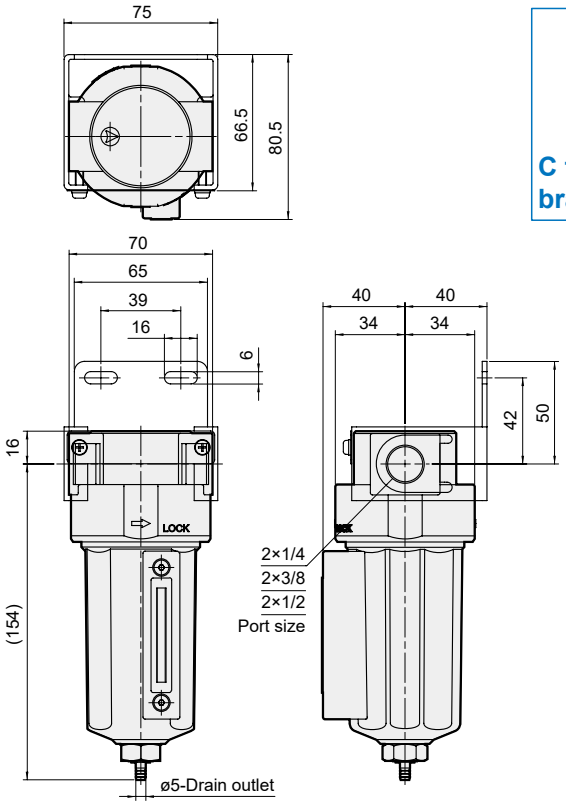
MAF401 – 8A – □ – D□ – □ – □ – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- EXTERIOR COLOR: Blank: Black & silver, **W**: Gray & white
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- BRACKET: Blank: without, **B**: C type bracket
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

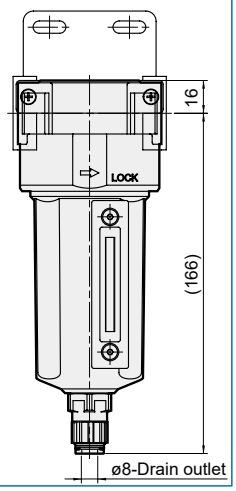
Optional

C type bracket



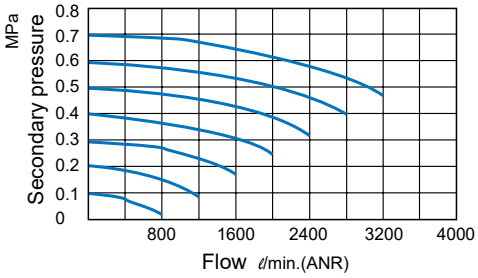


MAF401-D
Auto drain valve

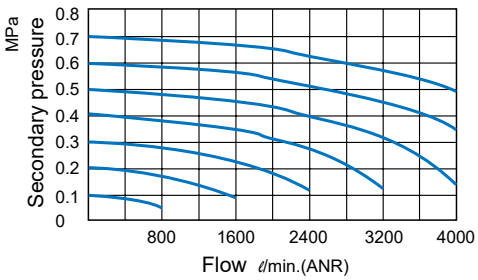


Flow feature

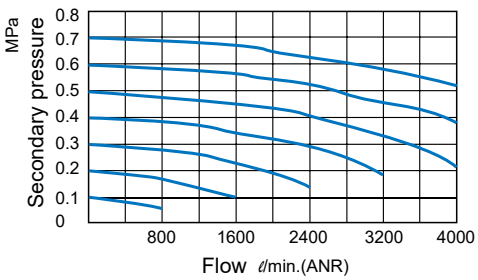
8A



10A



15A



MAF403 series

AIR UNIT (FILITER)

Technical data

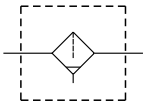
Filter element

User manual

Caution for safety
(Read before installing)



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		
Optional attachment	C type bracket		
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.

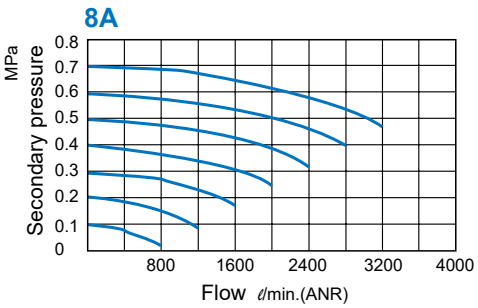
Order example

MAF403 – 8A – ND□ – □ – □ – □

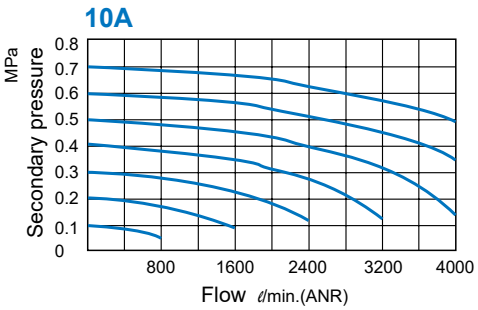
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **N**: Nylon bowl
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- FILTER ELEMENT: Blank: 40μm, **5u**: 5μm
- BRACKET: Blank: without, **B**: C type bracket
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Flow feature

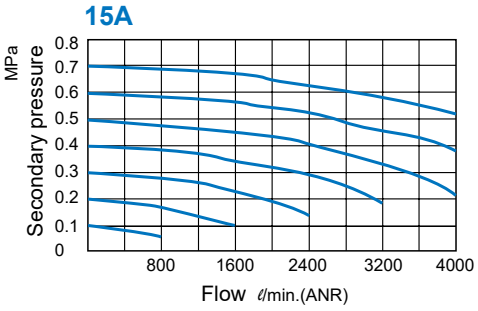
8A



10A

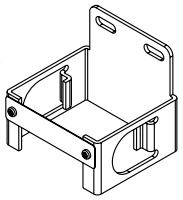


15A



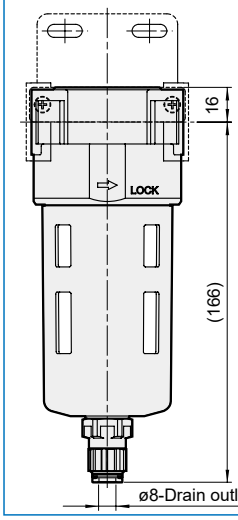
Optional

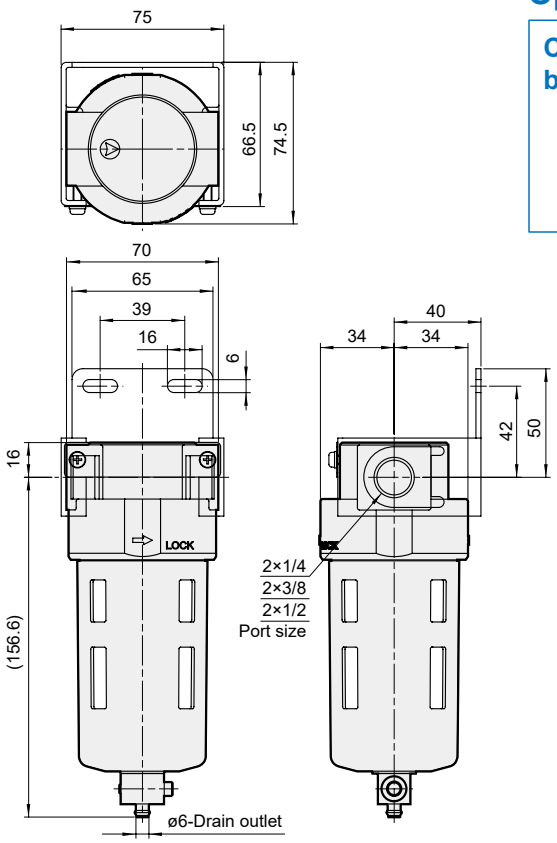
C type bracket



MAF403-D

Auto drain valve





MAF501 series

AIR UNIT (FILITER)

mindman

Technical data

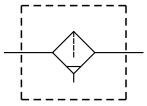
Filter element

User manual

Caution for safety
(Read before installing)



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	
Optional attachment	L type bracket	
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.

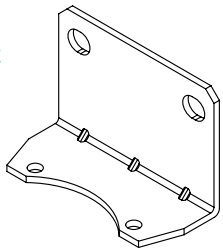
Order example

MAF501 – 20A – □□□ – B – □

- MODEL
- PORT SIZE: **20A**: 3/4; **25A**: 1
- BOWL: Blank: PC bowl; **M**: Metal bowl; **N**: Nylon bowl
- DRAIN VALVE: Blank: Semi-auto; **D**: Auto (FMRF300)
- FLOW DIRECTION: Blank: Left to right; **R**: Right to left
- BRACKET: Blank: without; **B**: L type bracket
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

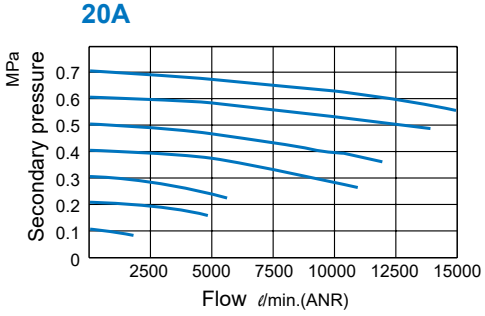
Optional

L type bracket

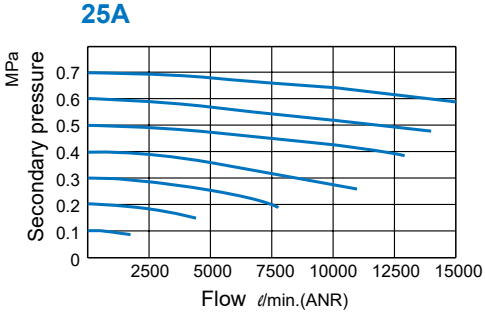


Flow feature

20A

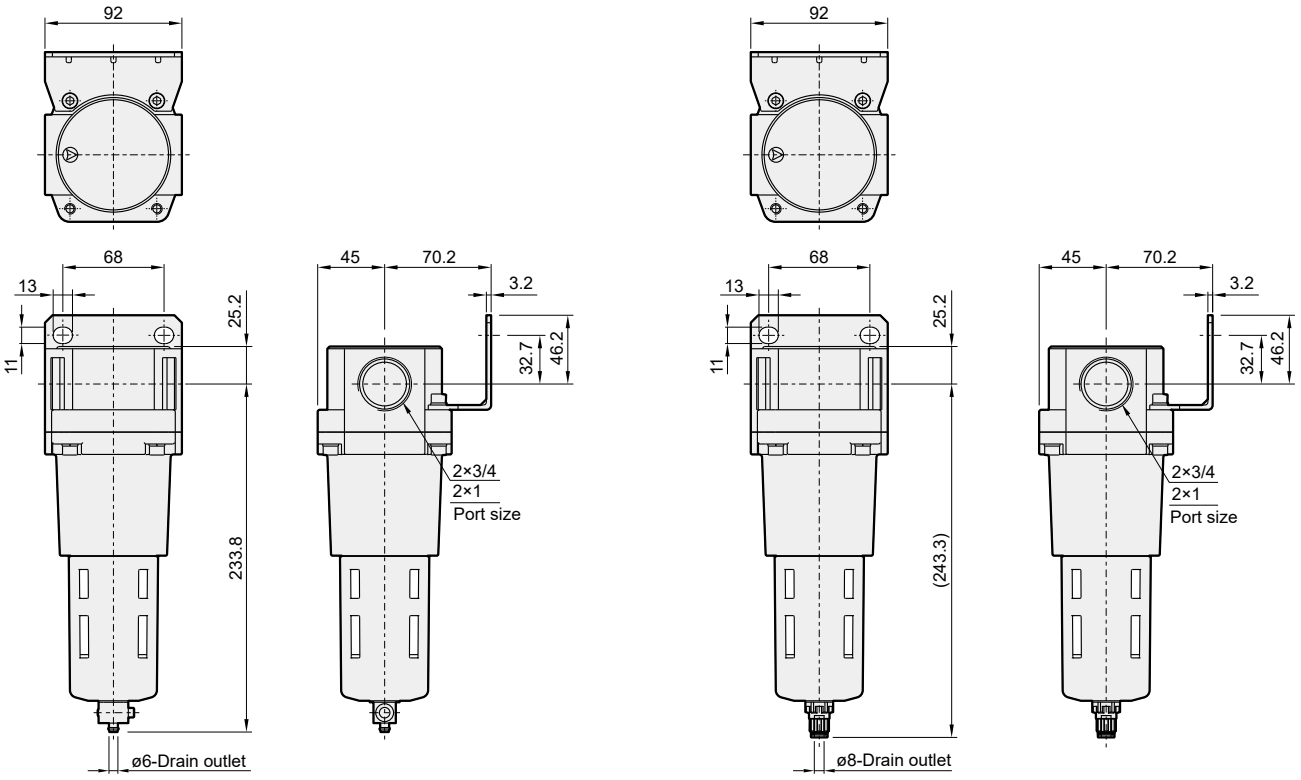


25A



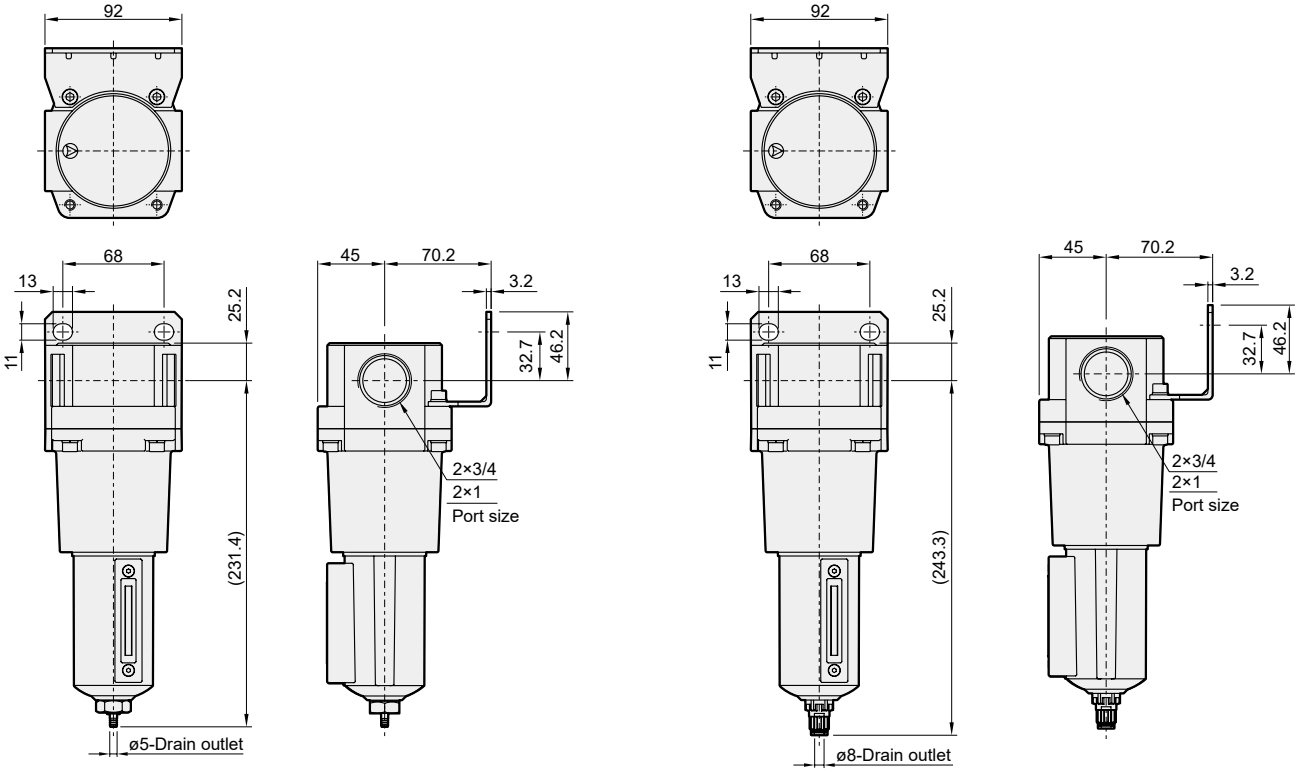
MAF501-D

Auto drain valve



MAF501-M

Metal bowl



MAF501-MD

Metal bowl + auto drain valve

MAF900 series

AIR UNIT (FILITER)

mindman

Technical data

User manual

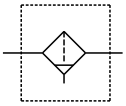
Caution for safety
(Read before installing)



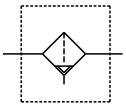
- Removing upto 99% of the liquid water.
- Design of the filter elements gives both surface and depth filtration for cleaner air.
- Ideally suited for header lines and large flow rated tools and cylinder operations.

Symbol

Manual drain



Auto drain



Specification

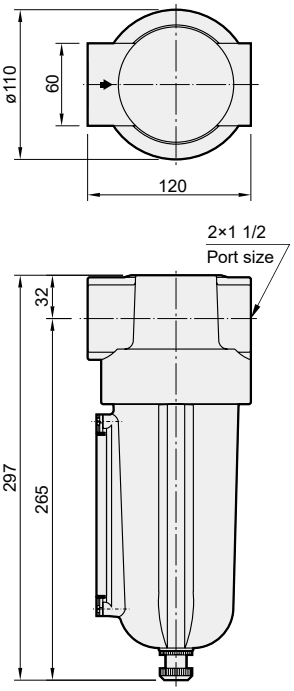
Model	MAF900
Bore No.	40A
Port size	1 1/2
Medium	Air
Operating perssure range (*1)	0.05~1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Filter element	Standard: 50μm
Standard nominal flow rate (*2)	20000 ℓ/min
Weight	2035 g

*1. Choose auto-drain, the pressure range is 0.15~1 MPa.
*2. Flow is at pressure P= 0.6 MPa with pressure drop △ P=0.1 MPa.

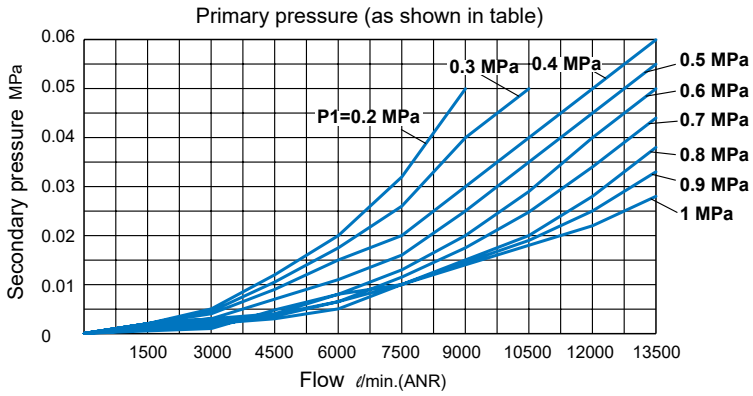
Order example

MAF900 – 40A – D – S – □

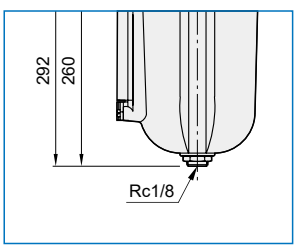
- MODEL
- PORT SIZE
  40A: 1 1/2
- Blank: Manual drain
  D: Auto drain
- MATERIAL OF FILTER ELEMENT
  Blank: Plastic
  S: Sintered bronze
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread



Flow feature



Auto drain



MAF901 series

AIR UNIT (FILITER)

Technical data

User manual

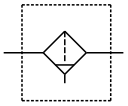
Caution for safety
(Read before installing)



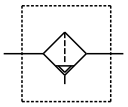
- MAF901 with high water removal efficiency and minimal pressure drop are used for removal of liquids and solid contaminants to protect air tools and equipment.
- Ideally suited for header lines and very high flow applications.

Symbol

Manual drain



Auto drain



Specification

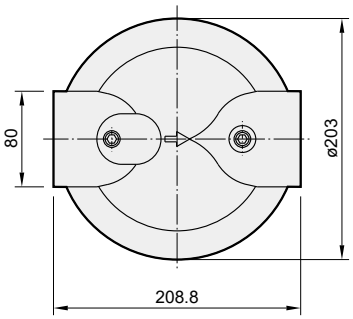
Model	MAF901
Bore No.	50A
Port size	2
Medium	Air
Operating perssure range (*1)	0.05~1.75 MPa
Ambient temperature	0~+80°C (No freezing)
Filter element	Standard: 50μm
Standard nominal flow rate (*2)	63000 ℓ/min
Weight	6930 g

*1. Choose auto-drain, the pressure range is 0.15~1 MPa.
*2. Flow is at pressure P= 0.6 MPa with pressure drop △ P=0.1 MPa.

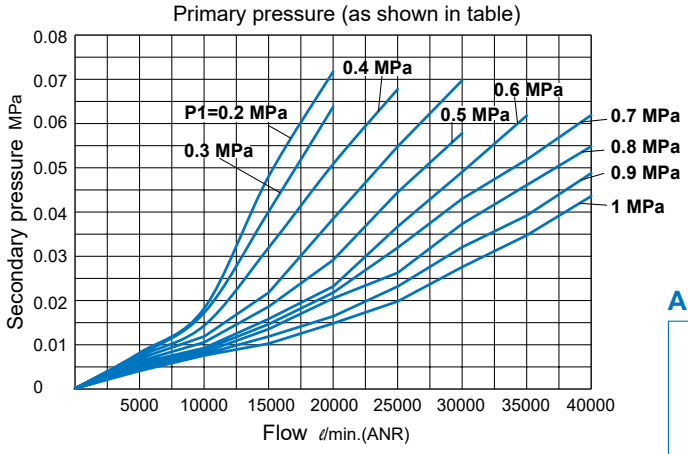
Order example

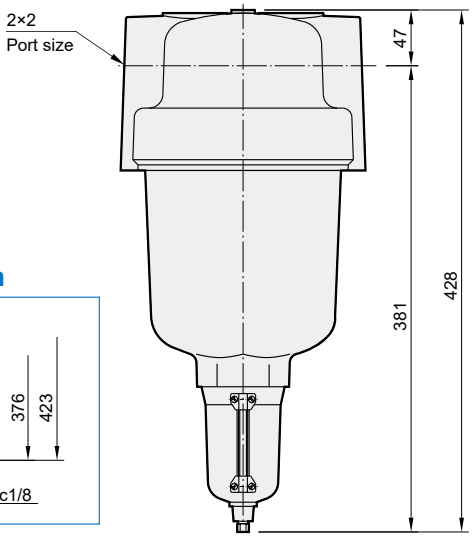
MAF901 – 50A – D – □

- MODEL
- PORT SIZE: **50A**: 2
- Blank: Manual drain; **D**: Auto drain
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

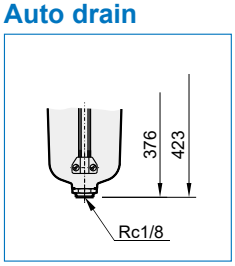


Flow feature





Auto drain



MAD400 series

AUTO DRAINER

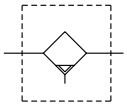
Technical data

Auto drain valve

Caution for safety
(Read before installing)



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.

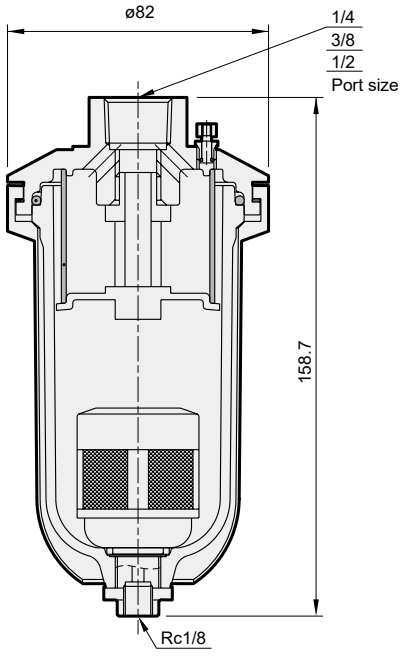
Order example

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

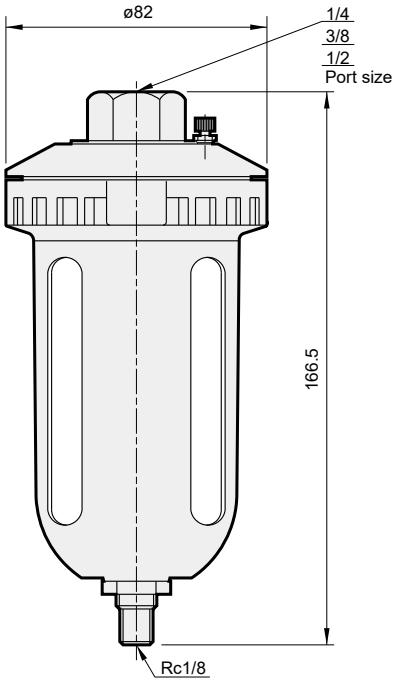
MAD400-D3

Female thread (MADV400-WA)



MAD400

Male thread (MADV400-WB)



MAD401 series

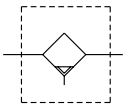
AUTO DRAINER

Technical data

Caution for safety
(Read before installing)



Symbol



Features

- Max. operating pressure: 1.3 MPa

Specification

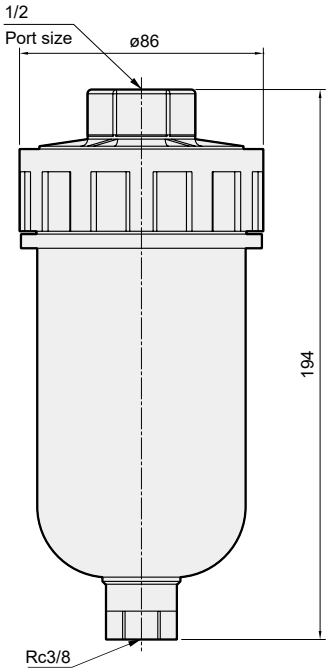
Model	MAD401
Bore No.	15A
Port size	1/2
Medium	Air
Operating perssure range (*)	0.1~1.3 MPa
Proof pressure	1.7 MPa
Ambient temperature	– 5~+80°C (No freezing)
Weight	745 g

* 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



MAD401H series

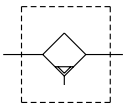
AUTO DRAINER

Technical data

Caution for safety
(Read before installing)



Symbol



Features

- Max. operating pressure: 1.3 MPa

Specification

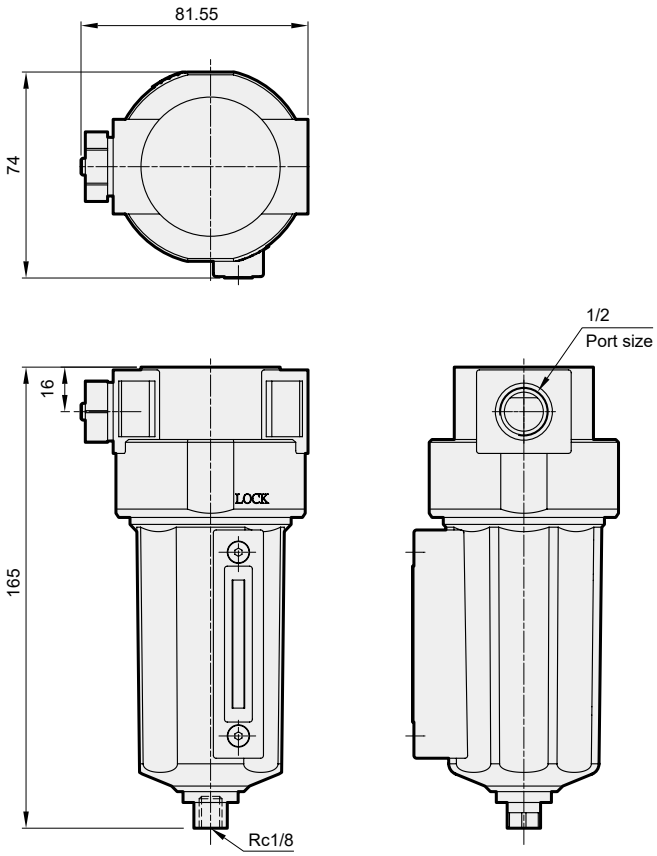
Model	MAD401H
Bore No.	15A
Port size	1/2
Medium	Air
Operating perssure range (*)	0.1~1.3 MPa
Proof pressure	2.0 MPa
Ambient temperature	– 5~+60°C (No freezing)
Weight	519 g

* 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

Caution for safety
(Read before installing)



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.	

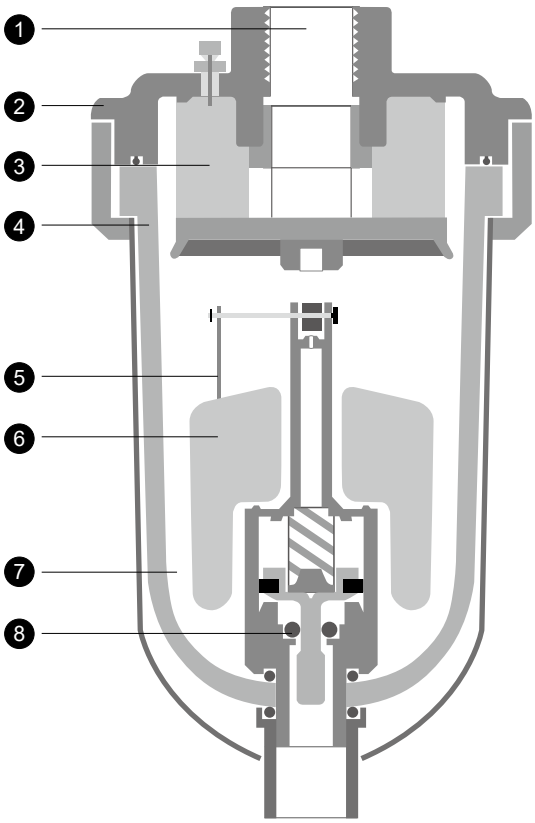
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

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

Caution for safety
(Read before installing)



Feature

- 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/h)	12 gal/hour (46 l/h)
Bowl	Polycarbonate (PC)	Aluminium
Dimensions	160mm×100mm×200mm	
Weight	1.3 kg	1.4 kg

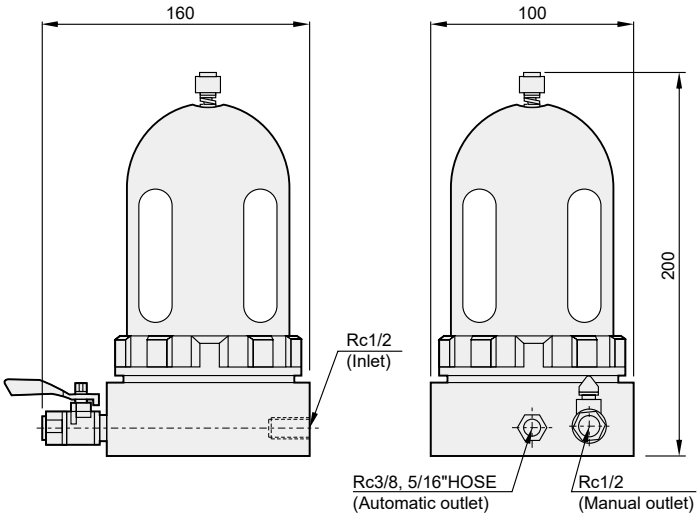
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

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.

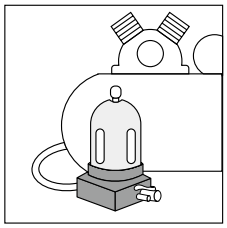
Solid, liquid and gas separation

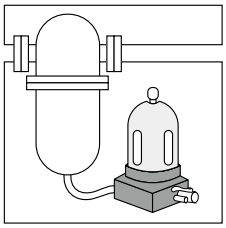
The specially designed structure of the **MAD501(H)** separates solid, liquid and air. Since the controlling mechanisms are located in the air section, the moving parts are not affected by water, oil, or sludge-producing years of trouble-free draining.

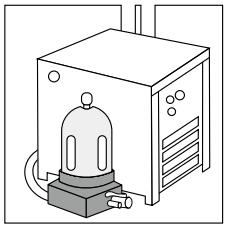
An integral part of the MAD501(H)'s design is the large cylindrical filter and manual valve (located in the base). Here, solids such as rust and pipe scale collect. In order to eliminate this waste, one need not stop the unit or use any tools; conversely, by briefly opening the manual valve, waste is immediately purged from the unit.

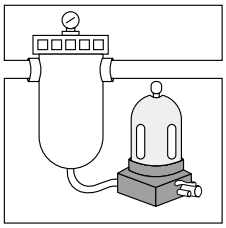
Finally, the liquid water and oil collect in the lower chamber (away from the controlling mechanisms) until purged either automatically or by opening the manual valve.

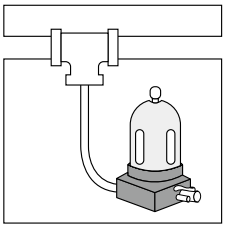
Applications


Air compressor


Separator


Air dryer

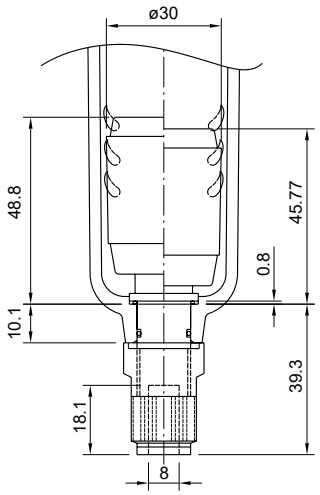

Air filter


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**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)

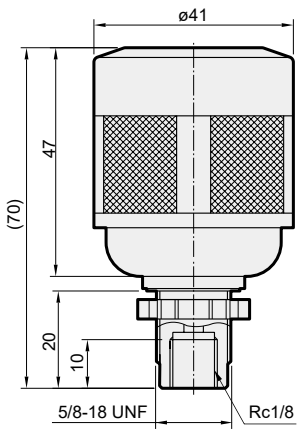
Order example

MADV400 – WB

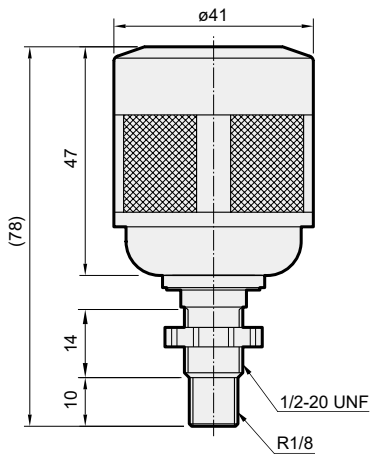
MODEL

TYPE
WA
WB

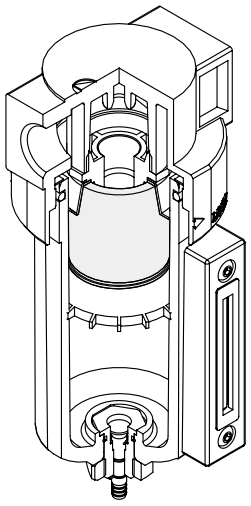
WA



WB







Order example

E40 – 200

FILTER ELEMENT

SERIES

The table of the symbol

Applicable model						Symbol for order		
series	MACT	MACP	MAFR	MAF	MAFV	**E5**: 5μ	**E20**: 20μ	**E40**: 40μ
100			●			**E5-100**	–	**E40-100**
200	●	●	●	●		**E5-200**	–	**E40-200**
302	●	●	●	●		**E5-302**	–	**E40-302**
					●	**E5-302V**	–	–
400		●	●			**E5-R400**	–	**E40-R400**
400	●			●		**E5-400**	–	**E40-400**
401	●	●	●	●		**E5-401**	–	**E40-401**
403	●	●	●	●		**E5-401**	–	**E40-401**
501	●			●		–	–	**E40-501**
501		●	●			–	–	**E40-R501**

EX: If order the 5u element of MACT302, the order symbol is E5-302.

Applicable model	Symbol for order		
	E001: 0.01μ	**E03**: 0.3μ	**E5**: 5μ
MAF200(L)D	–	**E03-200**	–
MAF200(L)M	**E001-200**	–	–
MAF302D, MAF401D, MAF403D	–	**E03-302**	–
MAF302M, MAF401M, MAF403M	**E001-302**	–	–
MAFF401AD, MAFRF401	–	**E03-302**	**E5-401**
MAFF401DM	**E001-302**	**E03-302**	–
MATFR401	**E001-302**	**E03-302**	**E5-401**
MAF403A	–	–	**E5-401**
MAF501D	–	**E03-501**	–
MAF501M	**E001-501**	–	–

MAR100 series

PRESSURE REGULATOR

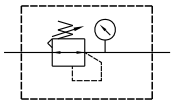
Technical data

User manual

Caution for safety
(Read before installing)



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
Optional attachment	Pressure gauge (PG-25), L type bracket
Weight	100g

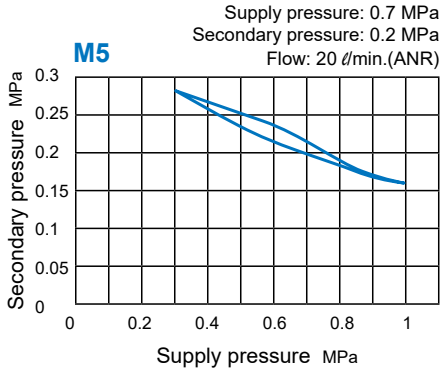
* Measured at primary pressure 0.7 MPa, secondary pressure 0.6 MPa and pressure drop 0.1 MPa.

Order example

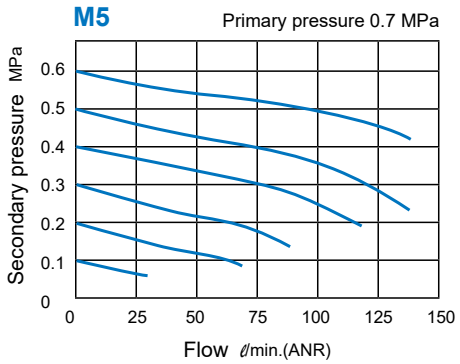
MAR100 — M5 — B — C □

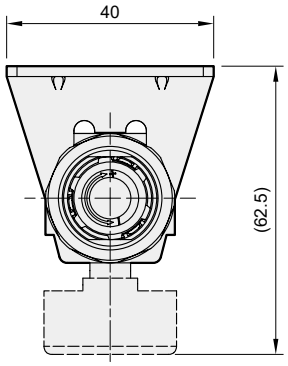
MODEL	PORT SIZE	BRACKET	PRESSURE GAUGE	FLOW DIRECTION
		Blank: without **B**: with bracket	Blank: without **C**: with gauge	Blank: Left to right **R**: Right to left

Pressure characteristics

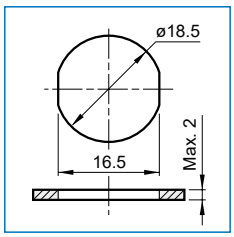


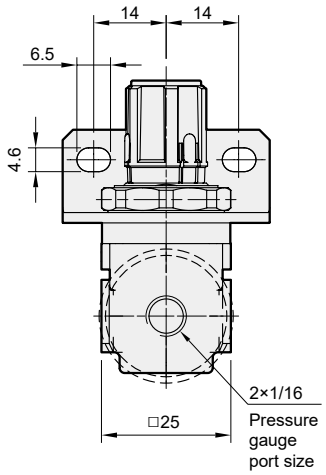
Flow feature

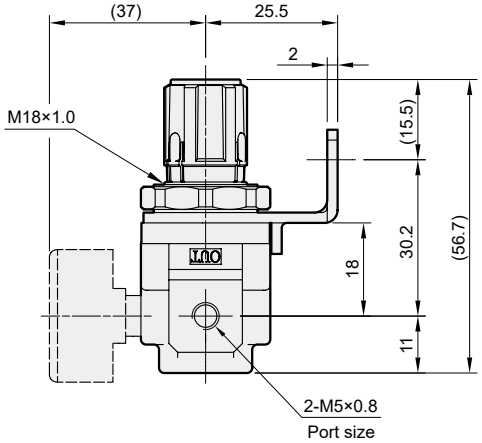




Panel mounting hole





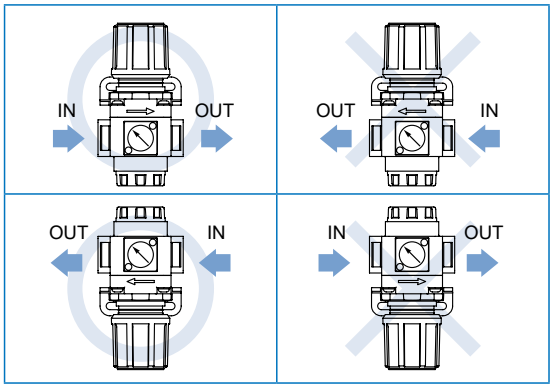


for **MAFR302 / 401 / 403**

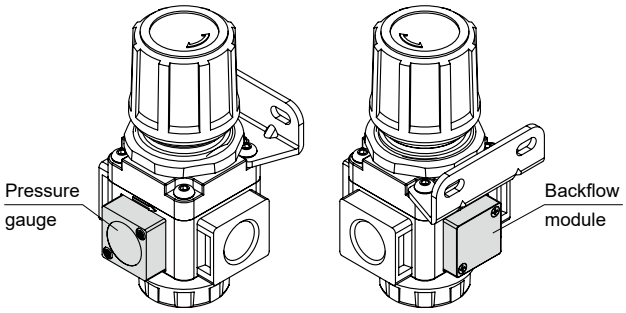
for **MAR200 / 201 / 302 / 401 / 403**

Installation direction

When choosing the flow direction, the backflow module can not be exchanged with gauge. If you have special order request, please contact our sales department.



Precautions

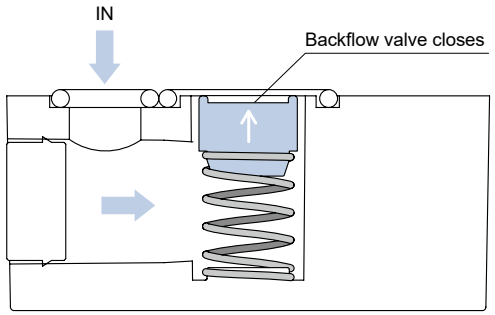


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

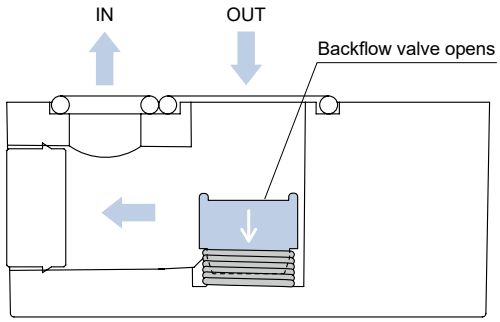
Working principle of backflow function

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 open and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



MAR200 series

PRESSURE REGULATOR

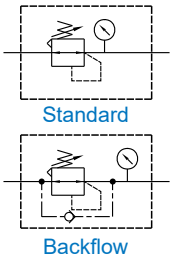
Technical data

User manual

Caution for safety
(Read before installing)



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	Standard	L type bracket	
	Optional	Pressure gauge (PG-40), Z type bracket	
Weight		190 g	

Order example

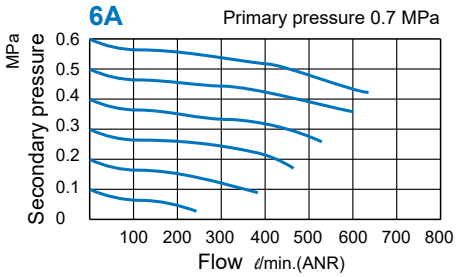
MAR200 K – 6A – □ – 1K – C□ – □ – □

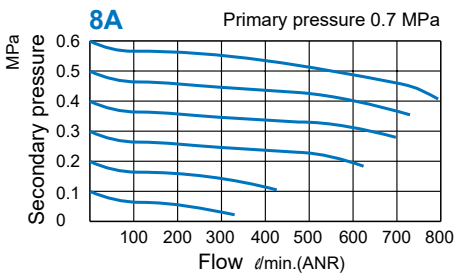
- MODEL
- Blank: Standard
  K: Backflow function
  ⚠ Caution
- PORT SIZE
  6A: 1/8
  8A: 1/4
- EXHAUST MECHANISM
  Blank: Relieving type
  Q: Non-relieving type
- ADJUSTABLE PRESS. RANGE
  Blank: 0.05~0.85 MPa
  1K: 0.01~0.1 MPa
  2K: 0.01~0.2 MPa
  3K: 0.01~0.3 MPa
  4K: 0.01~0.4 MPa
- Blank: Without pressure gauge
  C: Pressure gauge (PG-40)
- FLOW DIRECTION
  Blank: Left to right
  R: Right to left
- BRACKET
  Blank: L type
  B3: Z type
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

* 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.

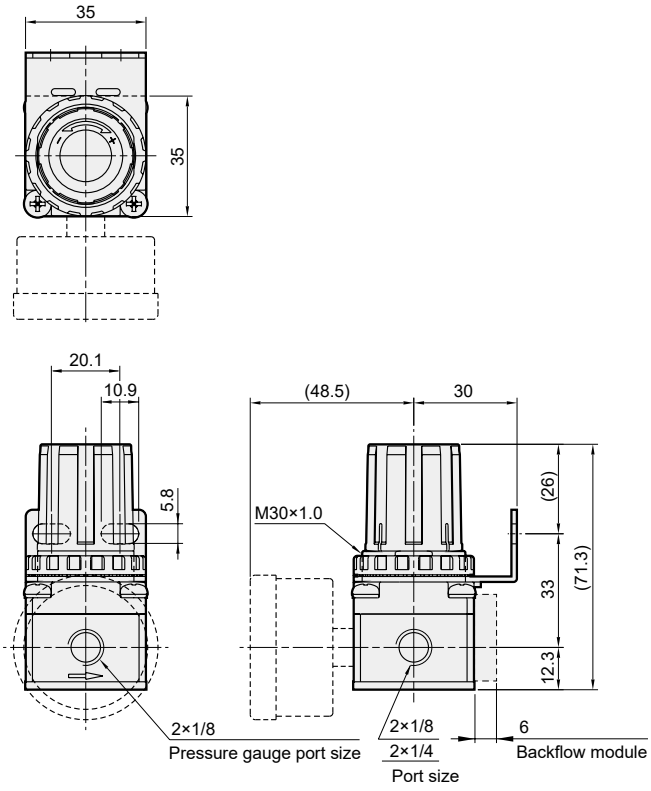
Flow feature





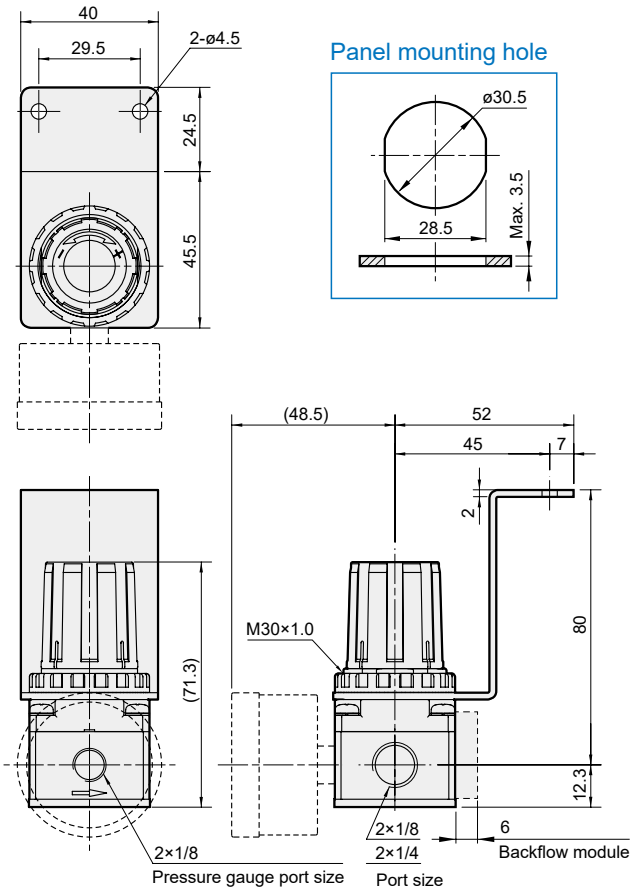
MAR200

L type bracket



MAR200-B3

Z type bracket



MAR302 series

PRESSURE REGULATOR

Technical data

User manual

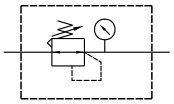
Caution for safety
(Read before installing)



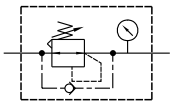


Option: **MP41**

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	Standard	Pressure gauge (PG-20), L type bracket		
	Optional	Z type bracket		
Weight		400 g		

Order example

MAR302 K – 8A – □ – □□ – E1 – □ – □

MODEL

K: Backflow function
Caution

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

EXHAUST MECHANISM
Blank: Relieving type
Q: Non-relieving type

PRESSURE GAUGE
Blank: Standard type (PG-20)
C: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302)
A: Gauge adapter set (A-MAR302)

FLOW DIRECTION
Blank: Left to right
R: Right to left

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

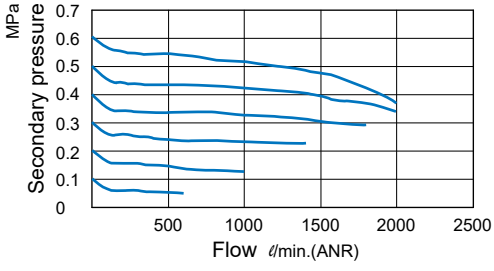
BRACKET
Blank: L type
B3: Z type

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

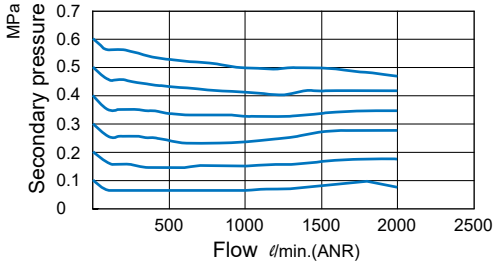
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, 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 digital pressure switch MP41 (E*).

Flow feature

8A Primary pressure 0.7 MPa

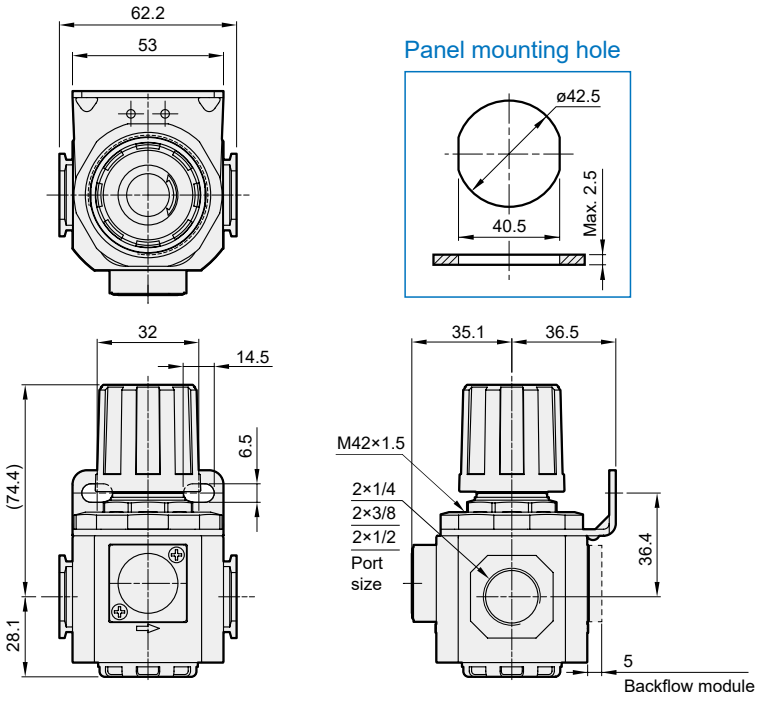


10A, 15A Primary pressure 0.7 MPa



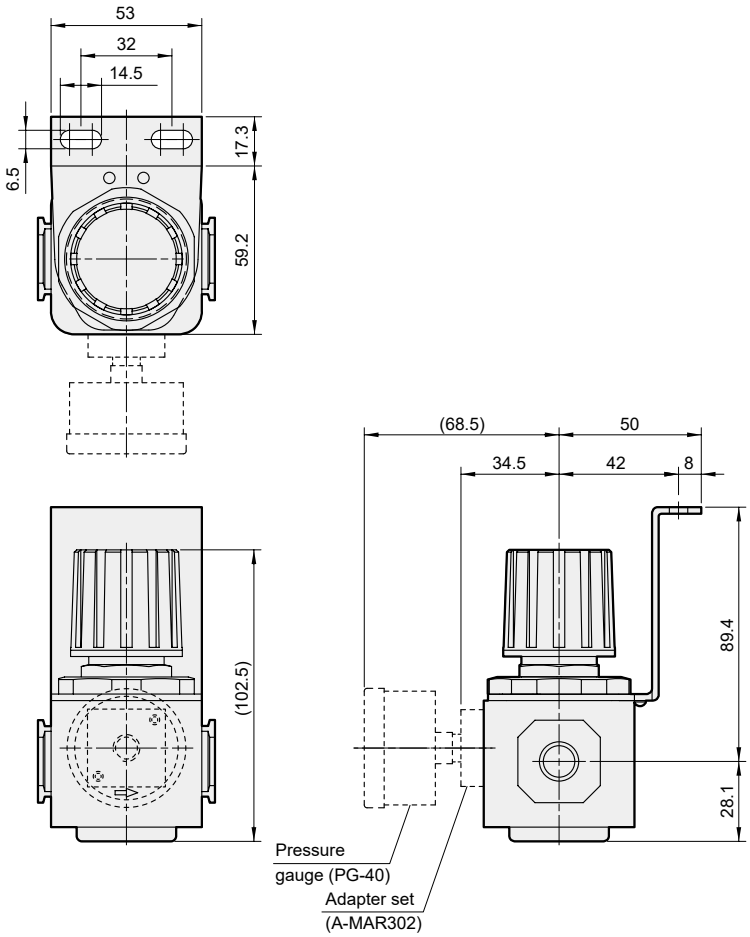
MAR302

L type bracket



MAR302-B3

Z type bracket



MAR400 series

PRESSURE REGULATOR

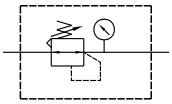
Technical data

User manual

Caution for safety
(Read before installing)



Symbol



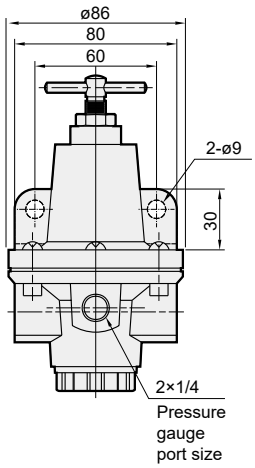
Specification

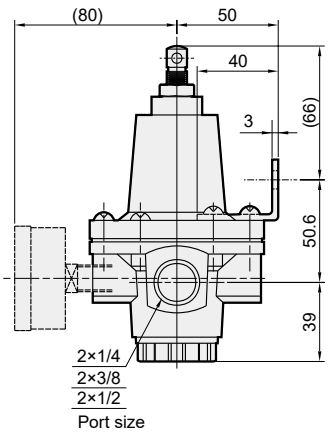
Model	MAR400		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Standard attachment	Pressure gauge (PG-50), L type bracket		
Weight	1000 g		

Order example

MAR400 — 8A — □ — □

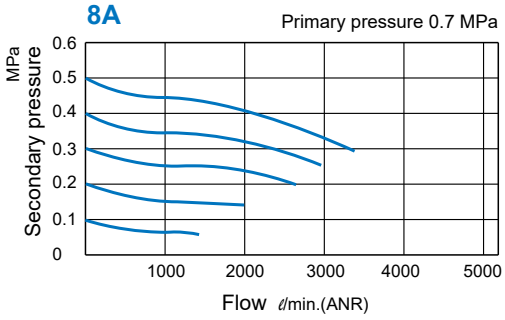
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread



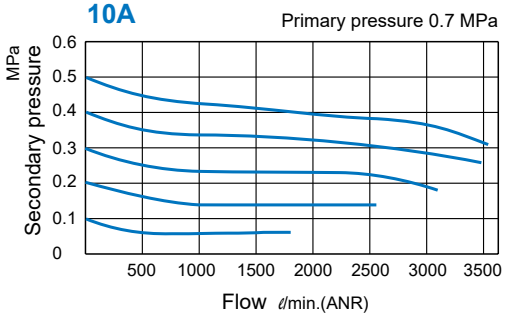


Flow feature

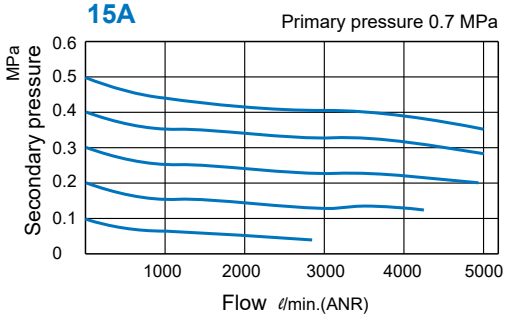
8A



10A



15A



MAR401 series

PRESSURE REGULATOR

Technical data

User manual

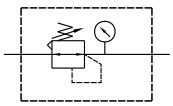
Caution for safety
(Read before installing)



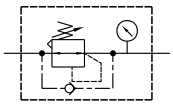


Option: **MP41**

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	Standard	Pressure gauge (PG-20)		
	Optional	Screw fixed bracket		
Weight		450 g		

Order example

MAR401 K – 8A – □ – □ – HAP□ – E1 – □ – □

MODEL
Blank: Standard
K: Backflow function
⚠ Caution

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

PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

BRACKET
Blank: without
B2: Screw fixed

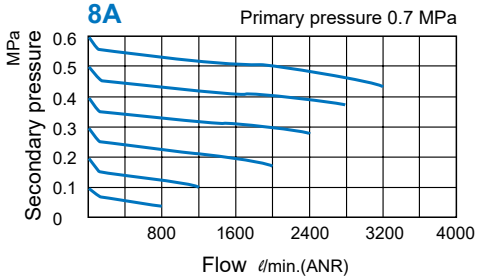
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Type	Pressure gauge	Pressure switch	Flow direction
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: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	–	

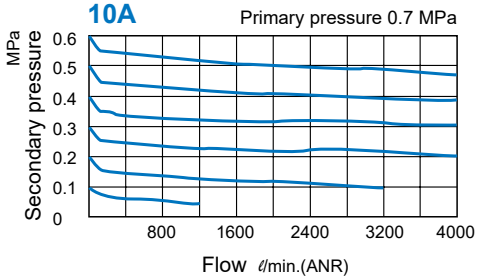
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).
* There is no pressure gauge in option (A). Please purchase if necessary.
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was 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.

Flow feature

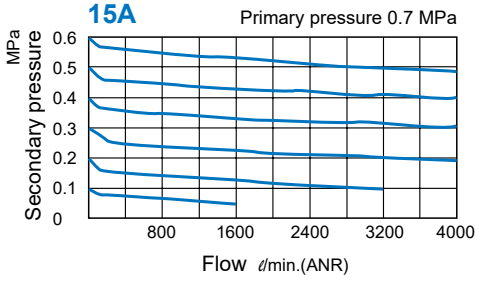
8A Primary pressure 0.7 MPa



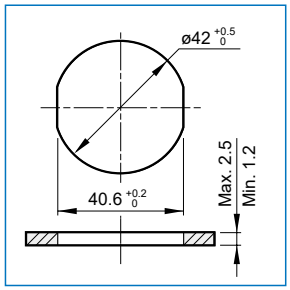
10A Primary pressure 0.7 MPa



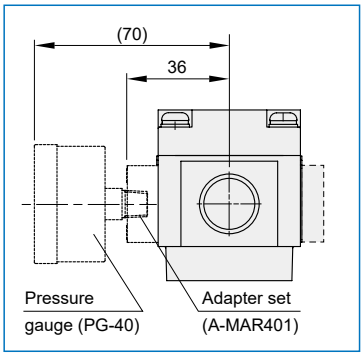
15A Primary pressure 0.7 MPa

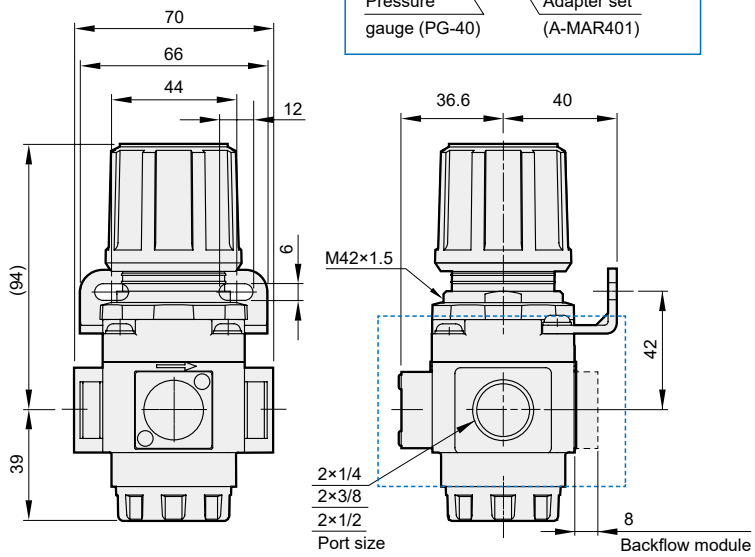


Panel mounting hole



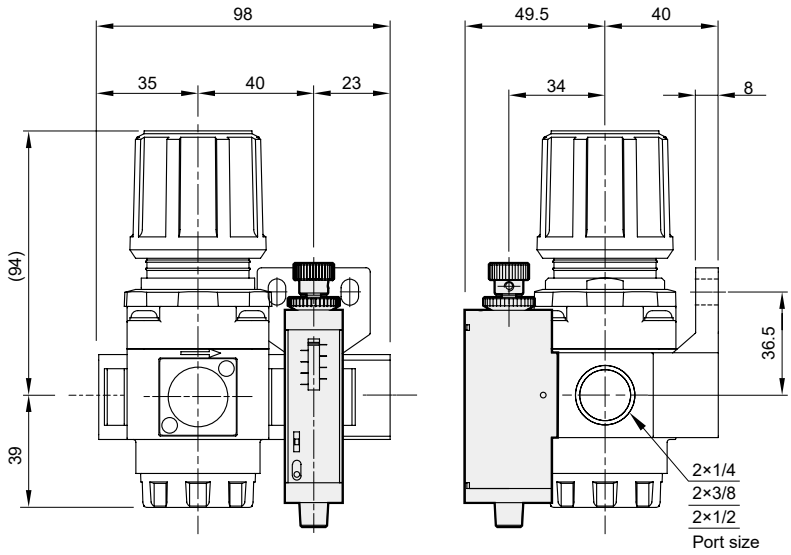
Accessories





MAR401-P

MPS Series
pneumatic pressure switch



MAR403 series

PRESSURE REGULATOR

Technical data

User manual

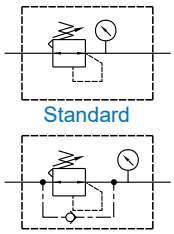
Caution for safety
(Read before installing)





Option: **MP41**

Symbol



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	Standard	Pressure gauge (PG-20)		
	Optional	Screw fixed bracket		
Weight		450 g		

Order example

MAR403 K – 8A – □ – □□□ – E1 – □ – □

- MODEL: MAR403
- Blank: Standard; **K**: Backflow function (⚠ Caution)
- PORT SIZE: **8A**: 1/4; **10A**: 3/8; **15A**: 1/2
- EXHAUST MECHANISM: Blank: Relieving type; **Q**: Non-relieving type
- PRESSURE SWITCH: Blank: without; **E1**: MP41P-022; **E2**: MP41P-022-QD**; **E5**: MP41P-042; **E6**: MP41P-042-QD**
- BRACKET: Blank: without; **B2**: Screw fixed
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

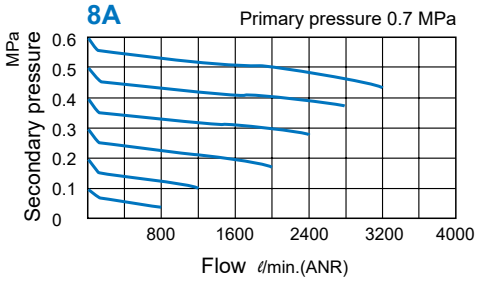
** MOQ required. Please contact us.

Pressure gauge	Pressure switch	Flow direction
Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: without **P**: Pressure switch (MPS series)	Blank: Left to right **R**: Right to left

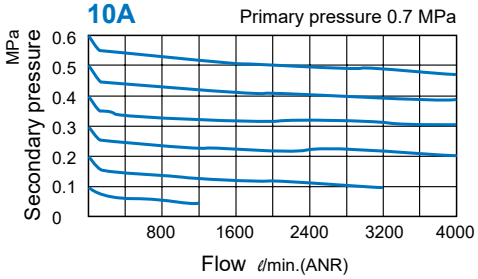
* There is no pressure gauge in option (A). Please purchase if necessary.
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied 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.

Flow feature

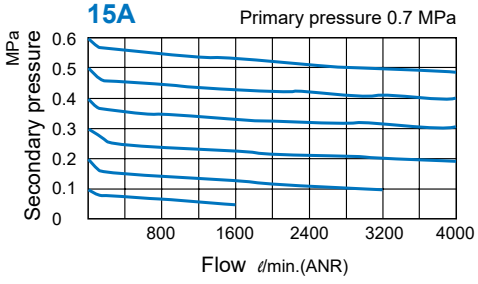
8A Primary pressure 0.7 MPa



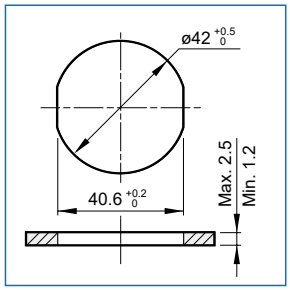
10A Primary pressure 0.7 MPa



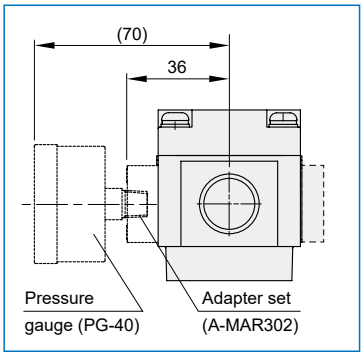
15A Primary pressure 0.7 MPa

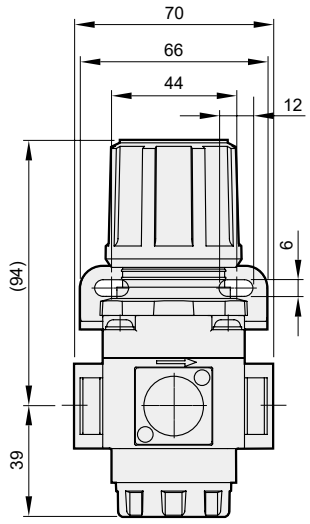


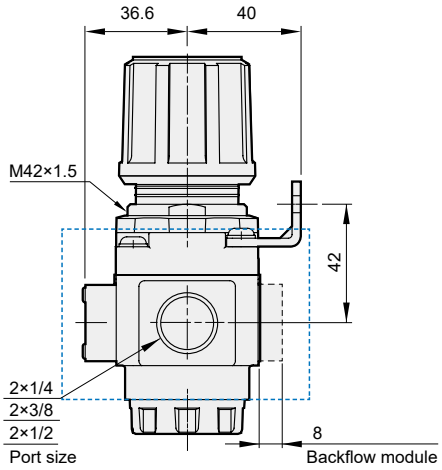
Panel mounting hole



Accessories

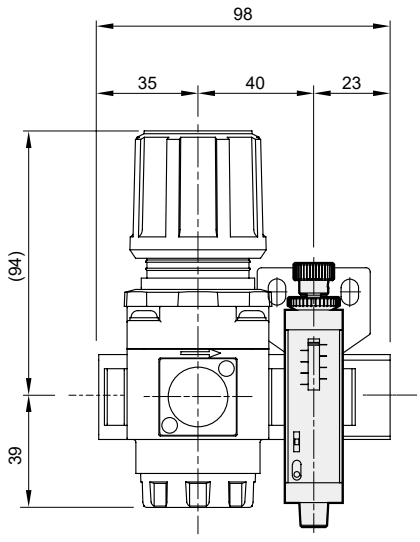


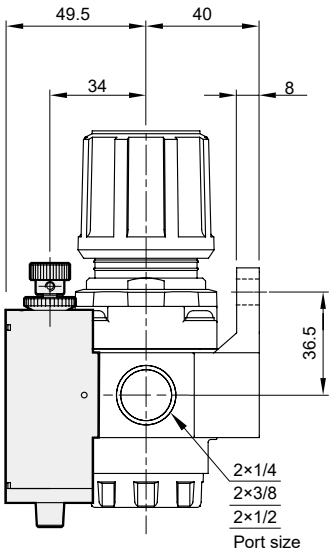




MAR403-P

MPS Series
pneumatic pressure switch





MAR501 series

PRESSURE REGULATOR

Technical data

User manual

Caution for safety
(Read before installing)



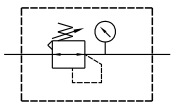


Option: **MP41**

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)	
Standard 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

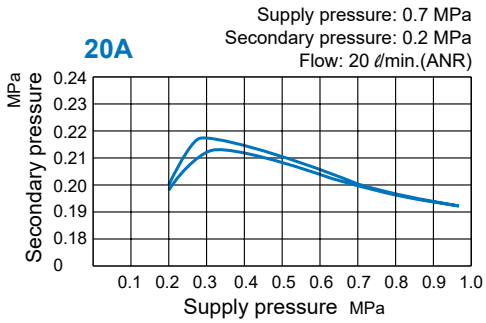
PRESSURE SWITCH
Blank: without
E1: MP41P-022
E2: MP41P-022-QD**
E5: MP41P-042
E6: MP41P-042-QD**
** MOQ required. Please contact us.

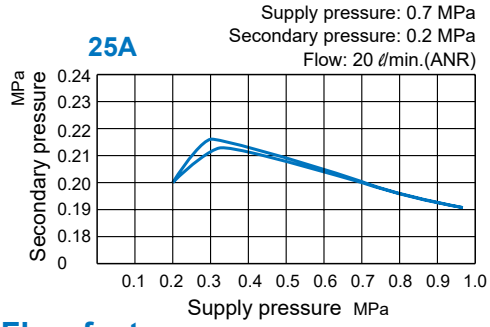
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Pressure gauge	Panel nuts	Flow direction
Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR302) **A**: Gauge adapter set (A-MAR302)	Blank: without **J**: Panel nuts	Blank: Left to right **R**: Right to left

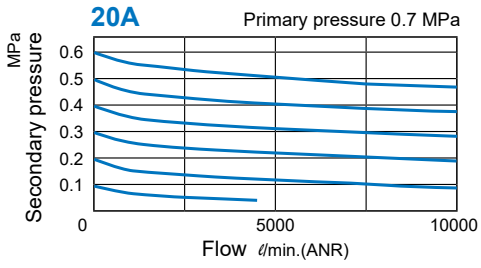
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Refer to the option of digital pressure switch MP41 (E*).

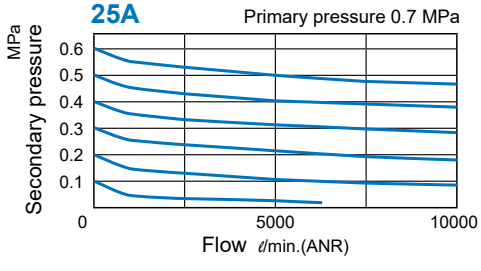
Pressure characteristics

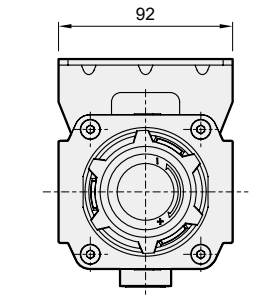




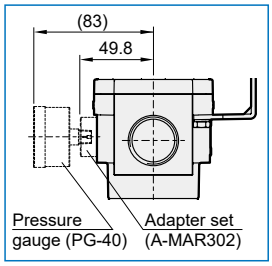
Flow feature



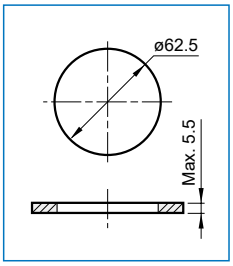


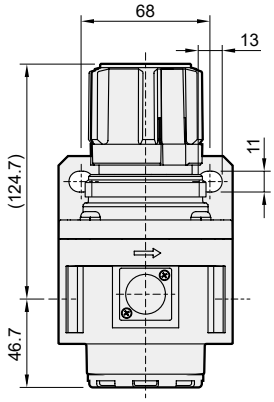


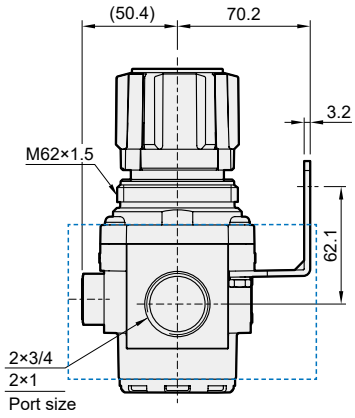
Accessories



Panel mounting hole







MAR900 series

PRESSURE REGULATOR

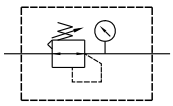
Technical data

User manual

Caution for safety
(Read before installing)



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
Standard attachment	Pressure gauge (PG-50)
Weight	1208 g

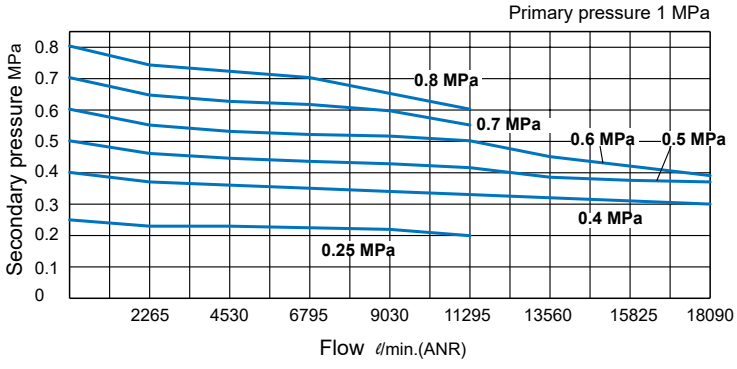
* Flow is at 1 MPa supply pressure and 0.1 MPa pressure drop of 0.6 MPa of secondary pressure.

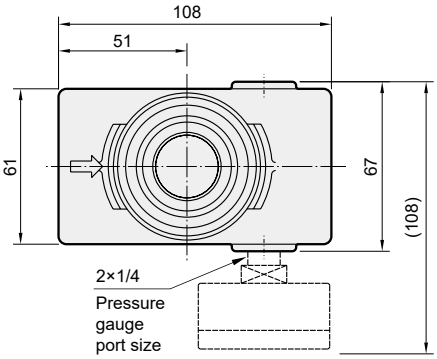
Order example

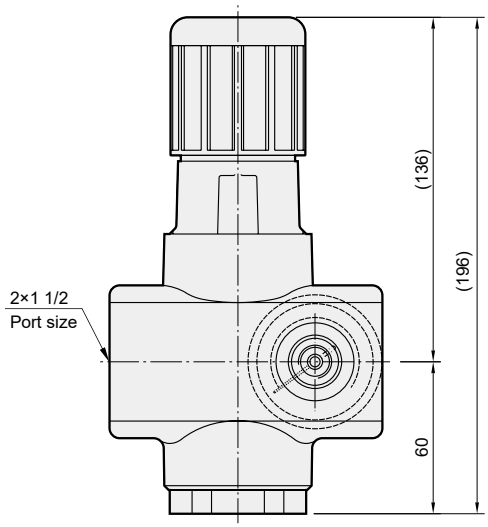
MAR900 — 40A — □ — □

- MODEL
- PORT SIZE
  40A: 1 1/2
- FLOW DIRECTION
  Blank: Left to right
  R: Right to left
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Flow feature







MAR901 series Pilot operated

PRESSURE REGULATOR

mindman

Technical data

User manual

Caution for safety
(Read before installing)



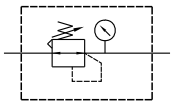
- It allows main regulator to be installed at any point in compressed air system.
- Accurate pressure regulation in a wide range of flow.

Specification

Model		MAR901
Bore No.		50A
Port size		2
Medium		Air
Max. operating pressure		3.1 MPa
Min. pilot pressure (*2)		0.15 MPa
Regulated pressure range		Up to 1.75 MPa (with the help of a pilot regulator)
Ambient temperature		0~+80°C (No freezing)
Standard nominal flow rate (*1)		59000 ℓ/min
Attachment	Standard	Pressure gauge (PG-50)
	Optional	Pilot regulator
Weight		3055 g

*1. Primary pressure 1 MPa. Secondary pressure 0.6 MPa and △P = 0.1 MPa.
*2. Minimum secondary pressure of pilot regulator.

Symbol

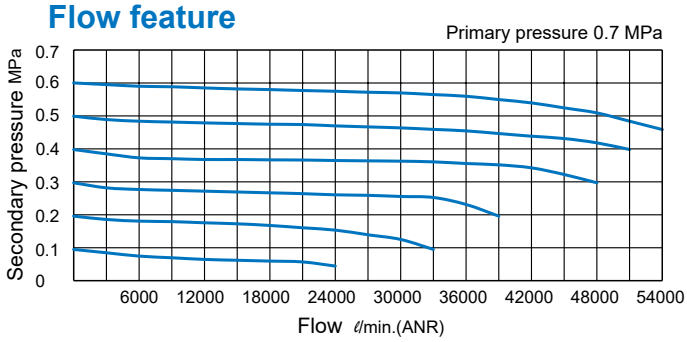


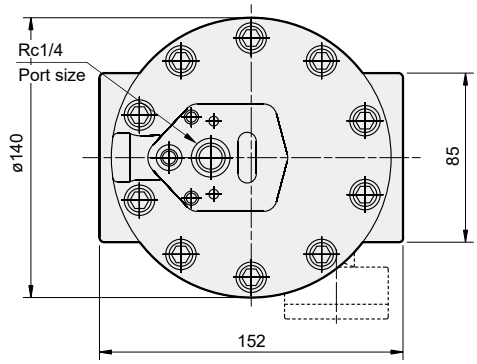
Order example

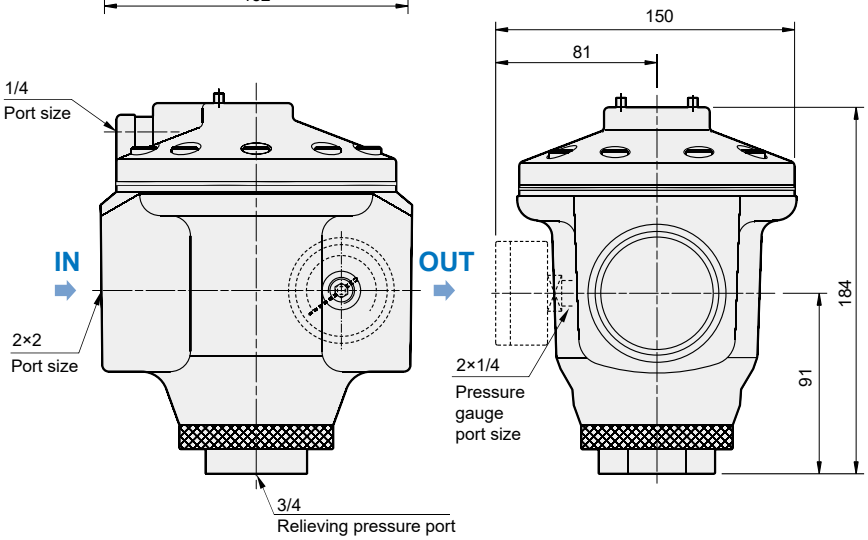
MAR901 — 50A — □ — □

MODEL	PORT SIZE	FLOW DIRECTION	PORT THREAD
	50A: 2	Blank: Left to right **R**: Right to left	Blank: Rc thread **G**: G thread **NPT**: NPT thread

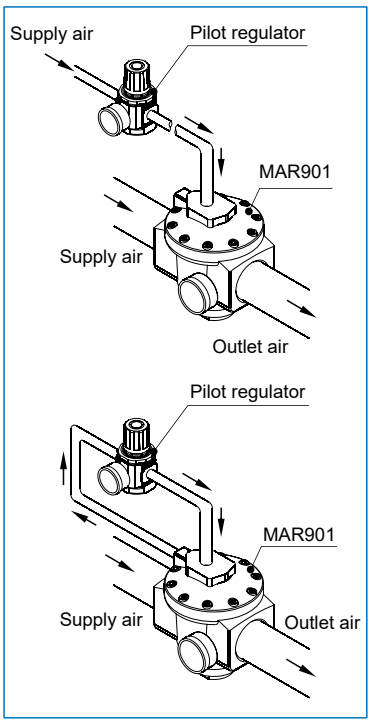
Flow feature







Pilot operation



MAHR200 series

PRESSURE REGULATOR

Technical data

User manual

Caution for safety
(Read before installing)



Feature

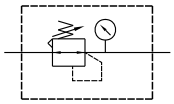
High pressure type can regulate up to 2.7 MPa.

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)
Standard attachment	Standard type pressure gauge (PG-40W-8A) or High pressrue type pressure gauge (PG-40W-8A-30K)
Weight	250 g

* Product has no Pressed-in and self-locking mechanism.

Symbol

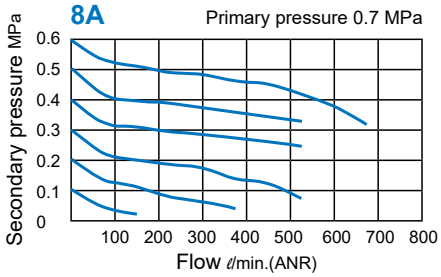


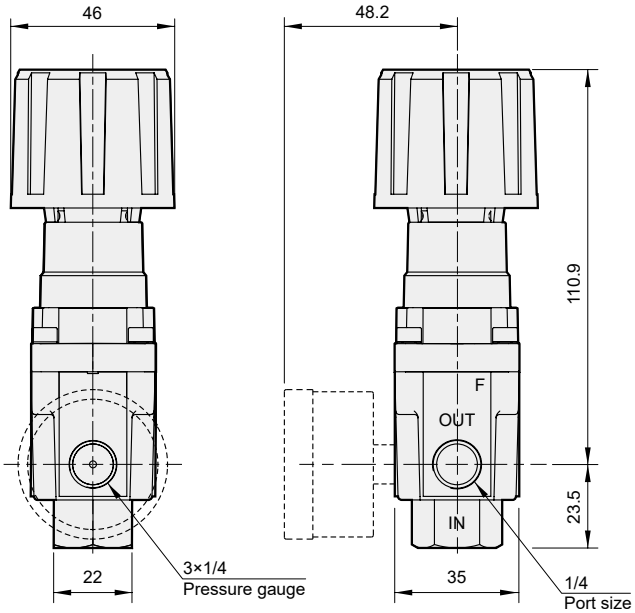
Order example

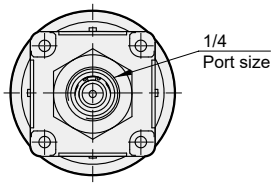
MAHR200 – 8A – □ – □

- MODEL
- PORT SIZE
  8A: 1/4
- Blank: Standard type (Gray cap)
  H: High type pressrue (Red cap)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Flow feature







MAR300LK series

HAND-HELD REGULATOR

Features

Caution for safety
(Read before installing)



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 — □

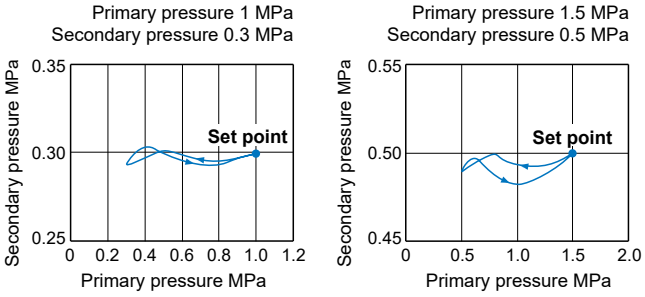
MODEL	PORT SIZE	PRESSURE RANGE	PORT THREAD
	8A: 1/4	Blank: 0~1 MPa **15K**: 0~1.5 MPa	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Specification

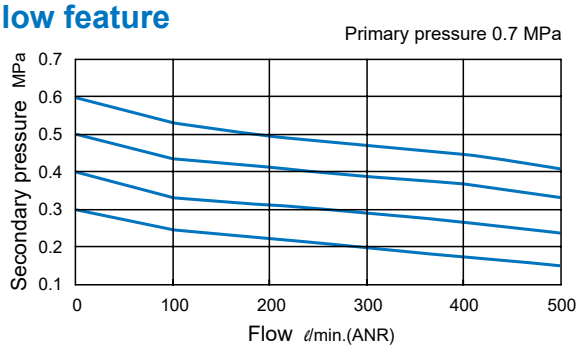
Model	MAR300LK
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1 MPa, 15K: 1.5 MPa
Proof pressure	3.75 MPa
Set pressure range	0.3~0.9 MPa
Ambient temperature	0~+60°C (No freezing)
Weight	80 g

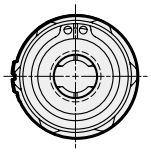
Pressure feature

* The variation in the secondary pressure, with reference to the change in the primary pressure.

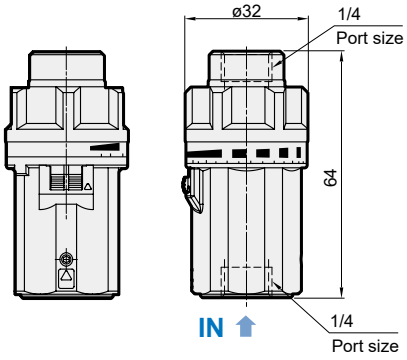


Flow feature

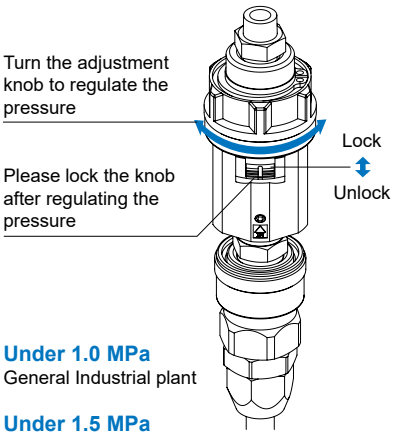




OUT



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.

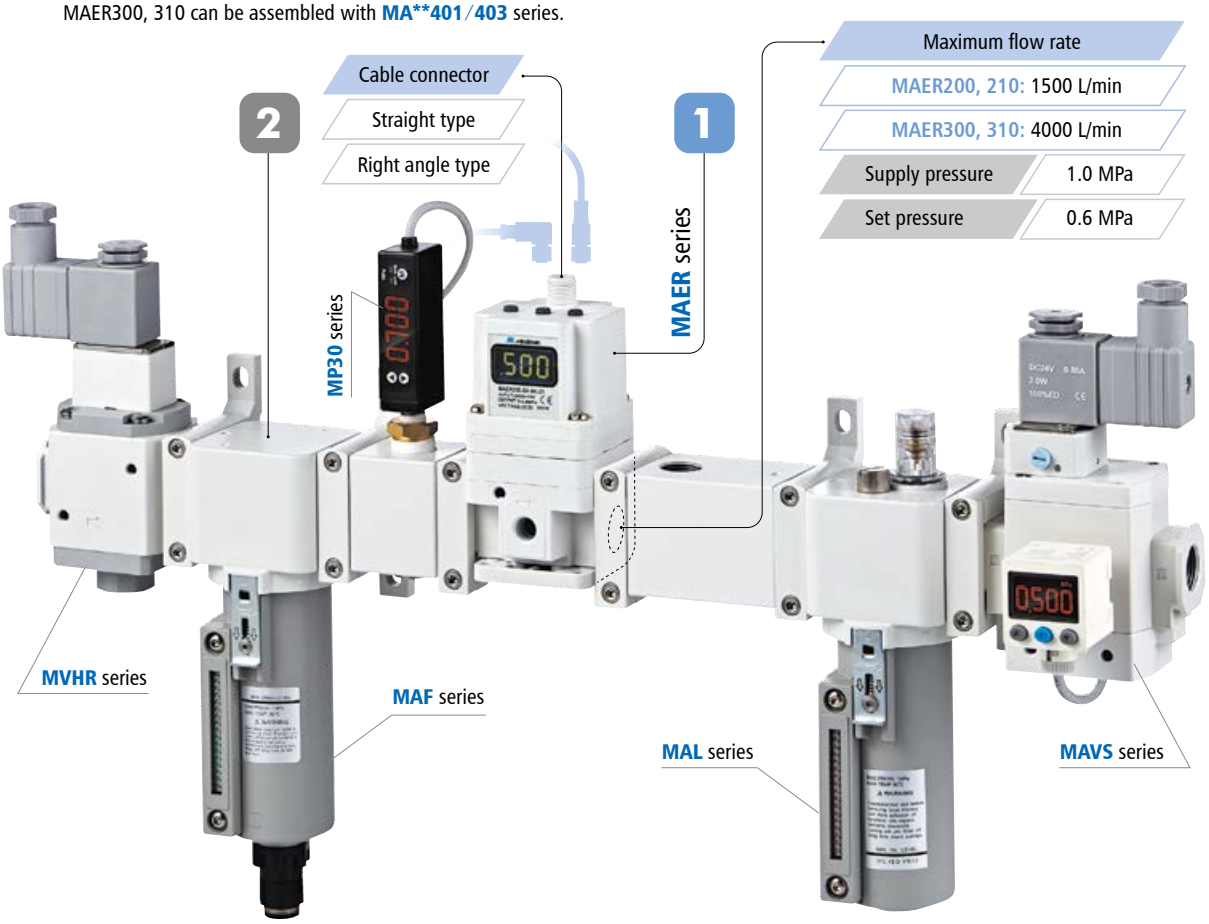
Certification Comply with IP65 and CE certification.

2 **Compatible with modular**

MAER200, 210 can be assembled with **MA**302** series.
MAER300, 310 can be assembled with **MA**401/403** series.

1 **Regulator Performance**

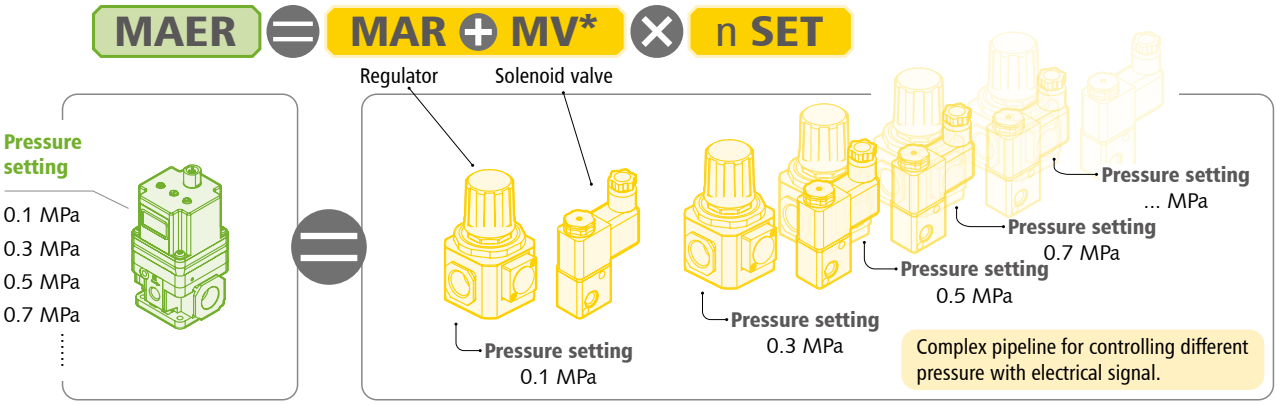
Linearity	±1% less (F.S.)
Hysteresis	±0.5% less (F.S.)
Repeatability	±0.5% less (F.S.)
Sensitivity	±0.2% less (F.S.)



Energy saving piping VS **Tradition piping**

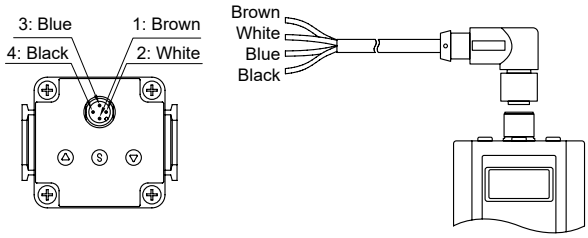
Simplify complex pipeline for controlling different pressure.
Space saving, Reduce cost, Energy saving.

Tradition piping for multi-stage air pressure.



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

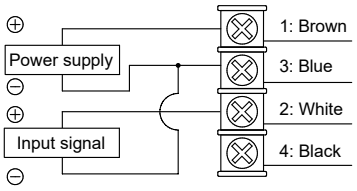
❺ The connection between the cable plug and the wire is weak. Excessive bending may shorten the life of the plug set, causing breakage or damage.

❻ If you need an anti-bending cable, please contact the sales.

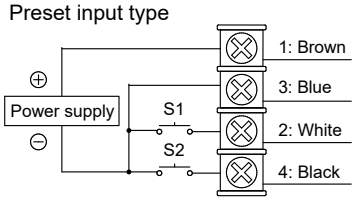
Wiring diagrams

Connect the cable to the connector on the body with the wiring arranged as shown below.

Current, voltage signal type

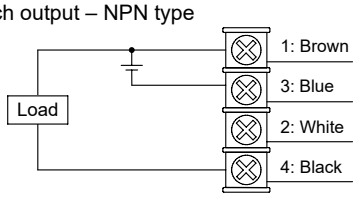


Preset input type

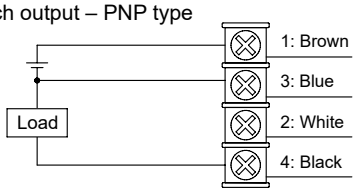


Monitor output wiring diagram

Switch output – NPN type

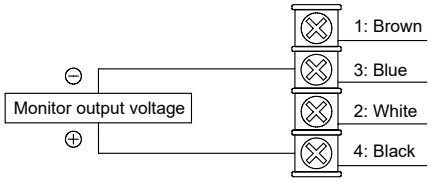


Switch output – PNP type

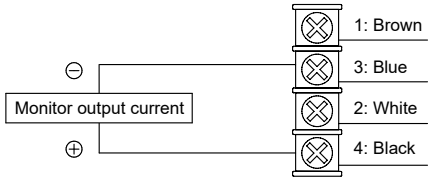


* NPN / PNP output type does not contain overcurrent protection and an error warning display, so the loop current should not exceed 160mA to avoid burning.

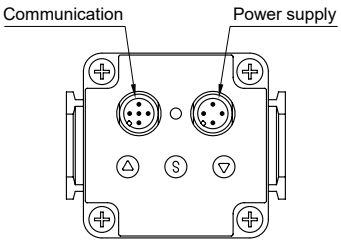
DC1~5V Analog output, Voltage type



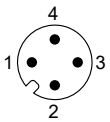
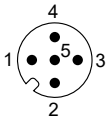
DC4~20mA Analog output, Current type (source type)



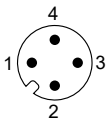
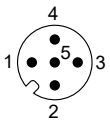
Wiring



Pin assign of product connector port in RS-232 model

Port	Pin assign			Wire color ❷
Power supply ❶		1	Power supply	Brown
		2	No connect	White
		3	GND	Blue
		4	No connect	Black
Communication connect		1	No connect	Yellow
		2	T×D	Brown
		3	R×D	White
		4	GND	Green
		5	No connect	Gray

Pin assign of product connector port in RS-485 model

Port	Pin assign			Wire color ❷
Power supply ❶		1	Power supply	Brown
		2	No connect	White
		3	GND	Blue
		4	No connect	Black
Communication connect		1	No connect	Yellow
		2	B(-)	Brown
		3	A(+)	White
		4	GND	Green
		5	No connect	Gray

⚠ Warning

❶ The pin-2 and pin-4 of power supply port must be prevent to connect any signal to avoid interference or malfunction.

❷ Wire color is when the option cable is used.

❸ Do not use power voltage exceeding specifications. The product could malfunction or catch fire if voltage exceeding the working range is applied.

❹ Please pay attention to shielding the unused pins to avoid malfunction or abnormal function caused by noise.

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.

❹ 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.

❺ 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.

❻ 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.

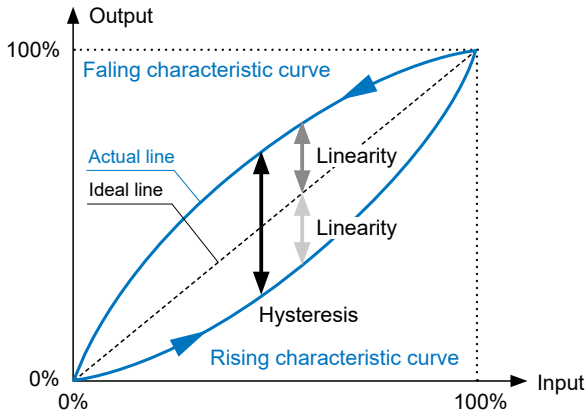
❸ **Linearity**: The error of the linear output relative to the ideal straight line, i.e. the accuracy of the analog output. It is usually expressed as a percentage compared to the entire measurement range (Full Scale: F.S.), such as 1% F.S..

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.



MAER100 series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

User manual

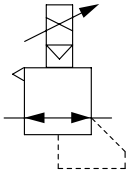
Caution for safety
(Read before installing)



Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- Achieve high precision pressure control with microcomputer PID.
- Maximum flow rate 350 L/min (Supply pressure 1.0 MPa, Set pressure 0.6 MPa).
- Comply with IP65 and CE certification.

Symbol



Specification

Model		MAER100		
Pressure range		1K	5K	9K
Bore No.		6A, 8A		
Port size		1/8, 1/4		
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 supply	Connector	M12 plug, 4-pin, A-coded		
	Voltage	DC24V±10%		
	Current	DC24V: 80mA or less		
Signal input	Current type	DC4~20 mA		
	Voltage type	DC0~5V, DC0~10V		
	Preset input (*2)	4 points		
Input impedance	Current type	≤ 400Ω		
	Voltage type	Approx. ≤ 50kΩ		
	Preset type	Approx. ≤ 1000kΩ		
Signal output (Monitor output)	Analog output	Voltage type DC1~5V (Load impedance 1kΩ or above) Output accuracy ±6% F.S. or less		
		Current type DC4~20mA (Load impedance 750Ω or less) Output accuracy ±6% F.S. or less		
	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		
Accessories		Cable with connector: M124A-**		
Weight		Main: 252 g; Bracket: Approx. 86g(B1), 80g(B2); Cable with 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

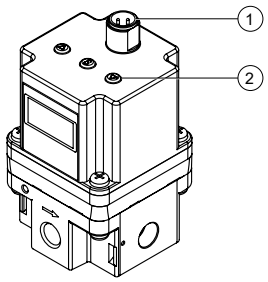
MAER100 – 8A – 9K – 1 1 1 – B1 S1 – □

- **MODEL**
- **PORT SIZE**
  - **6A**: 1/8
  - **8A**: 1/4
- **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 (*)	–	

* Made to order.

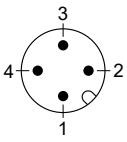
Exterior



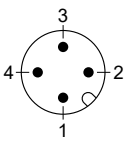
No.	Item	Description
1	Power connector	M12 plug, 4-pin, A-coded (male)
2	Operation button	Mode settings

Interface pin

① Signal input: Current / voltage type

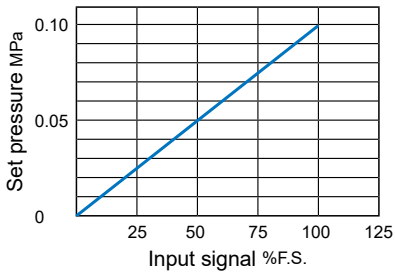
Fig	Pin	Signal
	1	24V
	2	Signal input
	3	0V GND
	4	Monitoring output

① Signal input: Preset input type

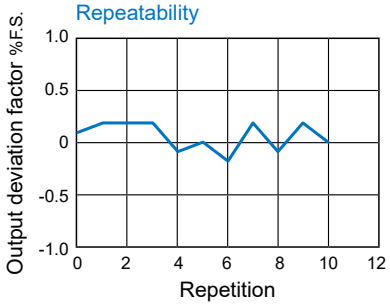
Fig	Pin	Signal
	1	24V
	2	Signal input 1
	3	0V GND
	4	Signal input 2

MAER100-1K

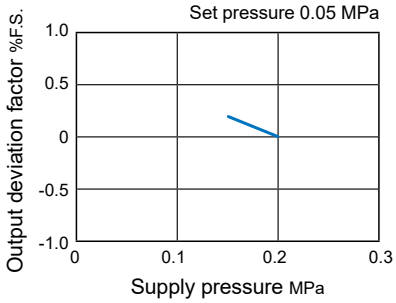
Linearity



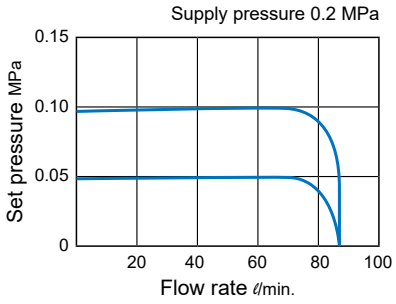
Repeatability



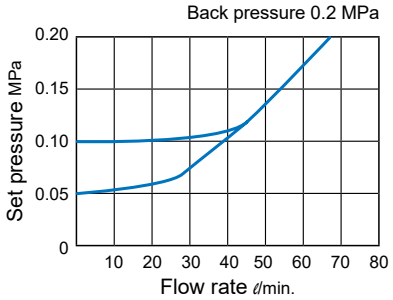
Pressure characteristics



Flow rate characteristics

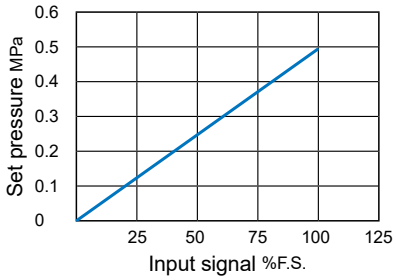


Relief flow characteristics

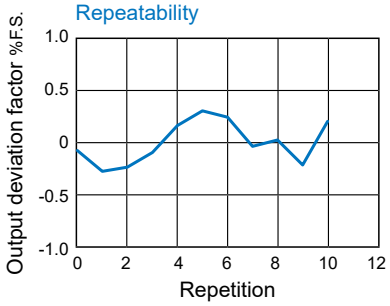


MAER100-5K

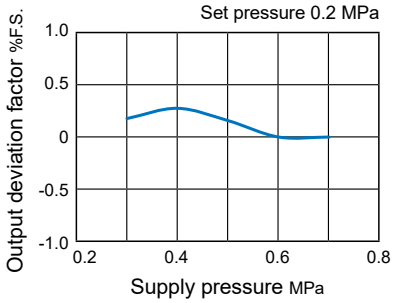
Linearity



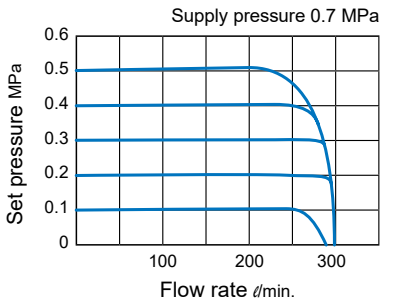
Repeatability



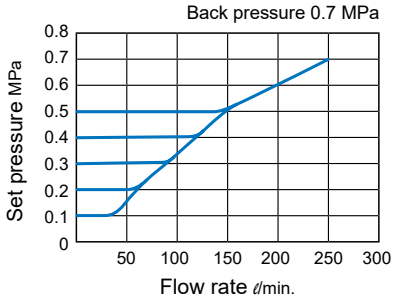
Pressure characteristics



Flow rate characteristics

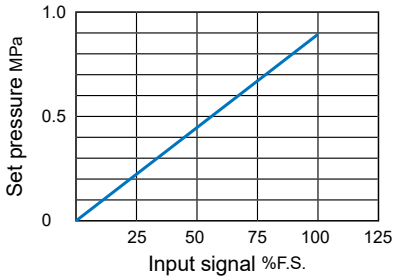


Relief flow characteristics

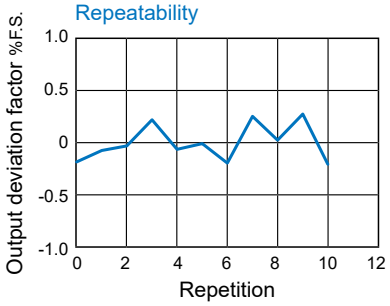


MAER100-9K

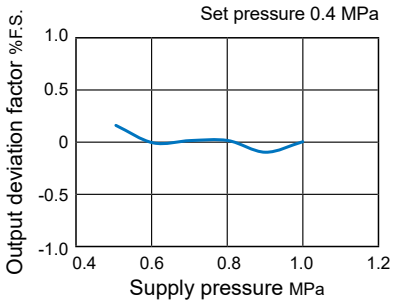
Linearity



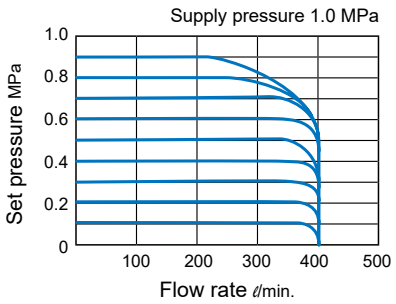
Repeatability



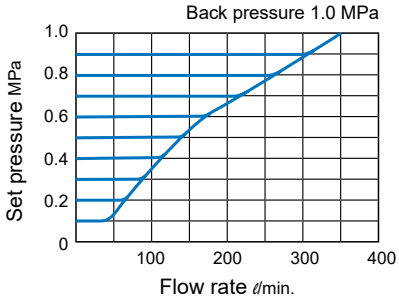
Pressure characteristics



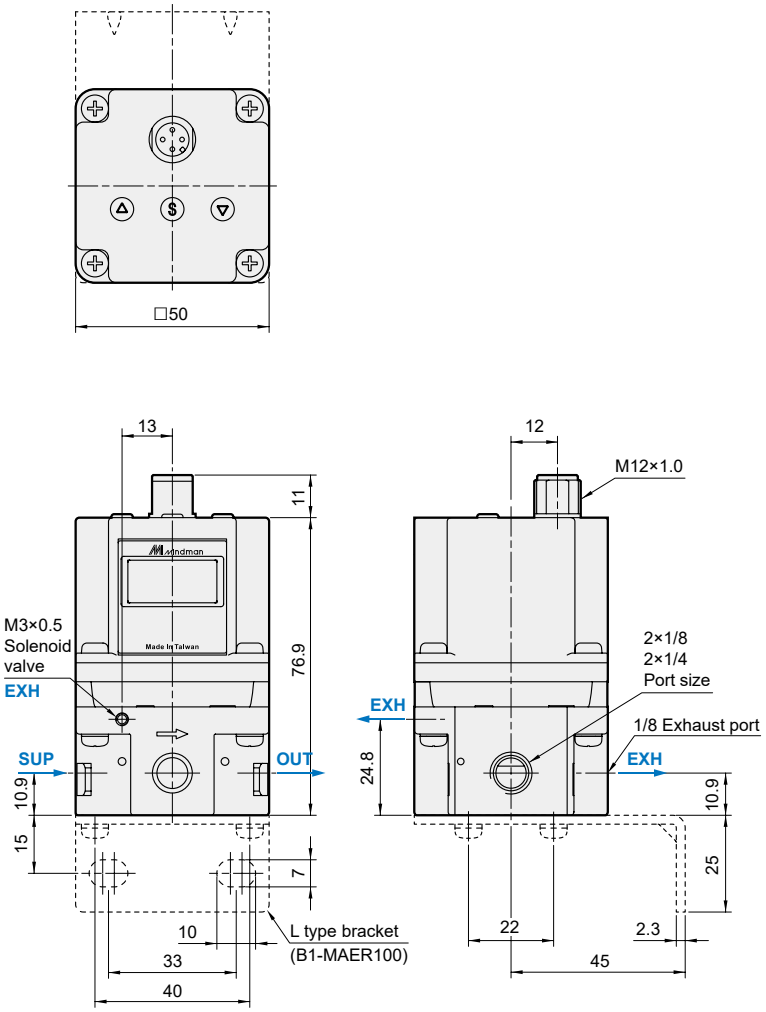
Flow rate characteristics



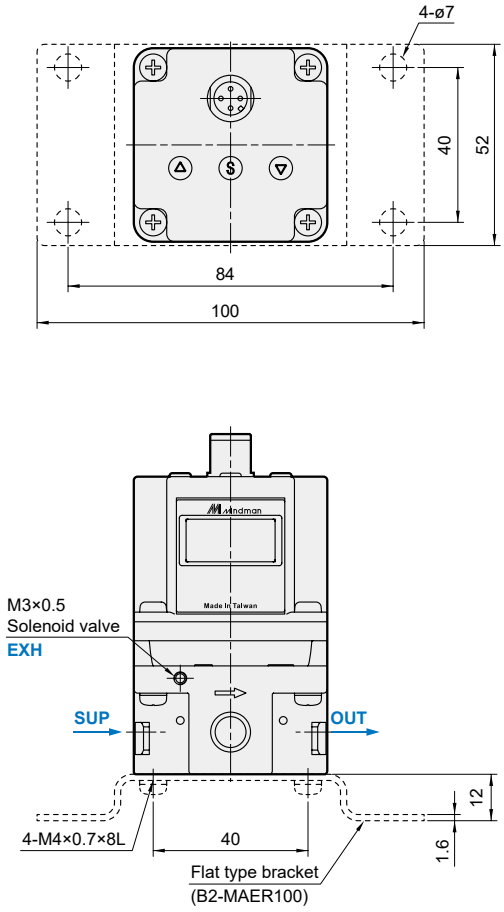
Relief flow characteristics



MAER100-*-B1 L type bracket



MAER100-*-B2 Flat type bracket



MAER110 series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

RS-232 manual

RS-485 manual

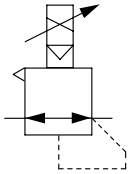
Caution for safety
(Read before installing)



Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- Achieve high precision pressure control with microcomputer PID.
- Maximum flow rate 350 L/min (Supply pressure 1.0 MPa, Set pressure 0.6 MPa).
- Comply with IP65 and CE certification.

Symbol



Specification

Model		MAER110		
Pressure range		1K	5K	9K
Bore No.		6A, 8A		
Port size		1/8, 1/4		
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 supply	Connector	M12 plug, 4-pin, A-coded		
	Voltage	DC24V±10%		
	Current	180mA or less		
Precision	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 (*2)	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		IP65		
Accessories of cable with connector		Power: M124A-** , Communication: M125A-**		
Weight	Main	300 g		
	Accessories	Bracket: Approx. 86g(B1) , 80g(B2); Power cable with connector: Approx. 130g(3m) Communication cable with connector: Approx. 140g(3m)		

Communication type

Protocal	RS-232	RS-485
Input connector	M12 plug, 5-pin, A-coded	M12 plug, 5-pin, A-coded
Address	1	1~248
Comm. speed	9.6k / 19.2k / 38.4k bps	9.6k / 19.2k / 38.4k bps
Comm. interface	Modbus ASCII	Modbus RTU

*1. Minium setting pressure is equal to 1% F.S..
*2. Linearity setting and preset pressure setting value both are set by the minimum unit of the output pressure display.
*3. The above characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.
*4. The above characteristics apply in a control pressure of 10% to 90% when power voltage is 24 VDC, ambient temperature is 25±3°C, no-loading and working pressure set at the maximum control pressure.

MAER110 Order example & Interface pin

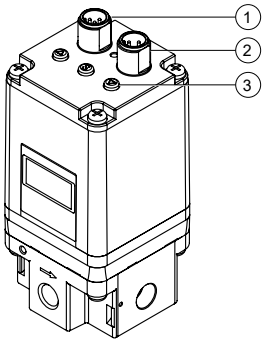
AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Order example

MAER110 – 8A – 9K – 1 0 1 – B1 S3 CS – □

- MODEL
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- PRESSURE RANGE
  - **1K**: 0.1 MPa (*)
  - **5K**: 0.5 MPa
  - **9K**: 0.9 MPa
  - * Made to order.
- PRESSURE DISPLAY UNIT
  - **1**: MPa
  - **2**: kgf/cm^2
  - **3**: bar
  - **4**: psi
  - **5**: kPa
- COMMUNICATION MODEL
  - **10**: RS-232
  - **20**: RS-485
- BRACKET
  - Blank: Without
  - **B1**: L type
  - **B2**: Flat type
- POWER CABLE
  - Blank: Without
  - **S3**: Straight 3m
  - **L3**: Right angle 3m
- COMMUNICATION CABLE
  - Blank: Without
  - **CS**: Straight 3m
  - **CL**: Right angle 3m
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Exterior

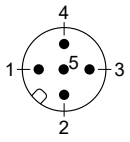


No.	Item	Description
1	Communication connector	M12 plug, 5-pin, A-coded (male)
2	Power connector	M12 plug, 4-pin, A-coded (male)
3	Operation button	Mode settings

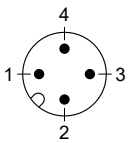
Interface pin

RS-232

① Communication connector

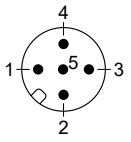
Fig	Pin	Signal
	1	–
	2	TxD
	3	RxD
	4	GND
	5	–

② Power interface

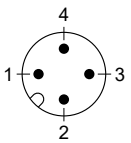
Fig	Pin	Signal
	1	24V
	2	–
	3	0V GND
	4	–

RS-485

① Communication connector

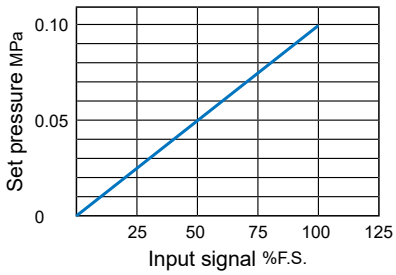
Fig	Pin	Signal
	1	–
	2	B(-)
	3	A(+)
	4	GND
	5	–

② Power interface

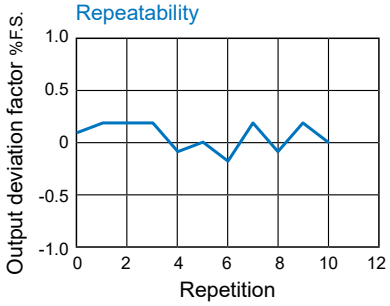
Fig	Pin	Signal
	1	24V
	2	–
	3	0V GND
	4	–

MAER110-1K

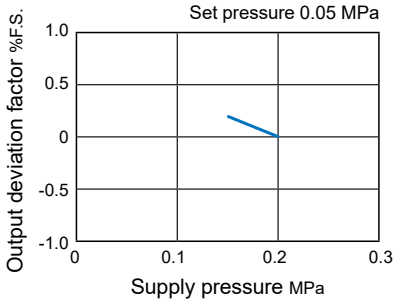
Linearity



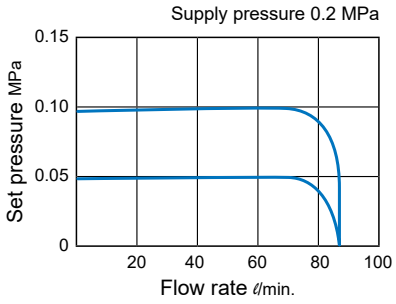
Repeatability



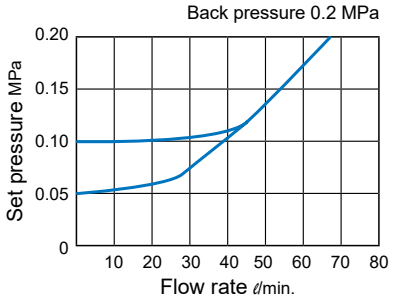
Pressure characteristics



Flow rate characteristics

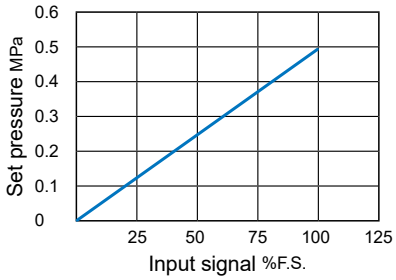


Relief flow characteristics

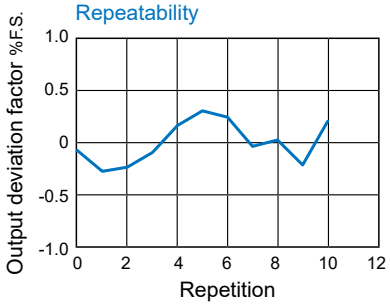


MAER110-5K

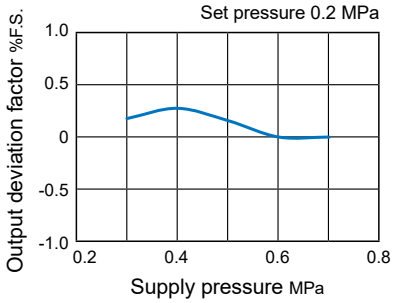
Linearity



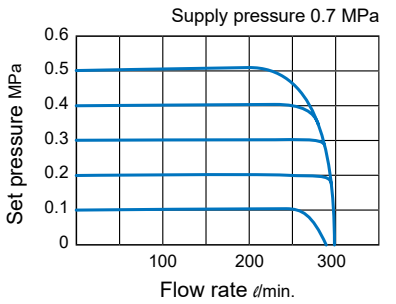
Repeatability



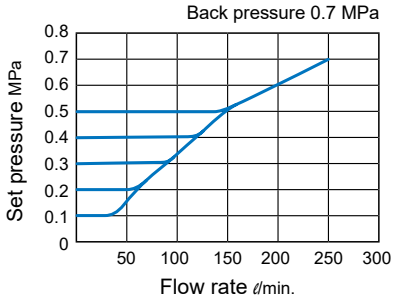
Pressure characteristics



Flow rate characteristics

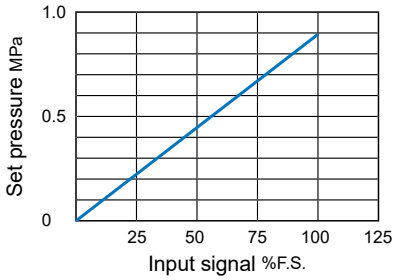


Relief flow characteristics

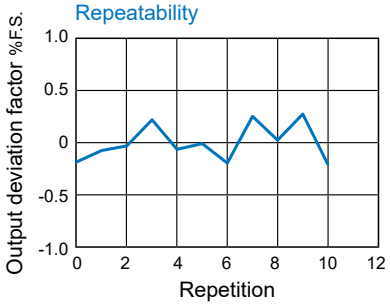


MAER110-9K

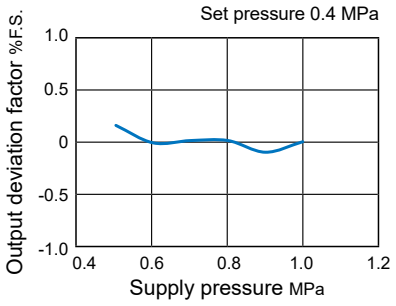
Linearity



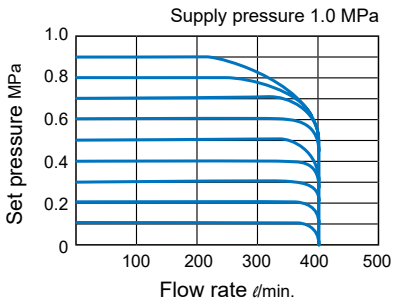
Repeatability



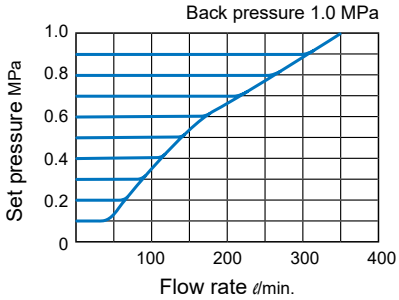
Pressure characteristics



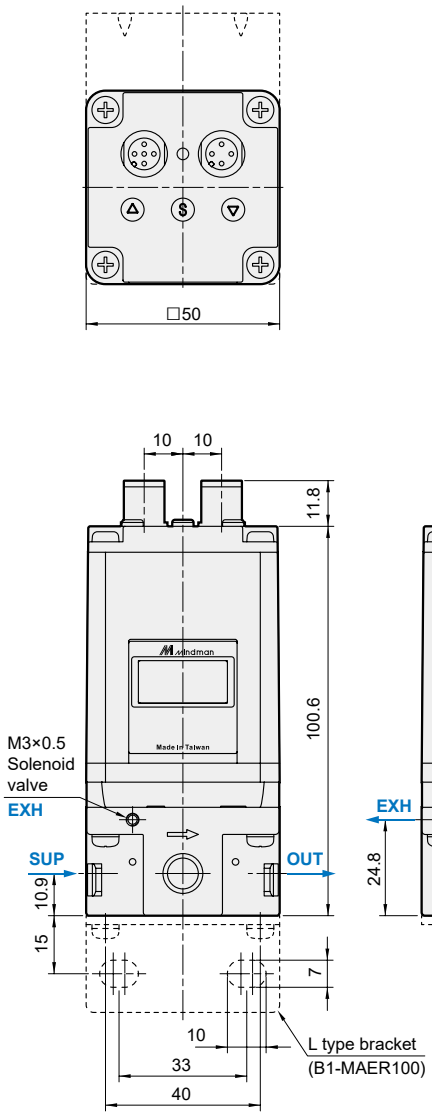
Flow rate characteristics



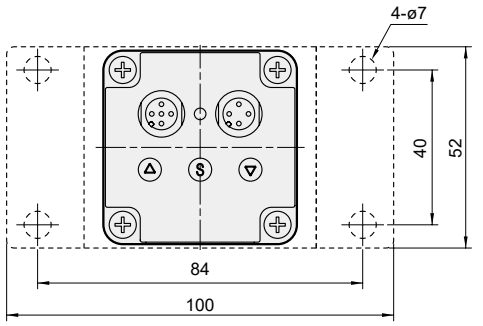
Relief flow characteristics

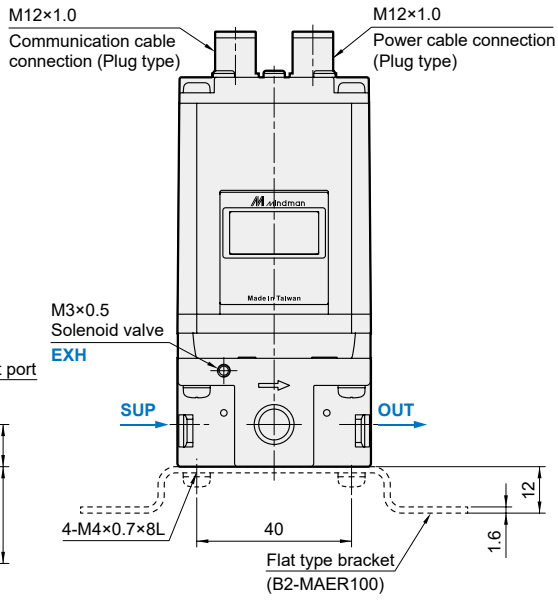


MAER110-*-B1 L type bracket



MAER110-*-B2 Flat type bracket





MAER200 series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Features

User manual

Caution for safety
(Read before installing)

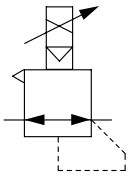




Feature

- 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 supply	Connector	M12 plug, 4-pin, A-coded		
	Voltage	DC24V±10%		
	Current	DC24V: 80mA or less		
Signal input	Current type	DC4~20 mA		
	Voltage type	DC0~5V, DC0~10V		
	Preset input (*2)	4 points		
Input impedance	Current type	≤ 400Ω		
	Voltage type	Approx. ≤ 50kΩ		
	Preset type	Approx. ≤ 1000kΩ		
Signal output (Monitor output)	Analog output	Voltage type DC1~5V (Load impedance 1kΩ or above) Output accuracy ±6% F.S. or less		
		Current type DC4~20mA (Load impedance 750Ω or less) Output accuracy ±6% F.S. or less		
	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		
Accessories		Cable with connector: M124A-**		
Weight		Main: 360 g; Bracket: Approx. 86g(B1), 80g(B2); Cable with 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

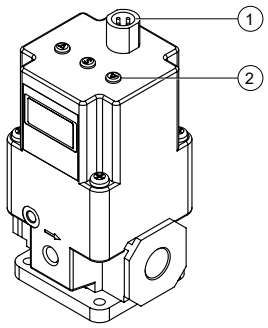
MAER200 – 8A – 9K – 1 1 1 – B1 S1 – □

- **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 (*)	–	

* Made to order.

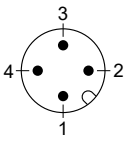
Exterior



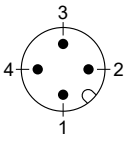
No.	Item	Description
1	Power connector	M12 plug, 4-pin, A-coded (male)
2	Operation button	Mode settings

Interface pin

① Signal input: Current / voltage type

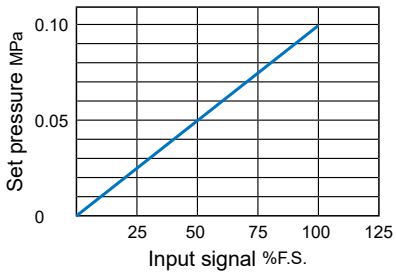
Fig	Pin	Signal
	1	24V
	2	Signal input
	3	0V GND
	4	Monitoring output

① Signal input: Preset input type

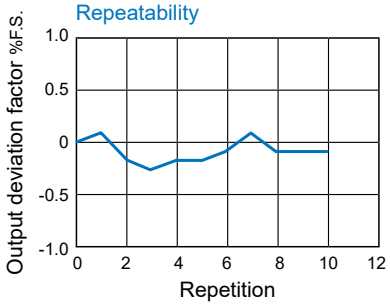
Fig	Pin	Signal
	1	24V
	2	Signal input 1
	3	0V GND
	4	Signal input 2

MAER200-1K

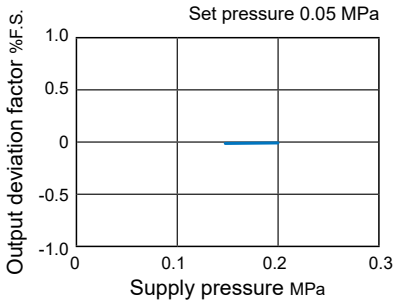
Linearity



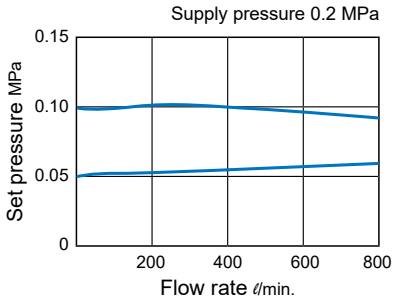
Repeatability



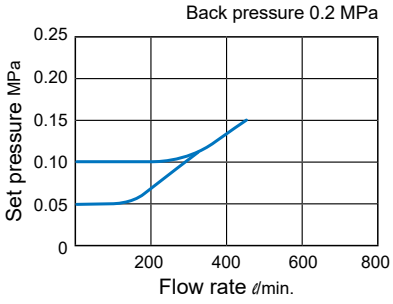
Pressure characteristics



Flow rate characteristics

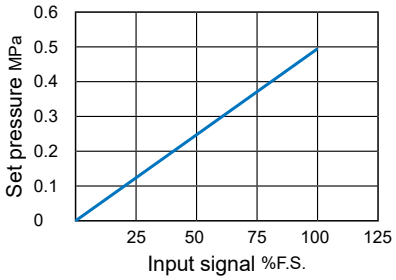


Relief flow characteristics

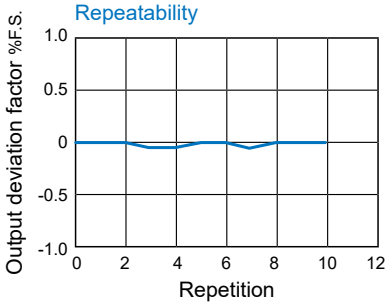


MAER200-5K

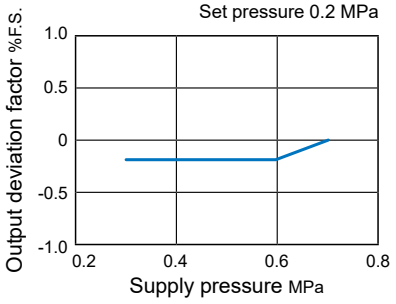
Linearity



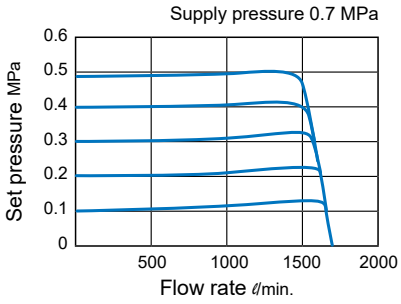
Repeatability



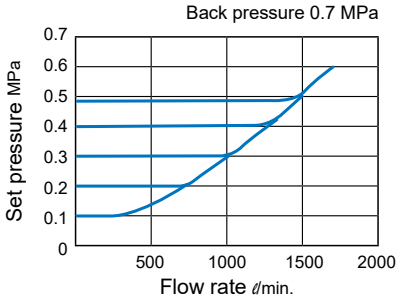
Pressure characteristics



Flow rate characteristics

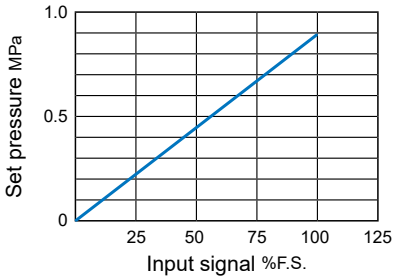


Relief flow characteristics

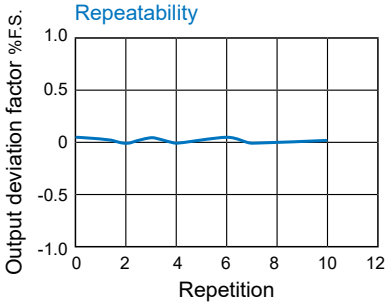


MAER200-9K

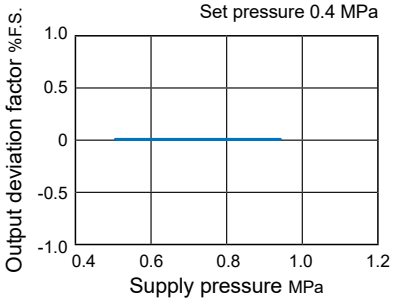
Linearity



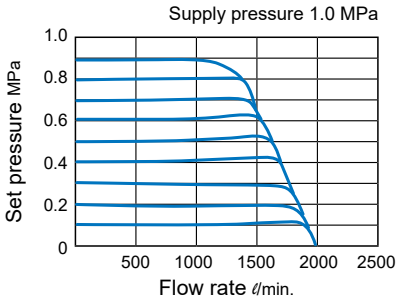
Repeatability



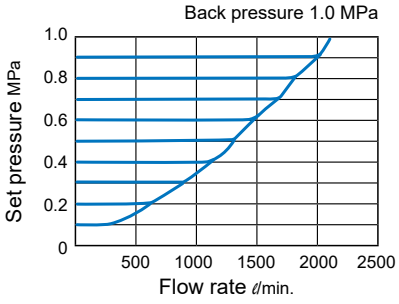
Pressure characteristics



Flow rate characteristics



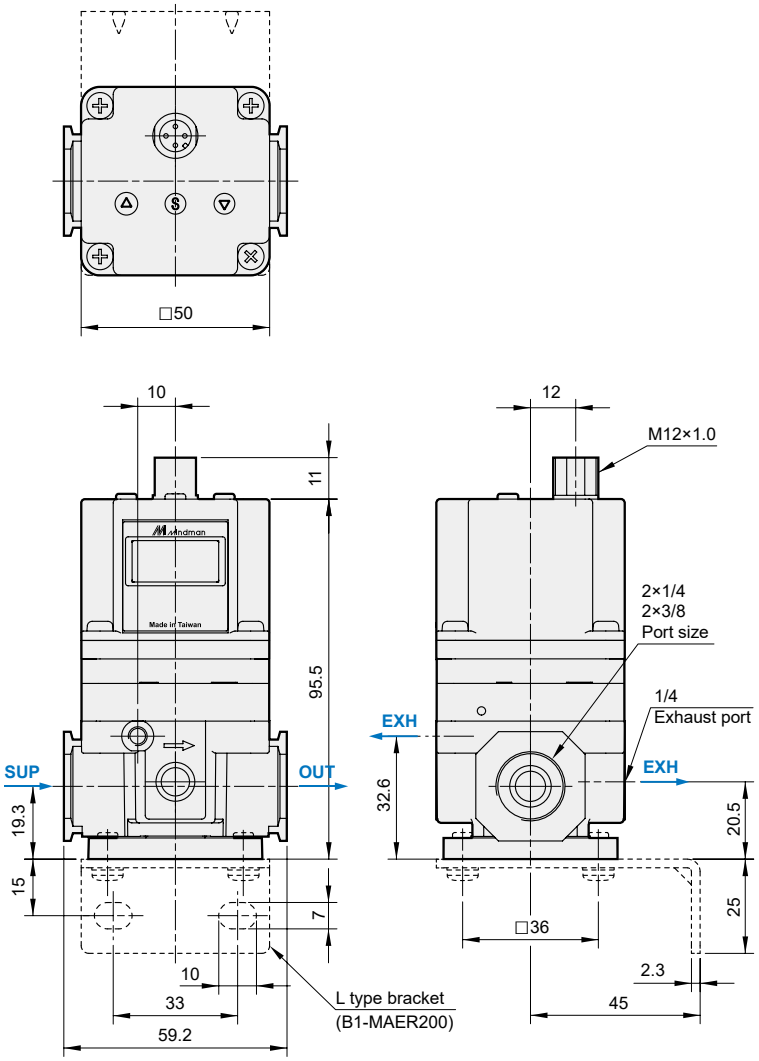
Relief flow characteristics



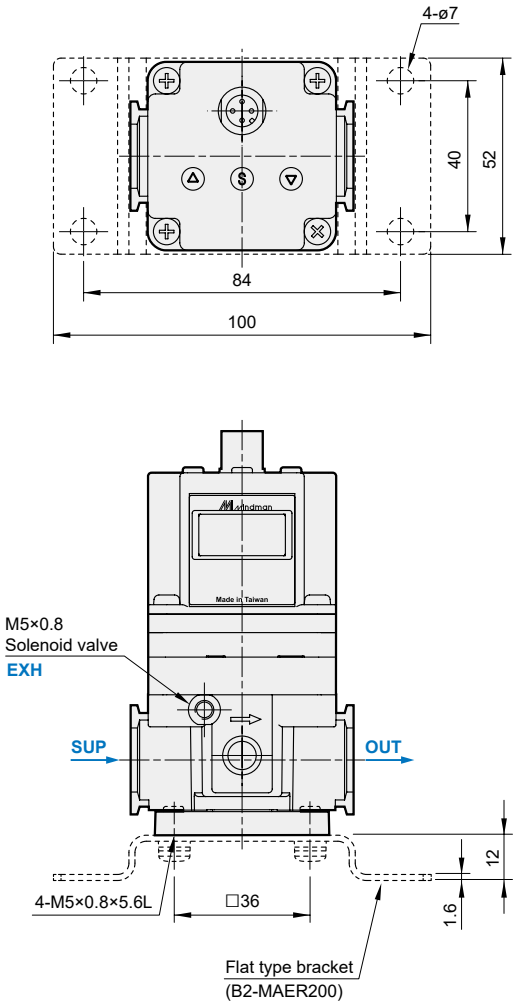
MAER200 Dimensions

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

MAER200-*-B1 L type bracket



MAER200-*-B2 Flat type bracket



MAER210 series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Features

RS-232 manual

RS-485 manual

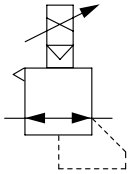
Caution for safety
(Read before installing)



Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- MAER210 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		MAER210		
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 supply	Connector	M12 plug, 4-pin, A-coded		
	Voltage	DC24V±10%		
	Current	180mA or less		
Precision	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 (*2)	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		IP65		
Accessories of cable with connector		Power: M124A-** , Communication: M125A-**		
Weight	Main	410 g		
	Accessories	Bracket: Approx. 86g(B1) , 80g(B2); Power cable with connector: Approx. 130g(3m) Communication cable with connector: Approx. 140g(3m)		

Communication type

Protocal	RS-232	RS-485
Input connector	M12 plug, 5-pin, A-coded	M12 plug, 5-pin, A-coded
Address	1	1~248
Comm. speed	9.6k / 19.2k / 38.4k bps	9.6k / 19.2k / 38.4k bps
Comm. interface	Modbus ASCII	Modbus RTU

*1. Minium setting pressure is equal to 1% F.S..
*2. Linearity setting and preset pressure setting value both are set by the minimum unit of the output pressure display.
*3. The above characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.
*4. The above characteristics apply in a control pressure of 10% to 90% when power voltage is 24 VDC, ambient temperature is 25±3°C, no-loading and working pressure set at the maximum control pressure.

MAER210 Order example & Interface pin

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

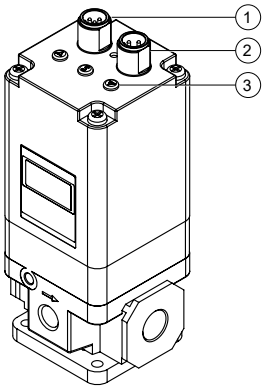
mindman

Order example

MAER210 – 8A – 9K – 1 0 1 – B1 S3 CS – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
- PRESSURE RANGE
  - **1K**: 0.1 MPa (*)
  - **5K**: 0.5 MPa
  - **9K**: 0.9 MPa
  - * Made to order.
- PRESSURE DISPLAY UNIT
  - **1**: MPa
  - **2**: kgf/cm^2
  - **3**: bar
  - **4**: psi
  - **5**: kPa
- COMMUNICATION MODEL
  - **10**: RS-232
  - **20**: RS-485
- BRACKET
  - Blank: Without
  - **B1**: L type
  - **B2**: Flat type
- POWER CABLE
  - Blank: Without
  - **S3**: Straight 3m
  - **L3**: Right angle 3m
- COMMUNICATION CABLE
  - Blank: Without
  - **CS**: Straight 3m
  - **CL**: Right angle 3m
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Exterior

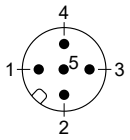


No.	Item	Description
1	Communication connector	M12 plug, 5-pin, A-coded (male)
2	Power connector	M12 plug, 4-pin, A-coded (male)
3	Operation button	Mode settings

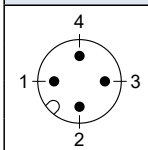
Interface pin

RS-232

① Communication connector

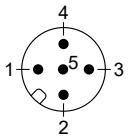
Fig	Pin	Signal
	1	–
	2	TxD
	3	RxD
	4	GND
	5	–

② Power interface

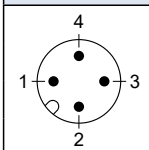
Fig	Pin	Signal
	1	24V
	2	–
	3	0V GND
	4	–

RS-485

① Communication connector

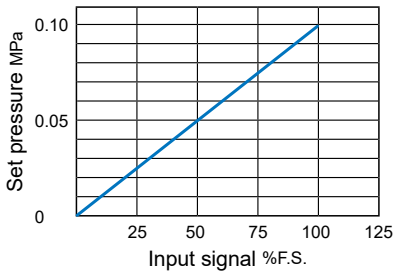
Fig	Pin	Signal
	1	–
	2	B(-)
	3	A(+)
	4	GND
	5	–

② Power interface

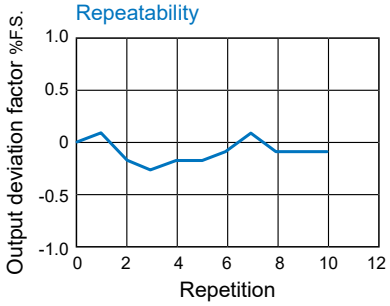
Fig	Pin	Signal
	1	24V
	2	–
	3	0V GND
	4	–

MAER210-5K

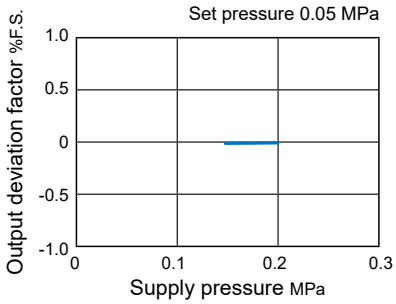
Linearity



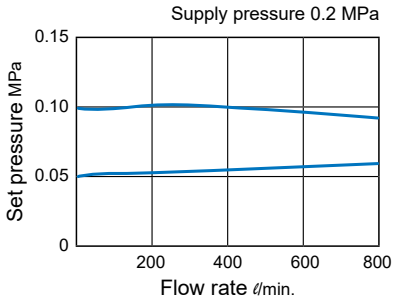
Repeatability



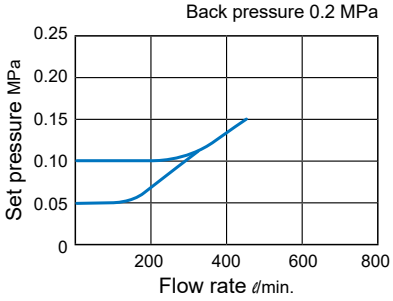
Pressure characteristics



Flow rate characteristics

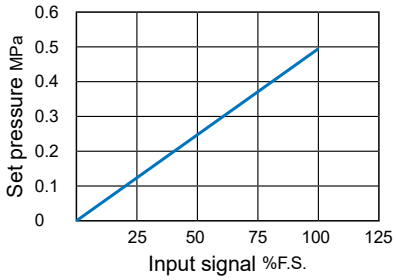


Relief flow characteristics

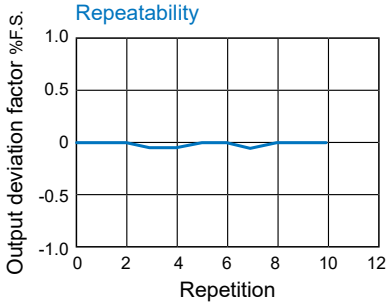


MAER210-9K

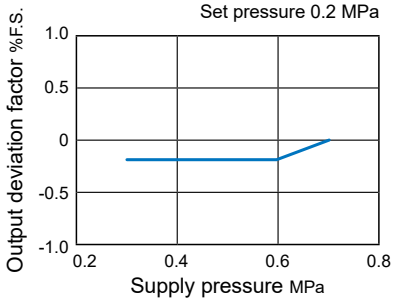
Linearity



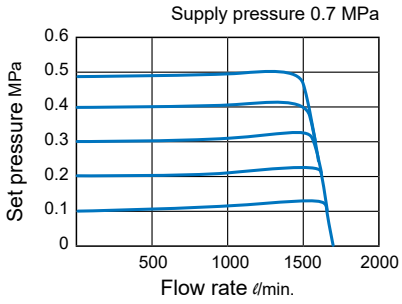
Repeatability



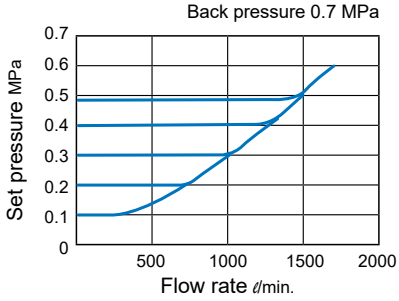
Pressure characteristics



Flow rate characteristics

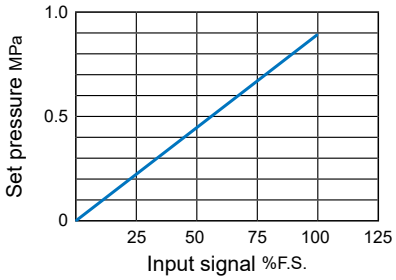


Relief flow characteristics

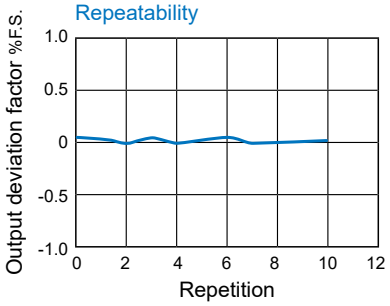


MAER210-1K

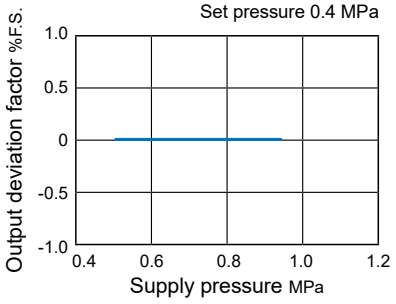
Linearity



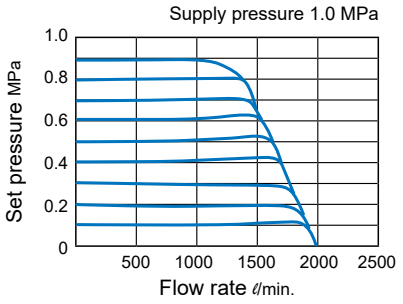
Repeatability



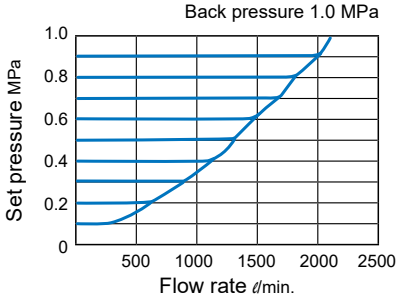
Pressure characteristics



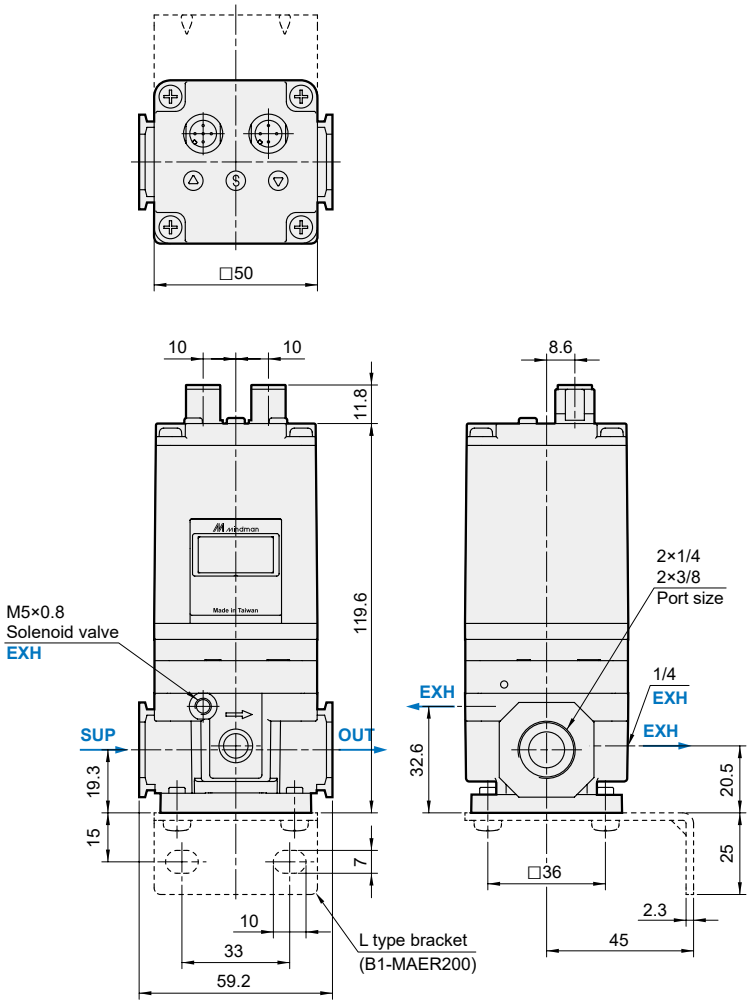
Flow rate characteristics



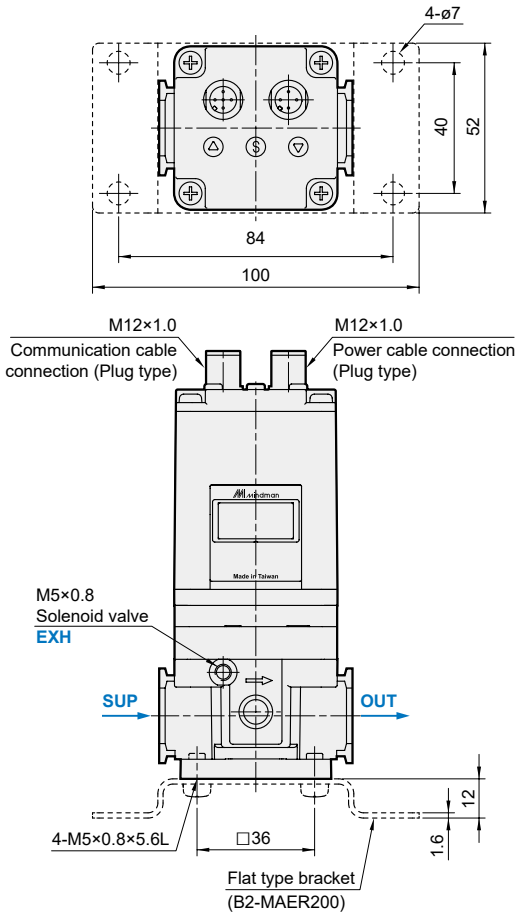
Relief flow characteristics



MAER210-*-B1 L type bracket



MAER210-*-B2 Flat type bracket



MAER300 series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Features

User manual

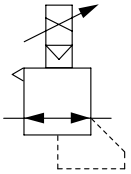
Caution for safety
(Read before installing)



Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- MAER300 can be assembled with MA**401/403 series.
- Achieve high precision pressure control with microcomputer PID.
- Maximum flow rate 4000 L/min (Supply pressure 1.0 MPa, Set pressure 0.6 MPa).
- Comply with IP65 and CE certification.

Symbol



Specification

Model		MAER300		
Pressure range		1K	5K	9K
Bore No.		8A, 10A, 15A		
Port size		1/4, 3/8,1/2		
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 supply	Connector	M12 plug, 4-pin, A-coded		
	Voltage	DC24V±10%		
	Current	DC24V: 80mA or less		
Signal input	Current type	DC4~20 mA		
	Voltage type	DC0~5V, DC0~10V		
	Preset input (*2)	4 points		
Input impedance	Current type	≤ 400Ω		
	Voltage type	Approx. ≤ 50kΩ		
	Preset type	Approx. ≤ 1000kΩ		
Signal output (Monitor output)	Analog output	Voltage type DC1~5V (Load impedance 1kΩ or above) Output accuracy ±6% F.S. or less		
		Current type DC4~20mA (Load impedance 750Ω or less) Output accuracy ±6% F.S. or less		
	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		
Accessories		Cable with connector: M124A-**		
Weight	Main	690 g		
	Accessories	Bracket: Approx. 86g(B1) , 80g(B2); Cable with 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 in a control pressure of 10% to 90% when power voltage is 24 VDC, ambient temperature is 25±3°C, no-loading and working pressure set at the maximum control pressure.

Order example

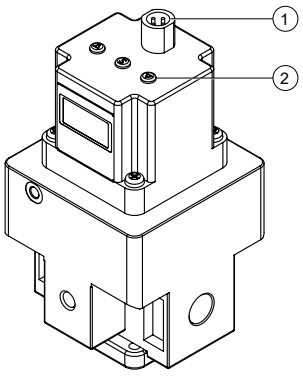
MAER300 – 8A – 9K – 1 1 1 – B1 S1 – □

- **MODEL**
- **PORT SIZE**
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- **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 (*)	–	

* Made to order.

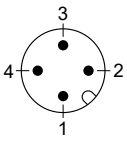
Exterior



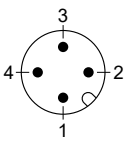
No.	Item	Description
1	Power connector	M12 plug, 4-pin, A-coded (male)
2	Operation button	Mode settings

Interface pin

① Signal input: Current / voltage type

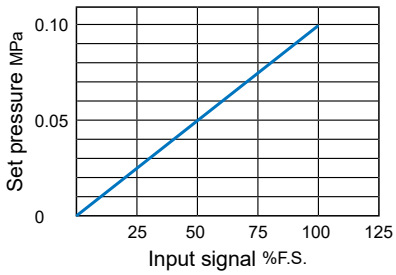
Fig	Pin	Signal
	1	24V
	2	Signal input
	3	0V GND
	4	Monitoring output

① Signal input: Preset input type

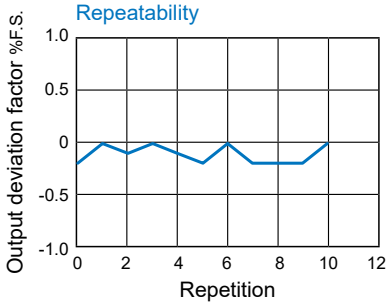
Fig	Pin	Signal
	1	24V
	2	Signal input 1
	3	0V GND
	4	Signal input 2

MAER300-1K

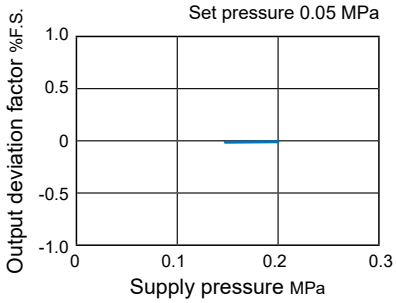
Linearity



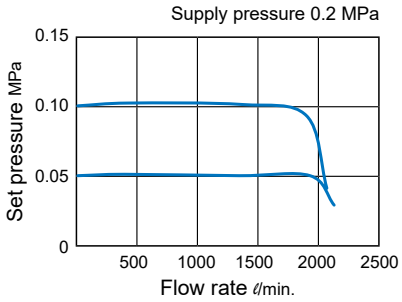
Repeatability



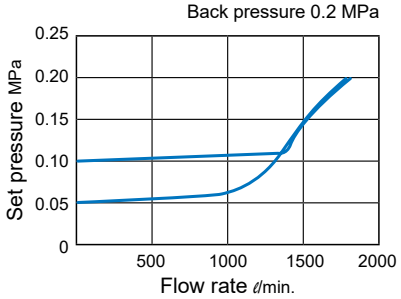
Pressure characteristics



Flow rate characteristics

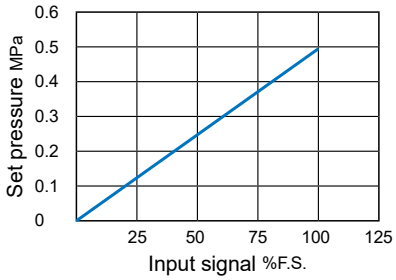


Relief flow characteristics

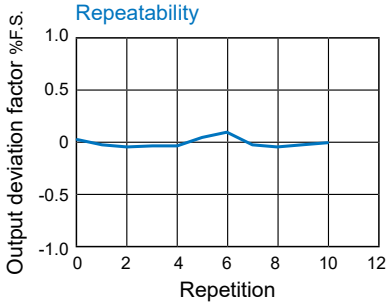


MAER300-5K

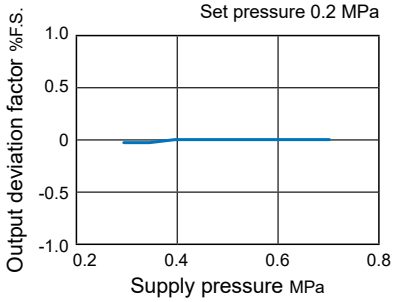
Linearity



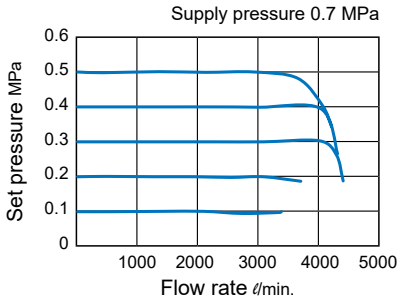
Repeatability



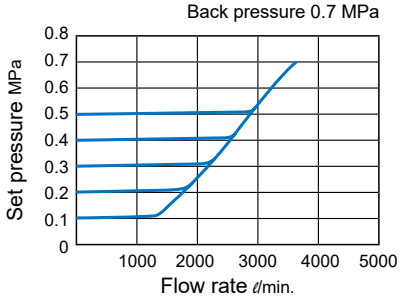
Pressure characteristics



Flow rate characteristics

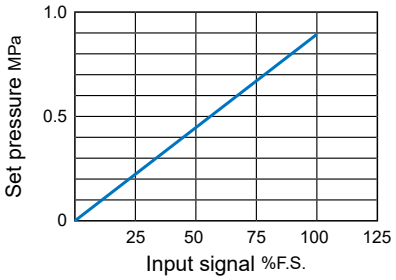


Relief flow characteristics

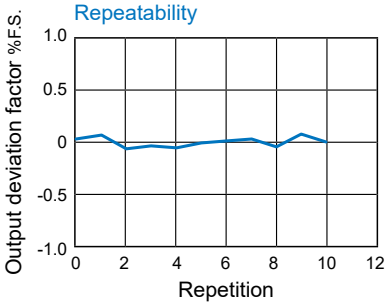


MAER300-9K

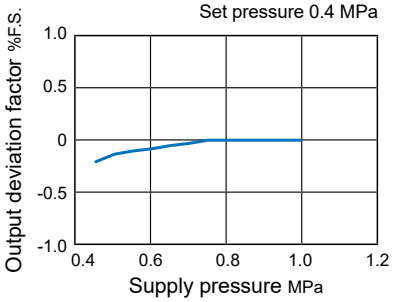
Linearity



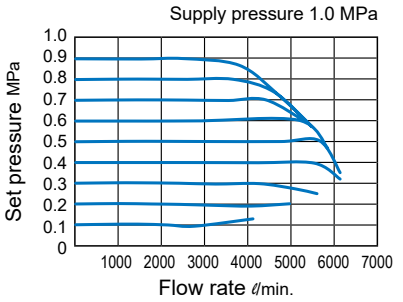
Repeatability



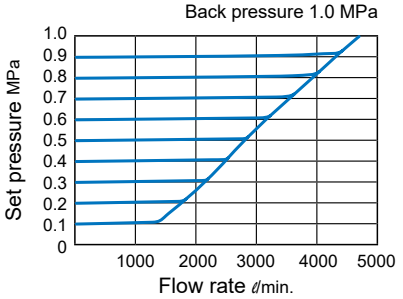
Pressure characteristics



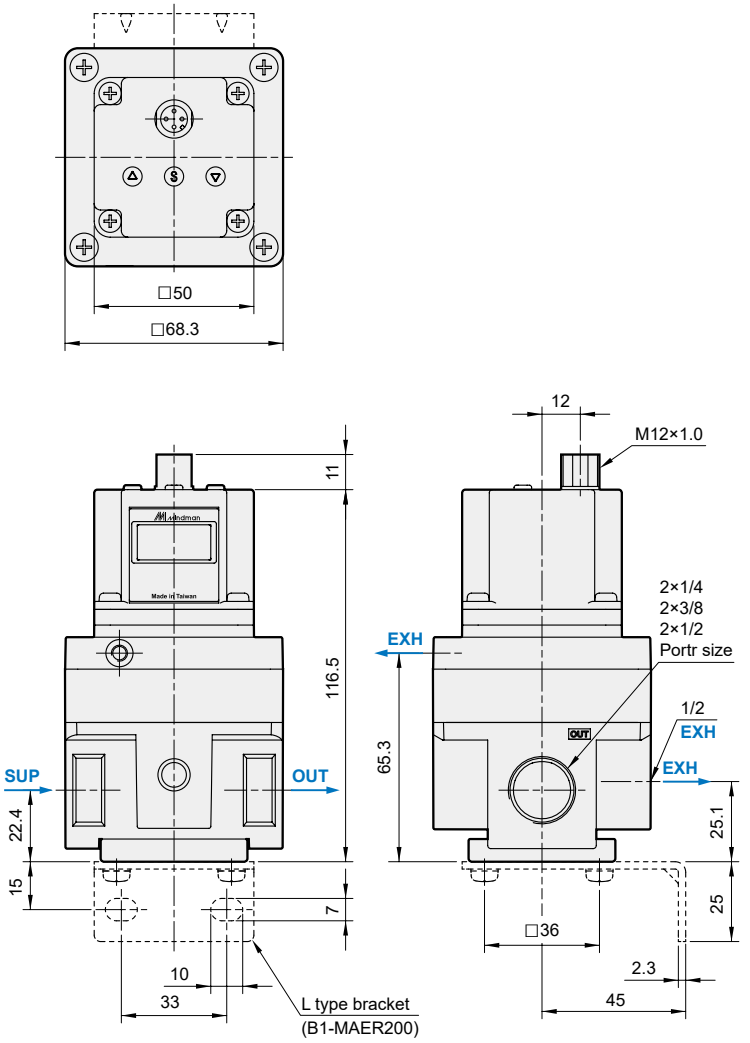
Flow rate characteristics



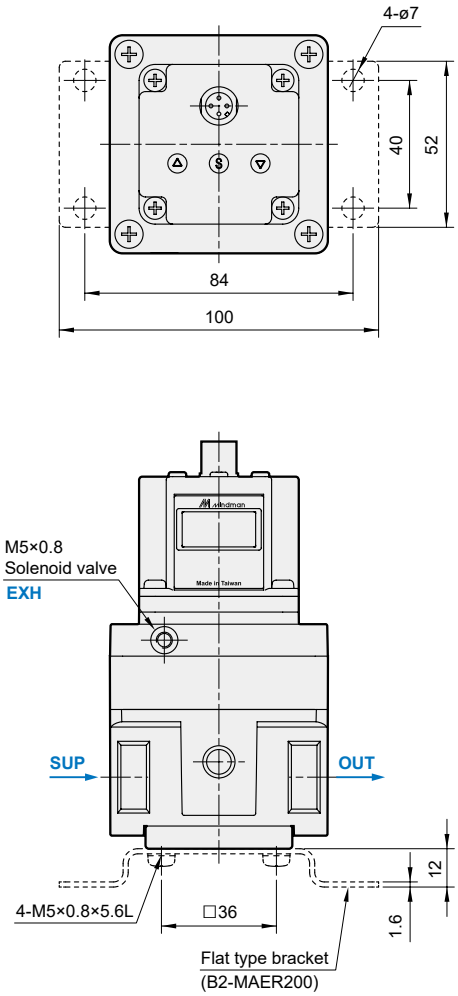
Relief flow characteristics



MAER300-*-B1 L type bracket



MAER300-*-B2 Flat type bracket



MAER310 series

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Features

RS-232 manual

RS-485 manual

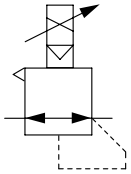
Caution for safety
(Read before installing)



Feature

- Stepless control of air pressure proportional to an electrical signal.
- Simplify complex pipeline for controlling different pressure.
- MAER310 can be assembled with MA**401/403 series.
- Achieve high precision pressure control with microcomputer PID.
- Maximum flow rate 4000 L/min (Supply pressure 1.0 MPa, Set pressure 0.6 MPa).
- Comply with IP65 and CE certification.

Symbol



Specification

Model		MAER310		
Pressure range		1K	5K	9K
Bore No.		8A, 10A, 15A		
Port size		1/4, 3/8,1/2		
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 supply	Connector	M12 plug, 4-pin, A-coded		
	Voltage	DC24V±10%		
	Current	DC24V: 180mA or less		
Precision	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 (*2)	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		IP65		
Accessories of cable with connector		Power: M124A-** , Communication: M125A-**		
Weight	Main	740 g		
	Accessories	Bracket: Approx. 86g(B1) , 80g(B2); Power cable with connector: Approx. 130g(3m) Communication cable with connector: Approx. 140g(3m)		

Communication type

Protocal	RS-232	RS-485
Input connector	M12 plug, 5-pin, A-coded	M12 plug, 5-pin, A-coded
Address	1	1~248
Comm. speed	9.6k / 19.2k / 38.4k bps	9.6k / 19.2k / 38.4k bps
Comm. interface	Modbus ASCII	Modbus RTU

*2. Linearity setting and preset pressure setting value both are set by the minimum unit of the output pressure display.
*3. The above characteristics are confined to no flow in the pipeline. When air is consumed on the output side, pressure may become unstable.
*4. The above characteristics apply in a control pressure of 10% to 90% when power voltage is 24 VDC, ambient temperature is 25±3°C, no-loading and working pressure set at the maximum control pressure.

MAER310 Order example & Interface pin

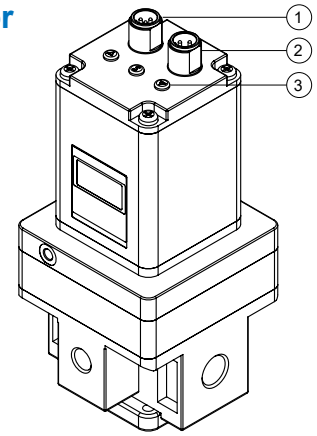
AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

Order example

MAER310 – 8A – 9K – 1 0 1 – B1 S3 CS – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- PRESSURE RANGE
  - **1K**: 0.1 MPa (*)
  - **5K**: 0.5 MPa
  - **9K**: 0.9 MPa
  - * Made to order.
- COMMUNICATION MODEL
  - **10**: RS-232
  - **20**: RS-485
- PRESSURE DISPLAY UNIT
  - **1**: MPa
  - **2**: kgf/cm^2
  - **3**: bar
  - **4**: psi
  - **5**: kPa
- BRACKET
  - Blank: Without
  - **B1**: L type
  - **B2**: Flat type
- POWER CABLE
  - Blank: Without
  - **S3**: Straight 3m
  - **L3**: Right angle 3m
- COMMUNICATION CABLE
  - Blank: Without
  - **CS**: Straight 3m
  - **CL**: Right angle 3m
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Exterior

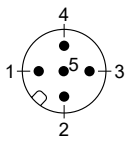


No.	Item	Description
1	Communication connector	M12 plug, 5-pin, A-coded (male)
2	Power connector	M12 plug, 4-pin, A-coded (male)
3	Operation button	Mode settings

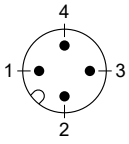
Interface pin

RS-232

① Communication connector

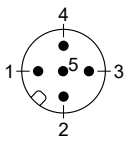
Fig	Pin	Signal
	1	–
	2	TxD
	3	RxD
	4	GND
	5	–

② Power interface

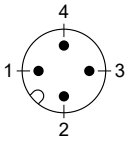
Fig	Pin	Signal
	1	24V
	2	–
	3	0V GND
	4	–

RS-485

① Communication connector

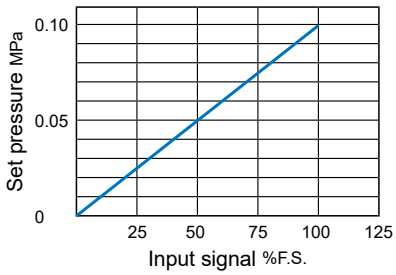
Fig	Pin	Signal
	1	–
	2	B(-)
	3	A(+)
	4	GND
	5	–

② Power interface

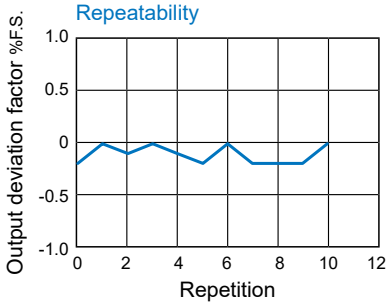
Fig	Pin	Signal
	1	24V
	2	–
	3	0V GND
	4	–

MAER310-1K

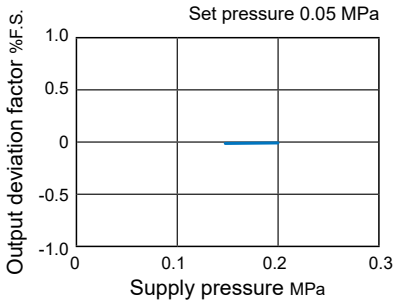
Linearity



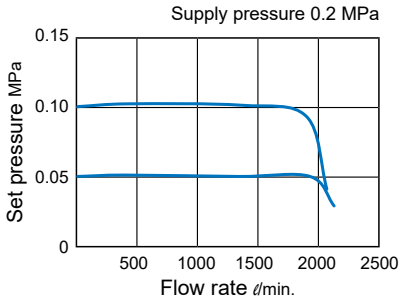
Repeatability



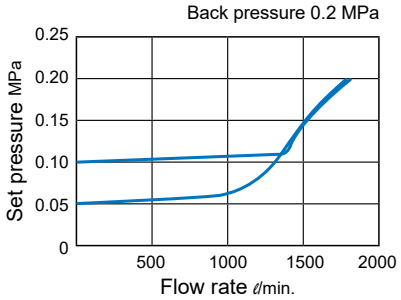
Pressure characteristics



Flow rate characteristics

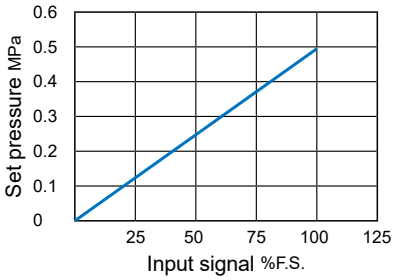


Relief flow characteristics

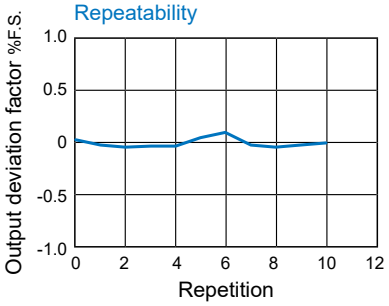


MAER310-5K

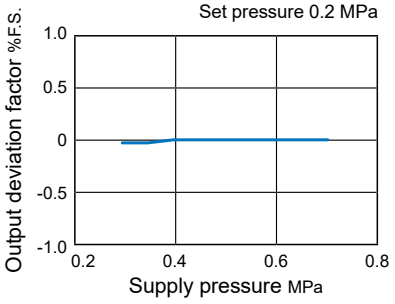
Linearity



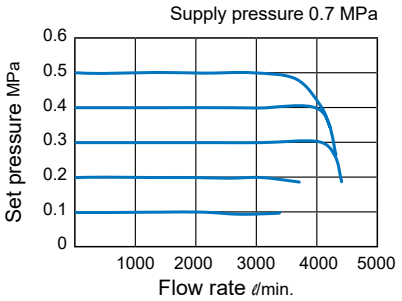
Repeatability



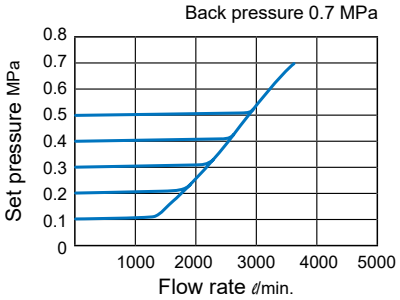
Pressure characteristics



Flow rate characteristics

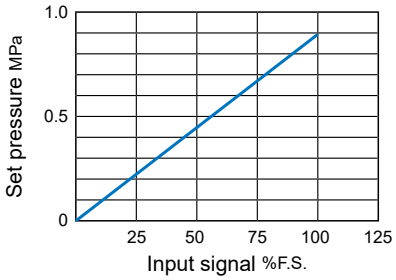


Relief flow characteristics

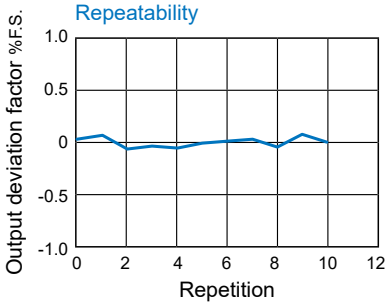


MAER310-9K

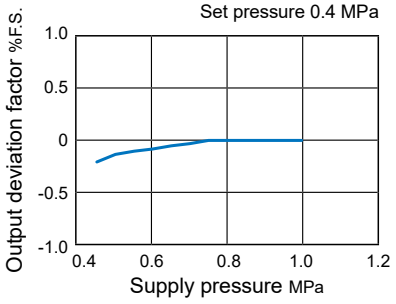
Linearity



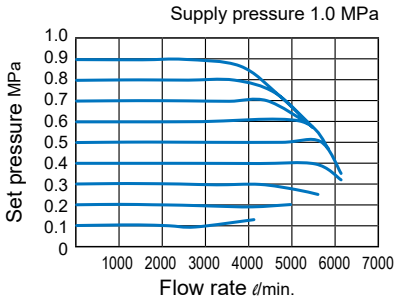
Repeatability



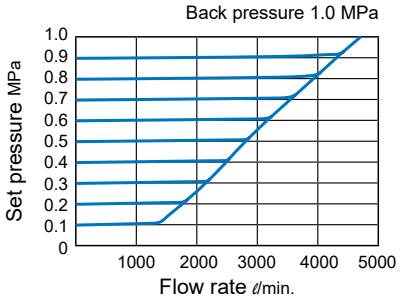
Pressure characteristics



Flow rate characteristics



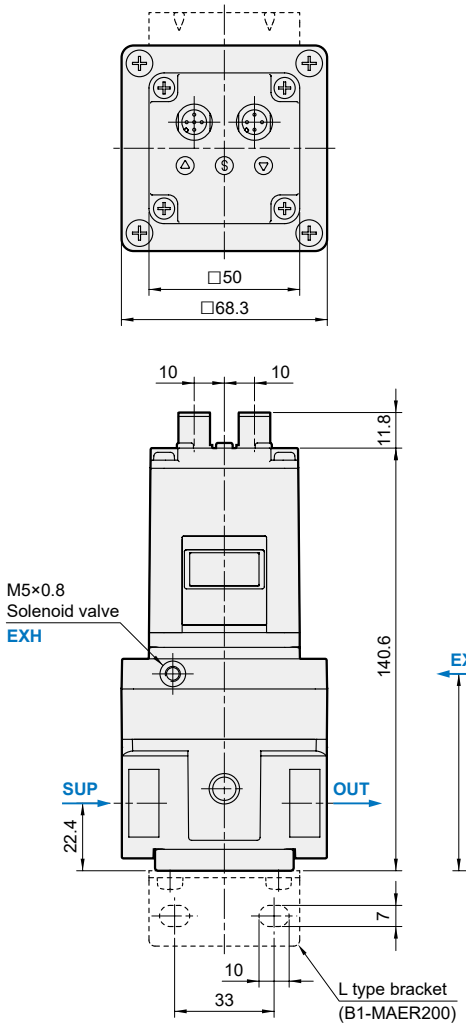
Relief flow characteristics



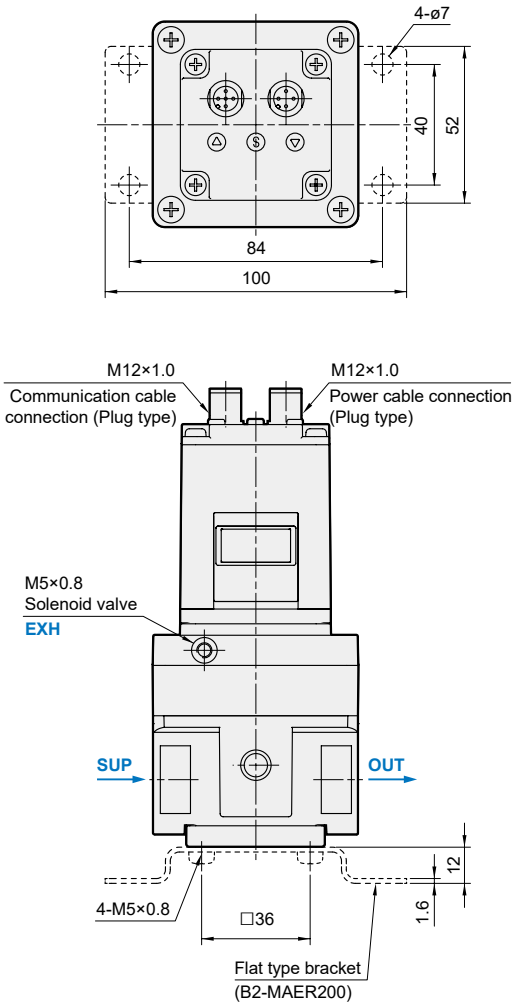
MAER310 Dimensions

AIR UNIT (ELECTRO – PNEUMATIC REGULATOR)

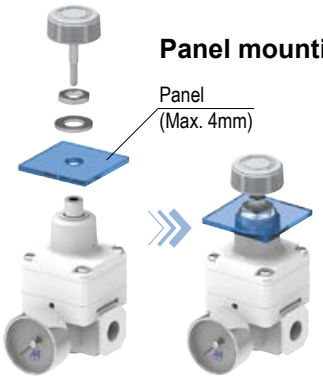
MAER310-*-B1 L type bracket



MAER310-*-B2 Flat type bracket



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.

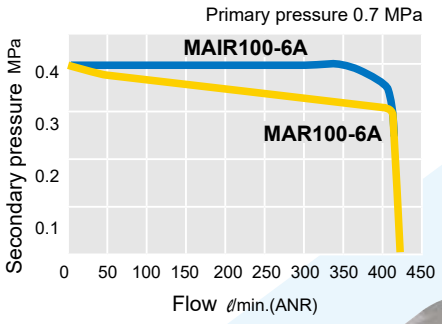


COMPATIBLE with MODULAR

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.



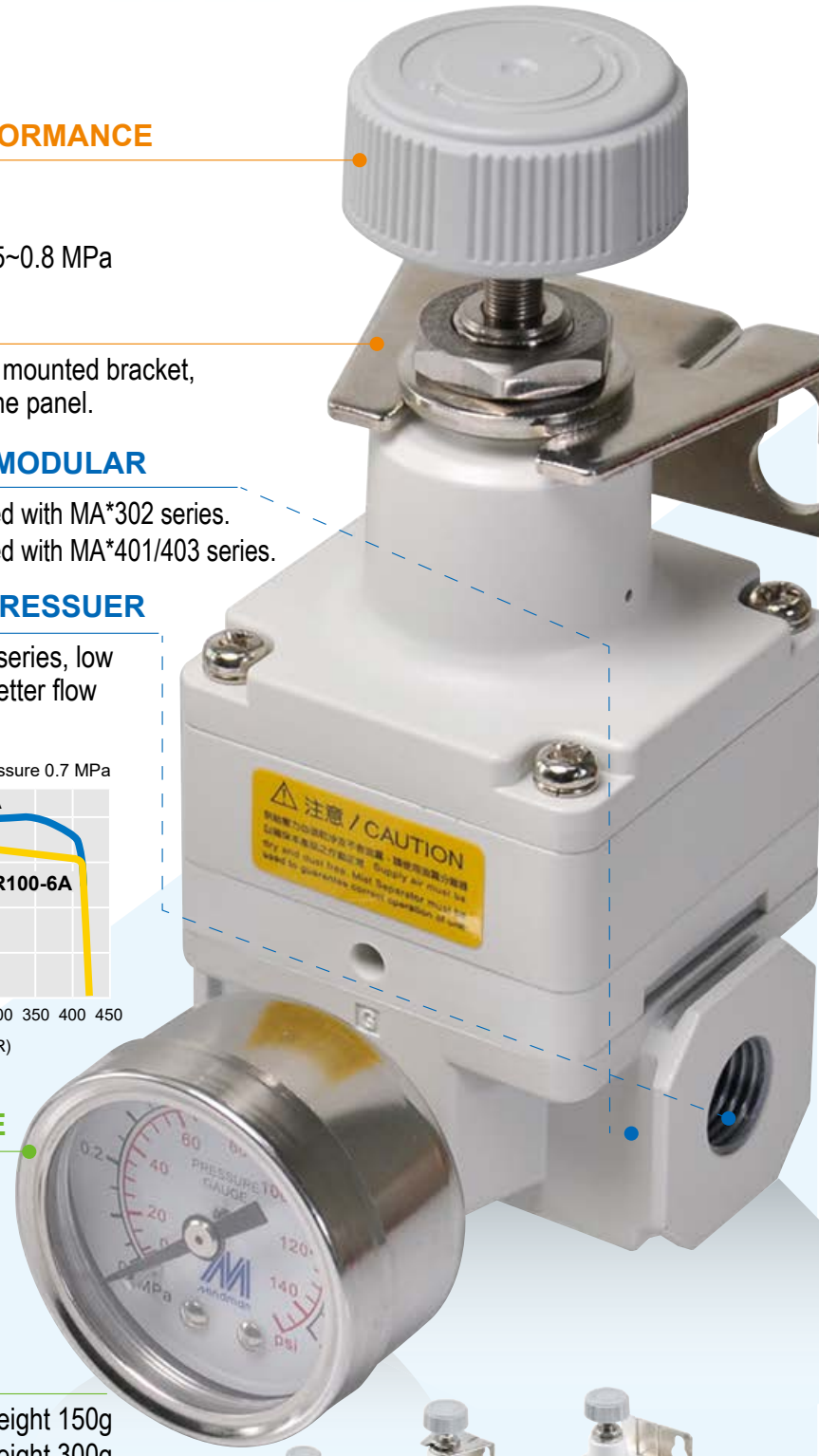


PRESSURE GAUGE

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.

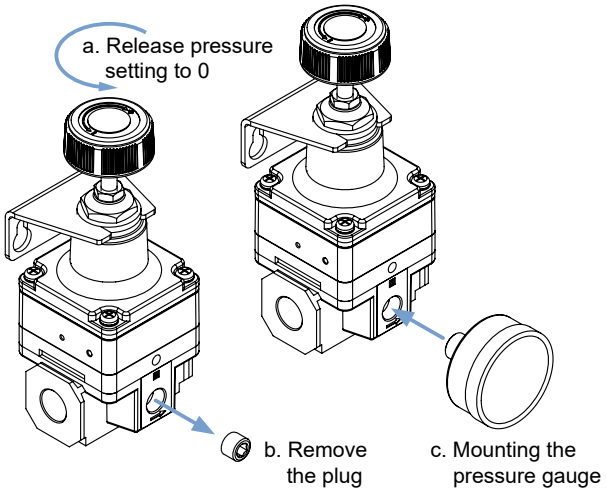
❷ Never use a lubricator on the primary side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the secondary side.

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

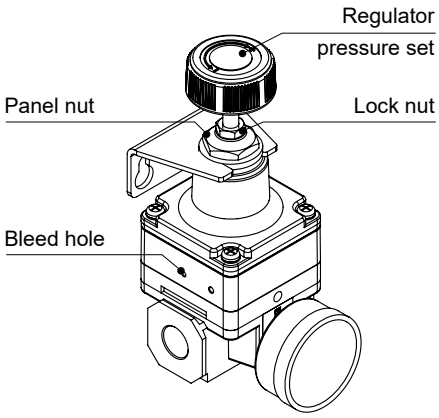
Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive.

⚠ 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)

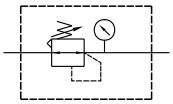
Features

Selection table

Caution for safety
(Read before installing)



Symbol



Specification

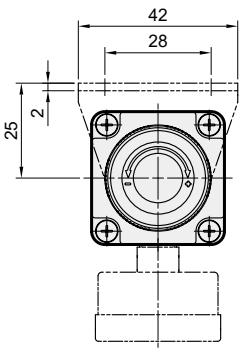
Model		MAIR100
Bore No.		6A
Port size		1/8
Medium		Air
Max. operating pressure		1 MPa
Min. operating pressure		Setting pressure+0.05 MPa
Proof pressure		1.5 MPa
Regulated pressure range		2K: 0.005~0.2 MPa
		4K: 0.01~0.4 MPa
		8K: 0.01~0.8 MPa
Sensitivity		0.2% F.S.
Repeatability		±0.5% F.S.
Air consumption (*)		4.4 ℓ/min(ANR)
Ambient temperature		– 5~+60°C (No freezing)
Attachment	Standard	Bracket
	Optional	Pressure gauge (PG-33S)
Weight		150 g

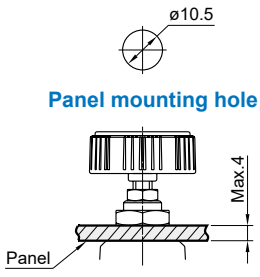
* For supply pressure 1 MPa.
* Air is normally being discharged to the atmosphere from a bleed hole or an exhaust port.

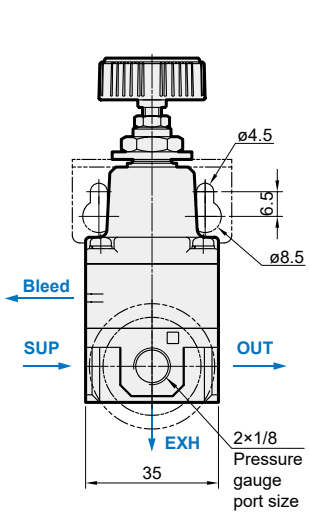
Order example

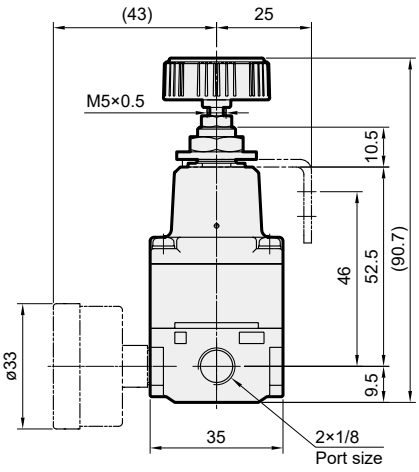
MAIR100 — 6A — 2K — C□ — □

MODEL	PORT SIZE	ADJUSTABLE PRESS. RANGE	PRESSURE GAUGE	FLOW DIRECTION	PORT THREAD
	6A: 1/8	**2K**: 0.005~0.2 MPa **4K**: 0.01~0.4 MPa **8K**: 0.01~0.8 MPa	Blank: without **C**: Pressure gauge (PG-33S)	Blank: Left to right **R**: Right to left	Blank: Rc thread **G**: G thread **NPT**: NPT thread

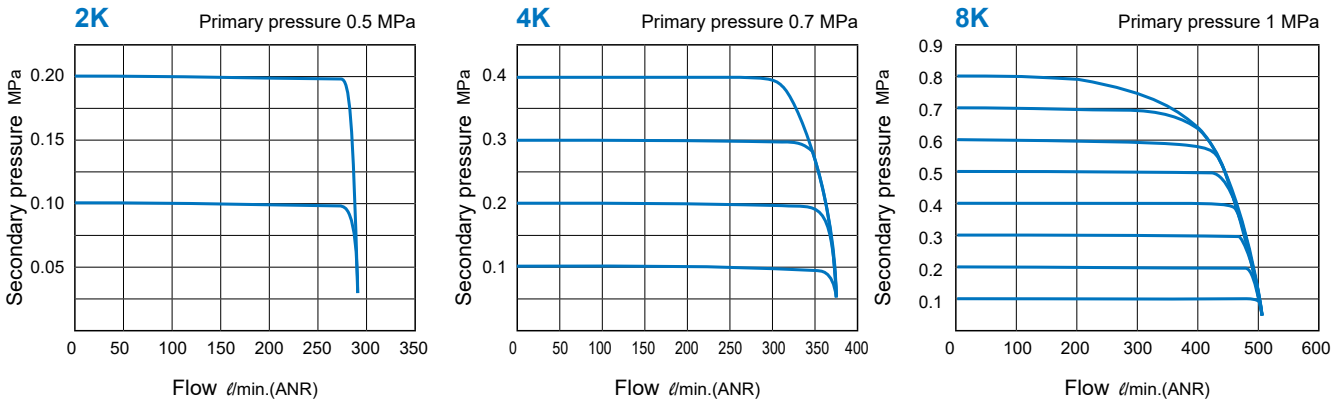




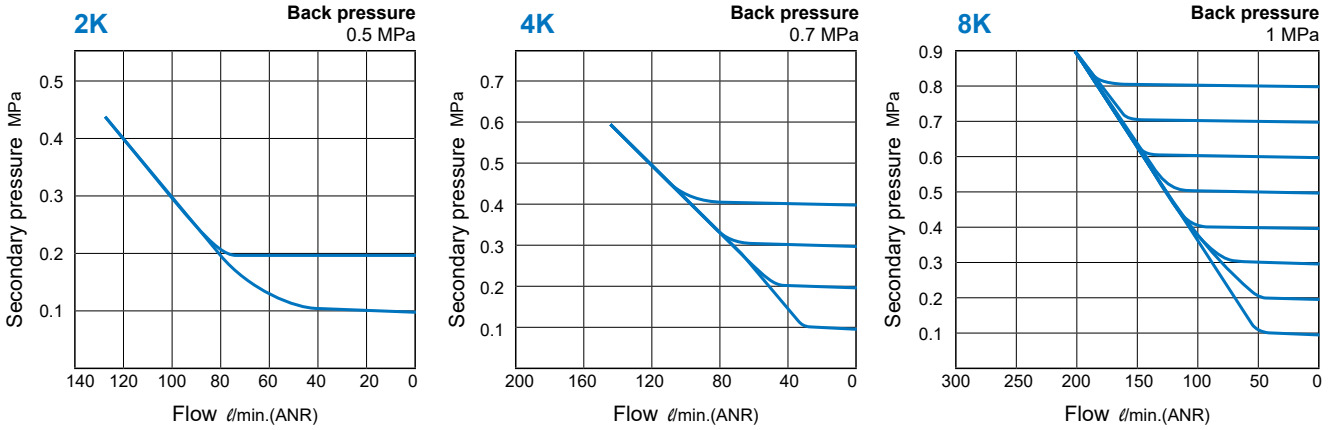




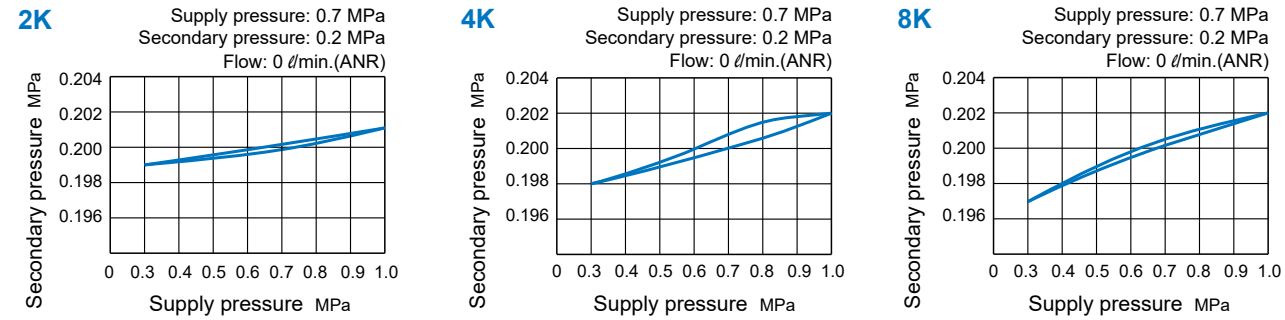
Flow feature



Relief characteristics



Pressure characteristics



MAIR200 series

AIR UNIT (PRECISION REGULATOR)

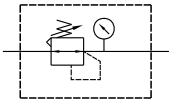
Features

Selection table

Caution for safety
(Read before installing)



Symbol



Specification

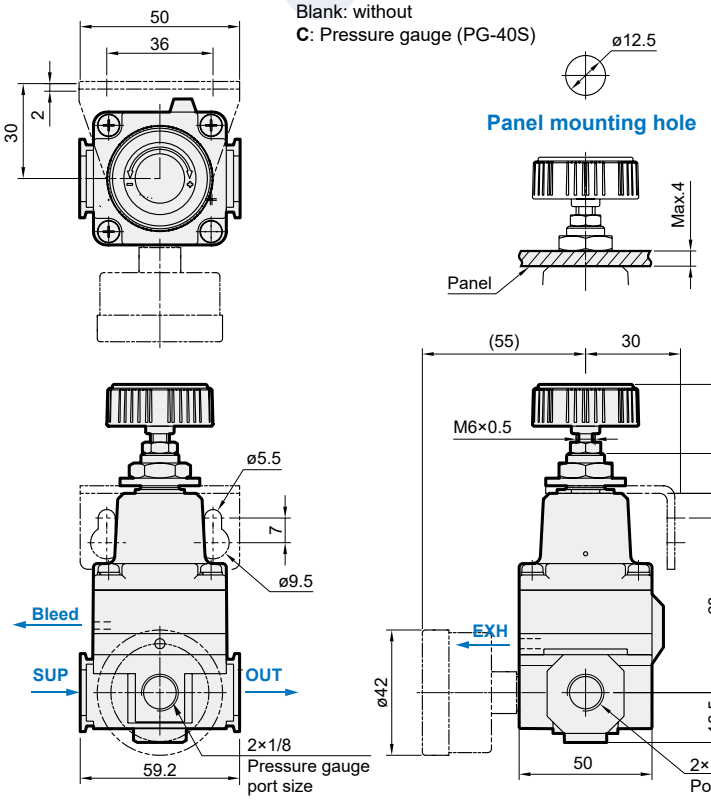
Model		MAIR200
Bore No.		8A
Port size		1/4
Medium		Air
Max. operating pressure		1 MPa
Min. operating pressure		Setting pressure+0.05 MPa
Proof pressure		1.5 MPa
Regulated pressure range		2K: 0.005~0.2 MPa
		4K: 0.01~0.4 MPa
		8K: 0.01~0.8 MPa
Sensitivity		0.2% F.S.
Repeatability		±0.5% F.S.
Air consumption(*)		4.4 ℓ/min(ANR)
Ambient temperature		– 5~+60°C (No freezing)
Attachment	Standard	Bracket
	Optional	Pressure gauge (PG-40S)
Weight		300 g

* For supply pressure 1 MPa.
* Air is normally being discharged to the atmosphere from a bleed hole or an exhaust port.

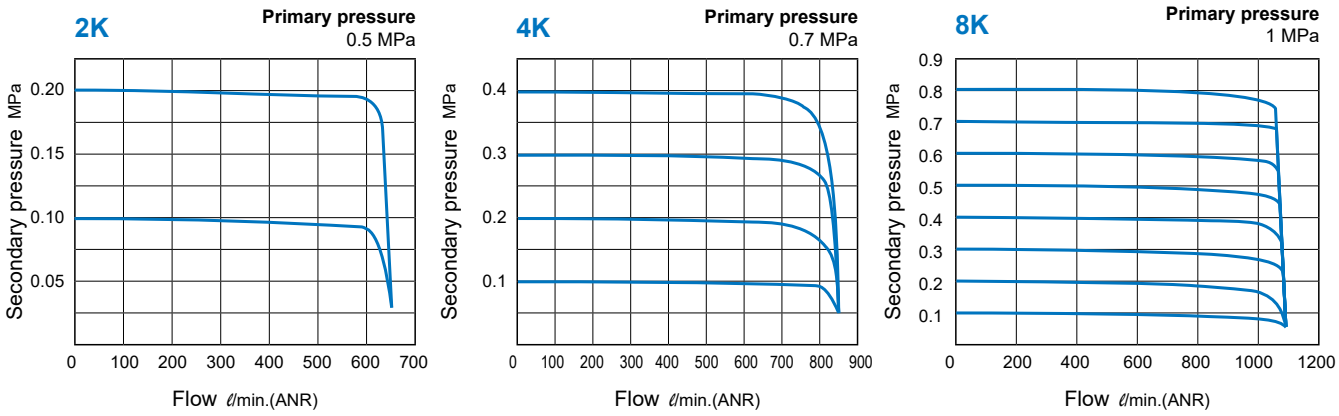
Order example

MAIR200 — 8A — 2K — C□ — □

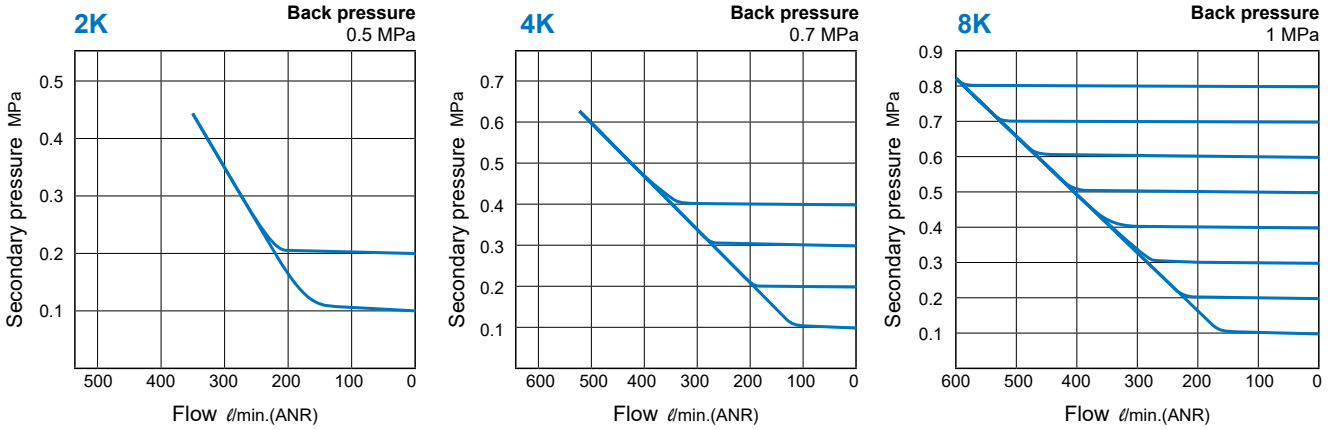
- MODEL
- PORT SIZE
  8A: 1/4
- ADJUSTABLE PRESS. RANGE
  2K: 0.005~0.2 MPa
  4K: 0.01~0.4 MPa
  8K: 0.01~0.8 MPa
- FLOW DIRECTION
  Blank: Left to right
  R: Right to left
- PRESSURE GAUGE
  Blank: without
  C: Pressure gauge (PG-40S)
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread



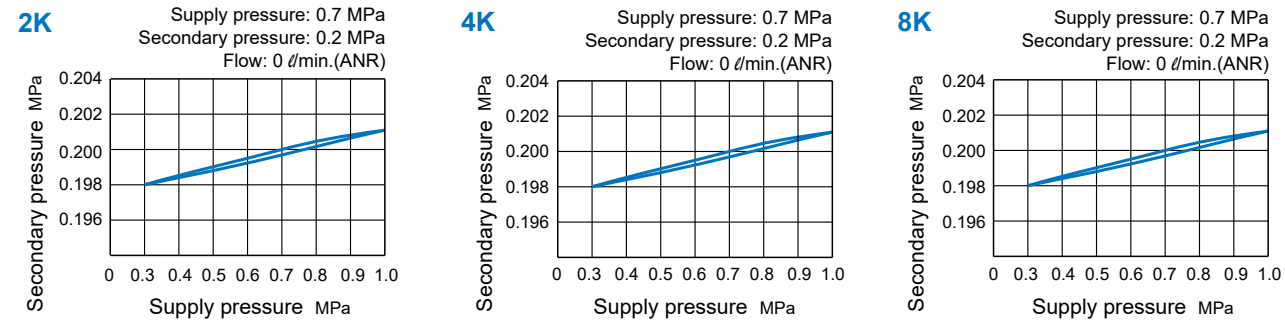
Flow feature



Relief characteristics



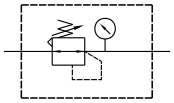
Pressure characteristics



Features
Selection table
Caution for safety
(Read before installing)



Symbol



Specification

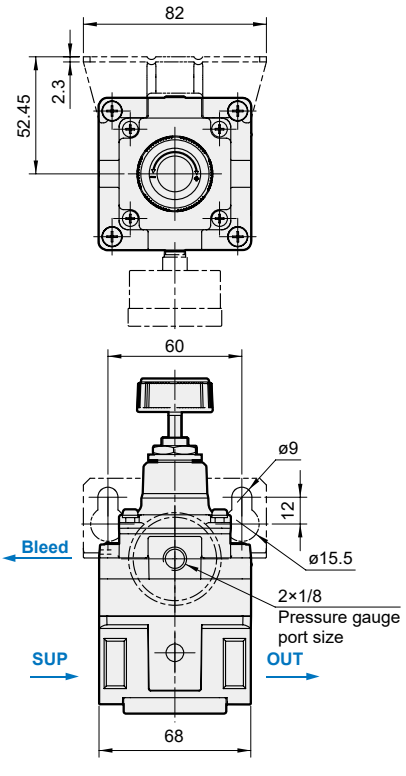
Model	MAIR300		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Min. operating pressure	Setting pressure +0.1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	2K: 0.005~0.2 MPa		
	4K: 0.01~0.4 MPa		
	8K: 0.01~0.8 MPa		
Sensitivity	0.2h% F.S.		
Repeatability	±0.5% F.S.		
Air consumption (*)	11.5 ℓ/min(ANR)		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment — Standard	Bracket		
Attachment — Optional	Pressure gauge (PG-40S)		
Weight	875 g		

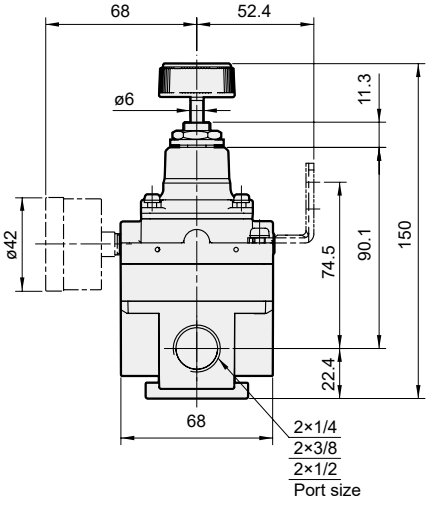
* For supply pressure 1 MPa.
* Air is normally being discharged to the atmosphere from a bleed hole or an exhaust port.

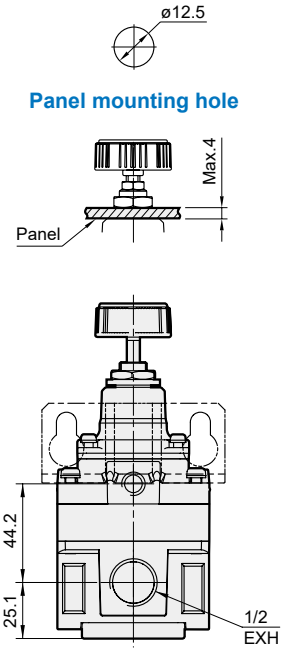
Order example

MAIR300 — 8A — 2K — C□ — □

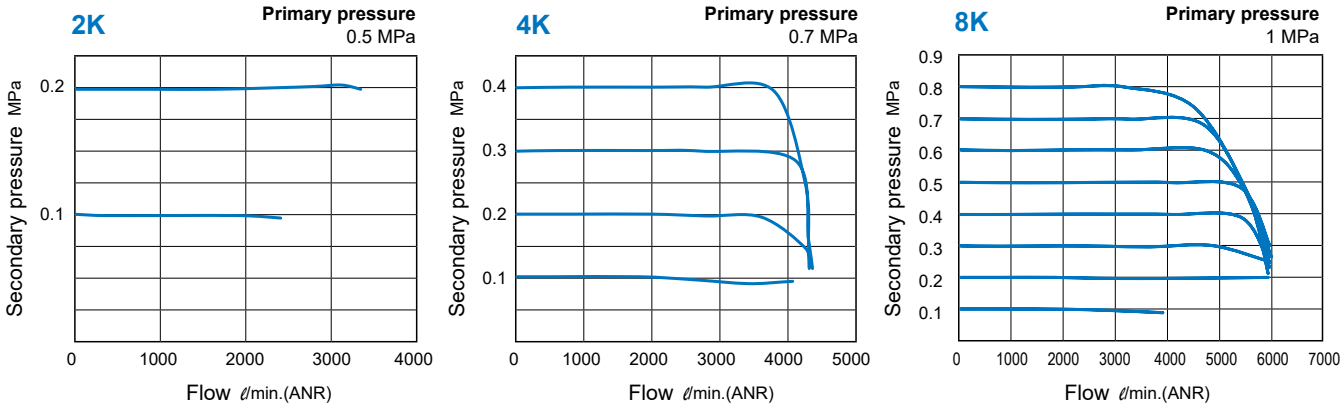
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- ADJUSTABLE PRESS. RANGE
  - **2K**: 0.005~0.2 MPa
  - **4K**: 0.01~0.4 MPa
  - **8K**: 0.01~0.8 MPa
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- PRESSURE GAUGE
  - Blank: without
  - **C**: Pressure gauge (PG-40S)
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread



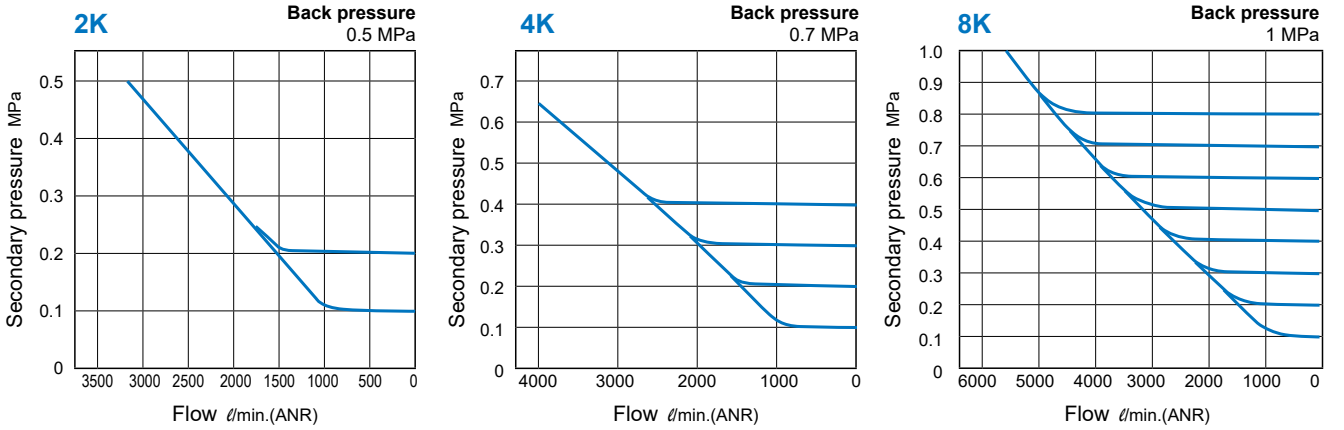




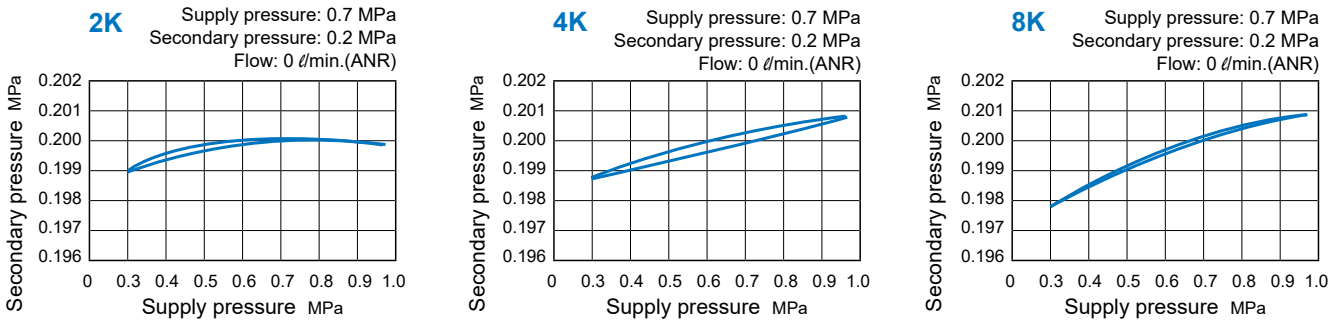
Flow feature



Relief characteristics



Pressure characteristics



MAL200 series

AIR UNIT (L.UNIT)

Technical data

User manual

Caution for safety
(Read before installing)



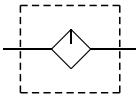
MAL200L



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 cm^3 , 35 cm^3 (MAL200L)	
Min. Flow for oil drip	35 ℓ/min	50 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Optional attachment	Bracket	
Weight	150 g, 130 g (MAL200L)	

Symbol



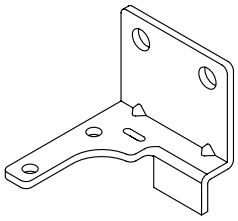
Order example

MAL200L — 6A — □□ – B — □

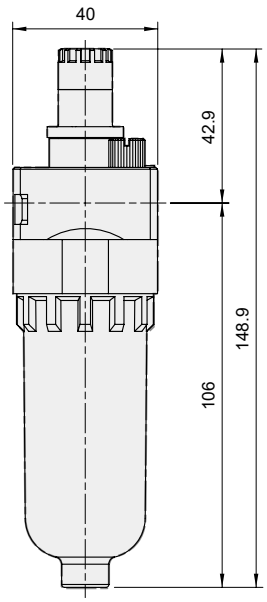
- MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- BOWL
  - Blank: PC bowl
  - **M**: Metal bowl*
  - **N**: Nylon bowl
  - * Only for 200L.
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- BRACKET
  - Blank: without
  - **B**: with bracket*
  - * Made to order, please contact us.
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Optional

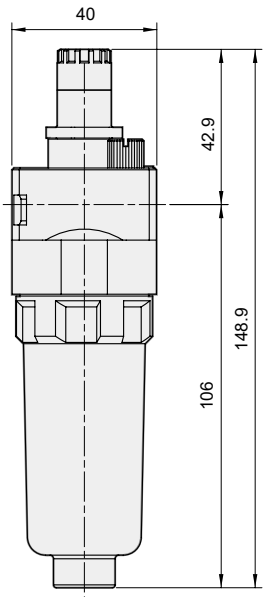
Bracket

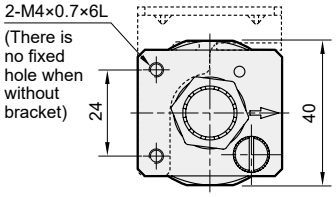


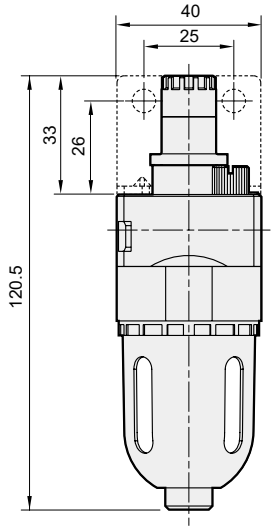
MAL200L
PC / Nylon bowl

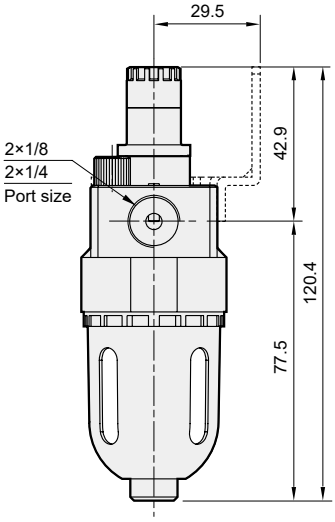


MAL200L-M
Metal bowl









MAL302 series

AIR UNIT (L.UNIT)

Technical data

User manual

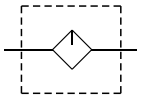
Caution for safety
(Read before installing)





Option: **MLF300**

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 cm^3		
Min. Flow for oil drip	50 ℓ/min	60 ℓ/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Optional attachment	C type bracket		
Weight	345 g		

Order example

MAL302 – 8A – □□□ – B – □

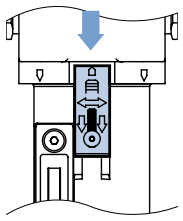
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- BOWL: Blank: PC bowl, **M**: Metal bowl, **N**: Nylon bowl
- FLOAT SWITCH: Blank: without, **F**: with (MLF300)
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- BRACKET: Blank: without, **B**: C type bracket
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Caution

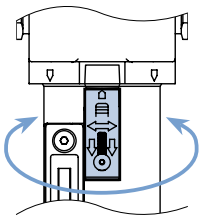
Metal bowl

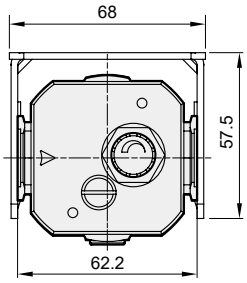
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1.Sliding plate down



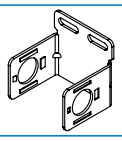
2. Rotating the bowl

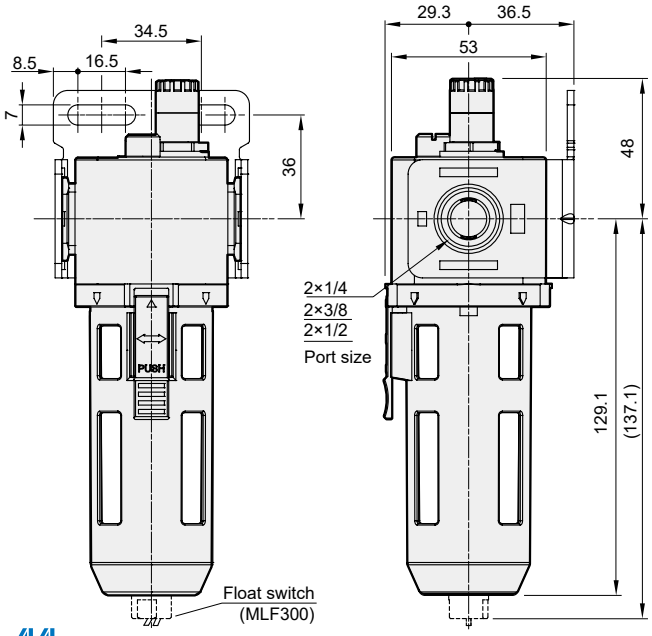




Option accessories

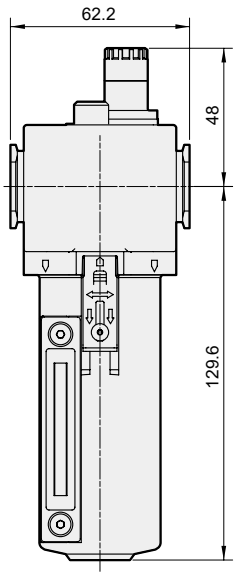
C type bracket





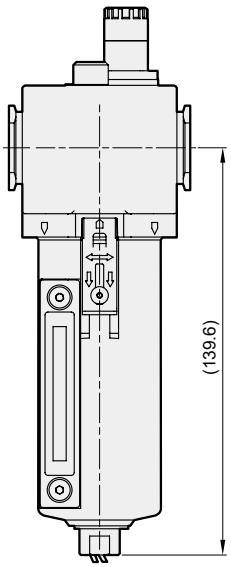
MAL302-M

Metal bowl



MAL302-MF

Metal bowl + Float switch



MAL400 series

AIR UNIT (L.UNIT)

Technical data

User manual

Caution for safety
(Read before installing)

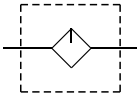


Specification

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 cm^3		
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		
Optional attachment	L type bracket		
Weight	600 g		

* Flow is at pressure P=0.7 MPa with pressure drop △ P=0.03 MPa. (ANR)

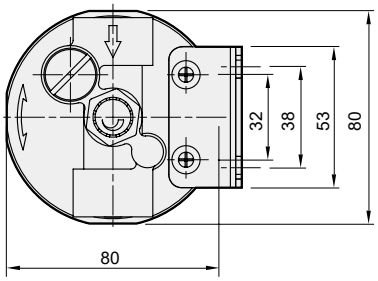
Symbol

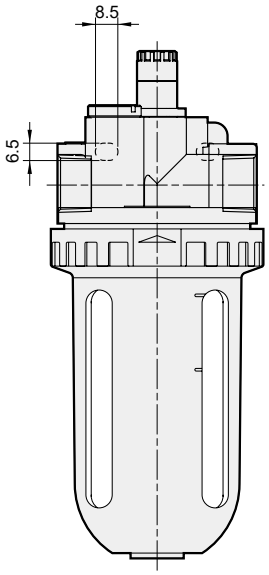


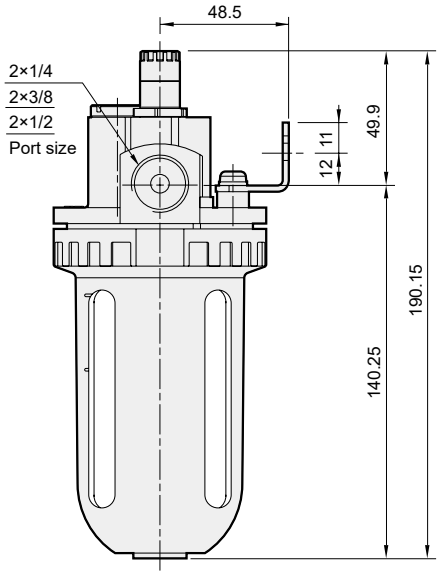
Order example

MAL400 – 8A – □□ – B – □

- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- BRACKET
  - Blank: Without
  - **B**: With bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread







MAL401 series

AIR UNIT (L.UNIT)

Technical data

User manual

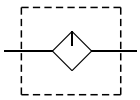
Caution for safety
(Read before installing)





Option: **MLF400**

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 cm^3		
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		
Optional attachment	C type bracket		
Weight	545 g		

* Flow is at pressure P=0.7 MPa with pressure drop Δ P=0.03 MPa. (ANR)

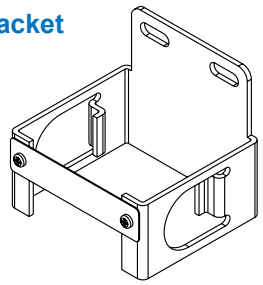
Order example

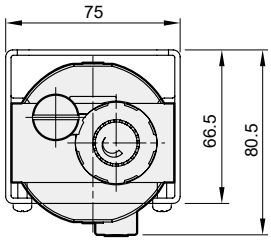
MAL401 – 8A – □ – □□ – B – □

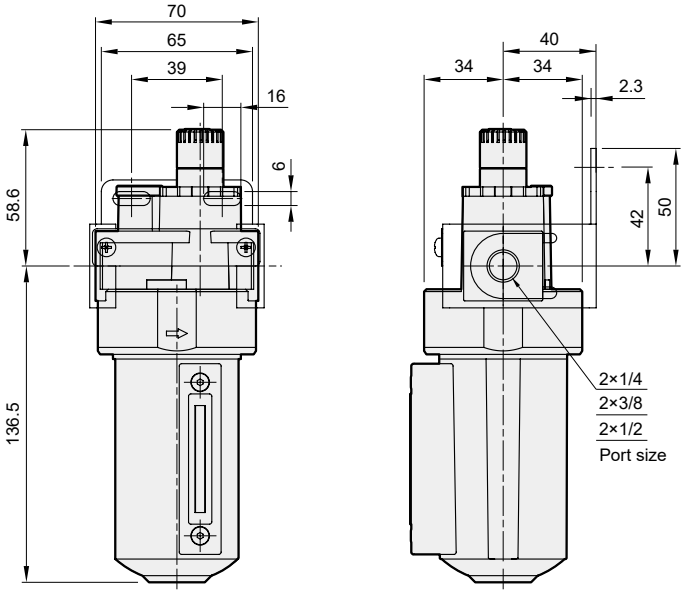
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- EXTERIOR COLOR
  - Blank: Black & silver
  - **W**: Gray & white
- FLOAT SWITCH
  - Blank: without
  - **F**: with (MLF400)
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- BRACKET
  - Blank: Without
  - **B**: C type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Optional

C type bracket

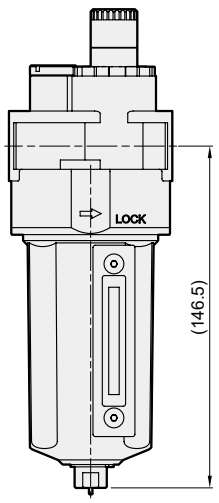






MAL401-F

Float switch



MAL403 series

AIR UNIT (L.UNIT)

Technical data

User manual

Caution for safety
(Read before installing)



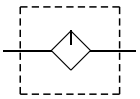


Option: **MLF400**

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 cm^3		
Min. Flow for oil drip	30 ℓ/min	65 ℓ/min	80 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Optional attachment	C type bracket		
Weight	410 g		

Symbol



Order example

MAL403 – 8A – □□□ – B – □

MODEL

PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

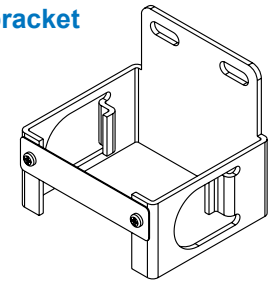
BRACKET
Blank: without
B: C type bracket

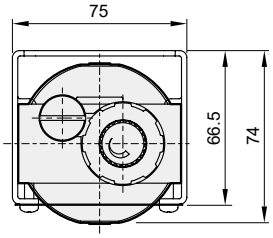
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

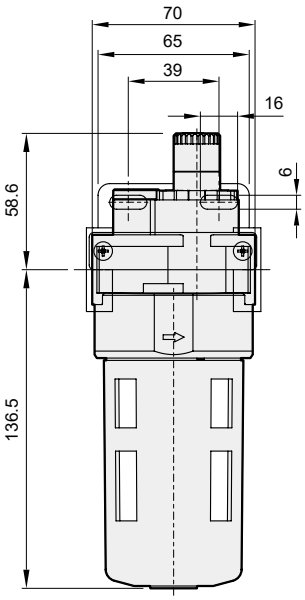
Bowl	Float switch	Flow direction
Blank: PC bowl **N**: Nylon bowl	Blank: without **F**: with (MLF400)	Blank: Left to right **R**: Right to left

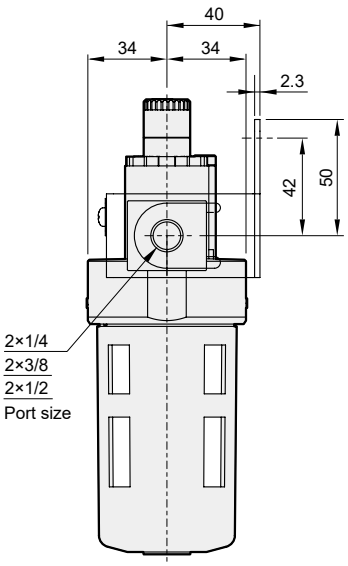
Optional

C type bracket



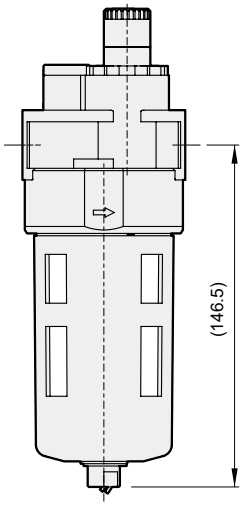






MAL403-F

Float switch



MAL501 series

AIR UNIT (L.UNIT)

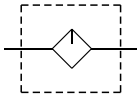
Technical data

User manual

Caution for safety
(Read before installing)



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 cm^3	
Min. Flow for oil drip	25 ℓ/min	33 ℓ/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Optional attachment	L type bracket	
Weight	PC, Nylon bowl: 1260 g	
	Metal bowl: 1380 g	

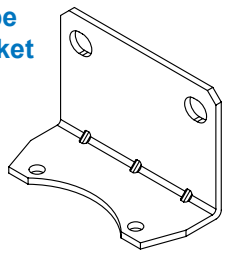
Order example

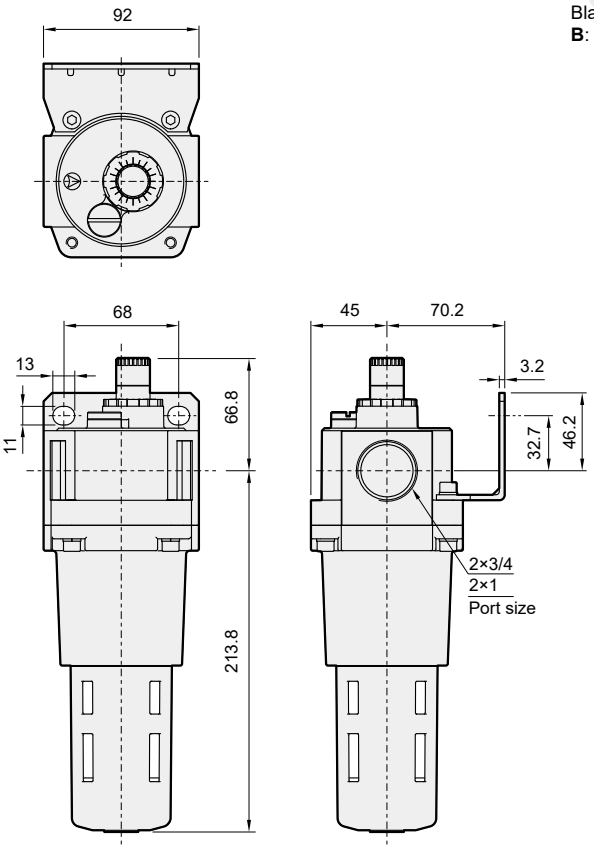
MAL501 – 20A – □□ – B – □

- MODEL
- PORT SIZE
  - **20A**: 3/4
  - **25A**: 1
- BOWL
  - Blank: PC bowl
  - **N**: Nylon bowl
  - **M**: Metal bowl
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- BRACKET
  - Blank: without
  - **B**: L type bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

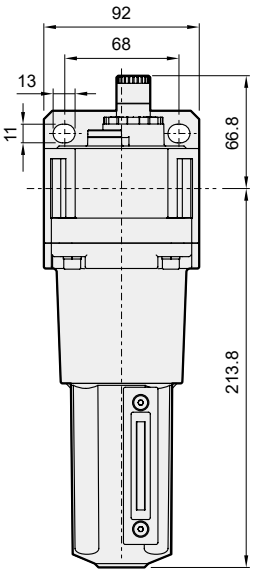
Optional

L type bracket



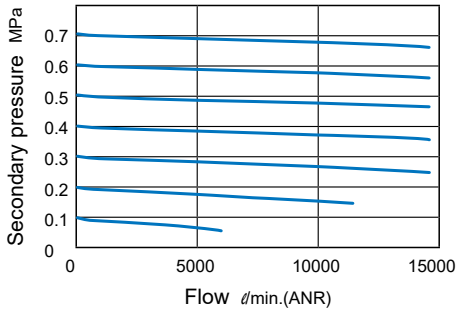


MAL501-M
Metal bowl

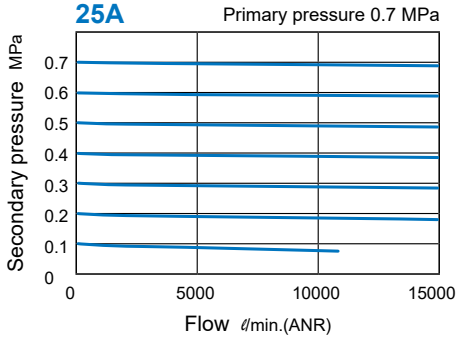


Flow feature

20A Primary pressure 0.7 MPa



25A Primary pressure 0.7 MPa



MAL900 series

AIR UNIT (L.UNIT)

Technical data

User manual

Caution for safety
(Read before installing)



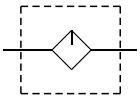
- MAL900 is useful to lubricate air tools, cylinders, valves, air motors and other air driven devices.

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 cm^3
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.

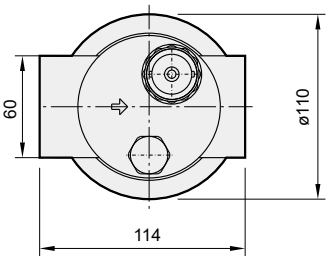
Symbol

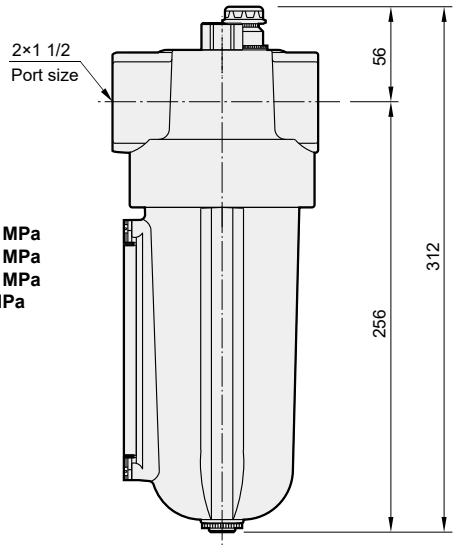


Order example

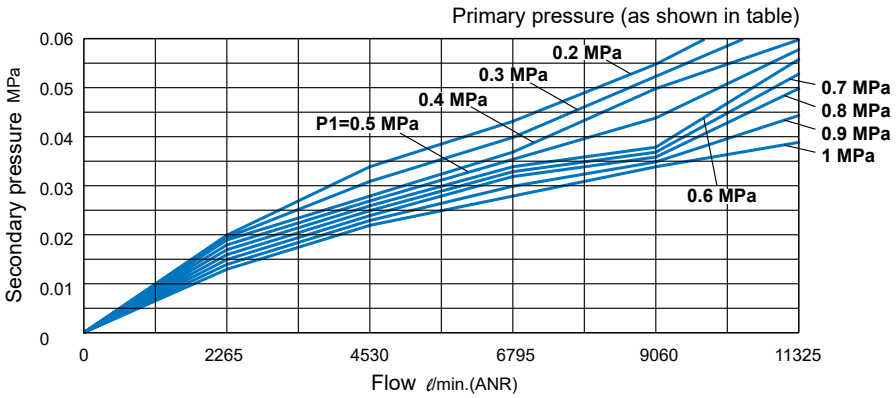
MAL900 — 40A — □

- MODEL
- PORT SIZE
  40A: 1 1/2
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread





Flow feature



MLF series

FLOAT SWITCH (for L.UNIT)

Selection table

Caution for safety
(Read before installing)



Specification

Model		MLF300	MLF400
Actuation		Switch turns OFF when float rises (oil level detected), and turns ON when float lowers (no oil level detected)	
Medium		Turbine oil ISO-VG32 (specific gravity: above 0.85)	
Operating pressure	(MPa)	Max. 1	
Contact rating	(W)	Max. 10	
Switching voltage	(VDC)	Max. 90	Max. 200
Switching current	(A)	Max. 0.1	Max. 0.5
Electrical termination		Lead wire UL1007 22AWG / PVC wire	Lead wire UL1430 22AWG / PE wire
Weight	(g)	14.4	17.35

Model	Bowl set
MLF300	**BOWL-MAL302-MF1** **BOWL-MAL302-(N)(U)F1**
MLF400	**BOWL-MAL401(-W)-F1** **BOWL-MAL403-(N)(U)F1**

Order example

MLF300 – PP – M8 – 1M

Applicable lubricator	
300	MAL302-F MAL302-MF
400	MAL401-F MAL403-F

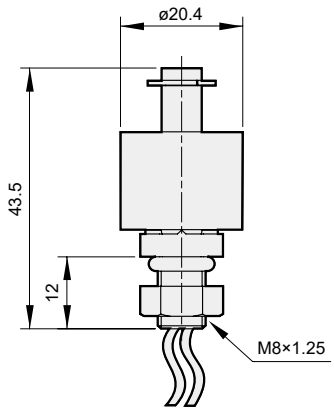
MATERIAL

THREAD SIZE

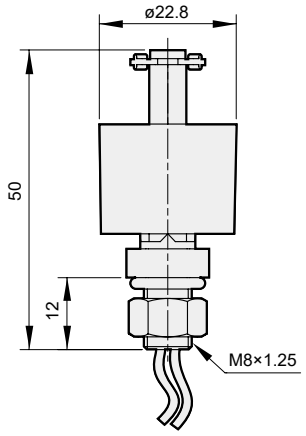
WIRE LENGTH
1M: 1000mm

* For MAL*-F series with "float switch" only.

MLF300



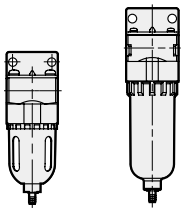
MLF400



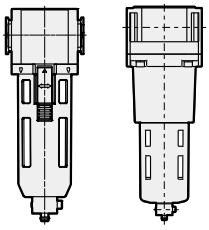
MA*200 / 302 / 401 / 501* series

AIR UNIT (AIR /MIST / MICRO MIST FILTER)

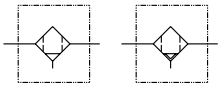
MAF200D/M MAF200LD/M



MAF302D/M MAF501D/M

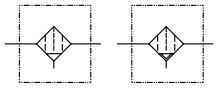


MAF200(L)D / MAF302D / MAF501D



Auto drain

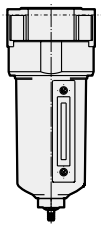
MAF200(L)M / MAF302M / MAF501M



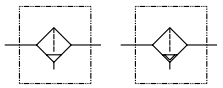
Auto drain

D	0.3 μm	Mist filter
M	0.01 μm	Micro mist filter

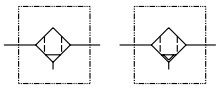
Model	Air filter 5 μm	Mist filter 0.3 μm	Micro mist filter 0.01 μm	Regulator
MAF200(L)D		●		
MAF200(L)M			●	
MAF302D		●		
MAF302M			●	
MAF501D		●		
MAF501M			●	
MAF401A	●			
MAF401D		●		
MAF401M			●	
MAFF401AD	●	●		
MAFF401DM		●	●	
MAFRF401	●	●		●
MATFR401	●	●	●	●



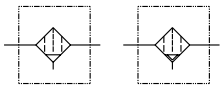
MAF401A / MAF401D / MAF401M



Auto drain

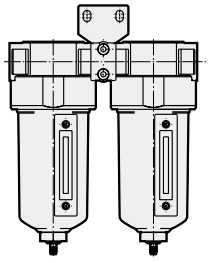


Auto drain

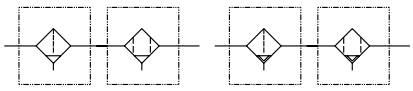


Auto drain

A	5 μm	Air filter
D	0.3 μm	Mist filter
M	0.01 μm	Micro mist filter

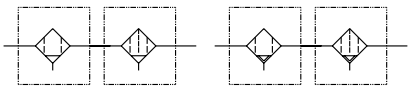


MAFF401AD



Auto drain

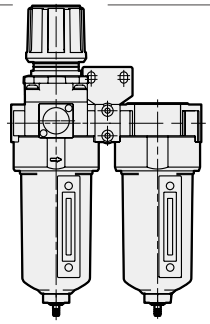
MAFF401DM



Auto drain

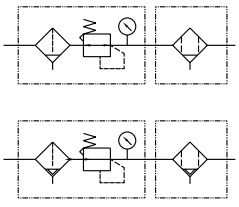
AD	5 μm	+	0.3 μm	Air filter + Mist filter
DM	0.3 μm	+	0.01 μm	Mist filter + Micro mist filter

Regulator



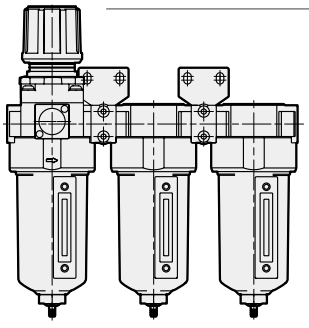
Air filter 5 μm + Mist filter 0.3 μm

MAFRF401



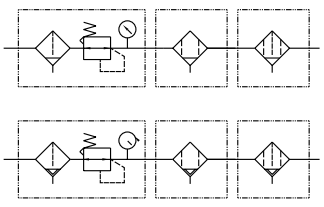
Auto drain

Regulator



Air filter 5 μm + Mist filter 0.3 μm + Micro mist filter 0.01 μm

MATFR401



Auto drain

MAF200 D / M series

AIR UNIT (MIST / MICRO MIST FILTER)

Selection table

Precision filter

User manual

Caution for safety
(Read before installing)



MAF200L

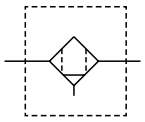


Specification

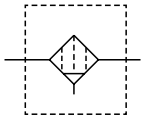
Model	MAF200D/M	
Bore No.	6A	8A
Port size	1/8	1/4
Medium	Air	
Operating perssure range (*1,2)	0.05~1 MPa, 0.15~1 MPa (MAF200L*-D)	
Proof pressure	1.5 MPa	
Ambient temperature	– 5~+60°C (No freezing)	
Filter element	0.3μm, 0.01μm	
Drain capacity	6.5 cm^3, 20 cm^3 (MAF200L), 14 cm^3 (MAF200L*-D)	
Optional attachment	L type bracket	
Weight	187 g, 155 g (MAF200L)	

*1. Semi-auto drain (N.O. type): The drain port automatically discharges accumulated water when pressure is below 0.05 MPa.
*2. Auto drain (N.C. type): Residual water remaining in the bowl after air shut-off or drainage is normal.
*3 Poor air quality may cause product malfunction. Installing an upstream pre-filter (e.g., 40 μm) is recommended.
*4. Bowls for semi-auto drain and auto drain valve (D) are not interchangeable.

Symbol



D: 0.3μm



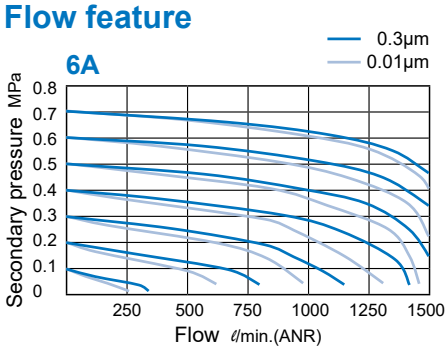
M: 0.01μm

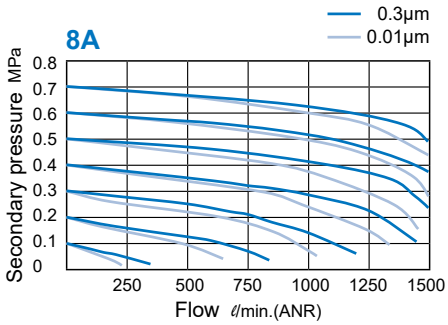
Order example

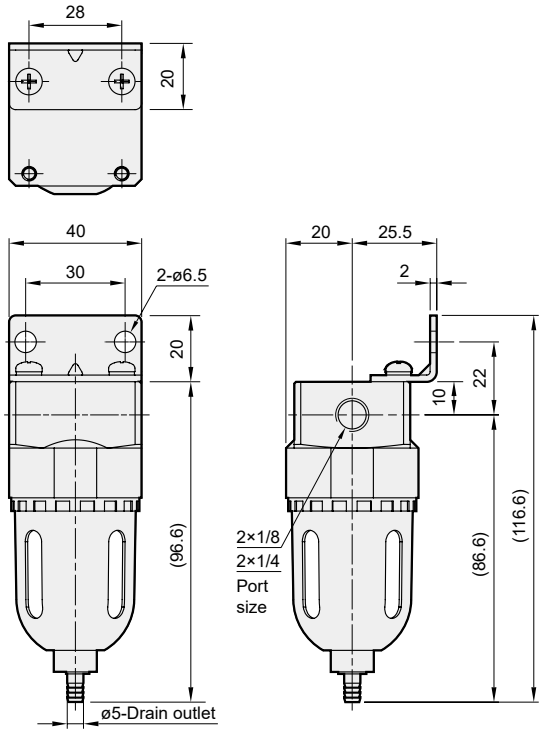
MAF200L D — 6A — □□□ — B — □

- MODEL
  - Blank: Standard type
  - **L**: Longer case, no case guard
- FILTER ELEMENT
  - **D**: 0.3μm
  - **M**: 0.01μm
- PORT SIZE
  - **6A**: 1/8
  - **8A**: 1/4
- BOWL
  - Blank: PC bowl
  - **M**: Metal bowl (*)
  - **N**: Nylon bowl
  - * Only for 200L.
- FLOW DIRECTION
  - Blank: Left to right
  - **R**: Right to left
- DRAIN VALVE
  - Blank: Semi-auto drain
  - **D**: Auto drain valve (MADV201)(**)
  - **Only for 200L PC bowl.
- BRACKET
  - Blank: without
  - **B**: with bracket
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Flow feature

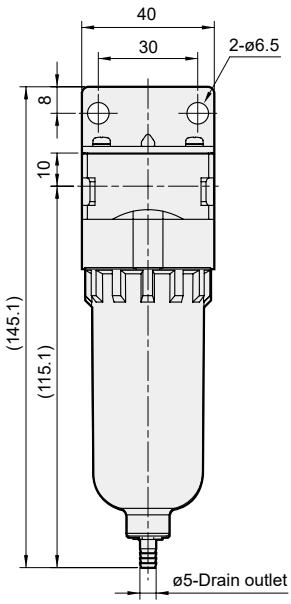






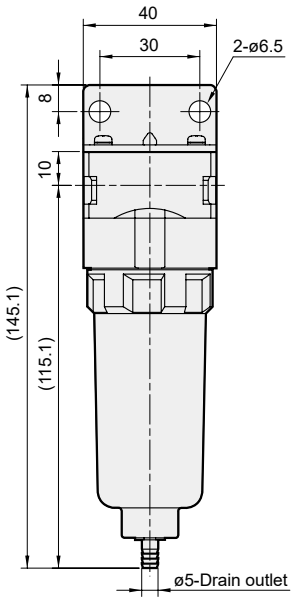
MAF200L*-□

PC / Nylon bowl



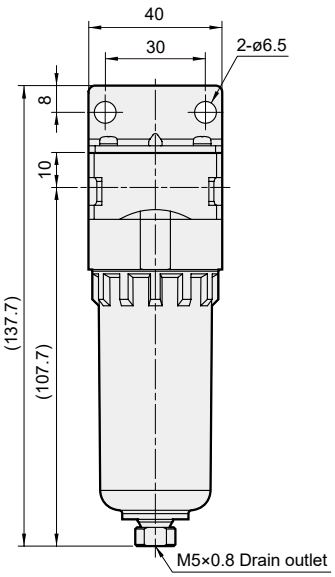
MAF200L*-M

Metal bowl



MAF200L*-D

PC bowl + Auto drain valve



MAF302 D / M series

AIR UNIT (MIST / MICRO MIST FILTER)

mindman

Selection table

Precision filter

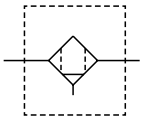
User manual

Caution for safety
(Read before installing)

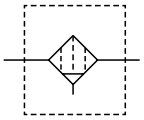


- MA302D is designed for removal of foreign matter as well as oil mist (Element: 0.3μm)
- MA302M is designed for removal of foreign matter as well as oil mist (Element: 0.01μm)

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		
Optional attachment	C type bracket		
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.

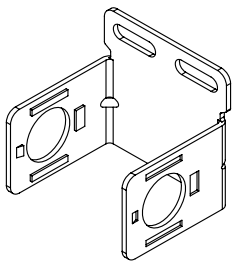
Order example

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
- DRAIN VALVE
  Blank: Semi-auto
  D: Auto (FMRF300)
- FLOW DIRECTION
  Blank: Left to right
  R: Right to left
- BRACKET
  Blank: without
  B: C type
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

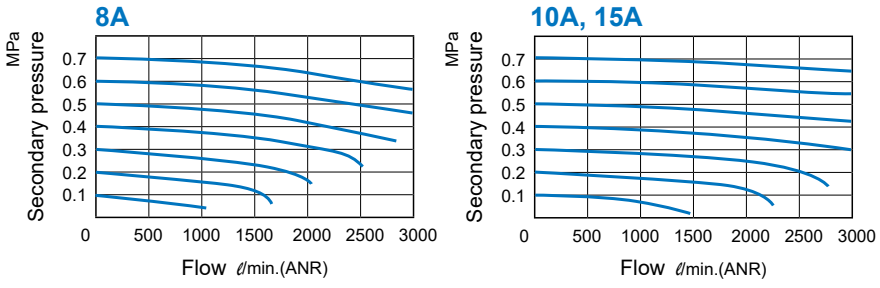
Optional

C type bracket

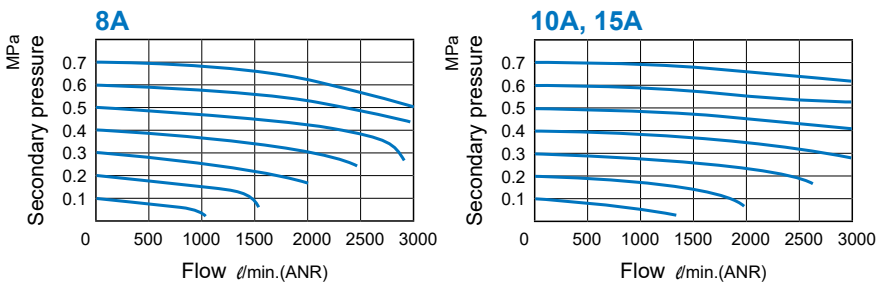


Flow feature

MAF302D (Filter element: 0.3 μm)



MAF302M (Filter element: 0.01 μm)

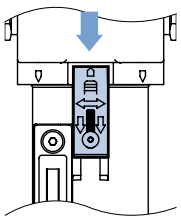


Caution

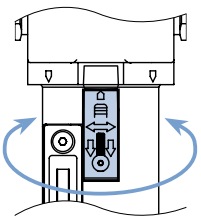
Metal bowl

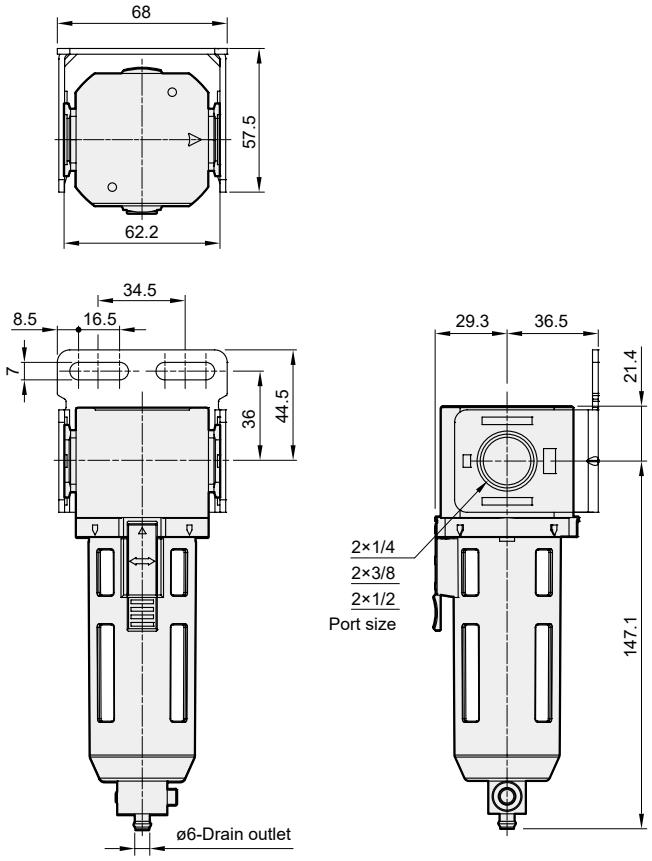
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1.Sliding plate down



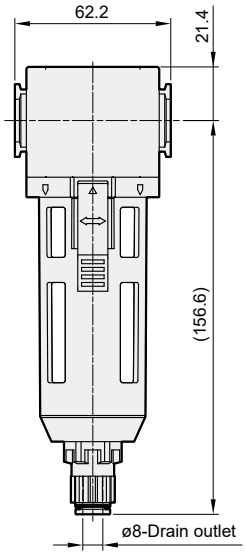
2. Rotating the bowl





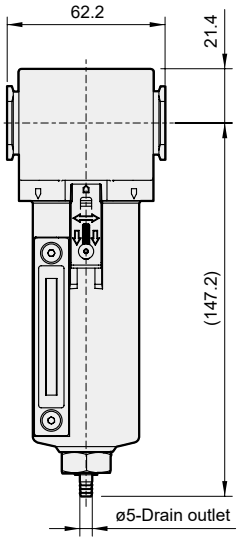
MAF302D/M-D

Auto drain valve



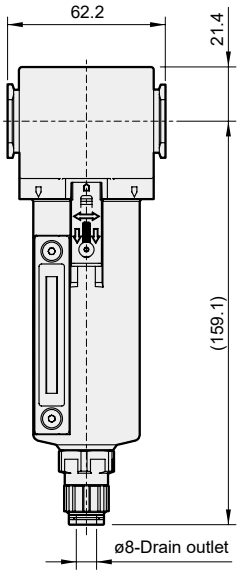
MAF302D/M-M

Metal bowl



MAF302D/M-MD

Metal bowl + Auto drain valve



MAF401 A / D / M series

AIR UNIT (AIR / MIST / MICRO MIST FILTER)

mindman

Selection table

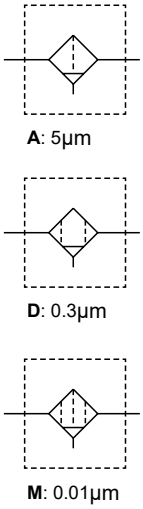
Precision filter

User manual

Caution for safety
(Read before installing)



Symbol



- 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		
Optional attachment	C type bracket		
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.

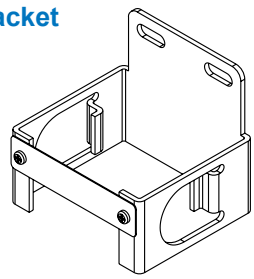
Order example

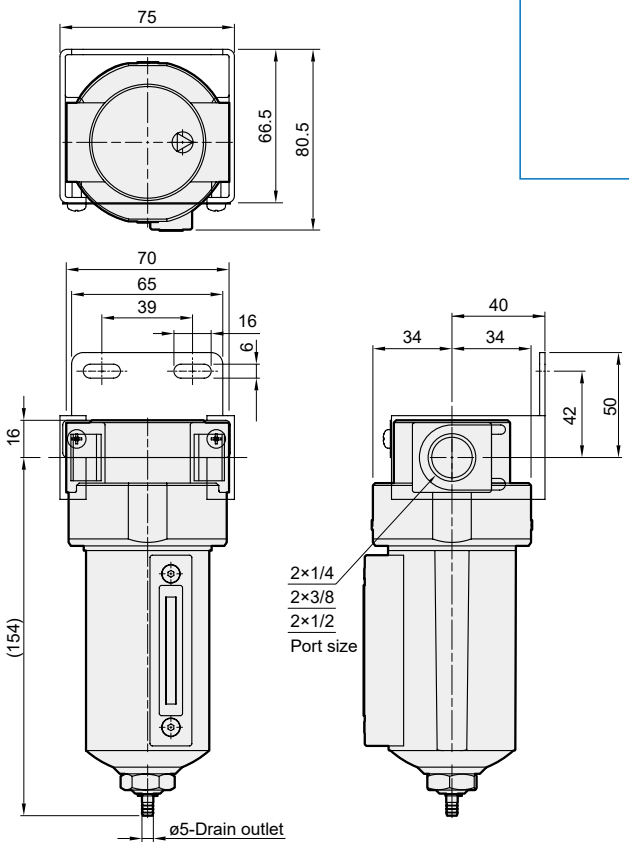
MAF401D – 8A – □ – D□ – B – □

- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- BRACKET: Blank: without, **B**: C type
- FILTER ELEMENT: **A**: 5 μm, **D**: 0.3 μm, **M**: 0.01 μm
- EXTERIOR COLOR: Blank: Black & silver, **W**: Gray & white
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Optional

C type bracket

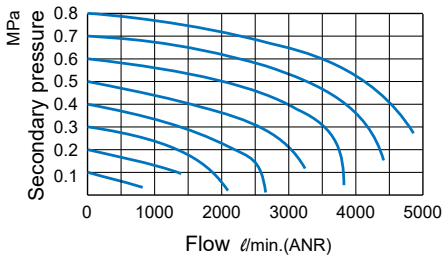




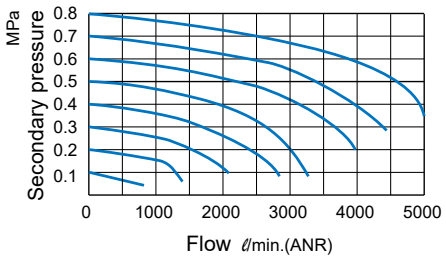
Flow feature

MAF401A (Filter element: 5 μm)

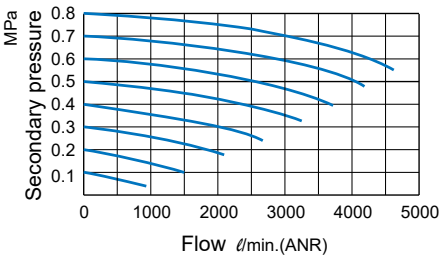
8A



10A

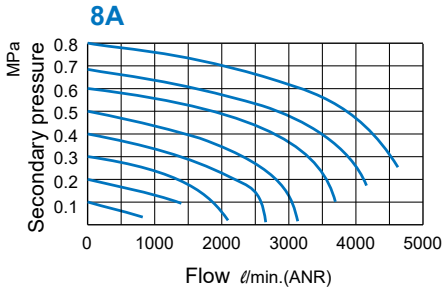


15A

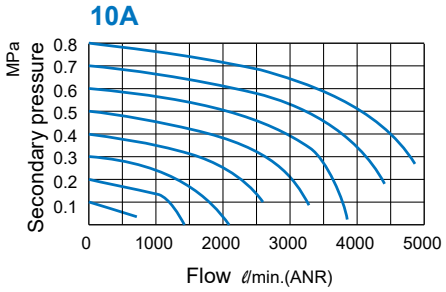


MAF401D (Filter element: 0.3 μm)

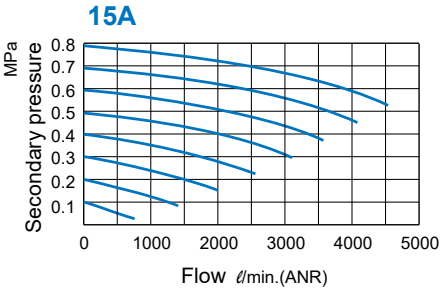
8A



10A

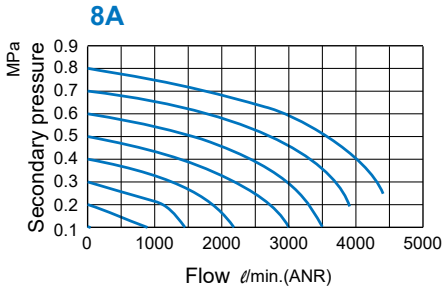


15A

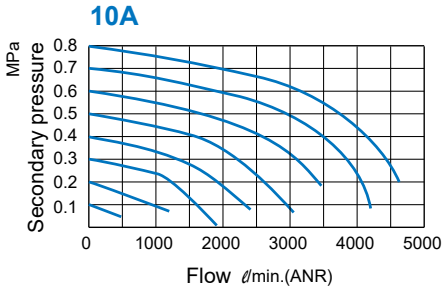


MAF401M (Filter element: 0.01 μm)

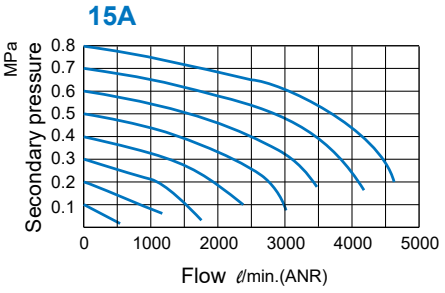
8A



10A



15A



MAFF401 AD / DM series

AIR UNIT (AIR / MIST / MICRO MIST FILTER)

mindman

Selection table
Precision filter
User manual
Caution for safety
(Read before installing)



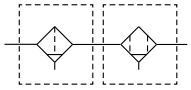
Specification

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	Standard	L type bracket	
	Optional	C type bracket	
Weight		1133 g	

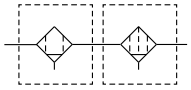
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Symbol

AD



DM



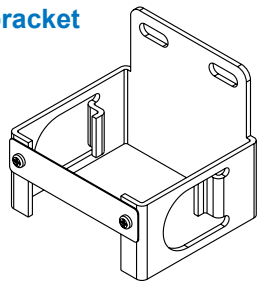
Order example

MAFF401AD – 8A – □ – D□ – B – □

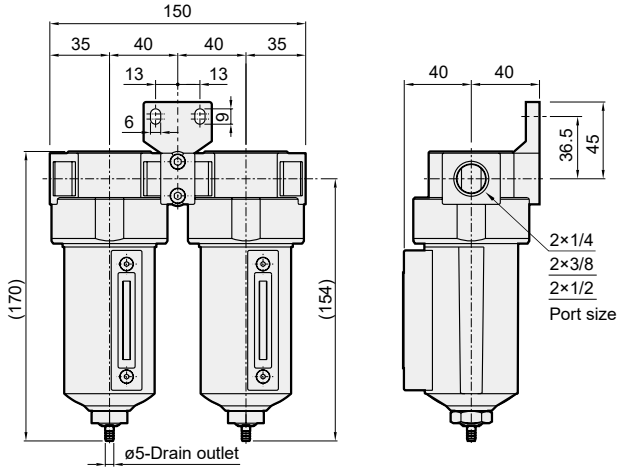
- MODEL
- PORT SIZE: **8A**: 1/4, **10A**: 3/8, **15A**: 1/2
- DRAIN VALVE: Blank: Semi-auto, **D**: Auto (FMRF300)
- BRACKET: Blank: L type, **B**: C type
- FILTER ELEMENT: **AD**: 5 μm+0.3 μm, **DM**: 0.3 μm+0.01 μm
- EXTERIOR COLOR: Blank: Black & silver, **W**: Gray & white
- FLOW DIRECTION: Blank: Left to right, **R**: Right to left
- PORT THREAD: Blank: Rc thread, **G**: G thread, **NPT**: NPT thread

Optional

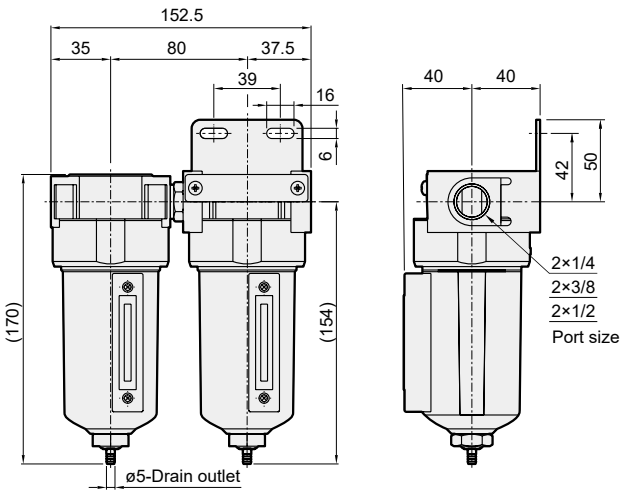
C type bracket



MAFF401** L type bracket



MAFF401**-B C type bracket



MAFRF401 series

AIR UNIT (F.R.UNIT)

Selection table

Precision filter

User manual

Caution for safety
(Read before installing)





Option: **MP41**

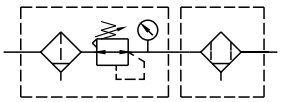
Specification

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	Standard	Pressure gauge (PG-20), L type bracket		
	Optional	C 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



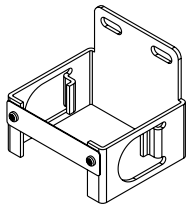
Order example

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
- PRESSURE SWITCH
  Blank: without
  E1: MP41P-022
  E2: MP41P-022-QD**
  E5: MP41P-042
  E6: MP41P-042-QD**
  ** MOQ required. Please contact us.
- BRACKET
  Blank: L type
  B: C type
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Optional

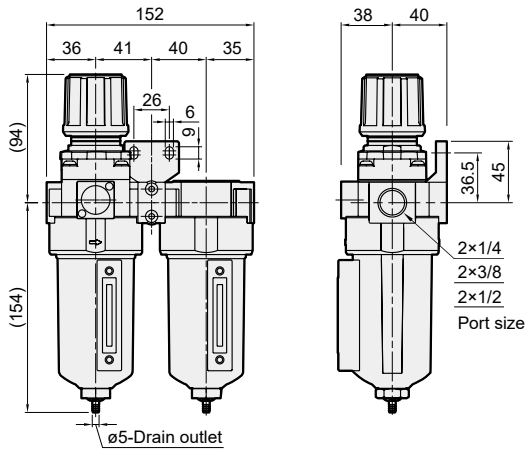
C type bracket



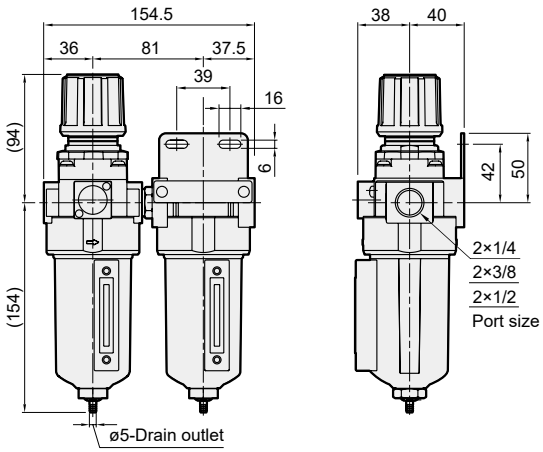
Type	Pressure gauge	Drain valve	Flow direction
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto **D**: Auto (FMRF300)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto	

* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).

MAFRF401AD L type bracket



MAFRF401AD-B C type bracket



MATFR401 series

AIR UNIT (F.R.UNIT)

mindman

Selection table

Precision filter

User manual

Caution for safety
(Read before installing)

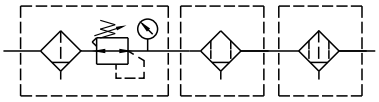


Specification

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	Standard	Pressure gauge (PG-20), L type bracket		
	Optional	C 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 – □

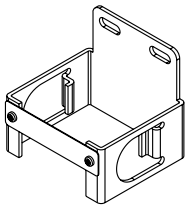
- MODEL
- PORT SIZE
  - **8A**: 1/4
  - **10A**: 3/8
  - **15A**: 1/2
- EXTERIOR COLOR
  - Blank: Black & silver
  - **W**: Gray & white
- PRESSURE SWITCH
  - Blank: without
  - **E1**: MP41P-022
  - **E2**: MP41P-022-QD**
  - **E5**: MP41P-042
  - **E6**: MP41P-042-QD**
  - ** MOQ required. Please contact us.
  - * Refer MP41 sereis
- BRACKET
  - Blank: L type
  - **B**: C type
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Type	Pressure gauge	Drain valve	Flow direction
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 **D**: Auto (FMRF300)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-MAR401) **A**: Gauge adapter set (A-MAR401)	Blank: Semi-auto	

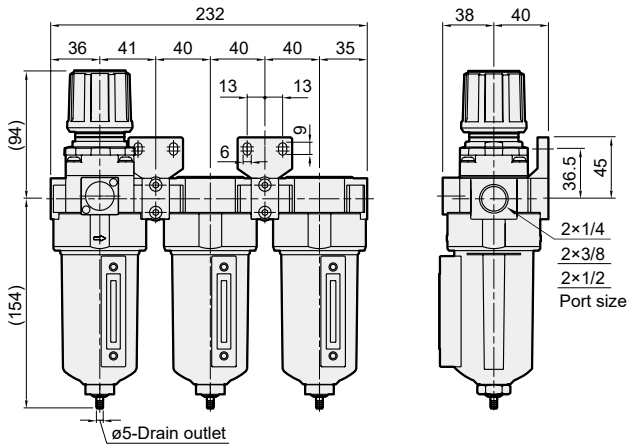
* PG-40 (C), A-MAR302 (A) and MP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A-MAR302).

Optional

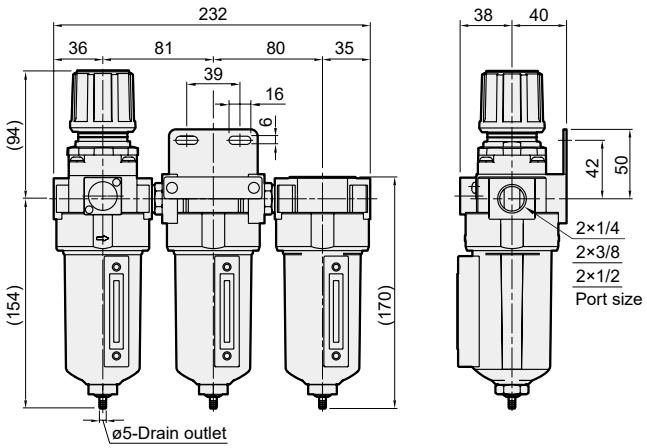
C type bracket



MATFR401 L type bracket



MATFR401-B C type bracket



MAF403 A / D / M series

AIR UNIT (AIR / MIST / MICRO MIST FILITER)

Selection table

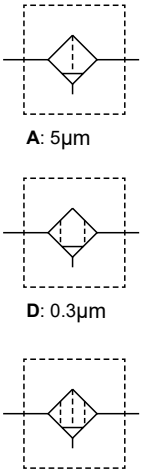
Precision filter

User manual

Caution for safety
(Read before installing)



Symbol



- MAF403A is designed for draining and removal of foreign matter. (Element: 5μm)
- MAF403D/M is designed for removal of foreign matter as well as oil mist (Element: 0.3μm / 0.01μm)

Specification

Model	MAF403A/D/M		
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	5 μm, 0.3 μm, 0.01 μm		
Drain capacity	75 cm^3		
Optional attachment	C type bracket		
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.

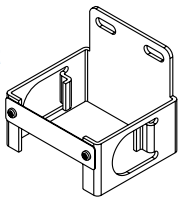
Order example

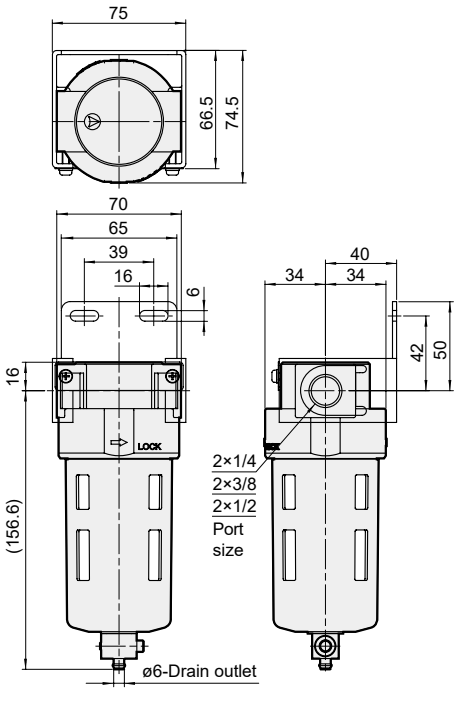
MAF403 D – 8A – ND□ – B – □

- MODEL
- FILTER ELEMENT
  A: 5 μm
  D: 0.3 μm
  M: 0.01 μm
- PORT SIZE
  8A: 1/4
  10A: 3/8
  15A: 1/2
- BOWL
  Blank: PC bowl
  N: Nylon bowl
- DRAIN VALVE
  Blank: Semi-auto
  D: Auto (FMRF300)
- FLOW DIRECTION
  Blank: Left to right
  R: Right to left
- BRACKET
  Blank: without
  B: C type
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

Optional

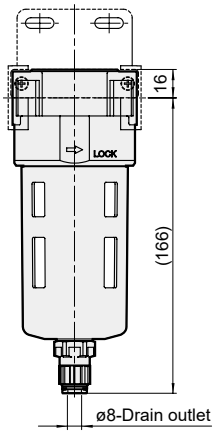
C type bracket





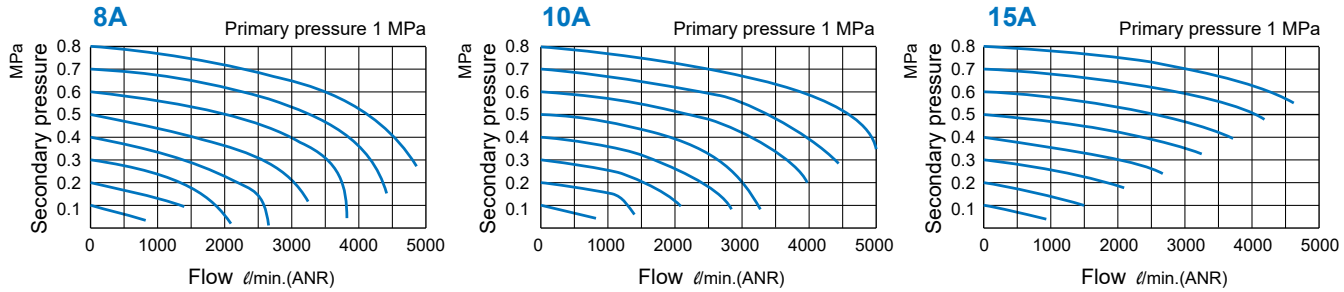
MAF403*-D

Auto drain valve

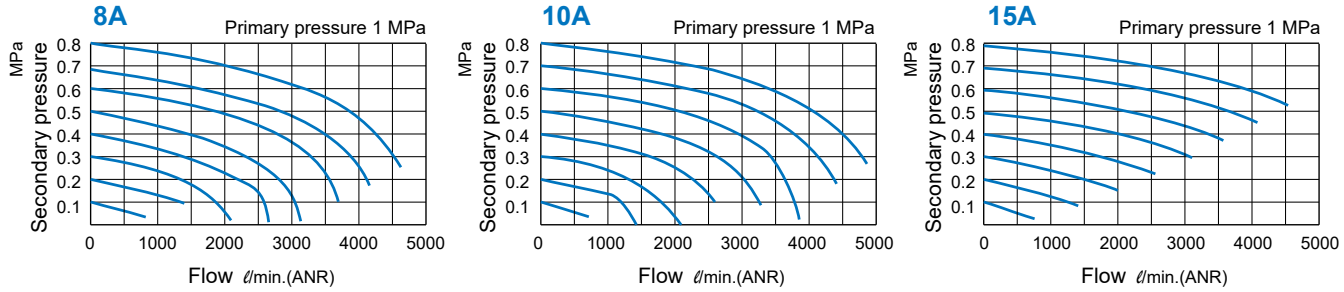


Flow feature

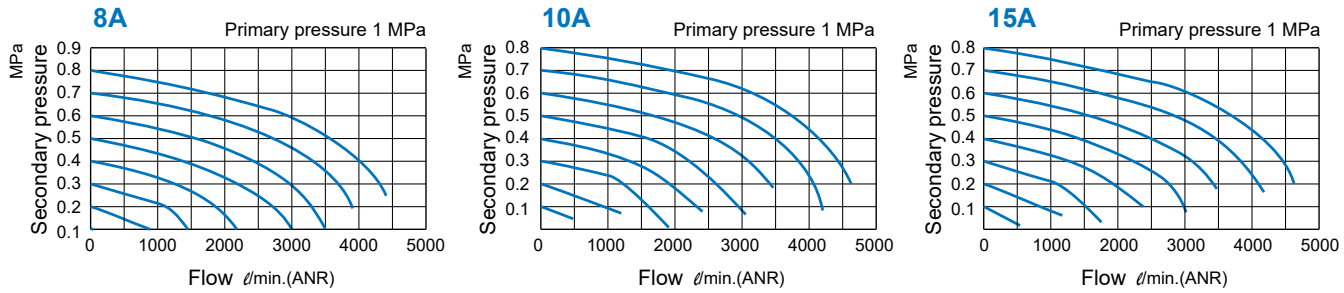
MAF403A (Filter element: 5 μm)



MAF403D (Filter element: 0.3 μm)



MAF403M (Filter element: 0.01 μm)



MAF501 D / M series

AIR UNIT (MIST / MICRO MIST FILTER)

Selection table

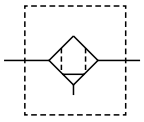
Precision filter

User manual

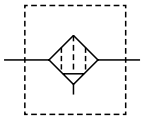
Caution for safety
(Read before installing)



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	
Optional attachment	L type bracket	
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.

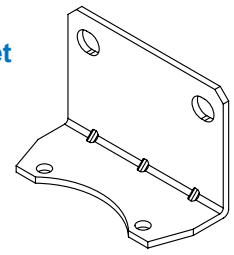
Order example

MAF501D – 20A – MD□ – B – □

- MODEL
- FILTER ELEMENT: **D**: 0.3 μm; **M**: 0.01 μm
- PORT SIZE: **20A**: 3/4; **25A**: 1
- BRACKET: Blank: without; **B**: L type
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread
- BOWL: Blank: PC bowl; **M**: Metal bowl; **N**: Nylon bowl
- DRAIN VALVE: Blank: Semi-auto; **D**: Auto (FMRF300)
- FLOW DIRECTION: Blank: Left to right; **R**: Right to left

Optional

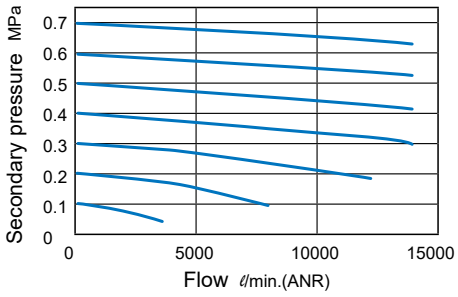
L type bracket



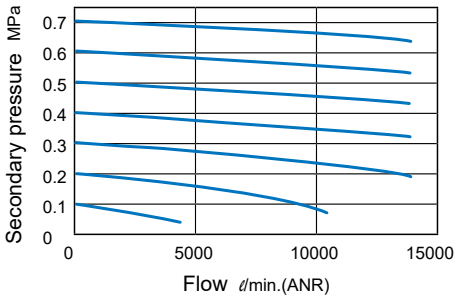
Flow feature

MAF501D (Filter element: 0.3 μm)

20A

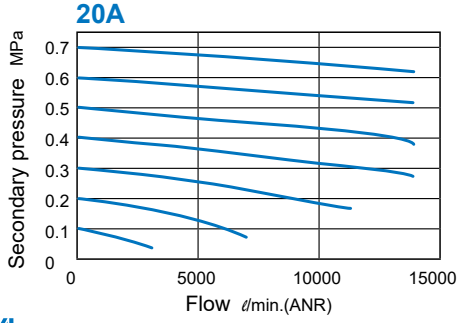


25A

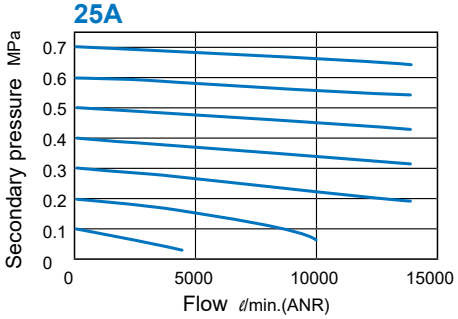


MAF501M (Filter element: 0.01 μm)

20A

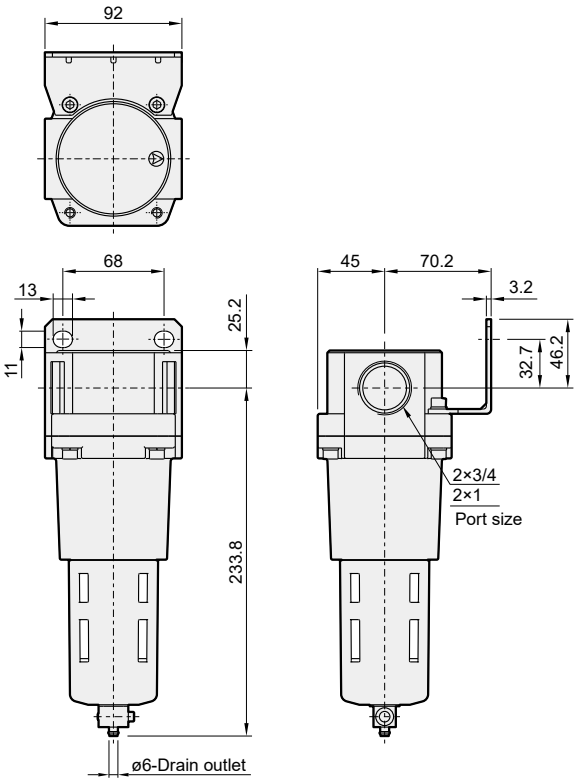


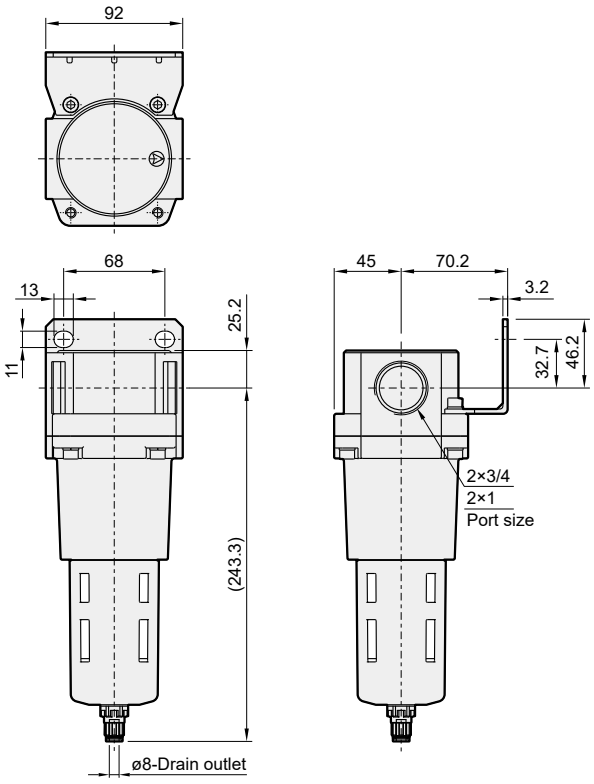
25A



MAF501D/M-D

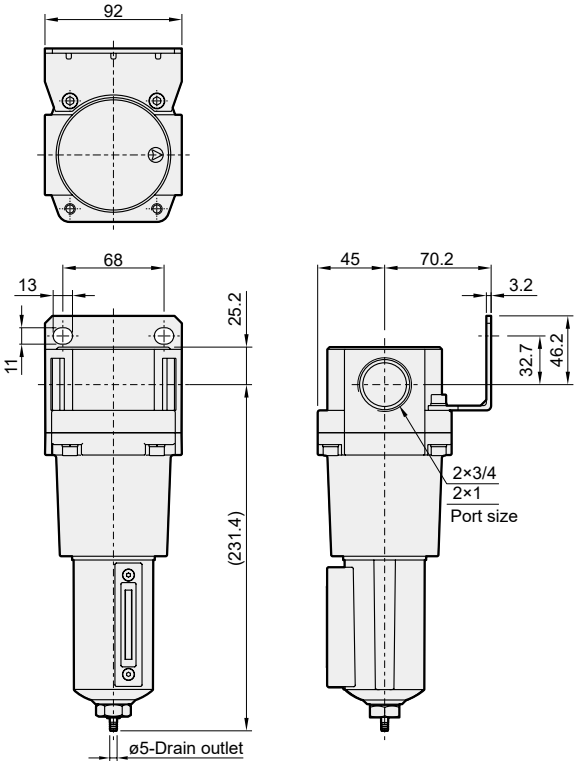
Auto drain valve





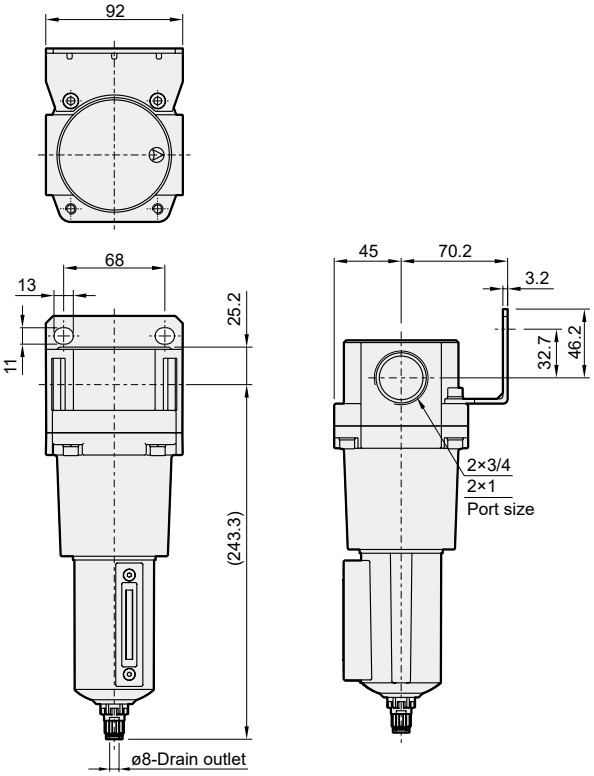
MAF501D/M-M

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.

* 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

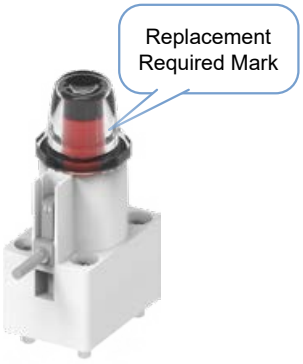
This product can't be operated in a location in which pulsations frequently occur.

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)



RDC(V), RQC(V)
Non-contact, NPN & PNP, N.O.
Operating voltage: 5~30V DC
Switching current: 80mA max.

* Refer to RDC series .

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	MAVS400
MAM*45 MAM*55	BS-MACP501	MA*501	–	–

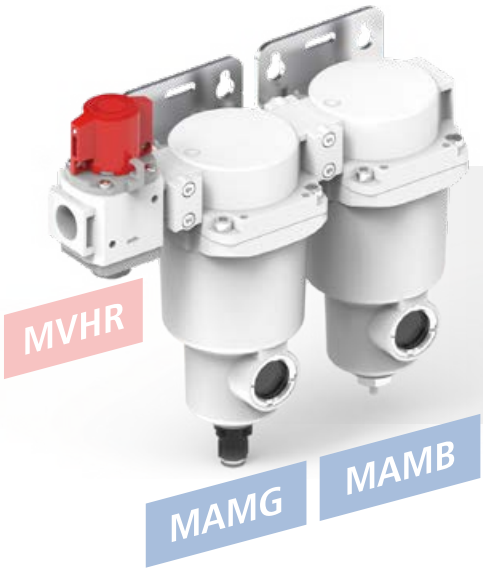
● Space-saving ● Various combinations available ● Easy assembly (DIY)



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

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.



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.

MAMG series

AIR UNIT (WATER SEPARATOR)

Features

Selection table

Caution for safety
(Read before installing)



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.

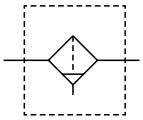
Specification

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	RDC(V), RQC(V)							
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

MAMG 45 — 15A — D□ — Q — □

MODEL

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

G: Water separator (Removal rate 99%±1)

FLOW DIRECTION
Blank: Left to right
R: Right to left

DRAIN VALVE
Blank: Semi-auto
D: Auto (FMRF300)

Differential Pressure Indicator (*)
Blank: Without
Q: Indicator
QS: Indicator with switch (*)

PORT HREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Please add the sensor when selecting Indicator with switch (QS).
* The models without Indicator (Q) and Indicator with switch (QS) type don't have the installation thread holes.

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.

Order example of sensor switch

RDC V — 2M

Model	Auto switch type	Wire length
RDC: Non-contact **RQC**: NPN & PNP configurations*	Blank: Straight cable	**2M**: L=2000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector (Only for RDC)
	V: Angle cable	**2M**: L=2000mm

* Selects the mode based on NPN or PNP wiring configuration. Always turn off power before wiring; never work on live wires.



MAMG series Water removal rate

$$\text{Water removal rate (\%)} = \frac{\text{Removed water (water droplet) g}}{\text{Inflowed water (water droplet) g}} \times 100$$

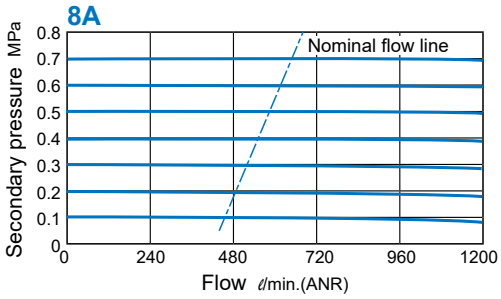
* Water separator can remove water droplets, but it cannot remove moisture.

Dimensions

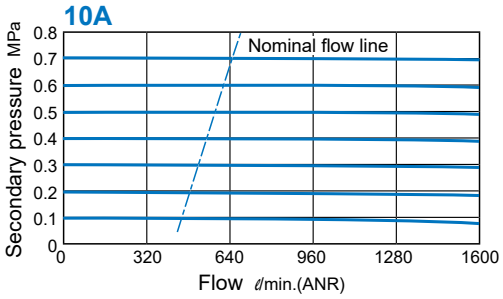
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

MAMG25

8A

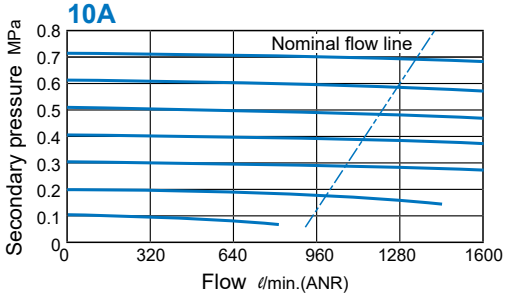


10A

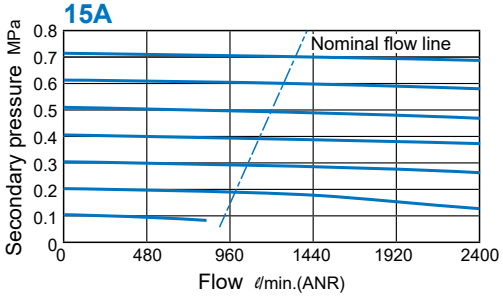


MAMG35

10A

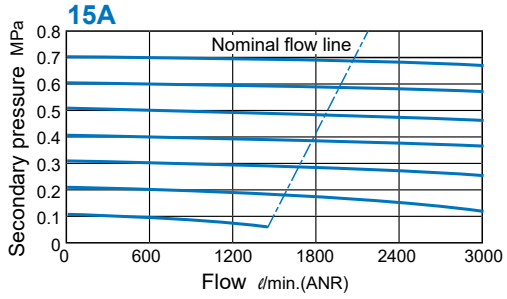


15A

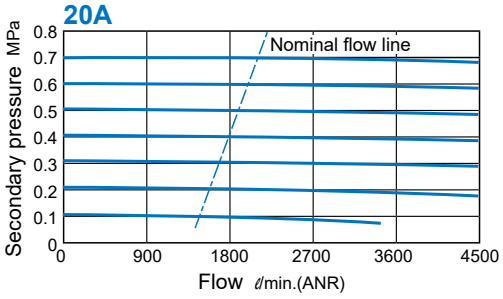


MAMG45

15A

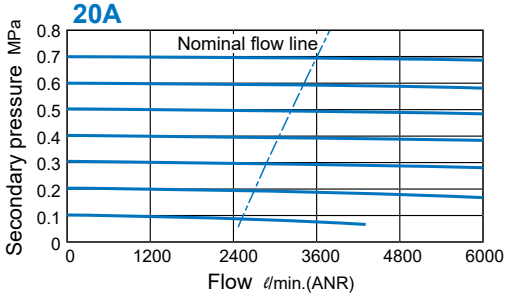


20A

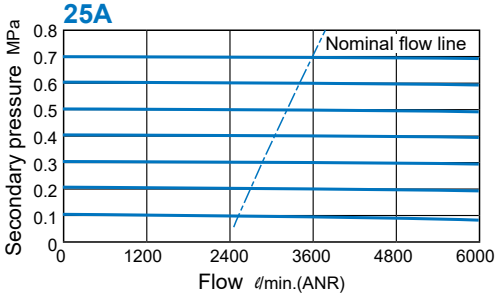


MAMG55

20A



25A



MAMB series 3 μm

AIR UNIT (MAIN LINE FILTER)

mindman

Features

Selection table

Caution for safety
(Read before installing)



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.

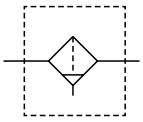
Specification

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	RDC(V), RQC(V)							
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

MAMB 45 — 15A — D□ — Q — □

MODEL

B: 3 μm

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

FLOW DIRECTION
Blank: Left to right
R: Right to left

DRAIN VALVE
Blank: Semi-auto
D: Auto (FMRF300)

Differential Pressure Indicator (*)
Blank: Without
Q: Indicator
QS: Indicator with switch (*)

PORT HREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Please add the sensor when selecting Indicator with switch (QS).
* The models without Indicator (Q) and Indicator with switch (QS) type don't have the installation thread holes.

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.

Order example of sensor switch

RDC V — 2M

Model	Auto switch type	Wire length
RDC: Non-contact **RQC**: NPN & PNP configurations*	Blank: Straight cable	**2M**: L=2000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector (Only for RDC)
	V: Angle cable	**2M**: L=2000mm

* Selects the mode based on NPN or PNP wiring configuration. Always turn off power before wiring; never work on live wires.

Filter element

E3-B25
E3-B35
E3-B45
E3-B55



Body / Port size

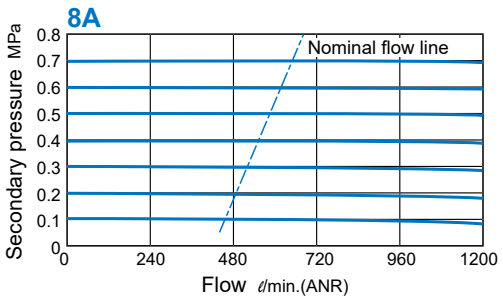
25	**8A**	1/4
	10A	3/8
35	**10A**	3/8
	15A	1/2
45	**15A**	1/2
	20A	3/4
55	**20A**	3/4
	25A	1

Dimensions

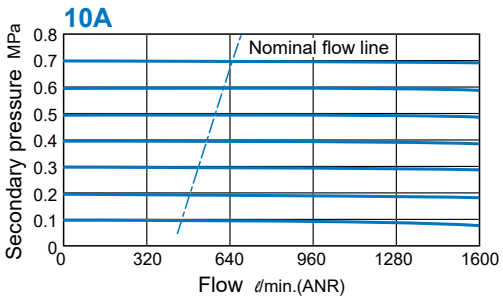
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

MAMB25

8A

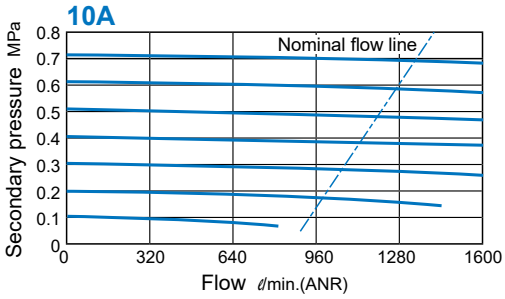


10A

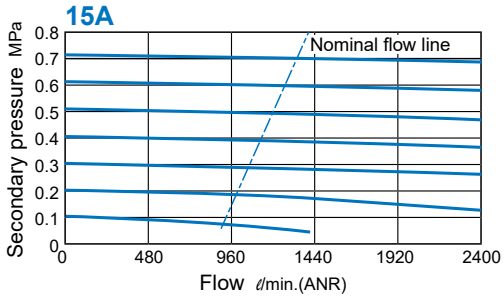


MAMB35

10A

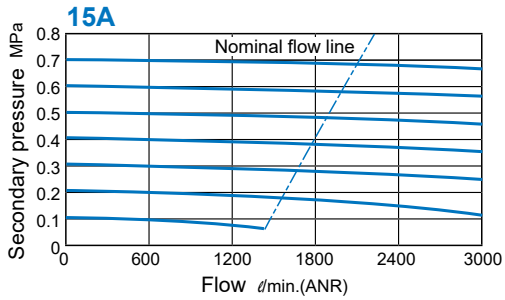


15A

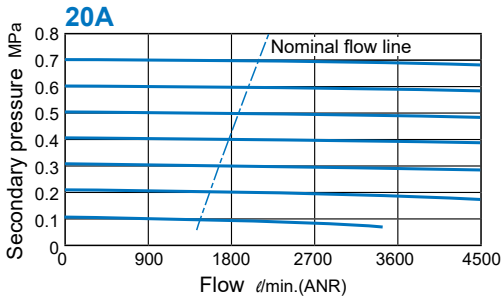


MAMB45

15A

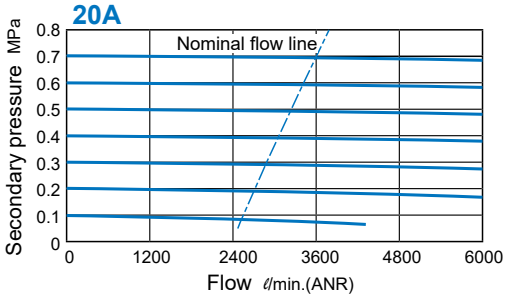


20A

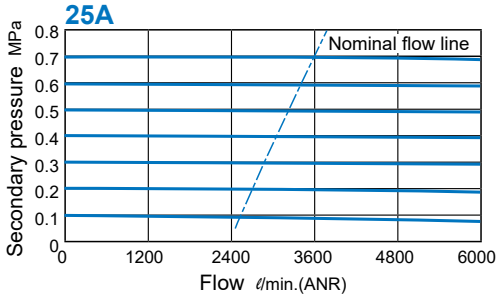


MAMB55

20A



25A



MAMD series 0.3 μm

AIR UNIT (MIST FILTER)

Features

Selection table

Caution for safety
(Read before installing)



Features

Removing the oil mist and impurities which the particles are bigger than 0.3μm in compressed air.

Maintenance

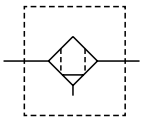
Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

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	RDC(V), RQC(V)							
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

D: 0.3 μm

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

FLOW DIRECTION
Blank: Left to right
R: Right to left

DRAIN VALVE
Blank: Semi-auto
D: Auto (FMRF300)

Differential Pressure Indicator (*)
Blank: Without
Q: Indicator
QS: Indicator with switch (*)

PORT HREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Please add the sensor when selecting Indicator with switch (QS).
* The models without Indicator (Q) and Indicator with switch (QS) 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/m³	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**

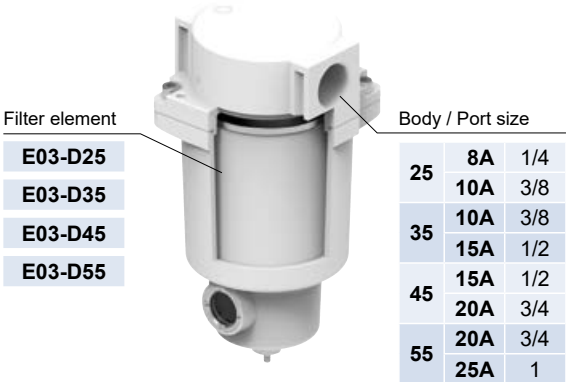
*1. Tested according to ISO8573.
*2. Tested according to ISO12500-1, inlet concentration 10mg/m³
*3. Nominal flow capacity is at 0.7 MPa, and it varies depending on the operating pressure. If flow rate is over nomial flow capacity, may not meet the specifications of the product.

Order example of sensor switch

RDC V — 2M

Model	Auto switch type	Wire length
RDC: Non-contact **RQC**: NPN & PNP configurations*	Blank: Straight cable	**2M**: L=2000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector (Only for RDC)
	V: Angle cable	**2M**: L=2000mm

* Selects the mode based on NPN or PNP wiring configuration. Always turn off power before wiring; never work on live wires.

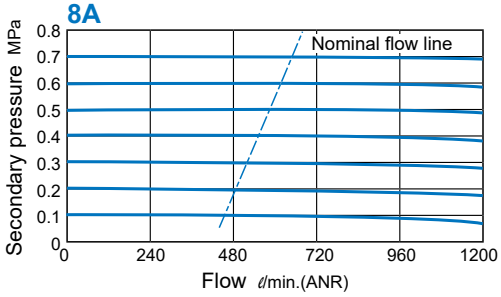


Dimensions

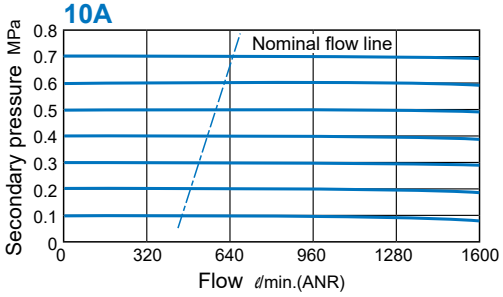
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

MAMD25

8A

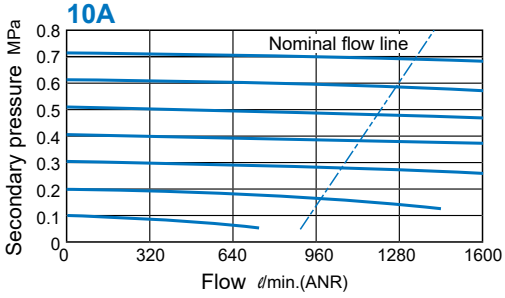


10A

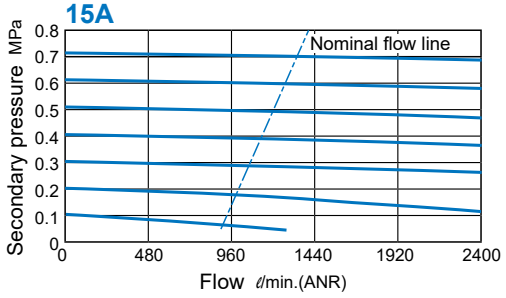


MAMD35

10A

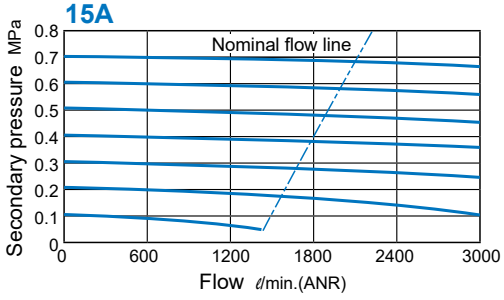


15A

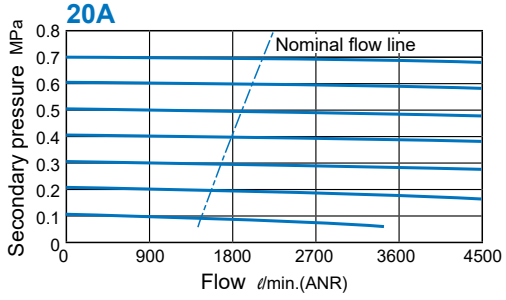


MAMD45

15A

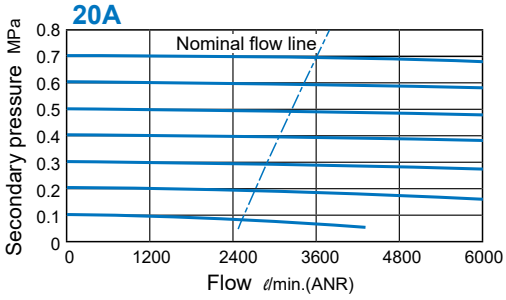


20A

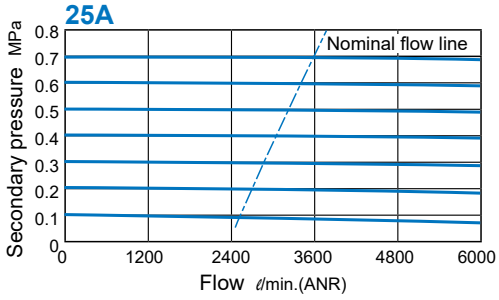


MAMD55

20A



25A



MAMM series 0.01 μm

AIR UNIT (MICRO MIST FILTER)

mindman

Features

Selection table

Caution for safety
(Read before installing)



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

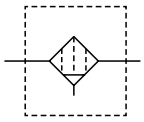
Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.

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	RDC(V), RQC(V)							
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
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

FLOW DIRECTION
Blank: Left to right
R: Right to left

DRAIN VALVE
Blank: Semi-auto
D: Auto (FMRF300)

Differential Pressure Indicator (*)
Blank: Without
Q: Indicator
QS: Indicator with switch (*)

PORT HREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Please add the sensor when selecting Indicator with switch (QS).
* The models without Indicator (Q) and Indicator with switch (QS) 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

RDC V — 2M

Model	Auto switch type	Wire length
RDC: Non-contact **RQC**: NPN & PNP configurations*	Blank: Straight cable	**2M**: L=2000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector (Only for RDC)
	V: Angle cable	**2M**: L=2000mm

* Selects the mode based on NPN or PNP wiring configuration. Always turn off power before wiring; never work on live wires.

Filter element
E001-M25
E001-M35
E001-M45
E001-M55



Body / Port size

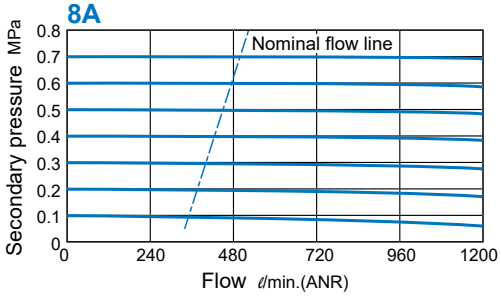
25	**8A**	1/4
	10A	3/8
35	**10A**	3/8
	15A	1/2
45	**15A**	1/2
	20A	3/4
55	**20A**	3/4
	25A	1

Dimensions

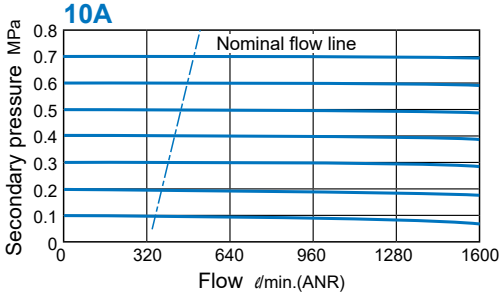
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

MAMM25

8A

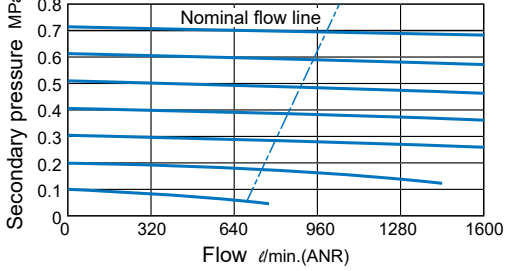


10A

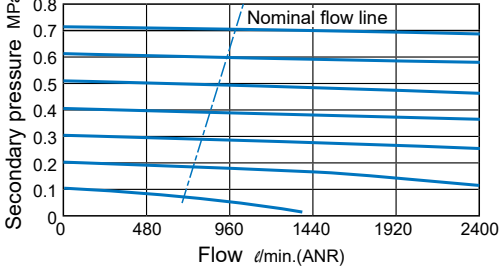


MAMM35

10A

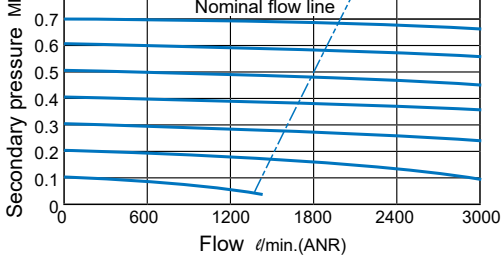


15A

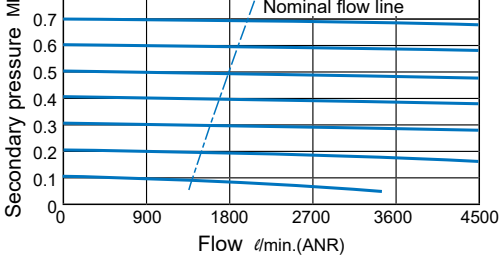


MAMM45

15A

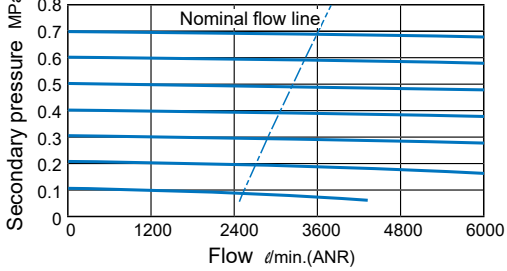


20A

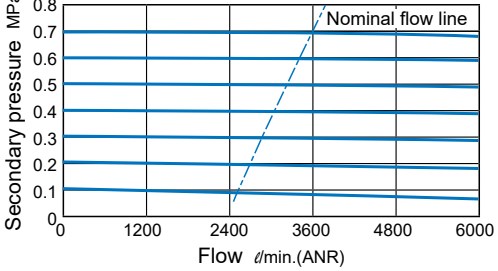


MAMM55

20A



25A



MAMF series 0.01 μm + Deodorization

AIR UNIT (ODOR REMOVAL FILTER)

Features

Selection table

Caution for safety
(Read before installing)



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.

* 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.

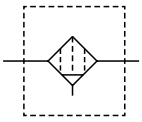
Specification

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 (*)	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	RDC(V), RQC(V)							
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.

Symbol



Order example

MAMF 45 — 15A — D□ — Q — □

MODEL

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

F: 0.01 μm + Deodorization (*1)

FLOW DIRECTION
Blank: Left to right
R: Right to left

DRAIN VALVE
Blank: Semi-auto
D: Auto (FMRF300)

PORT HREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Differential Pressure Indicator (*2)
Blank: Without
Q: Indicator
QS: Indicator with switch (*2)

*1. Assembling a MAMD series as pre-filter of activated carbon.
*2. Please add the sensor when selecting Indicator with switch (QS).
The models without Indicator (Q) and Indicator with switch (QS) type don't have the installation thread holes.

Order example of sensor switch

RDC V — 2M

Model	Auto switch type	Wire length
RDC: Non-contact **RQC**: NPN & PNP configurations*	Blank: Straight cable	**2M**: L=2000mm **QD**: M8, 3 Pin connector **EQD**: M8, 3 Pin connector (Only for RDC)
	V: Angle cable	**2M**: L=2000mm

* Selects the mode based on NPN or PNP wiring configuration.
Always turn off power before wiring; never work on live wires.

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.

Filter element
E001D-F25
E001D-F35
E001D-F45
E001D-F55



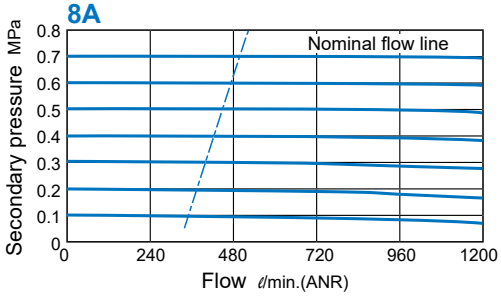
Body / Port size

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

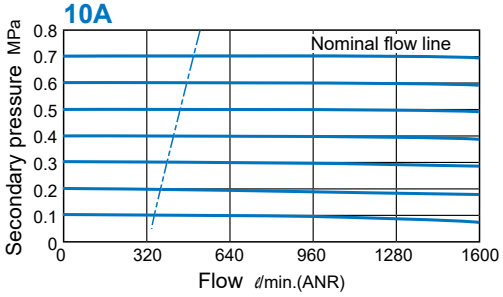
⚠ If flow rate is over nomial flow capacity, may not meet the specifications of the product.

MAMF25

8A

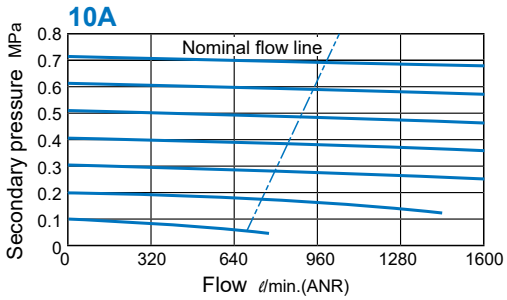


10A

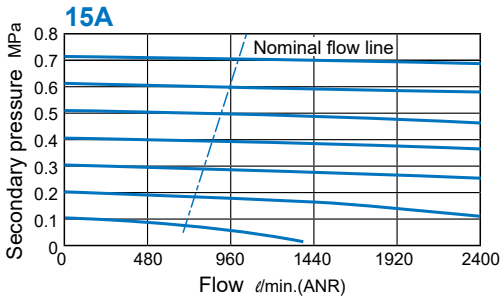


MAMF35

10A

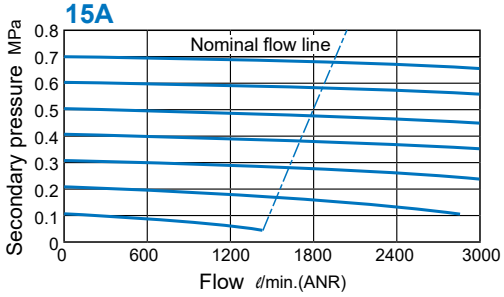


15A

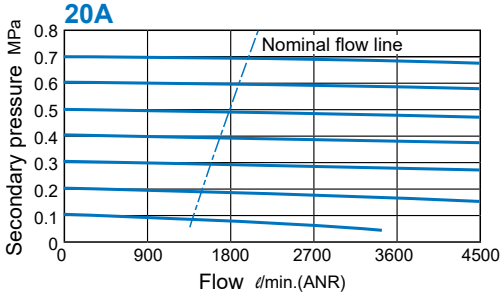


MAMF45

15A

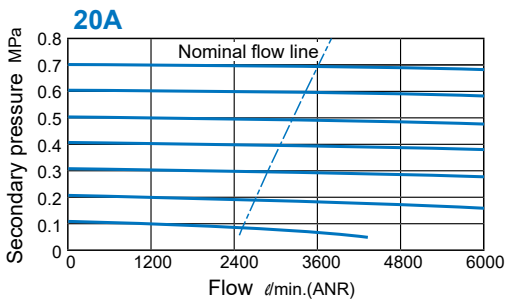


20A

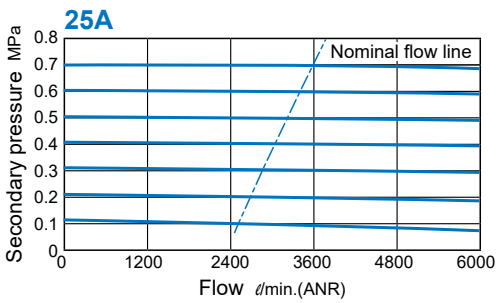


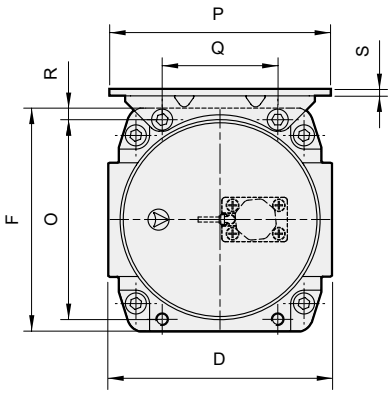
MAMF55

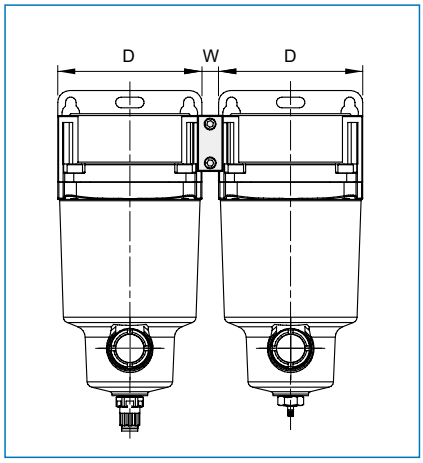
20A

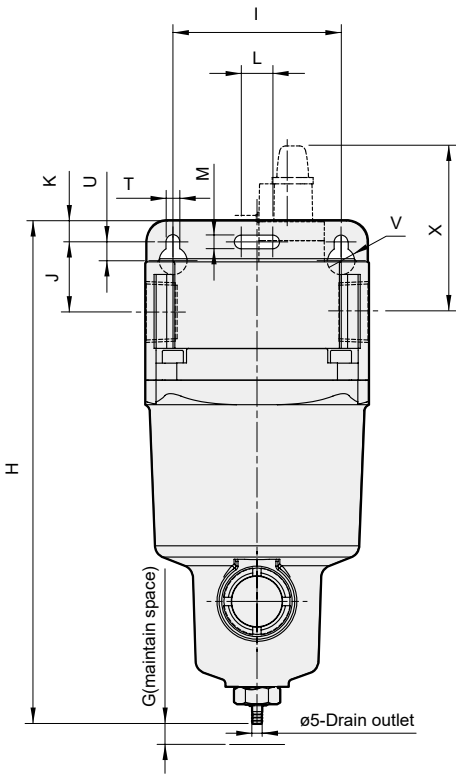


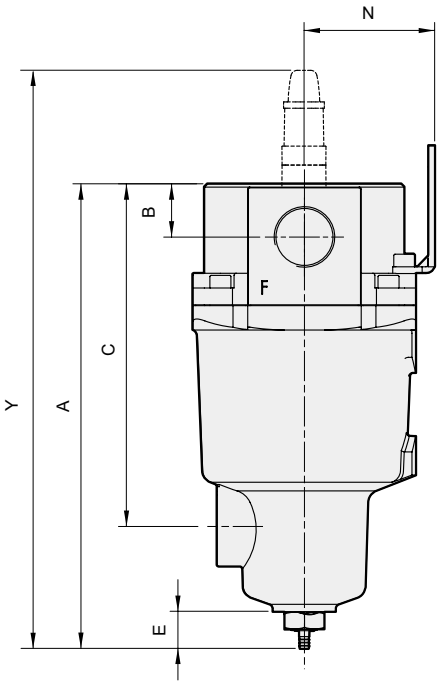
25A



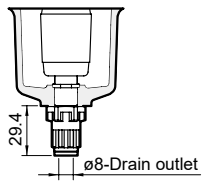








MAM*-D



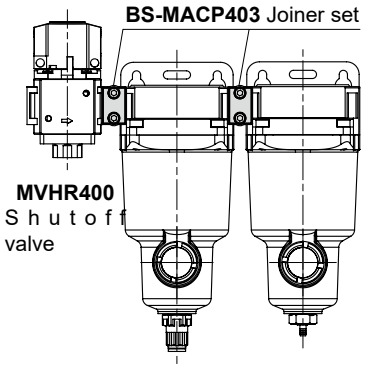
Code / Model	Port size	A	B	C	D	E	F	G	H	I	J	K	T	U	L	M	V	N	O	P	Q	R	S	W	X	Y
MAM*25	1/4", 3/8"	171.6	16.5	113.5	76	17.6	76	10	187.1	66	24	8	6	6	6	6	10	47	68.5	80	35	3.8	2	10	71.5	226.6
MAM*35	3/8",1/2"	199.1	16.5	141	90	17.6	90	10	218.6	80	28	8	7	7	7	7	12	53.4	80.5	95	44	4.8	2.3	10	71.5	254.1
MAM*45	1/2",3/4"	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

Available components (Option)

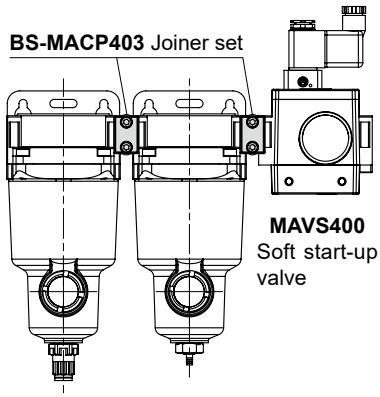
Model	Joiner set	Air unit	Shutoff valve	Soft start-up valve
MAM*25	BS-MACP403	MA*401-W MA*403	MVHR400	MAVS400
MAM*35				
MAM*45	BS-MACP501	MA*501	–	–
MAM*55				

- Space-saving.
- Various combinations available.
- Easy assembly (DIY).

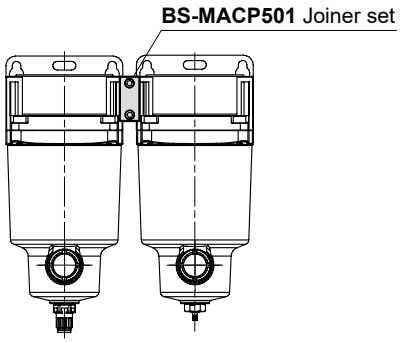
Example 1



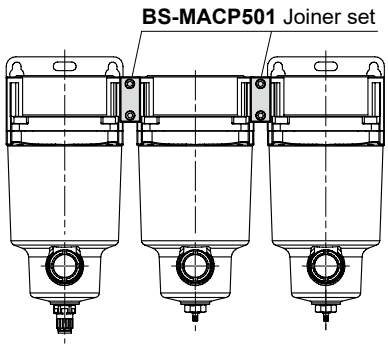
Example 2



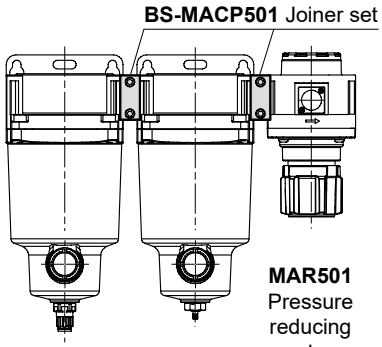
Example 3



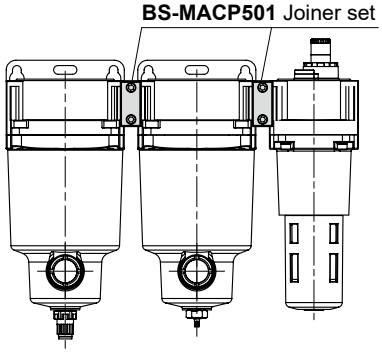
Example 4



Example 5



Example 6



MAVS series

SOFT START-UP **VALVE**

Caution for safety
(Read before installing)



- 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
	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	Standard	AC=4.8/4.4VA, 6/4.9VA DC=2W		
	Power saving	DC=Start: 2W(*) Power saving: 0.5W		
Available voltage range		±10%		
Insulation class		F class		
Option		Pressure gauge (PG-40), L type bracket		
Weight		450 g	520 g	800 g

* Power saving covert time 100ms.

Order example

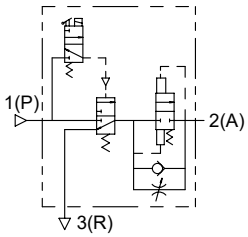
MAVS400 — 15A — 1 — □ — B — AC110 — L — □

- 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)
  * MAVS200/300 only have cool gray, if selected MAVS200/300 type can skip this option.
- PRESSURE GAUGE: Blank: Without pressure gauge / **C**: Pressure gauge (PG-40)
- BRACKET: Blank: Without / **B**: L type bracket
- VOLTAGE: **AC220**V(50/60)Hz / **AC110**V(50/60)Hz / **DC24**V
- ELECTRIC CONNECTION:

Standard	
Blank	DIN terminal
L	DIN terminal with LED indicator
E	Explosion protection (Table 1)(Black coil)
Power saving (for DC24V)	
KL	DIN terminal with LED indicator

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

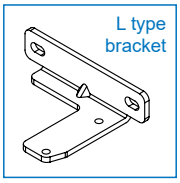
Symbol



Order example of Bracket

MAVS400 — B

- MODEL: **200**, **300**, **400**
- BRACKET



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

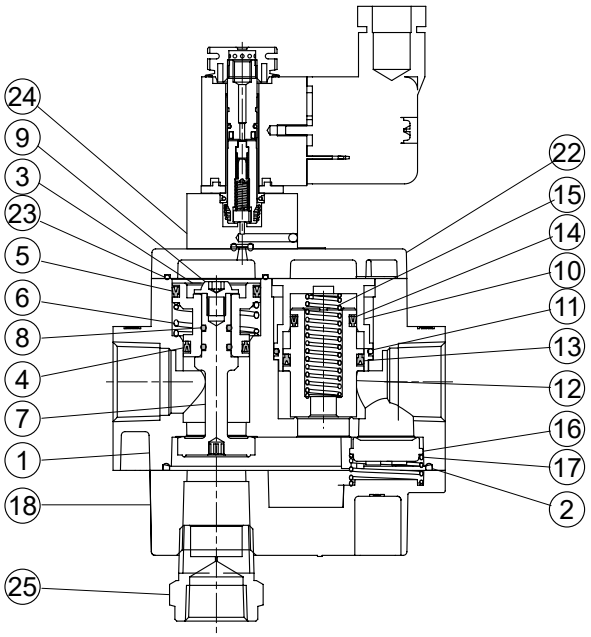
Property for explosion-proof type

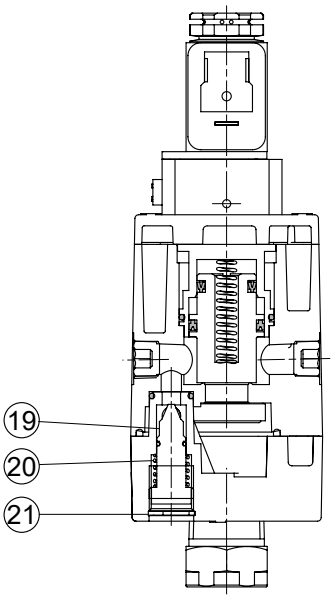
Anti-explosion class	Ex mb IIC T4 Gb
Voltage	AC110V / 220V(50/60)Hz, DC24V
Power consumption	AC110V=4.5VA, AC220V=4.8VA, DC=5W
Available valtage range	±10%
Insulation class	F class
Wire length	3 m

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



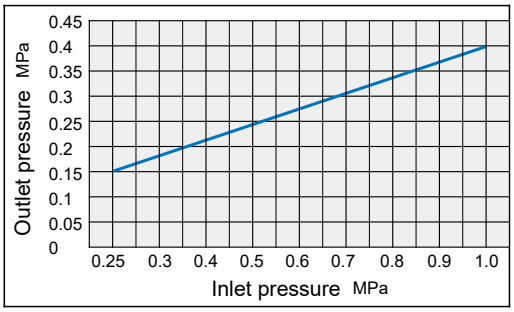


Material

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

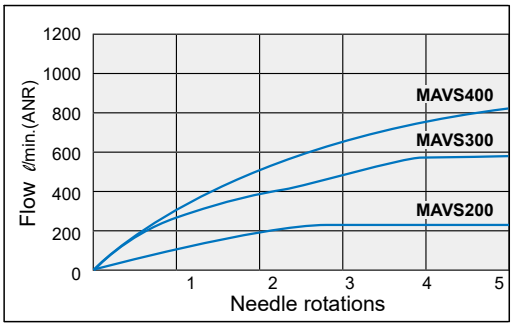
Flow feature

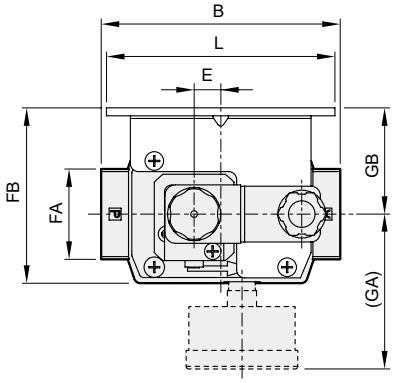
Piston B switching pressure (Close→Open)

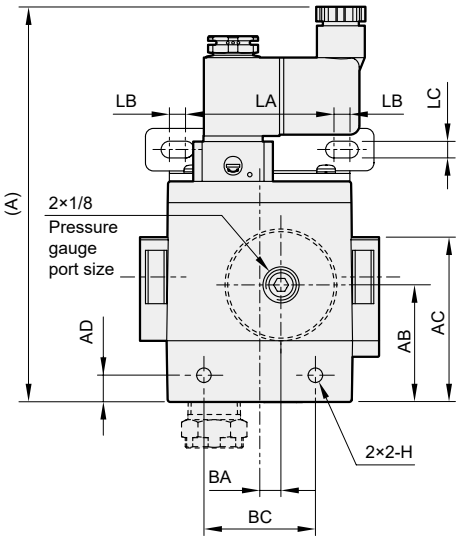


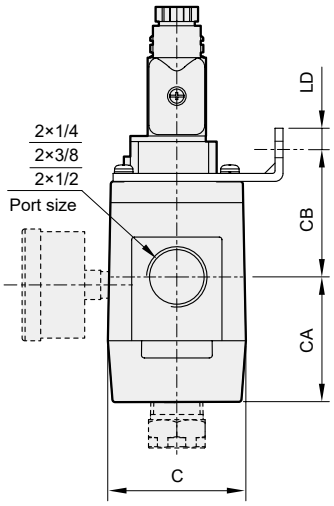
Needle valve flow characteristics

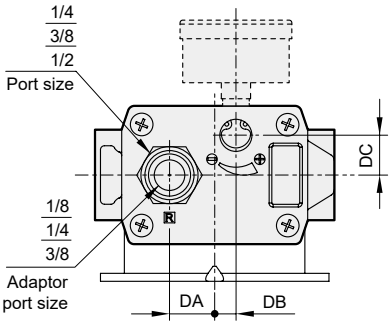
Inlet pressure 0.5 MPa









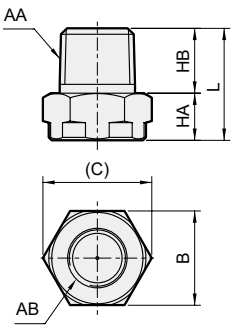


Code / Model	A	AB	AC	AD	B	BA	BC	C	CA	CB	DA	DB	DC
200	126.6	31	41.2	7.5	66	5	29	39.6	31.2	40.2	11	5	11
300	134	34	50.5	8.5	78	5	28	47.6	36	31.9	14	5	14
400	149	44	62	10	90	8	42	52	47	48	17	8	15

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

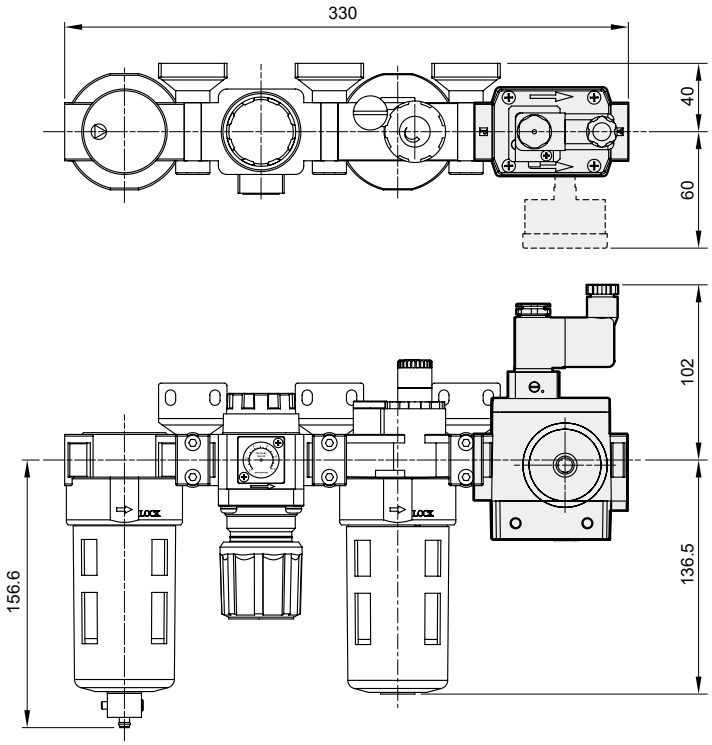


Code / Model	AA	AB	B	C	HA	HB	L	Weight
200	R1/4	Rc1/8	16	18.5	8	11	19	6 g
200-N	NPT1/4	NPT1/8	16	18.5	8	15.1	23.1	7 g
200-G	G1/4	G1/8	19	21.9	8	7	15	7 g
300	R3/8	Rc1/4	19	21.9	11	12	23	11 g
300-N	NPT3/8	NPT1/4	19	21.9	11	15.2	26.2	12 g
300-G	G3/8	G1/4	25	28.9	11	8.5	19.5	15 g
400	R1/2	Rc3/8	22	25.4	11	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)

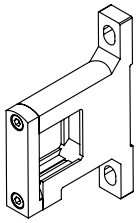
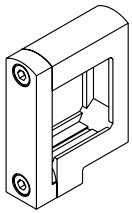
Air unit (F.R.L.)		Valve
MA**302		MAVS300
MA**401	MA**403	MAVS400

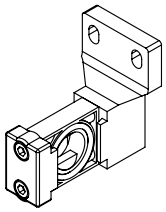
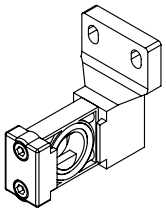
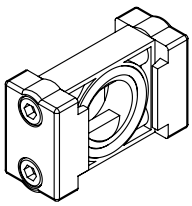
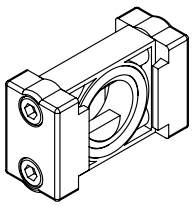
EX: MACT403+MAVS400



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

HIGH EFFICIENCY COMPRESSED **AIR FILTER**

mindman





Differential pressure gauge

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 of port type

MJF – CP – 60F □ – D – G

- MODEL
- GRADE
  - **CP**: Coarse pre-filtration
  - **TU**: General filtration
  - **AH**: High performance filtration
  - **HC**: Activated carbon filter
- HOUSING MATERIAL
  - Blank: Aluminum alloy*2
  - **P**: Stainless steel*3
- OPTION
  - Blank: Manual drain (16 barG)
  - **D**: Auto drain (50 barG)
  - **G**: Differential pressure gauge

Code	Pressure (barG)		
10F~150F	Blank	Standard	~10
	H1	High*3 pressure	11~20
	H2		21~30
	H3		31~40
	H4		41~50
10L~150L*1	Blank	Standard	7~10

Order example of flang type

MJL – TU – 200LH1 □ – D – G

- MODEL
- GRADE
  - **CP**: Coarse pre-filtration
  - **TU**: General filtration
  - **AH**: High performance filtration
  - **HC**: Activated carbon filter
- HOUSING MATERIAL
  - Blank: Carbon steel
  - **P**: Stainless steel*3
- OPTION
  - Blank: Manual drain (16 barG)
  - **D**: Auto drain (50 barG)
  - **G**: Differential pressure gauge

Code	Pressure (barG)		
200L ~ 1250L	Blank	Standard	~10
	H1	High*3 pressure	11~20
	H2		21~30
	H3		31~40
	H4		41~50

*1. Only for "P" stainless steel housing material.
*2. When choosing the high pressure type, the material is carbon steel.
*3. Stainless steel and high pressure are specially customized. For inquiries, please contact us.

Specification of grade (filter element)

Filtration grade (Filter element)		**CP (C)**	**TU (T)**	**AH (A)**	**HC (H)**
Features		Coarse pre-filtration	General filtration	High performance filtration	Activated carbon filter
Partcle removal micron	μ	3.0 μ	1.0 μ	0.01 μ	n/a
Oil contaminant retention down to	mg/m^3	n/a	0.1	0.01	0.003
Nominal initial pressure drop	mbar	0.03	0.05	0.09	0.10
Max. operating temp.	°C	80	60	60	60
Life time	Hours	8000			1000

Correction factor

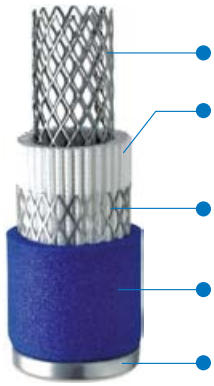
Inlet pressure (MPa)	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**
Correction factor	0.25	0.38	0.50	0.65	0.75	0.88	1.0	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13

MJF / MJL Filter element / Structure 10~1250

HIGH EFFICIENCY COMPRESSED **AIR FILTER**

mindman

Filter element



- **Inner stainless steel support sleeve**
- **Pleated filter media pack (4 layers)**
  2 layers PP support media (inside and outside)
  2 layers borosilicate microfiber
- **Outer stainless steel support sleeve**
- **Outer absorption drainage foam sock layer**
- **Aluminum end caps**

Structure



- **Differential pressure gauge**
- **Ported**:
  Standard: Aluminum alloy or stainless steel housing
  High pressure: Carbon steel or stainless steel housing
  Flanged: Carbon steel or stainless steel housing
- **Pleated filter element** (4 layers)
- **Manual drain valve**

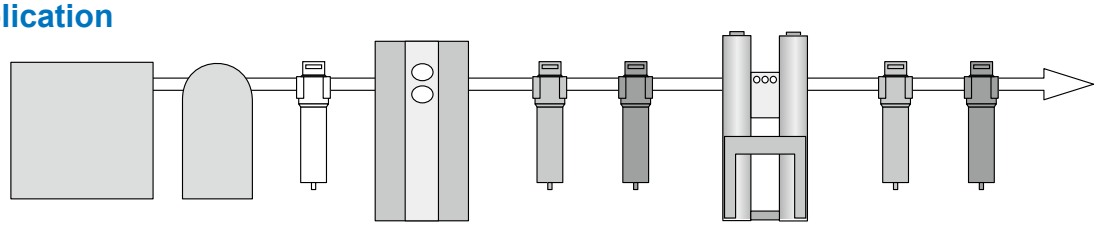
Filter element / Order example

C – NF1E × 1

GRADE
C: Coarse Pre-filtration (3.0 μ)
T: General filtration (1.0 μ)
A: High performance filtration (0.01 μ)
H: Activated carbon filter

Model		Filter element × Q'ty
MJF Series (Ported)	10F	**NF1E×1**
	15F	**NF1E×1**
	25F	**NF2E×1**
	40F	**NF2E×1**
	60F	**NF3E×1**
	100F	**NF4E×1**
	150F	**NL1E×1**
	10LP	**NF1E×1**
	15LP	**NF1E×1**
	25LP	**NF2E×1**
	40LP	**NF2E×1**
	60LP	**NF3E×1**
	100LP	**NF4E×1**
	150LP	**NL1E×1**
MJL Series (Flanged)	200L	**NL1E×1**
	400L	**NL1E×2**
	700L	**NL1E×3**
	900L	**NL1E×4**
	1250L	**NL1E×5**

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.

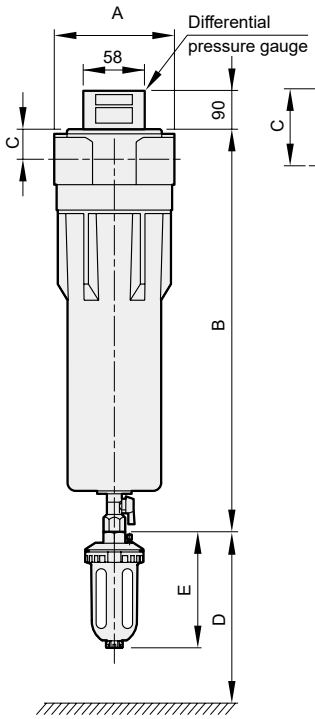
MJF / MJL Dimensions 10~1250

HIGH EFFICIENCY COMPRESSED **AIR FILTER**

mindman

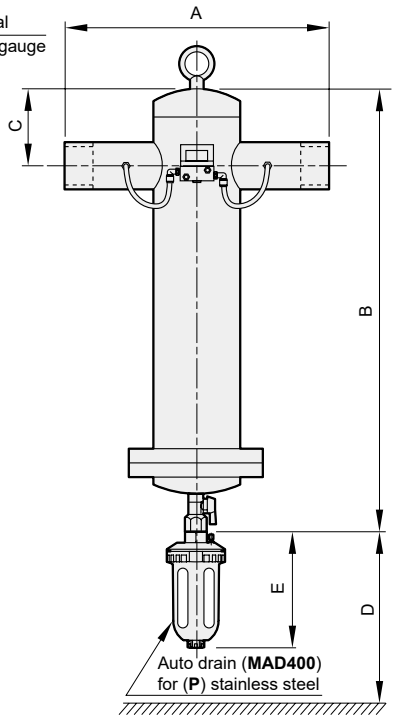
MJF-*-D

10F~150F



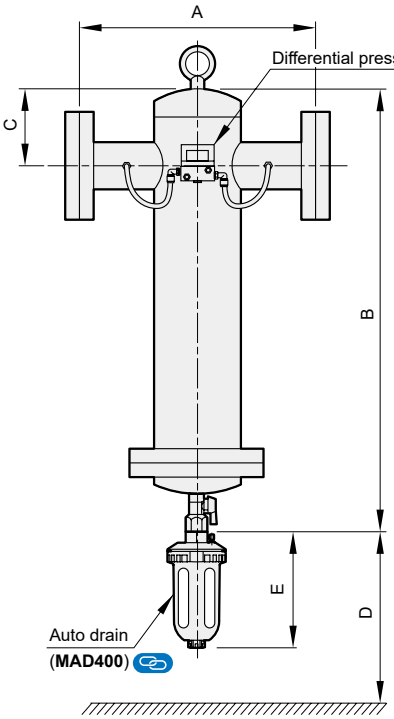
MJF-LP-D

Customize **10LP~150LP**

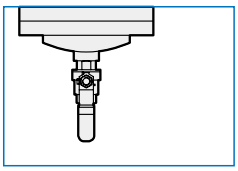


MJL-*-D

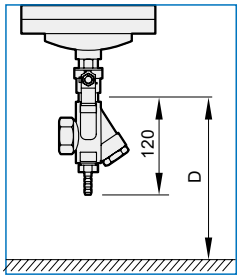
Standard **200L~1250L**



Manual drain



D: Auto drain (**MAD400**)
for (**H1~H4**) high pressure



Model		Max. capacity		Connection	Dimension (mm)					N.W.
		Nm^3/min	SCFM	inch	**A**	**B**	**C**	**D**	**E**	kg
MJF Series (Ported)	**10F**	1.6	56	Rc1/2"	87	303	24	380	200	1.3
	15F	2.4	84	Rc3/4"	87	303	24	380	200	1.3
	25F	3.6	127	Rc1"	130	325	43	390	200	3.6
	40F	5.5	194	Rc1 1/2"	130	325	43	390	200	3.6
	60F	8.1	285	Rc1 1/2"	130	740	43	630	200	6.7
	100F	15	529	Rc2"	163	762	55	790	200	8.9
	150F	25	882	Rc2 1/2"	163	1017	55	900	200	11.0
	10LP	1.6	56	Rc1/2"	200	395	75	250	200	–
	15LP	2.4	84	Rc3/4"	200	395	75	250	200	–
	25LP	3.6	127	Rc1"	280	410	93	250	200	–
	40LP	5.5	194	Rc1 1/2"	280	410	93	250	200	–
	60LP	8.1	285	Rc1 1/2"	280	790	93	450	200	–
	100LP	15	529	Rc2"	280	790	93	600	200	–
	150LP	25	882	Rc2 1/2"	300	1050	100	600	200	–
MJL Series (Flanged)	**200L**	30	1059	3"FL	350	1120	116	680	200	45
	400L	60	2118	4"FL	510	1330	150	680	200	70
	700L	90	3177	6"FL	600	1450	195	680	200	110
	900L	120	4236	6"FL	600	1460	195	680	200	150
	1250L	150	5295	8"FL	750	1600	195	680	200	240

* Max. differential pressure: 0.6barG
* 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.
* Equip with "**D**" or "**G**". **MJF** series model number printed on name plate without **-D-G**, **MJL** series model number with **-D-G**

MBS / MCS / MBD Automation control systems

DIGITAL CONDENSATION REMOVAL **TIMER**

mindman



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–03–2–J–3–D–AC110–Y–T

- MODEL: spec.
- PORT SIZE: **03**: 1/8; **06**: 1/4
- FIG.: **1**, **2**, **3**, **4**, **5**
- SEAL MAT'L: **N**: NBR; **J**: EPDM; **V**: VITON; **T**: TEFLON (*1)
- COIL: **3**: Bigger
- PLUG: Blank: DIN; **D**: LED; **G**: 1/2" NPT
- VOLTAGE: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz
- STRAINER: Blank: None; **Y**: Y-type
- TIMER

MCS–06–2–J–5–D–AC110–Y–T

- MODEL: spec.
- PORT SIZE: **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**: Standard coil; **5**: Bigger
- PLUG: Blank: DIN; **D**: LED; **G**: 1/2" NPT
- VOLTAGE: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz
- STRAINER: Blank: None; **Y**: Y-type
- TIMER

*1. When the seal material is (**T**) Teflon or (**R**) RUBY, the valve has slight leakage, not suitable for vacuum.

MBD–06–2–V–3–D–AC110–Y–T

- MODEL: spec.
- PORT SIZE (*2): **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: **3**: #3; **4**: Standard; **5**: Bigger
- PLUG: Blank: DIN; **D**: LED; **G**: 1/2" NPT
- VOLTAGE: **AC220**V(50/60)Hz; **AC110**V(50/60)Hz
- STRAINER: Blank: None; **Y**: Y-type
- TIMER

*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	Port 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



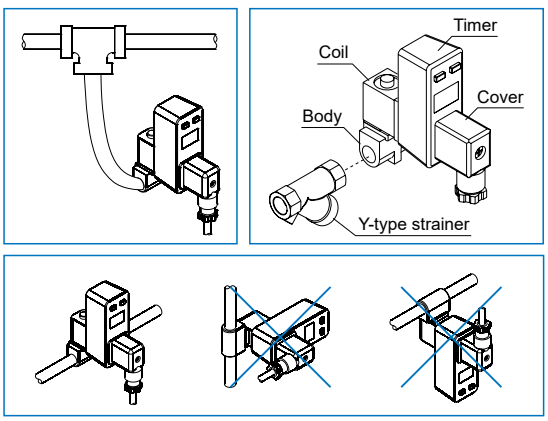
Time ranges: OFF 0~99 mins.
ON 0~59 sec.

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



MVBA series

BOOSTER REGULATOR

Features

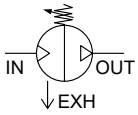
Circuit example

Energy saving

Caution for safety
(Read before installing)



Symbol

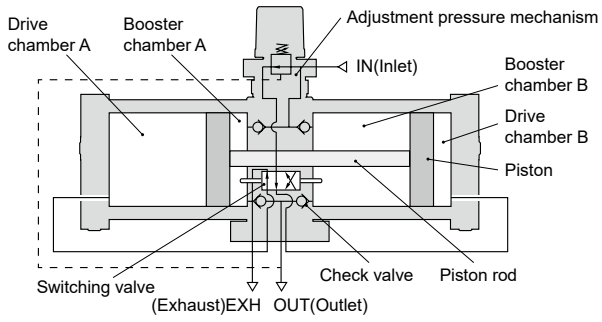


Order example

MVBA — 2100 — S — □

MODEL	SPEC.	SILENCER	PORT THREAD
	2100 **4100** **4300**	Blank: without **S**: with silencer	Blank: Rc thread **G**: G thread **NPT**: NPT thread

Working Principle



- The IN(Inlet) air passes through the check valve to booster chamber A and B. Meanwhile, air is supplied to drive chamber B via the governor and the switching valve. Then, the air pressure from drive chamber B and booster chamber A are applied to the piston, boosting the air in booster chamber B. As the piston travels, the boosted air is pushed via the check valve to the OUT(Outlet) side. When the piston reaches the switching valve to touch, so that drive chamber B is in the exhaust state and drive chamber A is in the supply state respectively. Then, the piston reverses its movement, this time, the pressures from booster chamber B and drive chamber A boosts the air in booster chamber A and sends it to the OUT side.
- The process described above is repeated to continuously supply highly pressurized air from the IN to the OUT side. The governor establishes the outlet pressure by handle operation and pressure adjustment in the drive chamber by feeding back the outlet pressure.

Features

- Increase factory air pressure by up to twice as much.
- Air-only operation requires no power supply, reduces heat generation, and allows easy installation.

Caution

- It is recommended to install a mist separator (0.3μm) at the inlet side of the booster regulator.

Specification

Model	MVBA-2100	MVBA-4100	MVBA-4300
Port size (IN, OUT, EXH) (*1)	3/8	1/2	1/2
Gauge port (IN, OUT) (*1)	1/16	1/8	1/8
Air tank port (*1)	1/4	1/2	1/2
Medium	Compressed air		
Pressure increase rate	Maximum of twice		
Operating pressure range (*2)	0.2~1 MPa		0.2~1.6 MPa
Supply pressure range	0.1~1 MPa		
Proof pressure	1.5 MPa		2.4 MPa
Max. flow rate (*3)	1000 ℓ/min	1600 ℓ/min	
Ambient temperature	+2~+50°C (No freezing)		
Installation	Horizontal		
Lubrication	Not required		
Attachment: Pressure gauge	PG-25	PG-40W	PG-40W-20K
Option: Silencer (S)	MSLT-03	MSLT-04	
Suitable for air tank (Please refer to the MVBAT series)	MVBAT10A MVBAT20A MVBAT21B	MVBAT21C	MVBAT22HC
Weight (kg)	3.9	9.4	9.5

*1. Thread type combination

Model	Port thread	Gauge thread	Air tank thread
MVBA-2100	Rc, G, NPT	Rc	Rc
MVBA-4100 **MVBA-4300**	Rc, G	Rc	Rc
	NPT	NPT	Rc

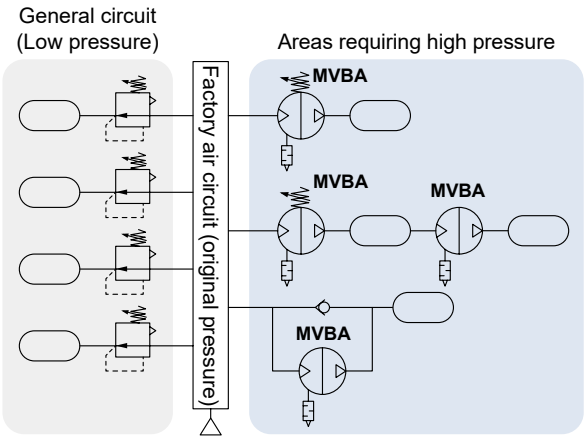
*2. Do not adjust the pressure beyond the maximum specified pressure range.
*3. Max. flow rate at IN=OUT=0.5 MPa.
*4. Attachment and optional accessories are included with the shipment separately and are not pre-assembled.

Caution

- If the outlet capacity is undersized, pulsation may occur.
- Make sure to install a mist separator at the inlet side of the booster regulator.
- The booster regulator has a sliding part inside, and it generates dust. Also, install a cleaning device such as an air filter or a mist separator on the outlet side as necessary.
- Provide a dedicated pipe to release the exhaust air from each booster regulator. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.
- Depending on the necessity, install a silencer on the exhaust port of the booster regulator to reduce the exhaustion sound.
- Allow the sufficient space for maintenance and inspection.

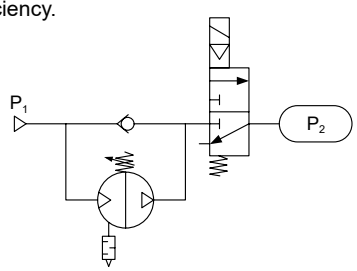
Example of circuit usage

- In factories where only specific equipment requires high pressure, a booster cylinder can be installed in the corresponding local air circuit. This allows the overall air circuit to maintain low pressure while enabling the use of high-pressure equipment in localized areas. This design not only reduces the pressure demand on the overall air circuit but also effectively saves energy and decreases the load on the equipment.

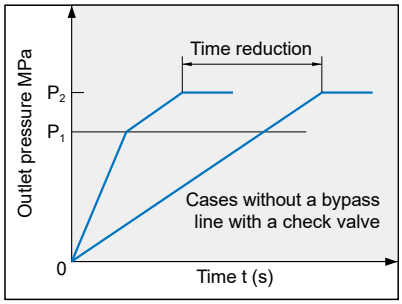


* When using two booster cylinders for two-stage boosting, ensure that each booster cylinder is supplied with sufficient airflow to maintain the stability of the inlet pressure at the booster valve. This is critical for ensuring the stability and efficiency of the boosting process.

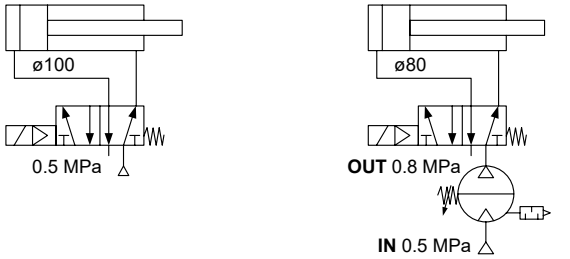
- During the process of charging the air tank, a circuit design incorporating a booster cylinder in parallel with a check valve is used. When the pressure in the air tank is lower than the inlet air source pressure, the air source directly charges the tank through the check valve. This method efficiently utilizes the air source pressure, reducing the charging time and improving overall efficiency.



The inlet pressure (P_1) first passes through a check valve to charge P_2 until P_1=P_2.

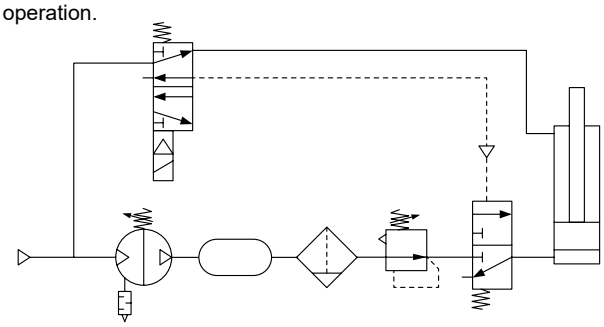


- When the actuator's output force is insufficient and spatial constraints prevent the use of a larger cylinder, a booster cylinder can be employed to increase output force without replacing the existing actuator.
- In cases where miniaturization of the drive component is required, and a small cylinder size is needed while maintaining a high output force, a booster cylinder offers an effective solution.



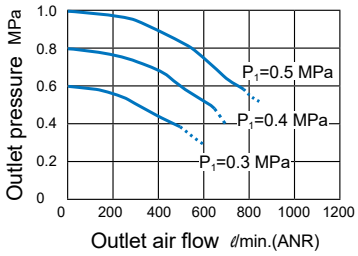
Operating Pressure	0.5 MPa	Equivalent output force	Operating Pressure	0.8 MPa
Tube I.D.	ø100 mm		Tube I.D.	ø80 mm
Output Force	3850 N		Output Force	4000 N

- For single-acting cylinder operations, installing a booster cylinder in the corresponding air supply circuit can reduce compressed air consumption, achieving more efficient operation.

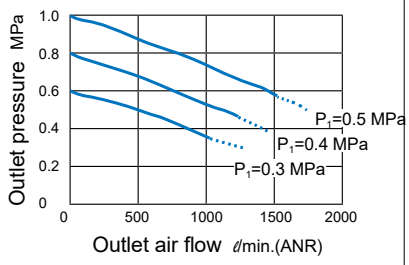


Flow features

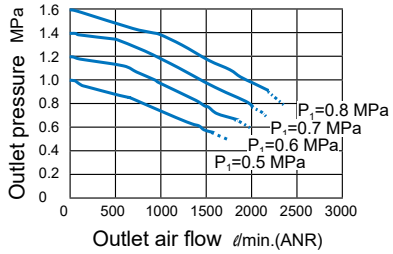
MVBA-2100



MVBA-4100

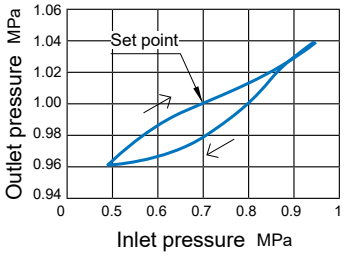


MVBA-4300

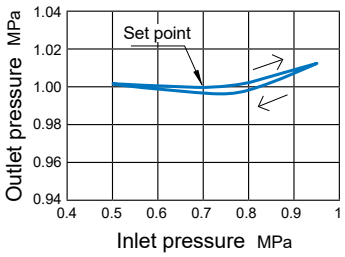


Pressure characteristics

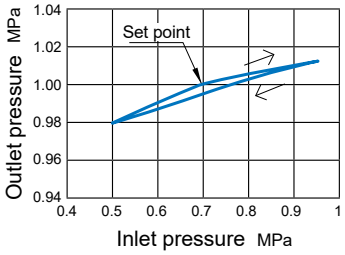
Inlet pressure 0.7 MPa
Output pressure 1.0 MPa
MVBA-2100 Flow rate: 20L/min(ANR)



Inlet pressure 0.7 MPa
Output pressure 1.0 MPa
MVBA-4100 Flow rate: 20L/min(ANR)

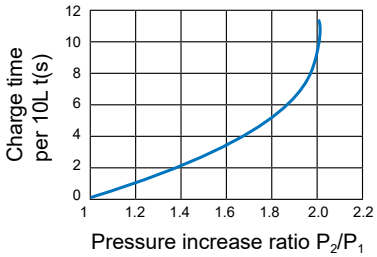


Inlet pressure 0.7 MPa
Output pressure 1.0 MPa
MVBA-4300 Flow rate: 20L/min(ANR)

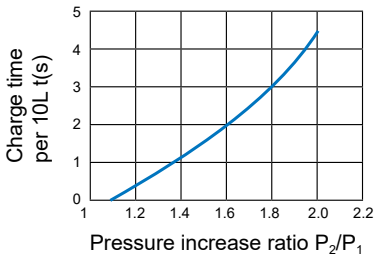


Charge test

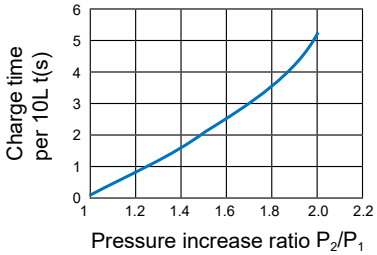
MVBA-2100



MVBA-4100



MVBA-4300



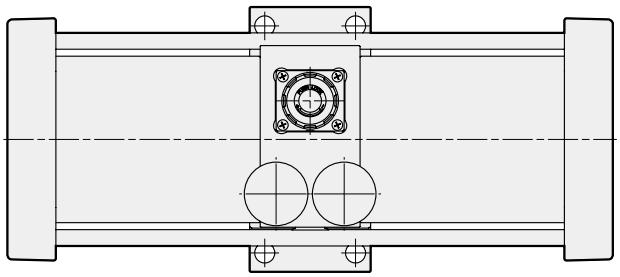
Calculation method for air tank charge time

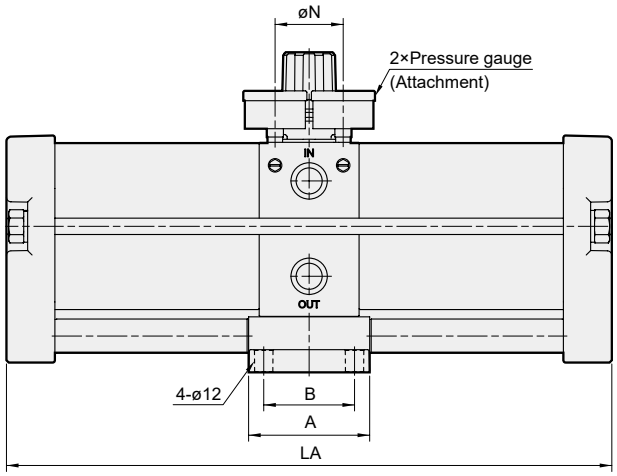
P_0	Primary side air pressure
P_1	Air pressure in tank before filling
P_2	Air pressure in tank after filling
$K_1=P_1/P_0$	Boosting ratio before filling
$K_2=P_2/P_0$	Boosting ratio after filling

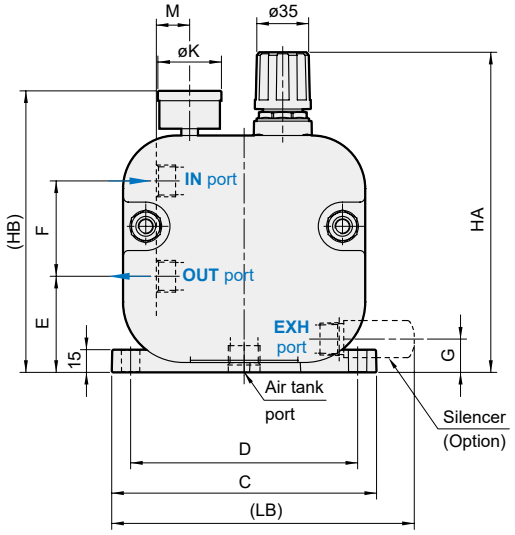
Find K_1 and K_2 at first, then read filling time t_1 and t_2 according to graph where boosting ratio K_1, K_2, Finally filling time for tank capacity Q is obtained with

$$T = \frac{Q}{10}(t_2 - t_1).$$

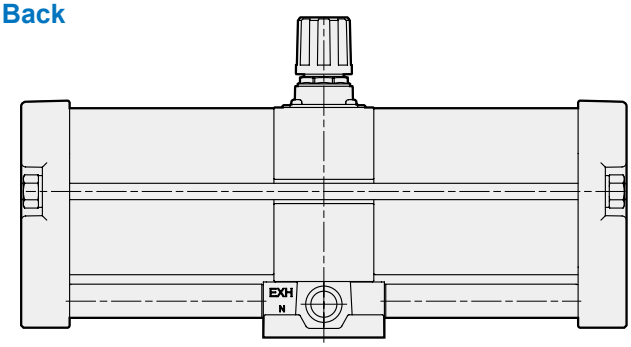
(Each characteristics are just reference, but not assured conditions)







Back



Code / Model	A	B	C	D	E	F	G	HA	HB	LA	LB	K	M	N
MVBA-2100	73	53	118	98	46	43	18	172.5	140	295	168	24	8	30
MVBA-4100	80	60	175	150	63.5	63	22	211.5	186	400	200	42	22	45
MVBA-4300								221.8						

MVBAT series

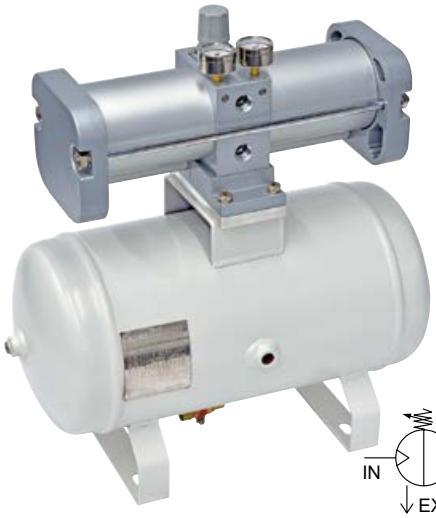
BOOSTER REGULATOR WITH AIR TANK

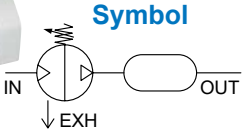
Features

Circuit example

Energy saving

Caution for safety
(Read before installing)





Symbol

Features

- Increase the primary pressure in the air line up to twice.
- Air-only operation requires no power supply, reduces heat generation, and allows easy installation.

Caution

- If the outlet capacity is undersized, pulsation may occur.
- It is recommended to install a mist separator (0.3μm) at the inlet side of the booster regulator.
- The booster regulator has a sliding part inside, and it generates dust. Also, install a cleaning device such as an air filter or a mist separator on the outlet side as necessary.
- Provide a dedicated pipe to release the exhaust air from each booster regulator. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.
- Depending on the necessity, install a silencer on the exhaust port of the booster regulator to reduce the exhaustion sound.
- Sufficient space for maintenance and inspection is suggested.

Specification

Model		MVBAT1021	MVBAT2021	MVBAT2121	MVBAT2141	MVBAT22H43
Medium		Compressed air				
Operating pressure range		0.2~1 MPa				0.2~1.6 MPa
Supply pressure range		0.1~1 MPa				
Ambient temperature		+2~+50°C (No freezing)				
Attachment (*3)	Pressure gauge	PG-25			PG-40W	PG-40W-20K
Option (*3)	A: Precision filter regulator	A-BA-03			A-BA-04	
	S: Silencer	MSLT-03			MSLT-04	
	V: Drain valve & piping joint	V-BA-02				
Weight (Booster regulator with air tank) (kg)		12	20	18.5	24	34

	Booster regulator (*1)			
Applicable model	MVBA-2100		MVBA-4100	MVBA-4300
IN, OUT, EXH port	Rc3/8		Rc1/2	

		Air tank (*2)				
Applicable model		MVBAT10A	MVBAT20A	MVBAT21B	MVBAT21C	MVBAT22HC
OUT port size		Rc3/8		Rc1/2		
IN port size		No port thread provided				
Safety valve sqare port		–				Rc3/8
Drain valve port		Rc1/4				
Max. operating pressure	MPa	1.15	1.5	1		2
Proof pressure	MPa	1.725	2.25	1.6		3.3
Ambient & operating fluid temperature		0~+75°C				
Volume (L)		10	20	20		
Material		Carbon steel				
Painting	Exterior	Exterior: Cool gray-white baked paint				
	Interior	No anti-rust coating				
Weight (kg)		8	16	14.5	14.5	24.5

*1. When selecting option A (precision filter regulator), the booster will use Rc thread specification exclusively. Refer to "MVBA series spec. ".
*2. Not recommended for use solely as an air tank. Only Rc threading is available. For those opting for G or NPT threading, one male-to-female OUT port adapter (1 pc) is included as needed.
*3. Drain valves and precision filter regulator are assembled for shipment. Attachment and optional accessories are included with the shipment separately and are not pre-assembled.

MVBAT Order example & Dimensions

BOOSTER REGULATOR WITH AIR TANK

Order example

MVBAT 10 21 – □ – G

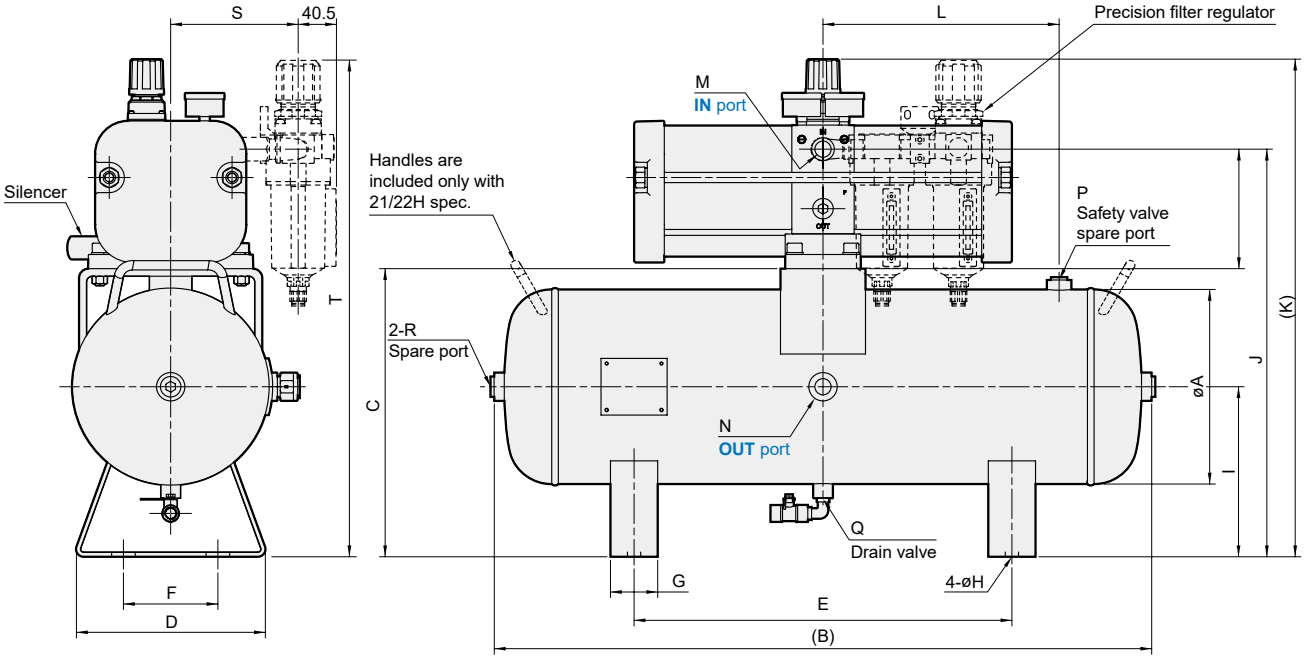
MODEL

Tank internal capacity		Booster regulator	
10	10L	**21**	2100
20	20L		
21	20L		
	20L	**41**	4100
22H	20L	**43**	4300

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

OPTIONAL
Blank: without
A: Precision filter regulator
S: Silencer
V: Drain valve

Dimensions



Code / Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T
MVBAT 1021	200	407	300	200	180	125	25	10	160	389	473	–	Rc3/8	Rc3/8	–	Rc1/4	Rc3/8	115	483
MVBAT 2021	244~248	515	340	250	270	155	38	14	180	429	513								523
MVBAT 2121	244	512											Rc1/2	Rc1/2			Rc1/2		
MVBAT 2141										466.5	551.5							135	560.5
MVBAT 22H43	206	696	305	200	400	155	50	14		431.5	527	250			Rc3/8				525.5

Caution for safety
(Read before installing)

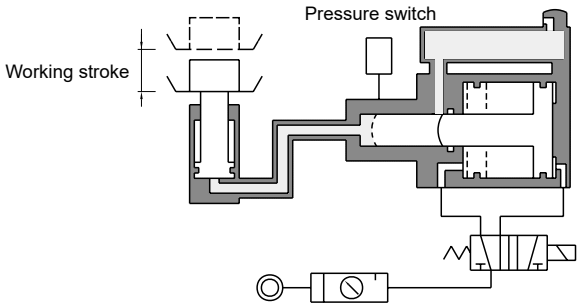


Features

- Generates high pressure by use of high pressure hydraulic fluid.
- Universal design enables unit to be used in a wide variety of applications.
- Ideal for providing the motive force for marking, punching, shearing, straightening, embossing and welding.

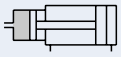
Single pressure booster

Optimum for high output,short stroke cylinder.



MHBS Single pressure type

MHBD Dual pressure type



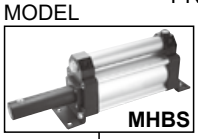
Specification

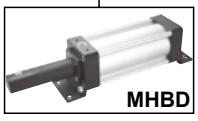
Model	Single pressure type			Dual pressure type		
	MHBS-078	MHBS-110	MHBS-250	MHBD-078	MHBD-110	MHBD-250
Intensified pressure ratio	7.8	11	25	7.8	11	25
Generated hydraulic pressure (MPa)	5.3	7.6	17.2	5.3	7.6	17.2
Discharging volume (cc)	50	120	120	50	120	120
Port size	Rc3/8	Rc1/2	Rc1/2	Rc3/8	Rc1/2	Rc1/2
Ambient temperature	+5~+60 °C					
Operating pressure range	0.2~0.7 MPa					
Driving fluid	Hydraulic work oil viscosity					
Mounting form	Side foot type					
Sensor switch	LN02A	LN03A		LN02A	LN03A	

Order example

MHBD — 110

MODEL





INTENSIFIED PRESSURE RATIO
078: 7.8
110: 11
250: 25

The method of calculation (Booster consumption)

$$A = (D)^2 \times \frac{\pi}{4}\ mm^2$$

$$P2 = R \times P$$

$$F = A \times P2 = ___\ N$$

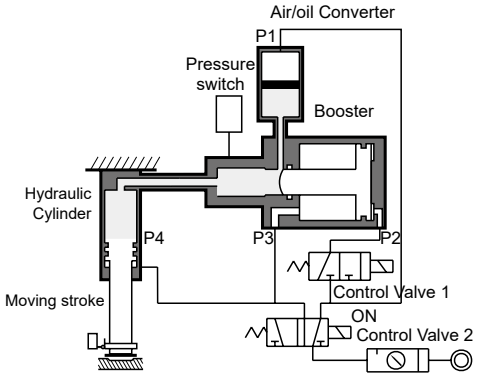
A:	Piston area	(mm^2)
D:	Piston I.D.	(mm)
F:	Cylinders force	(N)
P:	Air pressure	(MPa)
P2:	Intensified pressure	(MPa)
R:	Intensified pressure ratio	

Dual pressure booster

Booster precautions

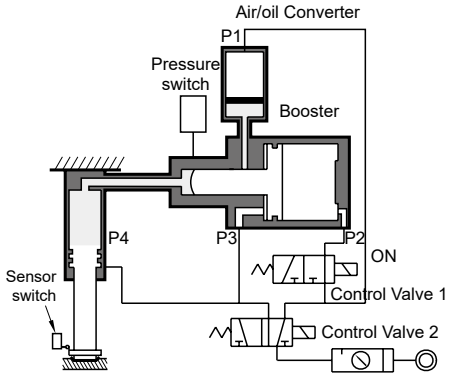
- The booster must be levelled.
- Standard booster are designed for use with petroleum base hydraulic oil.
- The booster must be higher than the work hydraulic cylinder.
- Frequency of use should be 6 times/min or lower.

1. Quick traverse



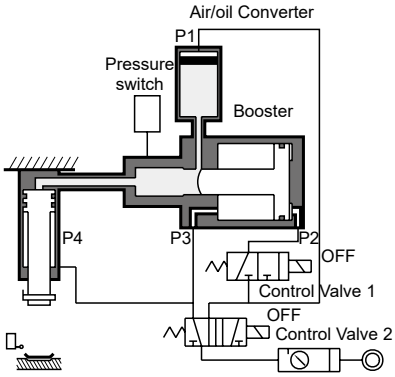
When the air enters through port P1, the oil in the air/oil converter is pushed into the hydraulic cylinder in large quantities and quickly. The pressure is the same as the air pressure.

2. Intensified feeding



When the air enters through port P2, the piston advances and pushes the high pressure oil into the hydraulic cylinder.

3. Swift reverse



When the air enters through ports P4 and P3, the hydraulic cylinder and Booster return to their original position.

Compressed air consumption

l / cycle

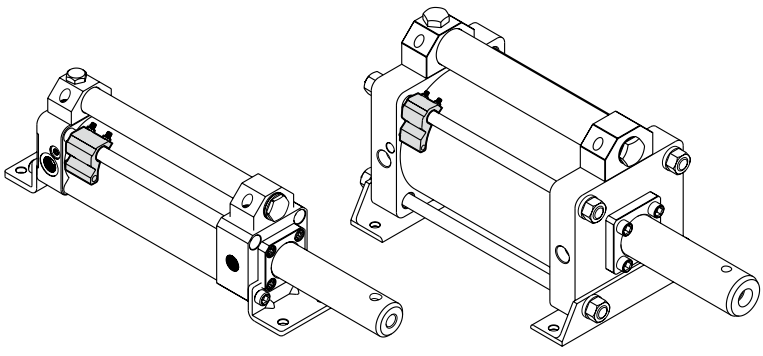
Boosters	Operating pressure (MPa)					
	0.2	0.3	0.4	0.5	0.6	0.7
MHBS-078	2.40	3.19	3.98	4.78	5.56	6.36
MHBD-078	2.40	3.19	3.98	4.78	5.56	6.36
MHBS-110	7.58	10.07	12.57	15.07	17.57	20.06
MHBD-110	7.58	10.07	12.57	15.07	17.57	20.06
MHBS-250	18.09	24.06	30.02	35.99	41.95	47.92
MHBD-250	18.09	24.06	30.02	35.99	41.95	47.92

How to order the seal kit

Model	Code
MHBS-078	MHBSSK-078
MHBD-078	MHBDSK-078
MHBS-110	MHBSSK-110
MHBD-110	MHBDSK-110
MHBS-250	MHBSSK-250
MHBD-250	MHBDSK-250

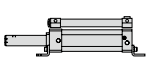
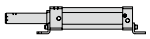
Installation of sensor switch

Model	Sensor switch
MHBS(D)-078	LN02A
MHBS(D)-110	LN03A
MHBS(D)-250	LN03A

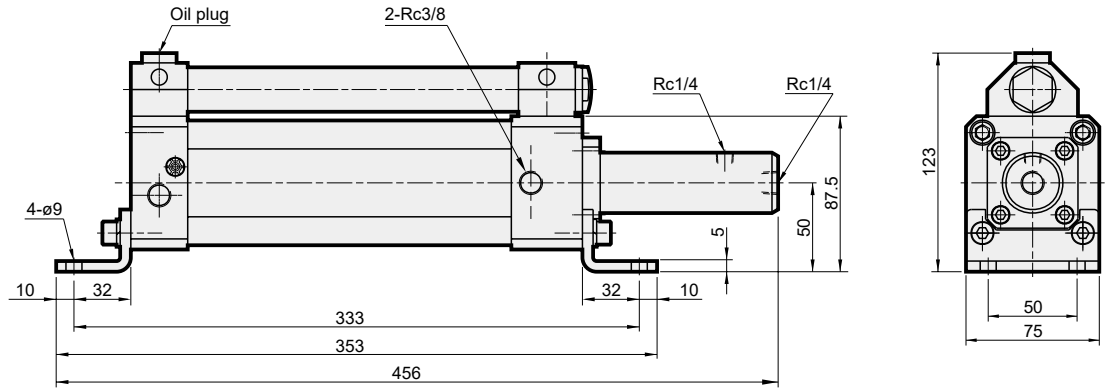


Booster weight

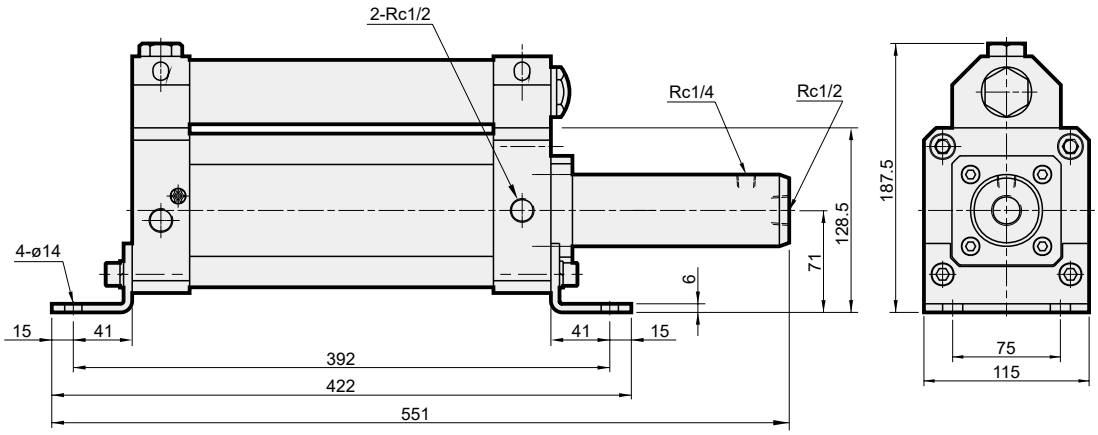
Unit: kg

Type	**MHBS**	**MHBD**
		
078	3.4	3.1
110	10.1	9.1
250	20.0	18.0

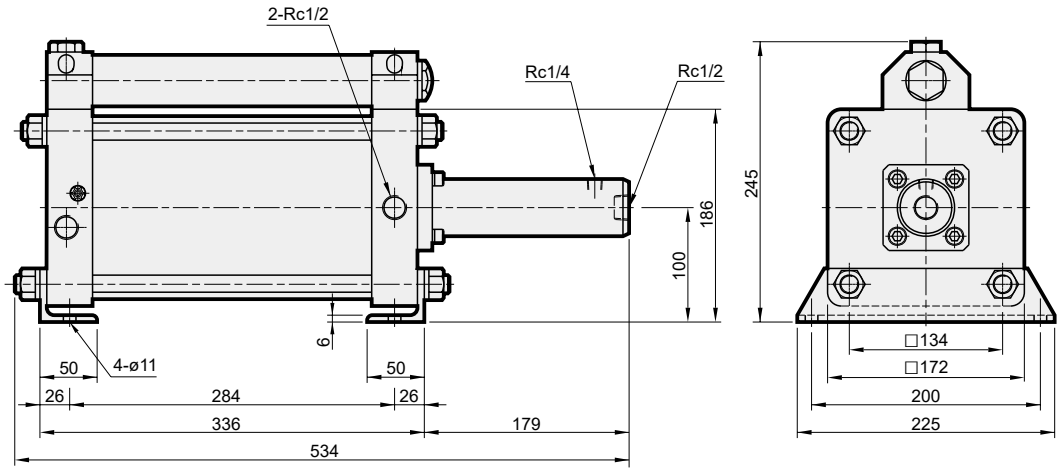
MHBS-078



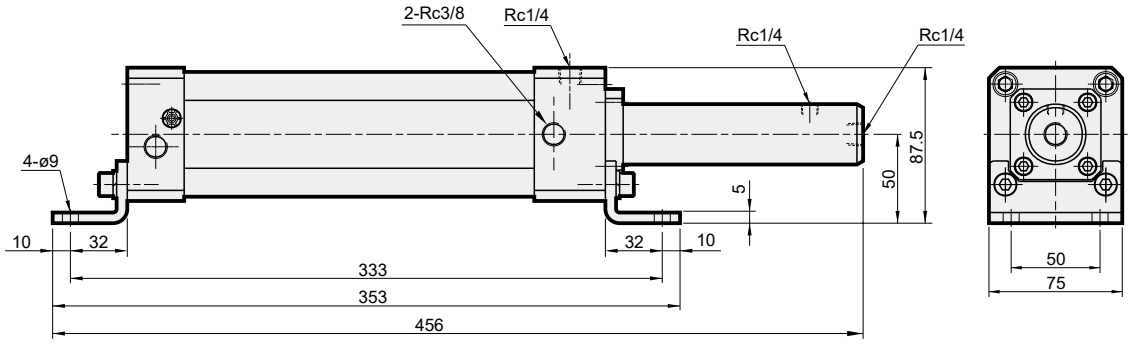
MHBS-110



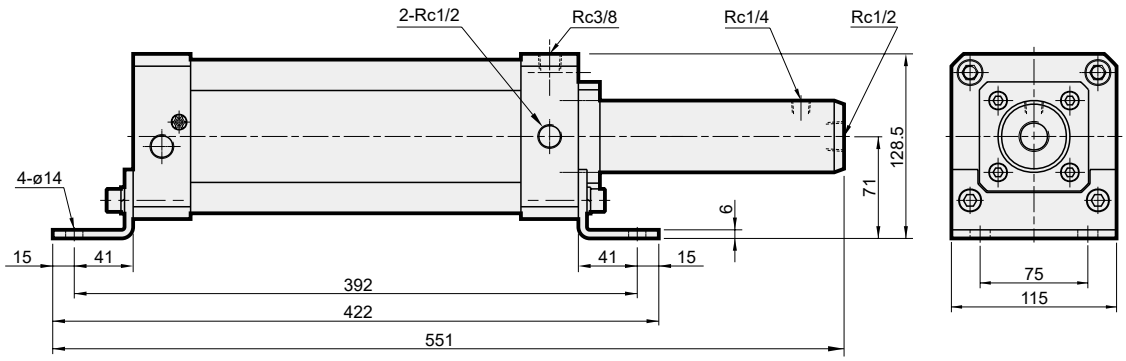
MHBS-250



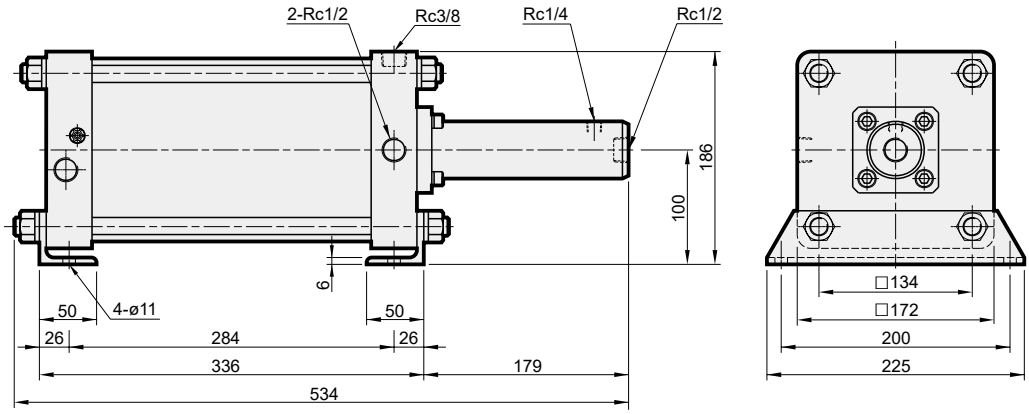
MHBD-078



MHBD-110



MHBD-250



MPG-60 series

DIGITAL **PRESSURE GAUGE**

User manual

Selection table



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		3 ½ digital, 7 segment LCD display (Black)			
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

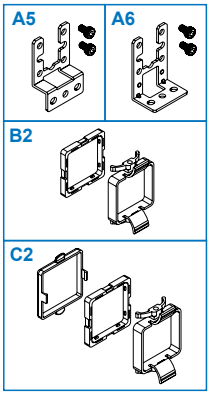
MPG — 60 P — L — F1

- 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

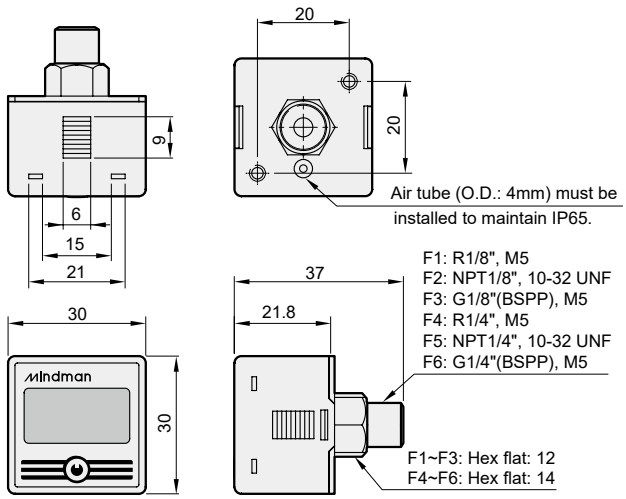
Mounting accessories (Option)

MP — A5

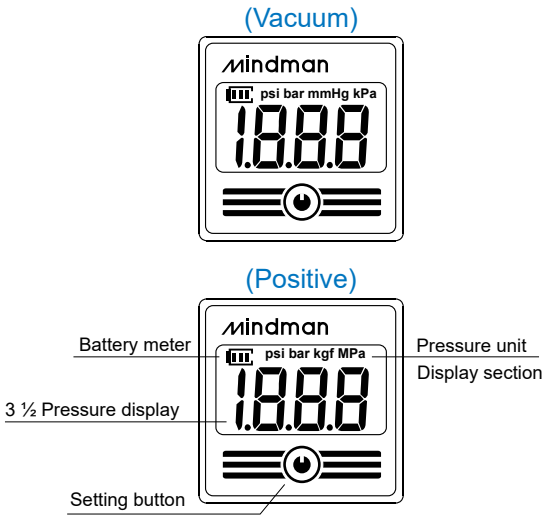
- MP: MODEL
- A5: OPTION PARTS
  - **A5**: Mounting bracket
  - **A6**: Mounting bracket
  - **B2**: Panel adapter
  - **C2**: Panel adapter + Front protective lid



Dimensions



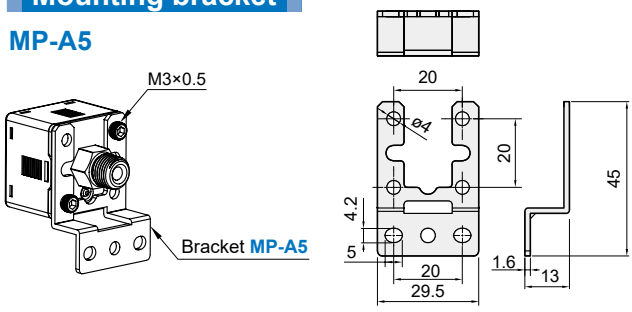
Panel instructions



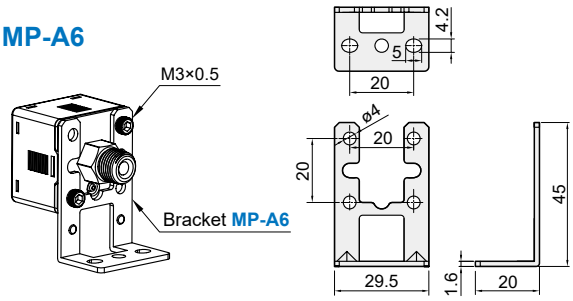
Mounting accessories

Mounting bracket

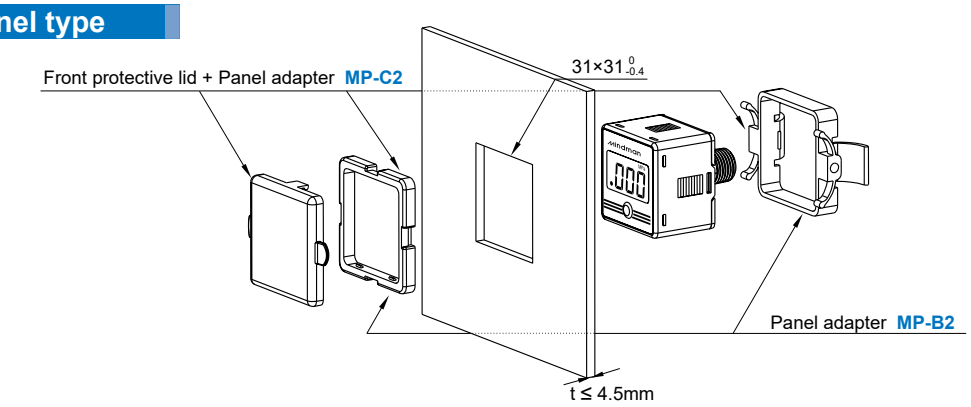
MP-A5

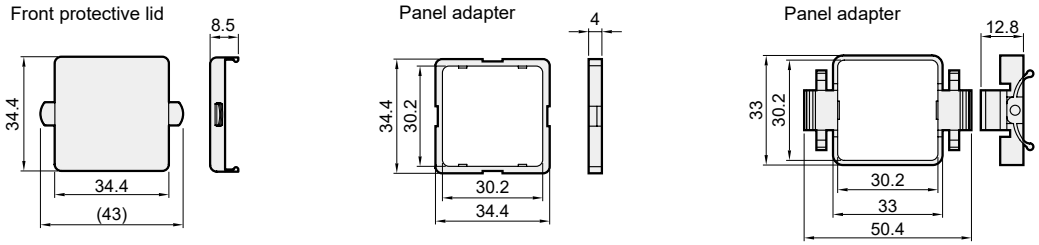


MP-A6



Panel type





Selection table

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

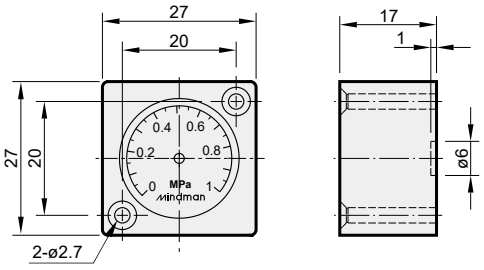
- MODEL
- GAUGE SIZE: **20, 25, 33, 40, 50**
- PRESSURE RANGE: Blank: 0~1 MPa; **1K**: 0~0.1 MPa; **2K**: 0~0.2 MPa; **3K**: 0~0.3 MPa; **4K**: 0~0.4 MPa; **5K**: 0~0.5 MPa; **20K**: 0~2 MPa
- PORT THREAD: Blank: R thread; **NPT**: NPT thread
- CASE MATERIAL

Code / Model	–	W	S	Note
PG-20	○	○		**W**(White)
PG-25	○			
PG-33			○	
PG-40	○	○	○	**W**(Electroplating)
PG-50	○			

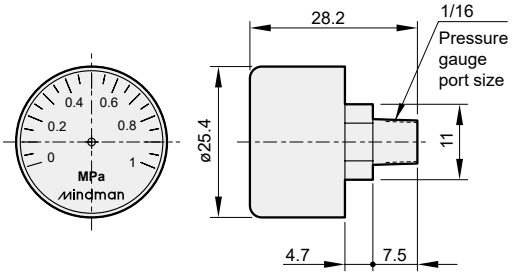
* Blank: Standard type (Black)
  PG-25 standard type (Gray)
* S: Stainless steel

Code / Model	–	1K	2K	3K	4K	5K	20K
PG-20	○	×	×	×	×	×	×
PG-20W	○	×	×	×	×	×	×
PG-25	○	×	×	×	×	×	×
PG-33S	○	×	○	×	○	×	×
PG-40	○	○	○	○	○	○	○
PG-40W	○	○	○	○	○	○	○
PG-40S	○	×	○	×	○	×	×
PG-50	○	×	×	×	×	×	○

PG-20

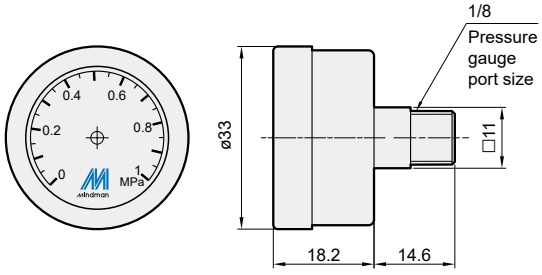


PG-25

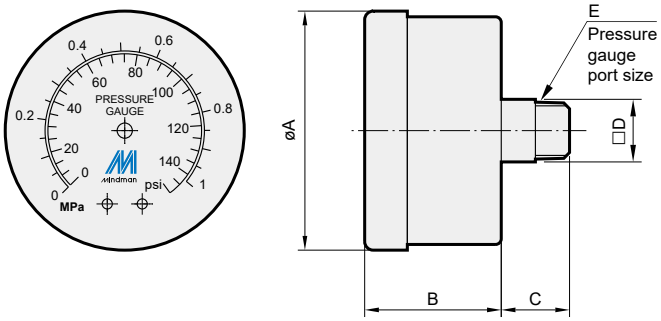


PG-33S

*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

Selection table



Specification

Model	PGV-40S
Bore No.	6A
Port size	1/8
Medium	Air
Operating pressure range	-100~0 kPa (*)
Precision	ASME B class
Ambient temperature	-5~+60°C (No freezing)
Weight	50 g

* Do not use for positive pressure, otherwise it will cause damage to pressure gauge.

Order example

PGV — 40 S — NPT

- PGV — MODEL
- 40 — GAUGE SIZE
- S — CASE MATERIAL
  - **S**: Stainless steel
- NPT — PORT THREAD
  - Blank: R thread
  - **NPT**: NPT thread

Dimensions

