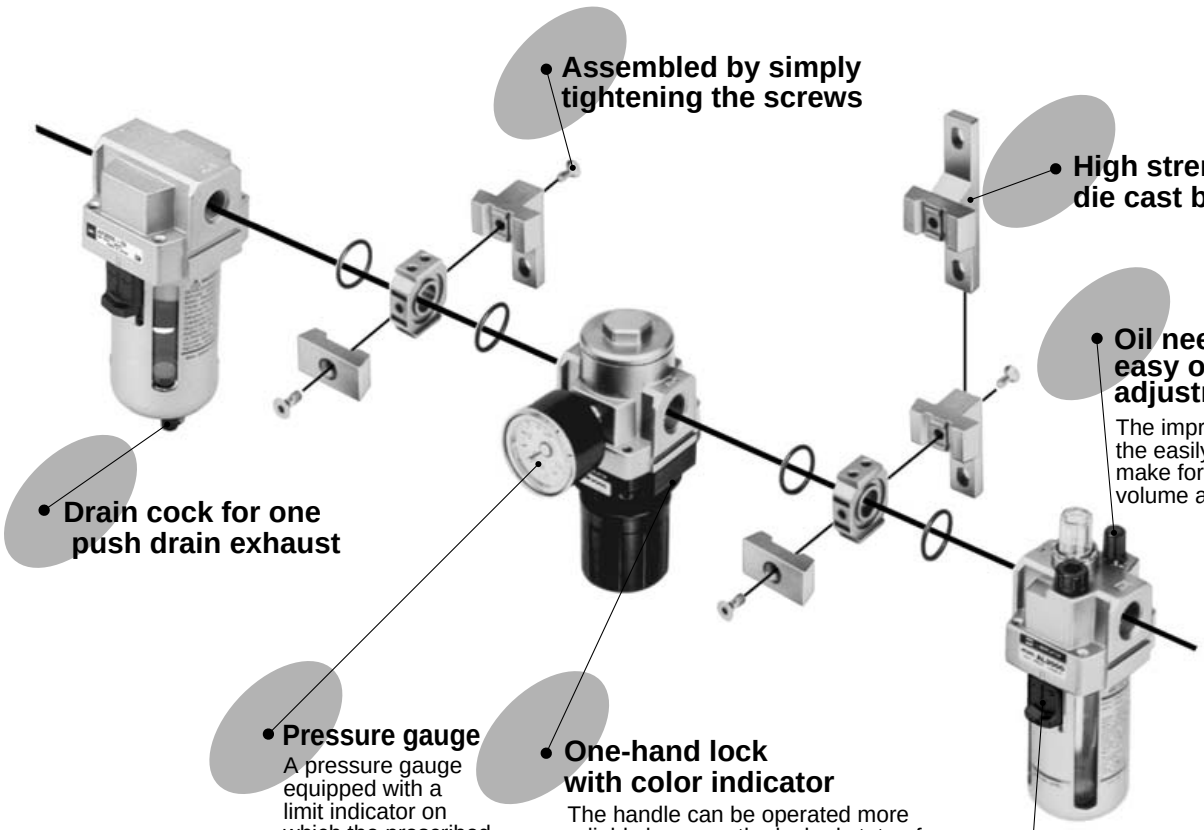
Modular Style Air Combination

Series AC CAD

Obsolete-Press to go to New Mass-Pro Series



Assembled by simply tightening the screws

High strength die cast bracket

Oil needle for easy oil volume adjustments

The improved needle and the easily grasped handle make for easier oil volume adjustments

Drain cock for one push drain exhaust

Pressure gauge

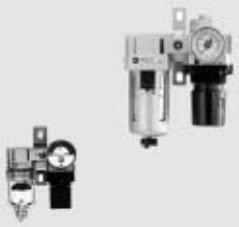
A pressure gauge equipped with a limit indicator on which the prescribed pressure range can be viewed at a glance. (Applicable to AR20□0 to AR60□0)

One-hand lock with color indicator

The handle can be operated more reliably because the locked state of the pressure regulation handle can be checked at a glance by whether the orange mark is visible.
If the orange mark is visible, the pressure can be regulated.
(AR30□0, 40□0, 50□0 only)

Bowl can be attached and detached with one hand.
(Turn proof structure at pressurized state)

Standard Combinations

Combination	Model	Port size	Constructing equipment				
			Air filter AF	Regulator AR	Lubricator AL	Filter regulator AW	Mist separator AFM
AF+AR+AL Obsolete  See Mass Pro series 	**AC1000**	M5 X 0.8	AF1000	AR1000	AL1000		
	AC2000	1/8, 1/4	AF2000	AR2000	AL2000		
	AC2500	1/4, 3/8	AF3000	AR2500	AL3000		
	AC3000	1/4, 3/8	AF3000	AR3000	AL3000		
	AC4000	1/4, 3/8, 1/2	AF4000	AR4000	AL4000		
	AC4000-06	3/4	AF4000-06	AR4000-06	AL4000-06		
	AC5000	3/4, 1	AF5000	AR5000	AL5000		
	AC5500	1	AF6000	AR5000	AL6000		
	AC6000	1	AF6000	AR6000	AL6000		
AW+AL 	**AC1010**	M5 X 0.8			AL1000	AW1000	
	AC2010	1/8, 1/4			AL2000	AW2000	
	AC3010	1/4, 3/8			AL3000	AW3000	
	AC4010	1/4, 3/8, 1/2			AL4000	AW4000	
	AC4010-06	3/4			AL4000-06	AW4000-06	
AF+AR 	**AC1020**	M5 X 0.8	AF1000	AR1000			
	AC2020	1/8, 1/4	AF2000	AR2000			
	AC2520	1/4, 3/8	AF3000	AR2500			
	AC3020	1/4, 3/8	AF3000	AR3000			
	AC4020	1/4, 3/8, 1/2	AF4000	AR4000			
	AC4020-06	3/4	AF4000-06	AR4000-06			
	AC5020	3/4, 1	AF5000	AR5000			
	AC5520	1	AF6000	AR5000			
	AC6020	1	AF6000	AR6000			
AF+AFM+AR 	**AC2030**	1/8, 1/4	AF2000	AR2000			AFM2000
	AC2530	1/4, 3/8	AF3000	AR2500			AFM3000
	AC3030	1/4, 3/8	AF3000	AR3000			AFM3000
	AC4030	1/4, 3/8, 1/2	AF4000	AR4000			AFM4000
	AC4030-06	3/4	AF4000-06	AR4000-06			AFM4000-06
AW+AFM 	**AC2040**	1/8, 1/4				AW2000	AFM2000
	AC3040	1/4, 3/8				AW3000	AFM3000
	AC4040	1/4, 3/8, 1/2				AW4000	AFM4000
	AC4040-06	3/4				AW4000-06	AFM4000-06

Obsolete
See Mass Pro Series

How to Order

AC 30 00 — 03 DG — ST — 12R

Air combination

Body size

10	M5
20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
55	1
60	1

Combination of equipment

Symbol	Combination of equipment				
	Filter (AF)	Regulator (AR)	Lubricator (AL)	Filter regulator (AW)	Mist separator (AFM)
00	①	②	③	—	—
10	—	—	②	①	—
20	①	②	—	—	—
30	①	③	—	—	②
40	—	—	—	①	②

(1) Numbers in ○ indicate the constructing order from the left hand side (upper stream) with a view from front.
Ex.) Symbol **00** —— AF+AR+AL
10 —— AW+AL
(Available only for AC1010 to 4010.)
20 —— AF+AR
30 —— AF+AFM+AR
(Available only for AC2030 to 4030.)
40 —— AW+AFM
(Available only for AC2040 to 4040.)

(2) Standard bracket for a set of 2 pieces: T type bracket
A set of 3 pieces or more: L type bracket

Thread

—	Metric thread (M5)
	Rc (PT)
N	NPT
F	G(PF)

Port size

M5	M5 X 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessories (Options)

Symbol	Description	Applicable model
C	Auto drain	Float style (N.C.): AC2500 to AC6000
D	Auto drain	Pressure differential style: AC1000, AC2000 Float style (N.O.): AC2500 to AC6000
G	Pressure gauge	Without limit indicator: AC1000
		With limit indicator: AC2000 to AC6000

Option specifications

1(1)	Set at 0.02 to 0.2MPa (Regulator)
2	Metal bowl (Filter/Lubricator)
3	Lubricator with drain cock
6	Nylon bowl (Filter/Lubricator)
8	Metal bowl with level gauge (Filter/Lubricator) (Applicable to AC2500 to AC6000.)
C	Bowl guard (Applicable to AC20 ☐ 0 only.)
J(2)	Drain guide port size 1/4 (AC2500 to AC6000)
N	Non relieving style (Regulator)
R	Flow direction: Right to left
W	Drain cock with barb fitting: For ø6/ø4 nylon (Filter) (Applicable to AC2500 to AC6000)

∗ If indicating more than one symbol, place the desired symbols in numerical order then alphabetical order.
Example) **2NR**

Note 1) Only adjusting spring of regulator is different from standard specification.
Note 2) Without valve mechanism.

Attachments

Symbol	Description	Mounting location of attachment	Applicable model	Air intermediate output port size
—	**None**	—	—	—
K	**Check valve**	AF + AR + Ⓚ + AL	AC2000 to AC4000	AC20☐0: 1/8 AC25☐0: 1/4 AC30☐0: 1/4 AC40☐0: 3/8
		AW + Ⓚ + AL	AC2010 to AC4010	
S	**Pressure switch**	AF + AR + Ⓢ + AL	AC2000 to AC6000	—
		AF + Ⓢ + AR	AC2020 to AC6020	
		AF + AFM + Ⓢ + AR	AC2030 to AC4030	
T	**T type interface**	AF + Ⓣ + AR + AL	AC1000 to AC6000	AC10☐0: M5 X 0.8 AC20☐0: 1/8 AC25☐0: 1/4 AC30☐0: 1/4 AC40☐0: 3/8 AC50☐0: 3/8 AC55☐0: 1/2 AC60☐0: 1/2
		AF + Ⓣ + AR	AC1020 to AC6020	
		AF + AFM + Ⓣ + AR	AC2030 to AC4030	
V	**Residual pressure exhaust 3 port valve**	AF + AR + AL + Ⓥ	AC2000 to AC4000	—
		AW + AL + Ⓥ	AC2010 to AC4010	
		AF + AR + Ⓥ	AC2020 to AC4020	
		AF + AFM + AR + Ⓥ	AC2030 to AC4030	
		AW + AFM + Ⓥ	AC2040 to AC4040	

Note 1) If indicating more than one symbol, place the desired symbols in alphabetical order.
Note 2) For piping adapter, pressure switch with piping adapter and cross interface, indicate part number, separately.
Note 3) Consult SMC if using pressure switch and T type interface simultaneously.

Option Specifications Combination List

◎: Combination possible ▭: Combination impossible ●: Depends on the model

	Description	Symbol	Accessory (Auto drain)			Option specification										F.R.L. Combination applicable model									
			D	D	C	1	2	3	6	8	C	J	N	R	W	AC1000 AC1010	AC1020	AC2000 AC2010	AC2020 AC2030 AC2040	AC2500	AC2520 AC2530	AC3000 to AC6000	AC3010 AC4010	AC3020 to AC6020	AC3030 AC4030	AC3040 AC4040
Accessory	Auto drain press. differential	D				◎	◎	◎	◎		●		◎	◎		◎	◎	◎	◎							
	Auto drain float style (N.O.)	D				◎	◎	◎	◎	●			◎	◎						◎	◎	◎	◎	◎	◎	◎
	Auto drain float style (N.C.)	C				◎	◎	◎	◎	●			◎	◎						◎	◎	◎	◎	◎	◎	◎
Option specification	Set at 0.02 to 0.2 MPa	-1	◎	◎	◎		◎	◎	◎	●	●	●	◎	◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Metal bowl	-2	◎	◎	◎	◎		◎				●	◎	◎		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Lubricator with drain cock	-3	◎	◎	◎	◎	◎		◎	●	●	●	◎	◎	●	◎		◎		◎		◎	◎			
	Nylon bowl	-6	◎	◎	◎	◎		◎			●	●	◎	◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Metal bowl with level gauge	-8		◎	◎	◎		◎				●	◎	◎						◎	◎	◎	◎	◎	◎	◎
	With bowl guard	-C	◎			◎		◎	◎				◎	◎				◎	◎							
	Drain guide (Port size 1/4)	-J				◎	◎	◎	◎	●			◎	◎						◎	◎	◎	◎	◎	◎	◎
	Non relieving style	-N	◎	◎	◎	◎	◎	◎	◎	●	●	●		◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Flow direction: right to left	-R	◎	◎	◎	◎	◎	◎	◎	●	●	●	◎		●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	One-touch drain cock w/ barb fitting	-W				◎		◎	◎				◎	◎						◎	◎	◎	◎	◎	◎	◎

Attachments

	Port size	Mechanism
Piping adapter	M5 X 0.8 1/8, 1/4, 3/8, 1/2, 3/4, 1	Able to connect and disconnect equipment without detaching piping.
Pressure switch with piping adapter	1/8, 1/4, 3/8, 1/2, 3/4	Compact switch united with piping adapter
Check valve	1/8, 1/4, 3/8	Prevents reverse flow from lubricator.
Pressure switch	—	Compact switch
T type interface	M5 X 0.8 1/8, 1/4, 3/8, 1/2	Able to diverge air.
Residual pressure exhaust 3 port valve	1/8, 1/4, 3/8, 1/2	Able to exhaust residual pressure in the line.
Cross interface	M5 X 0.8 1/8, 1/4, 3/8, 1/2	Able to diverge piping in all directions.

Obsolete
See Mass Pro Series

Air Combination
Air Filter + Regulator + Lubricator

AC1000 to 6000

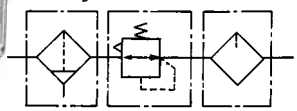
CAD


AC4000


AC3000


AC2000

JIS symbol


Air filter Regulator Lubricator

Standard Specifications

Model		AC1000	AC2000	AC2500	AC3000	AC4000	AC4000-06	AC5000	AC5500	AC6000
Combination equipment	Air filter	AF1000	AF2000	AF3000	AF3000	AF4000	AF4000-06	AF5000	AF6000	AF6000
	Regulator	AR1000	AR2000	AR2500	AR3000	AR4000	AR4000-06	AR5000	AR5000	AR6000
	Lubricator	AL1000	AL2000	AL3000	AL3000	AL4000	AL4000-06	AL5000	AL6000	AL6000
Port size		M5 X 0.8	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1	1
Gauge port size		1/16	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4
Fluid		Air								
Proof pressure		1.5 MPa								
Max. operating pressure		1.0 MP								
Set pressure range		0.05 to 0.7 MPa	0.05 to 0.85 MPa							
Flow (ℓ/min(ANR))(Port size)(1)		90 (M5 X 0.8)	500(1/4)	1500(3/8)	2000(3/8)	4000(1/2)	4500(3/4)	5000(3/4)	6000(1)	6000(1)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)								
Filtration		5μm								
Recommended lubricant		Turbin oil class 1 (ISO VG32)								
Bowl material		Polycarbonate								
Construction/Regulator		Relieving style								
Weight (kg)		0.26	0.74	1.04	1.18	2.14	2.47	3.82	4.04	4.39
Accessory (Standard equipment)	Bowl guard	—	—	●	●	●	●	●	●	●
	Bracket	B110L	B210L	B310L	B310L	B410L	B510L	B610L	B610L	B610L

Note 1) Supply pressure: 0.7 MPa, Set pressure: 0.5 MPa

Attachments/Accessories (Options)

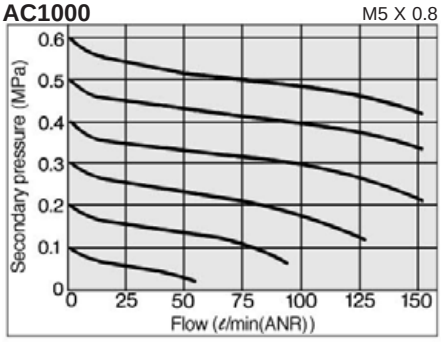
	Description \ Model	Part No. For AC1000	For AC2000	For AC2500	For AC3000	For AC4000	For AC4000-06	For AC5000	For AC5500	For AC6000
Attachment	Piping adapter	E10-M5	E20-□01 □02 □03	E30-□02 □03 □04	E30-□02 □03 □04	E40-□02 □03 □04 □06	E50-□06	E60-□06 □10	E60-□06 □10	E60-□06 □10
	Pressure switch with piping adapter	–	IS1000E-□01 □02 □03 Y	IS1000E-2□02 2□03 2□04 Y	IS1000E-3□02 3□03 3□04 Y	IS1000E-4□02 4□03 4□04 4□06 Y	–	–	–	–
	Check valve(2)	–	AKM2000-□01 □(02)	AKM3000-□(01) □02	AKM3000-□(01) □02	AKM4000-□(02) □03	–	–	–	–
	Pressure switch	–	IS1000M-2Y	IS1000M-3Y	IS1000M-3Y	IS1000M-4Y	IS1000M-5Y	IS1000M-6Y	IS1000M-6Y	IS1000M-6Y
	T type interface(2)	Y11-M5	Y21-□01 □(02)	Y31-□(01) □02	Y31-□(01) □02	Y41-□(02) □03	Y51-□(02) □03	Y61-□03 □(04)	Y61-□(03) □04	Y61-□(03) □04
	Residual press. exhaust 3 port valve	–	VHS2000-□01 □02	VHS3000-□02 □03	VHS3000-□02 □03	VHS4000-□02 □03 □04	–	–	–	–
	Cross interface	Y14-M5	Y24-□01 □02	Y34-□01 □02	Y34-□01 □02	Y44-□02 □03	Y54-□03 □04	–	–	–
Accessory	T type bracket	B110T	B210T	B310T	B310T	B410T	B510T	B610T	B610T	B610T
	Interface	Y10	Y20	Y30	Y30	Y40	Y50	Y60	Y60	Y60
	Pressure gauge 1.0MPa	G27-10-R1	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02
	Pressure gauge 0.2MPa	(G27-10-R1)(3)	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02
	Auto drain float (4) N.O.	–	–	AD43	AD43	AD44	AD44	AD44	AD44	AD44
	Auto drain float (4) N.C.	–	–	AD53	AD53	AD54	AD54	AD54	AD54	AD54
	Auto drain w/ press. diff.	AD61	AD62	–	–	–	–	–	–	–

Note 2) Standard specification of air combination: Port size without ( )
Note 3) Use the one for 1.0MPa
Note 4) Minimum operating pressure: N.O. 0.1 MPa, N.C. 0.15MPa ∗-01, -02, -03, -04, -06, -10 after part number indicate port size. (01: 1/8, 02: 1/4, 03: 3/8, 04: 1/2, 06: 3/4, 10: 1)
Note 5) □ in the part number indicate a connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF). G(PF) pressure gauge is unavailable.
Consult SMC for NPT pressure gauges.

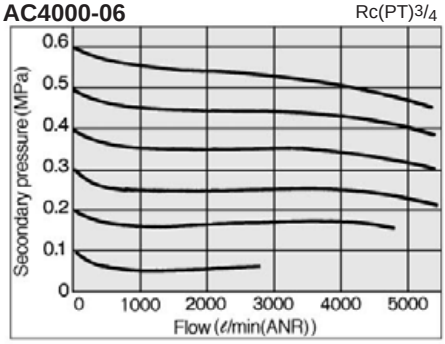
Flow Characteristics

Condition: Supply pressure 0.7MPa

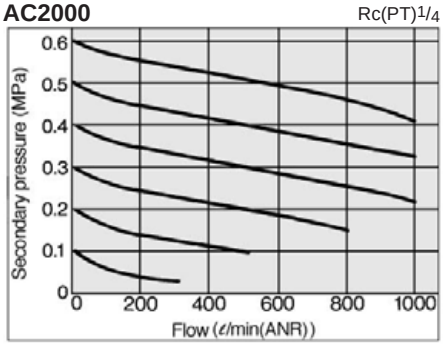
AC1000 M5 X 0.8



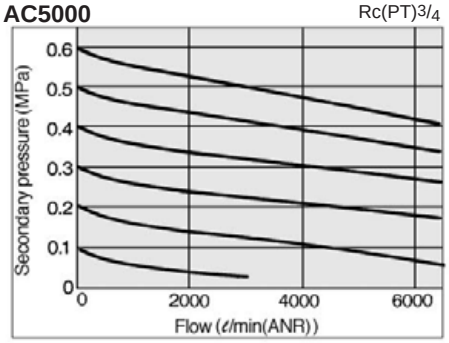
AC4000-06 Rc(PT)3/4



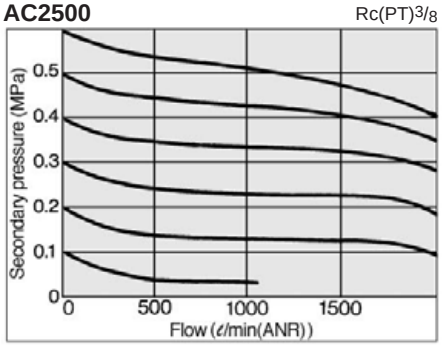
AC2000 Rc(PT)1/4



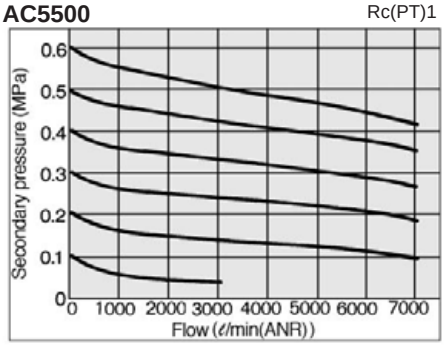
AC5000 Rc(PT)3/4



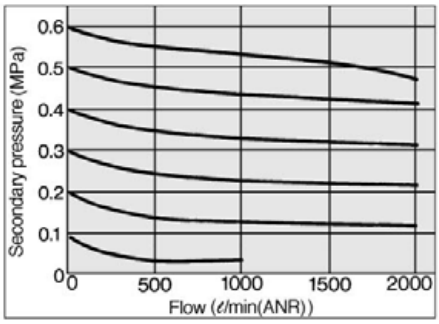
AC2500 Rc(PT)3/8



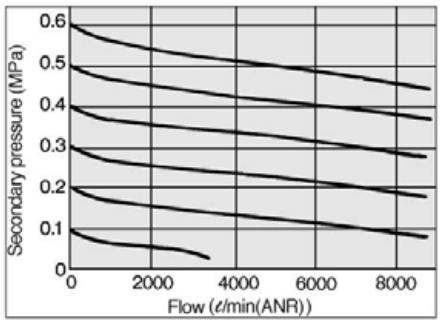
AC5500 Rc(PT)1



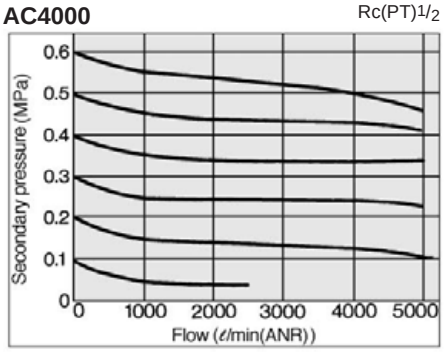
AC3000 Rc(PT)3/8



AC6000 Rc(PT)1



AC4000 Rc(PT)1/2



⚠ Precaution

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠Warning

①For AC3030, 4030, 3040 and 4040 with float style auto drain(N.O.), use 2.2kW or larger compressor.
Because 2 auto drains are used and 200ℓ/min air is needed, it might malfunction with a compressor weaker than the required ability.

⚠Caution

①In case of mounting a regulator in up right direction, no pressure switch(IS1000M-□) attachment or T type interface can be mounted, for it touches bonnet.
It is the same as a filter regulator.

②There is possibility of oil flowing back when mounting T type interface onto the supply side of lubricator and take out in the middle. It cannot be used for air non lubrication style.
To use it as for air non lubrication style, it is necessary to use check valve(Series AKM) to prevent reverse flow.

③Mounting pressure switch and T type interface on the IN side of check valve makes it impossible to take out piping in the middle of check valve.

④When mounting residual pressure release 3 port valve directly to the IN side of a lubricator, use check valve (Series AKM) to prevent reverse flow of oil.

⑤Pressure switch and T type interface cannot be mounted to OUT side of residual pressure release 3 port valve, as a part of the products interferes.

Piping

⚠Warning

①When mounting check valve, make sure of the position of ▷ mark which indicates an entrance of air (IN side), and connect.

Air Supply

⚠Caution

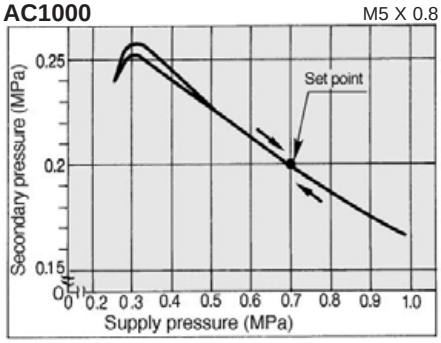
①If residual pressure release 3 port valve is to be mounted, use an air filter 5μm filtration rating or less to prevent any damage on sheet part by dust, paper, etc.

AC1000 to 6000

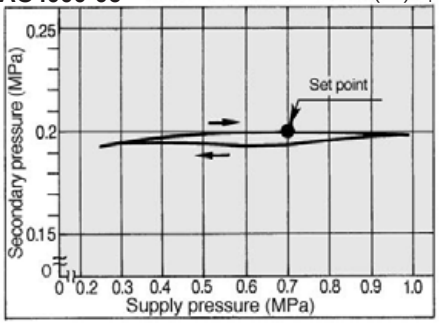
Obsolete

Pressure Characteristics Conditions: Supply pressure 0.7MPa, Secondary pressure 0.2MPa, Flow 20ℓ/min(ANR)

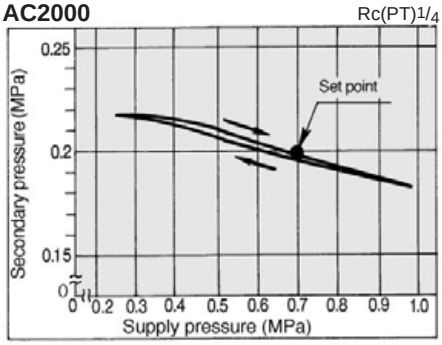
AC1000 M5 X 0.8



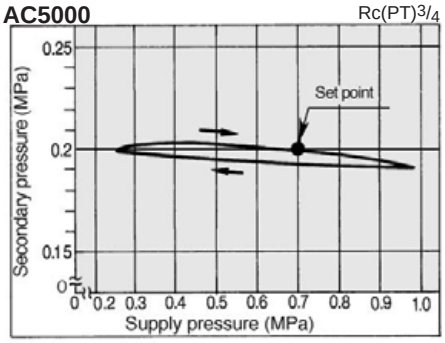
AC4000-06 Rc(PT)3/4



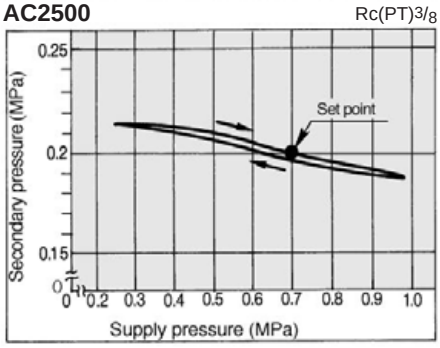
AC2000 Rc(PT)1/4



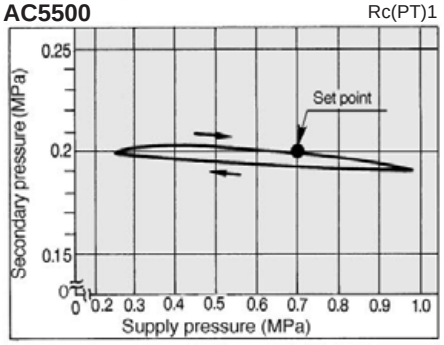
AC5000 Rc(PT)3/4



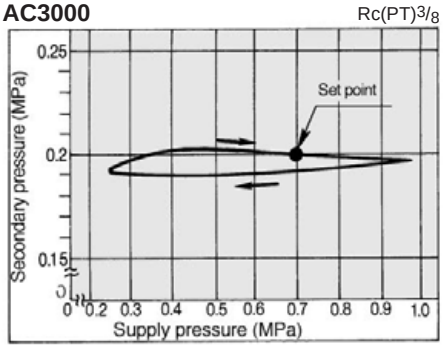
AC2500 Rc(PT)3/8



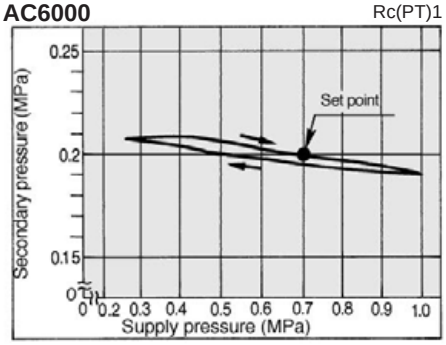
AC5500 Rc(PT)1



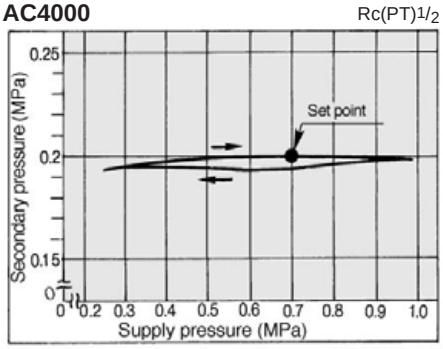
AC3000 Rc(PT)3/8



AC6000 Rc(PT)1

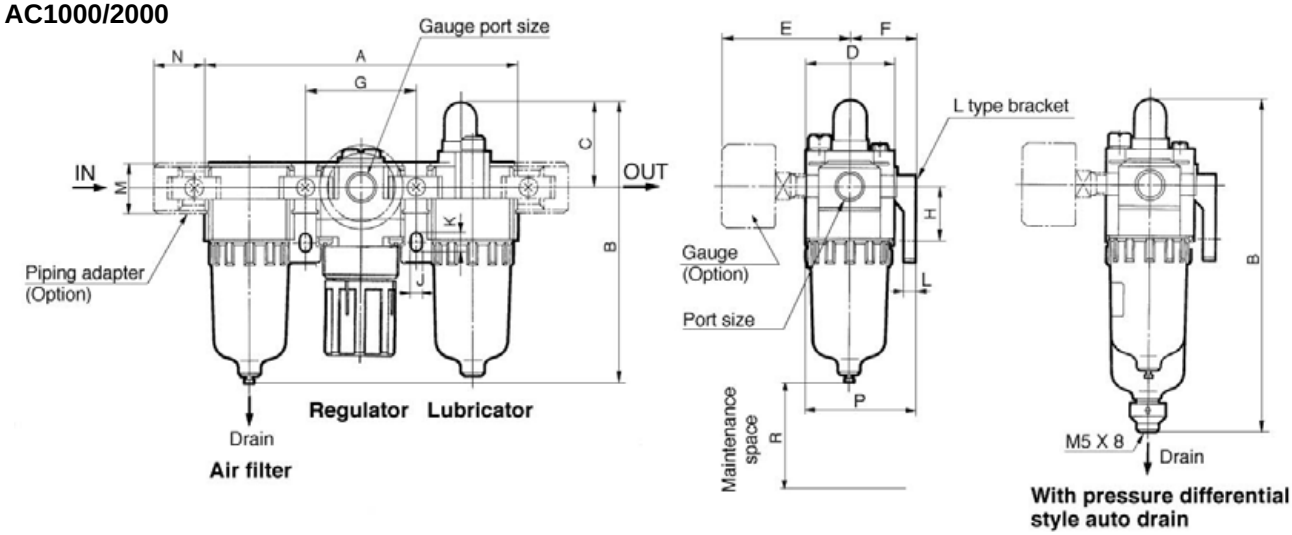


AC4000 Rc(PT)1/2

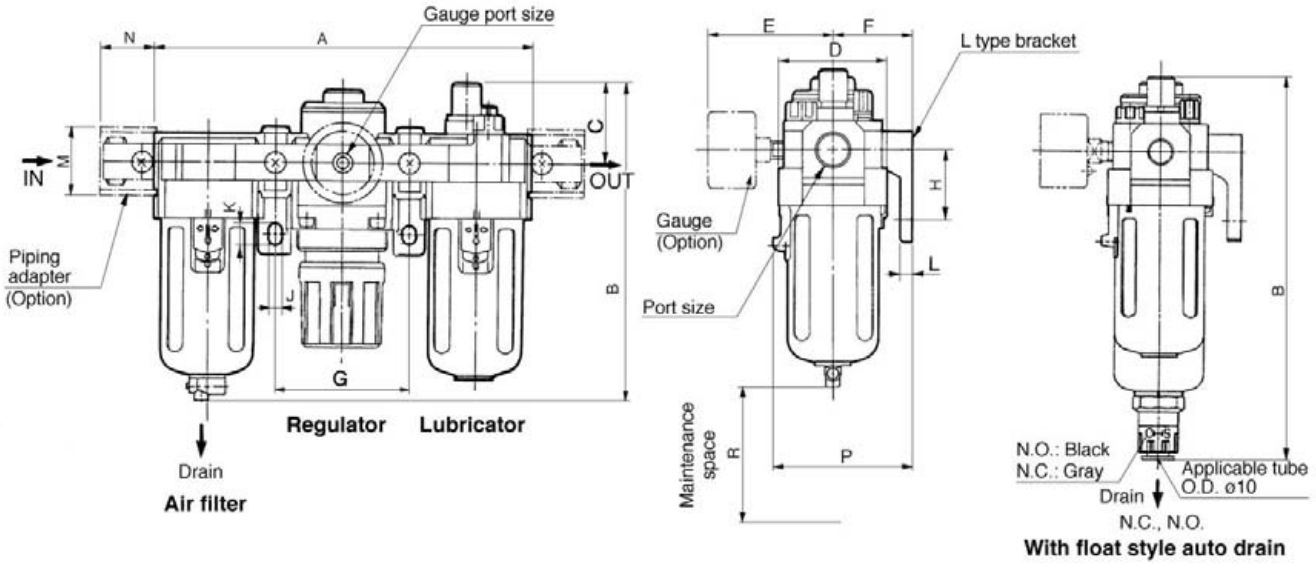


Dimensions CAD

AC1000/2000



AC2500/3000/4000/5000/5500/6000



Model	Port size	A	B	C	D	Bracket mounting size							M	N	P	R	With auto drain	
						E	F	G	H	J	K	L					Float	Press. Diff.
																	B	B
AC1000	M5 X 0.8	91	84.5	25.5	25	26	25	33	20	4.5	7.5	5	17.5	16	38.5	50	–	105
AC2000	1/8, 1/4	140	124.5	38	40	56.8	30	50	24	5.5	8.5	5	22	23	50	80	–	147.5
AC2500	1/4, 3/8	181	153	38	53	60.8	41	64	35	7	11	7	34.2	26*	70.5	80	194	–
AC3000	1/4, 3/8	181	153	38	53	60.8	41	64	35	7	11	7	34.2	26*	70.5	80	194	–
AC4000	1/4, 3/8, 1/2	238	188	41	70	65.5	50	84	40	9	13	7	42.2	33*	88	105	229	–
AC4000-06	3/4	253	189.5	40.5	70	69.5	50	89	40	9	13	7	46.2	36	88	105	230.5	–
AC5000	3/4, 1	300	268	48	90	75.5	70	105	50	12	16	10	55.2	40	108	105	309.5	–
AC5500	1	310	282	48	95	75.5	70	105	50	12	16	10	55.2	40	108	105	323.5	–
AC6000	1	315	282	48	95	78	70	110	50	12	16	10	55.2	40	108	105	323.5	–

Option**

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	
AC1000	–	–	84.5	–
AC2000	–	–	125	–
AC2500	161.5	159	166	186
AC3000	161.5	159	166	186
AC4000	196.5	194	201	221
AC4000-06	198	195.5	202.5	222.5
AC5000	276.5	274	281	301
AC5500	290.5	288	295	315
AC6000	290.5	288	295	315

*For piping adapter AC2500, 3000, port size 1/2: 40mm,
For AC4000, port size 3/4: 50mm

**For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

CAD

AC1000 — SAC1000, #1 + #2 + #3 + #13
AC2000 — SAC2000, #1 + #2 + #3 + #13
AC2500, 3000 — SAC2503, #1 + #2 + #3 + #13
AC4000 — SAC4000, #1 + #2 + #3 + #13
AC4000-06 — SAC4006, #1 + #2 + #3 + #13
AC5000 — SAC5000, #1 + #2 + #3 + #13
AC6000 — SAC6000, #1 + #2 + #3 + #13

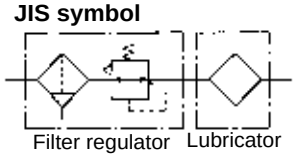
Air Combination
Filter Regulator + Lubricator
AC1010 to 4010


AC3010


AC2010


AC1010

JIS symbol



Standard Specifications

Model		AC1010	AC2010	AC3010	AC4010	AC4010-06
Combination equipment	Filter regulator	AW1000	AW2000	AW3000	AW4000	AW4000-06
	Lubricator	AL1000	AL2000	AL3000	AL4000	AL4000-06
Port size		M5 X 0.8	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Gauge port size (Rc(PT))		1/16	1/8	1/8	1/4	1/4
Fluid		Air				
Proof pressure		1.5MPa				
Max. operating pressure		1.0MPa				
Set pressure range		0.05 to 0.7 MPa	0.05 to 0.85 MPa			
Flow (ℓ/min(ANR)) (Port size)(1)		90(M5 X 0.8)	500(1/4)	1700(3/8)	3000(1/2)	3000(3/4)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)				
Filtration		5μm				
Recommended lubricant		Turbin oil class 1 (ISO VG32)				
Bowl material		Polycarbonate				
Construction/Filter regulator		Relieving style				
Weight (kg)		0.22	0.66	0.98	1.93	1.99
Accessory (Standard equipment)	Bowl guard	–	–	●	●	●
	Bracket(2)	B110T	B210T	B310T	B410T	B510T

Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa
Note 2) For a set of 3 pieces or more: L type bracket

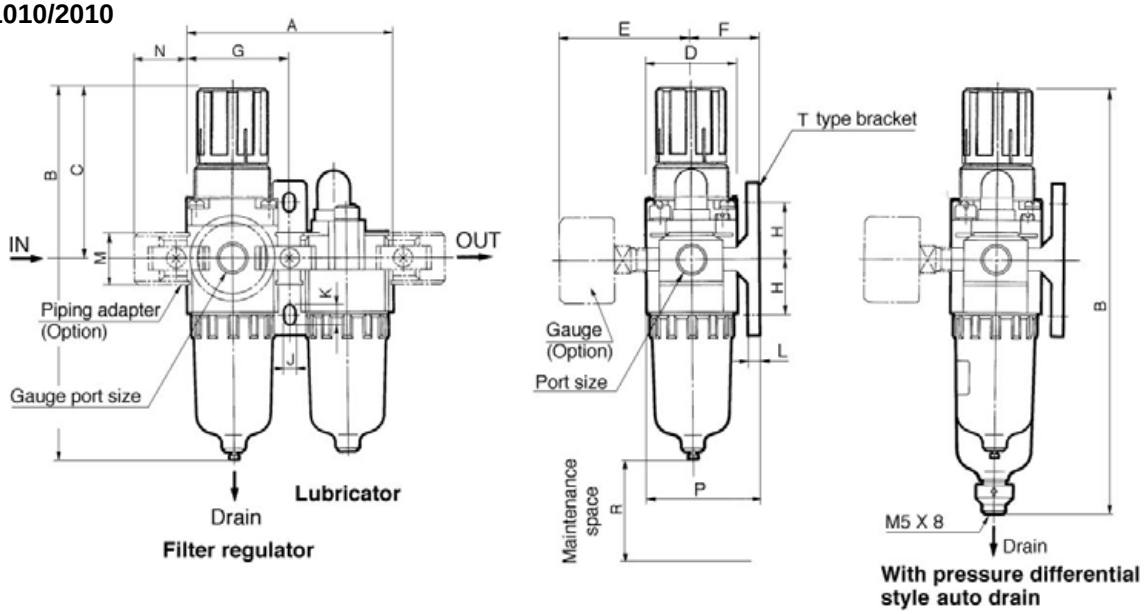
Attachments/Accessories (Options)

	Description \ Model		Part No. For AC1010	For AC2010	For AC3010	For AC4010	For AC4010-06
Attachment	Piping adapter		E10-M5	E20-□01/□02/□03	E30-□02/□03/□04	E40-□02/□03/□04/□06	E50-□06
	Pressure switch with piping adapter		—	IS1000E-2□01/2□02/2□03 Y	IS1000E-3□02/3□03/3□04 Y	1S1000E-4□02/4□03/4□04/4□06 Y	–
	Check valve (3)		—	AKM2000-□01/□(02)	AKM3000-□(01)/□02	AKM4000-□(02)/□03	–
	Residual pressure exhaust 3 port valve		—	VHS2000-□01/□02	VHS3000-□02/□03	VHS4000-□02/□03/□04	–
	Cross interface		Y14-M5	Y24-□01/□02	Y34-□01/□02	Y44-□02/□03	Y54-□03/□04
Accessory	Interface		Y10	Y20	Y30	Y40	Y50
	Pressure gauge	1.0MPa	G27-10-R1	G36 -10-□01	G36-10-□01	G46-10-□02	G46-10-□02
		0.2MPa	(G27-10-R1)(4)	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02
	Auto drain float style (5)	N.O.	—	—	AD43	AD44	AD44
		N.C.	—	—	AD53	AD54	AD54
	Auto drain pressure differential style		AD61	AD62	—	—	—

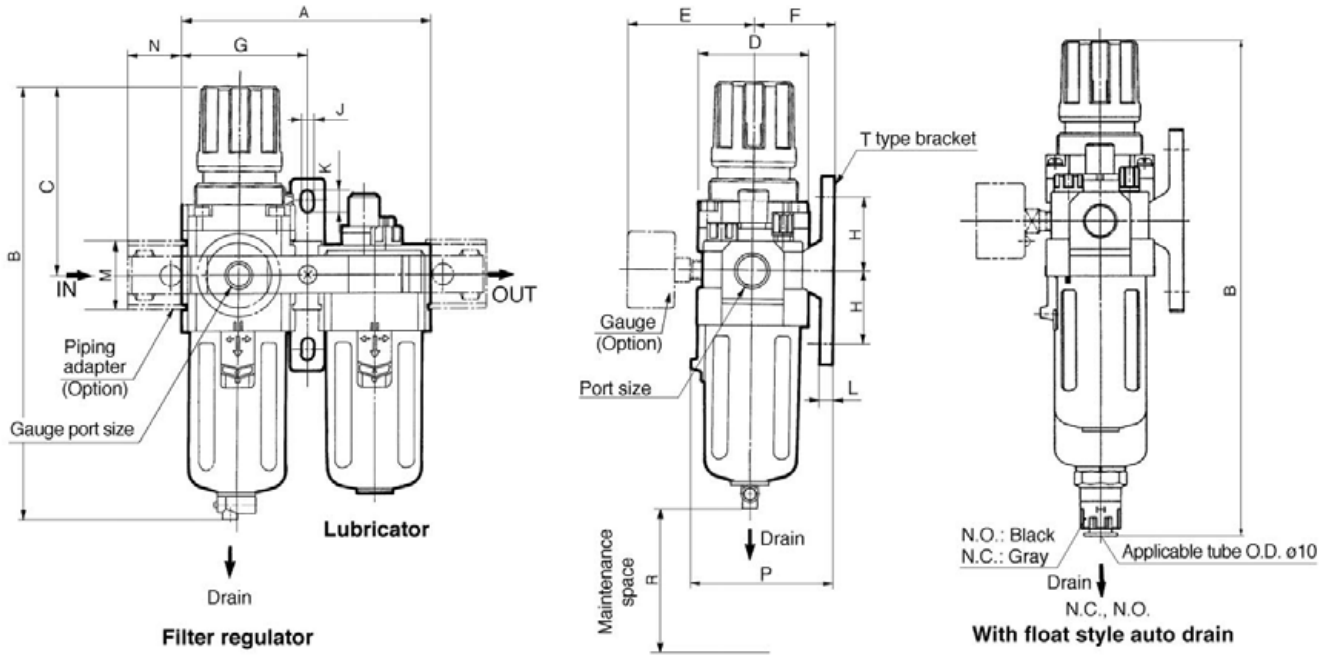
Note 3) Standard specification of air combination: Port size without ( )
Note 4) Substitute 1.0MPa type. ∗-01, -02, -03, -04, -06, after part number indicate port size. (-01: 1/8, -02: 3/8, -03: 3/8, -04: 1/2, -06: 3/4)
Note 5) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 6) □ in the part number indicate a connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF). G(PF) pressure gauge is unavailable.
Consult SMC for NPT pressure gauges.

Dimensions CAD

AC1010/2010



AC3010/4010



Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	R	With auto drain	
							F	G	H	J	K	L					Float	Press. Diff.
																	B	B
AC1010	M5 X 0.8	58	109.5	50.5	25	26	25	29	20	4.5	7.5	5	17.5	16	38.5	50	—	130
AC2010	1/8, 1/4	90	164.5	78	40	56.8	30	45	24	5.5	8.5	5	22	23	50	80	—	187.5
AC3010	1/4, 3/8	117	207.5	92.5	53	60.8	41	58.5	35	7	11	7	34.2	26*	70.5	80	248.5	—
AC4010	1/4, 3/8, 1/2	154	259	112	70	70.5	50	77	40	9	13	7	42.2	33*	88	105	300	—
AC4010-06	3/4	164	263	114	70	70.5	50	82	40	9	13	7	46.2	36	88	105	304	—

Option**

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC1010	—	—	109.5	—
AC2010	—	—	164.5	—
AC3010	216	213.5	220.5	240.5
AC4010	267.5	265	272	292
AC4010-06	272	269.5	276.5	296.5

*For piping adapter AC3010, port size 1/2: 40mm
For AC4010, port size 3/4: 50mm

**For options (with barb fitting, with drain fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

CAD
AC1010 ——— SAC1000, #3 + #4 + #14
AC2010 ——— SAC2000, #3 + #4 + #14
AC3010 ——— SAC2503, #3 + #4 + #14
AC4010 ——— SAC4000, #3 + #4 + #14

Air Combination
Air Filter + Regulator
AC1020 to 6020

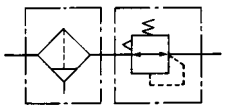

AC4020


AC3020


AC2020


AC1020

JIS Symbol



Standard Specifications

Model		AC1020	AC2020	AC2520	AC3020	AC4020	AC4020-06	AC5020	AC5520	AC6020
Combination equipment	Air filter	AF1000	AF2000	AF3000	AF3000	AF4000	AF4000-06	AF5000	AF6000	AF6000
	Regulator	AR1000	AR2000	AR2500	AR3000	AR4000	AR4000-06	AR5000	AR5000	AR6000
Port size		M5 X 0.8	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1	1
Gauge port size		1/16	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4
Fluid		Air								
Proof pressure		1.5 MPa								
Max. operating pressure		1.0 MPa								
Set pressure range		0.05 to 0.7 MPa	0.05 to 0.85 MPa							
Flow (ℓ/min(ANR))(Port size)(1)		100 (M5 X 0.8)	550(1/4)	1500(3/8)	2000(3/8)	4000(1/2)	5000(3/4)	6000(3/4)	7000(1)	8000(1)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)								
Filtration		5μm								
Bowl material		Polycarbonate								
Construction/Regulator		Relieving style								
Weight (kg)		0.21	0.54	0.68	0.82	1.61	1.71	2.52	2.63	2.98
Accessory (Standard equipment)	Bowl guard	—	—	●	●	●	●	●	●	●
	Bracket(2)	B110T	B210T	B310T	B310T	B410T	B510T	B610T	B610T	B610T

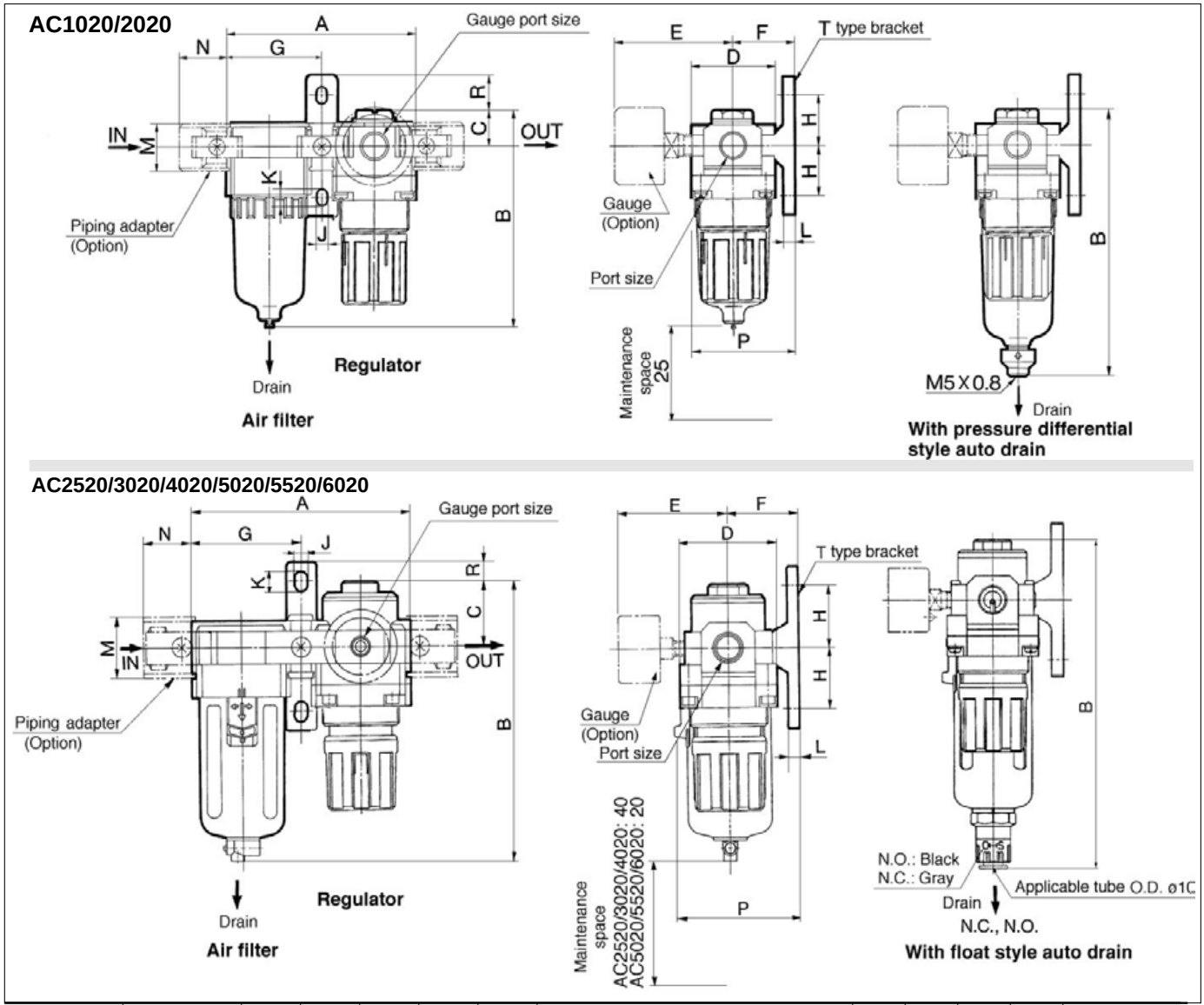
Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa
Note 2) Set of 3 or more than 3 pieces: L type bracket

Attachments/Accessories (Options)

	Description \ Model	Part No. For AC1020	For AC2020	For AC2520	For AC3020	For AC4020	For AC4020-06	For AC5020	For AC5520	For AC6020
Attachment	Piping adapter	E10-M5	E20-□01/□02/□03	E30-□02/□03/□04	E30-□02/□03/□04	E40-□02/□03/□04/□06	E50-□06	E60-□06/□10	E60-□06/□10	E60-□06/□10
	Pressure switch with piping adapter	–	IS1000E-2□01/2□02/2□03Y	IS1000E-3□02/3□03/3□04Y	IS1000E-3□02/3□03/3□04Y	IS1000E-4□02/4□03/4□04/4□06Y	–	–	–	–
	Pressure switch	–	IS1000M-2Y	IS1000M-3Y	IS1000M-3Y	IS1000M-4Y	IS1000M-5Y	IS1000M-6Y	IS1000M-6Y	IS1000M-6Y
	T type interface(3)	Y11-M5	Y21-□01(02)	Y31-□(01)02	Y31-□(01)02	Y41-□(02)03	Y51-□(02)03	Y61-□03(04)	Y61-□(03)04	Y61-□(03)04
	Residual press. exhaust 3 port valve	–	VHS2000-□01/□02	VHS3000-□02/□03	VHS3000-□02/□03	VHS4000-□02/□03/□04	–	–	–	–
	Cross interface	Y14-M5	Y24-□01/□02	Y34-□01/□02	Y34-□01/□02	Y44-□02/□03	Y54-□03/□04	–	–	–
Accessory	Interface	Y10	Y20	Y30	Y30	Y40	Y50	Y60	Y60	Y60
	Pressure gauge 1.0MPa	G27-10-R1	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02
	Pressure gauge 0.2MPa	(G27-10-R1)(4)	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02
	Auto drain float(5) N.O.	–	–	AD43	AD43	AD44	AD44	AD44	AD44	AD44
	Auto drain float(5) N.C.	–	–	AD53	AD53	AD54	AD54	AD54	AD54	AD54
	Auto drain press. differential	AD61	AD62	–	–	–	–	–	–	–

Note 3) Standard specification of air combination: Port size without ( )
Note 4) Substitute 1.0MPa type.
Note 5) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 6) □ in the part number indicate a connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF). G(PF) pressure gauge is unavailable. Consult SMC for NPT pressure gauge.
∗-01, -02, -03, -04, -06, -10 after part number indicate port size. (-01: 1/8, -02: 1/4, -03: 3/8, -04: 1/2, -06: 3/4, -10: 1)

Dimensions



Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	R	With auto drain	
							F	G	H	J	K	L					Float	Press. Diff.
																	B	B
AC1020	M5 X 0.8	58	70	11	25	26	25	29	20	4.5	7.5	5	17.5	16	38.5	16	—	90.5
AC2020	1/8, 1/4	90	103.5	17	40	56.8	30	45	24	5.5	8.5	5	22	23	50	16	—	126.5
AC2520	1/4, 3/8	117	140	25	53	60.8	41	58.5	35	7	11	7	34.2	26*	70.5	20	181	—
AC3020	1/4, 3/8	117	150	35	53	60.8	41	58.5	35	7	11	7	34.2	26*	70.5	10	191	—
AC4020	1/4, 3/8, 1/2	154	184.5	37.5	70	65.5	50	77	40	9	13	7	42.2	33*	88	12.5	225.5	—
AC4020-06	3/4	164	189.5	40.5	70	69.5	50	82	40	9	13	7	46.2	36	88	9.5	230.5	—
AC5020	3/4, 1	195	268	48	90	75.5	70	97.5	50	12	16	10	55.2	40	115	14.5	309.5	—
AC5520	1	200	282	48	95	75.5	70	102.5	50	12	16	10	55.2	40	117.5	14.5	323.5	—
AC6020	1	205	282	48	95	78	70	102.5	50	12	16	10	55.2	40	117.5	14.5	323.5	—

Option**

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC1020	—	—	70	—
AC2020	—	—	103.5	—
AC2520	148.5	146	153	173
AC3020	158.5	156	163	183
AC4020	193	190.5	197.5	217.5
AC4020-06	198	195.5	202.5	222.5
AC5020	276.5	274	281	301
AC5520	290.5	288	295	315
AC6020	290.5	288	295	315

*For piping adapter AC2520, 3020, port size 1/2: 40mm
For AC4020, port size 3/4: 50mm

**For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

CAD
AC1020 ——— SAC1000, #1 + #2 + #14
AC2020 ——— SAC2000, #1 + #2 + #14
AC2520 ——— SAC2503, #1 + #2 + #14
AC3020 ——— SAC2503, #1 + #2 + #14
AC4020 ——— SAC4000, #1 + #2 + #14
AC5020, 5520 ——— SAC5000, #1 + #2 + #14
AC6020 ——— SAC6000, #1 + #2 + #14

Air Combination

Air Filter + Mist Separator + Regulator

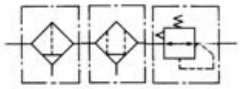
AC2030 to 4030

AC4030

AC3030

AC2030

JIS symbol



Air filter Mist separator Regulator

Standard Specifications

Model		AC2030	AC2530	AC3030	AC4030	AC4030-06
Combination equipment	Air filter	AF2000	AF3000	AF3000	AF4000	AF4000-06
	Mist separtor	AFM2000	AFM3000	AFM3000	AFM4000	AFM4000-06
	Regulator	AR2000	AR2500	AR3000	AR4000	AR4000-06
Port size		1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4
Gauge port size		1/8	1/8	1/8	1/4	1/4
Fluid		Air				
Proof pressure		1.5MPa				
Max. operating pressure		1.0MPa				
Min. operating pressure		0.05MPa				
Set pressure range		0.05 to 0.85MPa				
Flow (ℓ/min (ANR)) (1)		200	450	450	1100	1100
Ambient and fluid temperature		–5 to 60°C (Non-freezing)				
Filtration		AF: 5μm, AFM: 0.3μm(95% scavening particle diameter)				
Density of oil mist on secondary side		Max. 1.0mgf/Nm^3(≅0.8ppm) (2)				
Bowl material		Polycarbonate				
Construction/Filter regulator		Relieving style				
Weight (kg)		0.71	1.03	1.17	2.21	2.46
Accessory (Standard equipment)	Bowl guard	—	●	●	●	●
	Bracket	B210L	B310L	B310L	B410L	B510L

Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa Rated flow changes depending on supply pressure
Note 2) With compressor discharging density of 30mgf/Nm^3

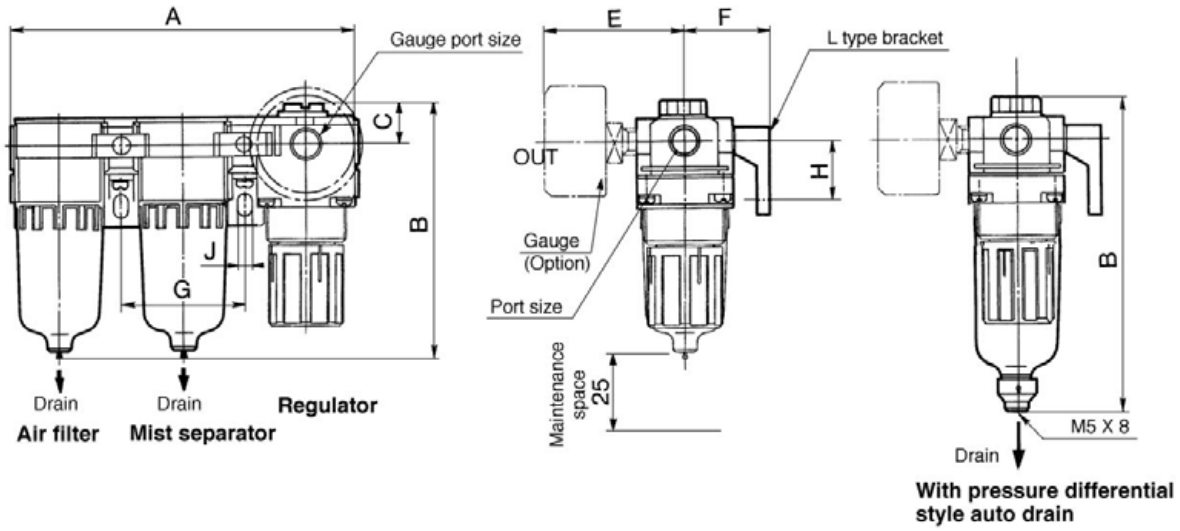
Attachments/Accessories (Options)

	Description \ Model		Part No. For AC2030	For AC2530	For AC3030	For AC4030	For AC4030-06
Attachment	Piping adapter		E20-$^{\square01}_{\square02}$ $^{}_{\square03}$	E30-$^{\square02}_{\square03}$ $^{}_{\square04}$	E30-$^{\square02}_{\square03}$ $^{}_{\square04}$	E40-$^{\square02}_{\square03}$ $^{\square04}_{\square06}$	E50-□06
	Pressure switch with piping adapter		IS1000E-$^{2\square01}_{2\square02}$ $^{}_{2\square03}$Y	IS1000E-$^{3\square02}_{3\square03}$ $^{}_{3\square04}$Y	IS1000E-$^{3\square02}_{3\square03}$ $^{}_{3\square04}$Y	IS1000E-$^{4\square02}_{4\square03}$ $^{4\square04}_{4\square06}$Y	Y54-$^{\square03}_{\square04}$
	Pressure switch		IS1000M-2Y	IS1000M-3Y	IS1000M-3Y	IS1000M-4Y	IS1000M-5Y
	T type interface (3)		Y21-$^{\square01}_{\square(02)}$	Y31-$^{\square(01)}_{\square02}$	Y31-$^{\square(01)}_{\square02}$	Y41-$^{\square(02)}_{\square03}$	Y51-$^{\square(02)}_{\square03}$
	Residual pressure exhaust 3 port valve		VHS2000-$^{\square01}_{\square02}$	VHS3000-$^{\square02}_{\square03}$	VHS3000-$^{\square02}_{\square03}$	VHS4000-$^{\square02}_{\square03}$ $^{}_{\square04}$	—
	Cross interface		Y24-$^{\square01}_{\square02}$	Y34-$^{\square01}_{\square02}$	Y34-$^{\square03}_{\square02}$	Y44-$^{\square02}_{\square03}$	Y54-$^{\square03}_{\square04}$
Accessory	T type brcket		B210T	B310T	B310T	B410T	B510T
	Interface		Y20	Y30	Y30	Y40	Y50
	Pressure gauge	1.0MPa	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
		0.2MPa	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02
	Auto drain float style (4)	N.O.	—	AD43	AD43	AD44	AD44
		N.C.	—	AD53	AD53	AD54	AD54
	Auto drain pressure differential style		AD62	—	—	—	—

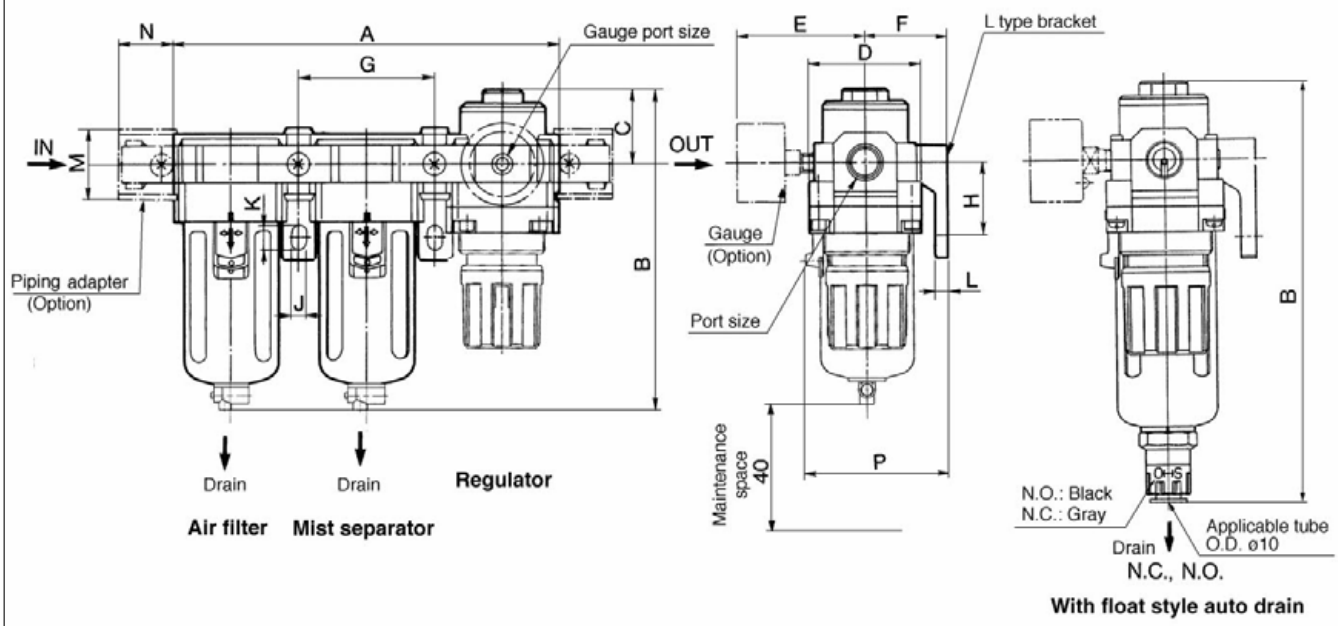
Note 3) Standard specification of air combination: Port size without ( ).
Note 4) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 5) □ in the part number indicate a connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF). G(PF) pressure gauge is unavailable. Consult SMC for NPT gauges.
∗-01, -02, -03, -04, -06, after part number indicate port size. (-01: 1/8, -02: 1/4, -03: 3/8, -04: 1/2, -06: 3/4)

Dimensions CAD

AC2030



AC2530/3030/4030



Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	With auto drain	
							F	G	H	J	K	L				Float	Press. Diff.
																B	B
AC2030	1/8, 1/4	140	103.5	17	40	56.8	30	50	24	5.5	8.5	5	22	23	50	—	126.5
AC2530	1/4, 3/8	181	140	25	53	60.8	41	64	35	7	11	7	34.2	26*	70.5	181	—
AC3030	1/4, 3/8	181	150	35	53	60.8	41	64	35	7	11	7	34.2	26*	70.5	191	—
AC4030	1/4, 3/8, 1/2	238	184.5	37.5	70	65.5	50	84	40	9	13	7	42.2	33*	88	225.5	—
AC4030-06	3/4	253	189.5	40.5	70	69.5	50	89	40	9	13	7	46.2	36	88	230.5	—

Option**

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC2030	—	—	103.5	—
AC2530	148.5	146	153	173
AC3030	158.5	156	163	183
AC4030	193	190.5	197.5	217.5
AC4030-06	198	195.5	202.5	222.5

*For piping adapter AC2530, 3030, port size 1/2: 40mm
For AC4030, port size 3/4: 50mm

**For options (with barb fitting, with drin guide, metal bowl, with level gauge), body length (B dimension) is different.

CAD
AC2030 ——— SAC2000, #1 + #2 + #13
AC2530 ——— SAC2503, #1 + #2 + #13
AC3030 ——— SAC2503, #1 + #2 + #13
AC4030 ——— SAC4000, #1 + #2 + #13

Air Combination
Filter Regulator + Mist Separator

CAD

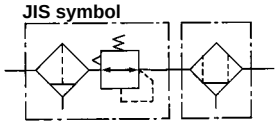
AC2040/3040/4040

AC4040

AC3040

AC2040

JIS symbol



Filter regulator Mist separator

Standard Specifications

Model		AC2040	AC3040	AC4040	AC4040-06
Combination equipment	Filter regulator	AW2000	AW3000	AW4000	AW4000-06
	Mist separator	AFM2000	AFM3000	AFM4000	AFM4000-06
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Gauge port size		1/8	1/8	1/4	1/4
Fluid		Air			
Proof pressure		1.5MPa			
Max. operating pressure		1.0MPa			
Min. operating pressure		0.05MPa			
Set pressure range		0.05to0.85MPa			
Flow (ℓ/min (ANR))(Port size) (1)		150	330	800	800
Ambient and fluid temperature		–5 to 60°(Non-freezing)			
Filtration		AW: 5µm, AFM: 0.3µm(95% scavenging particle diameter)			
Density of oil mist on secondary side		Max1.0mgf/Nm^3 (≅0.8ppm) (2)			
Bowl material		Polycarbonate			
Construction/Filter regulator		Relieving style			
Weight (kg)		0.63	0.97	1.91	1.99
Accessory (Standard equipment)	Bowl guard	—	●	●	●
	Bracket (3)	B210T	B310T	B410T	B510T

Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa Rated flow changes depending on supply pressure.
Note 2) With compressor discharging density of 30mgf/Nm^3
Note 3) L bracket for a set of 3 pieces or more.

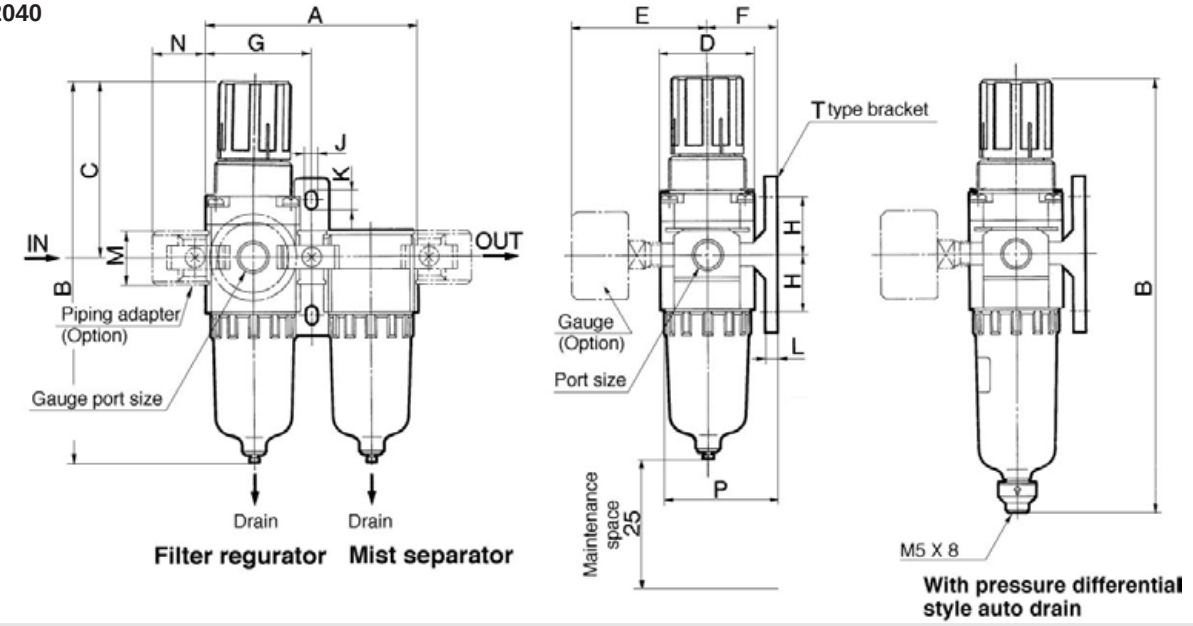
Attachments/Accessories (Options)

	Description \ Model		Part No. For AC2040	For AC3040	For AC4040	For AC4040-06
Attachment	Piping adapter		E20-□01/□02/□03	E30-□02/□03/□04	E40-□02/□03/□04/□06	E50-□06
	Pressure switch with piping adapter		IS1000E-2□01/2□02/2□03Y	IS1000E-3□02/3□03/3□04Y	IS1000E-4□02/4□03/4□04/4□06Y	—
	Residual pressure exhaust 3 port valve		VHS2000-□01/□02	VHS3000-□02/□03	VHS4000-□02/□03/□04	—
	Cross interface		Y24-□01/□02	Y34-□01/□02	Y44-□02/□03	Y54-□03/□04
Accessory	Interface		Y20	Y30	Y40	Y50
	Pressure gauge	1.0MPa	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
		0.2MPa	G36-2-□01	G36-2-□01	G46-2-□02	G36-2-□02
	Auto drain float style (4)	N.O.	—	AD43	AD44	AD44
		N.C.	—	AD53	AD54	AD54
	Auto drain pressure differential style		AD62	—	—	—

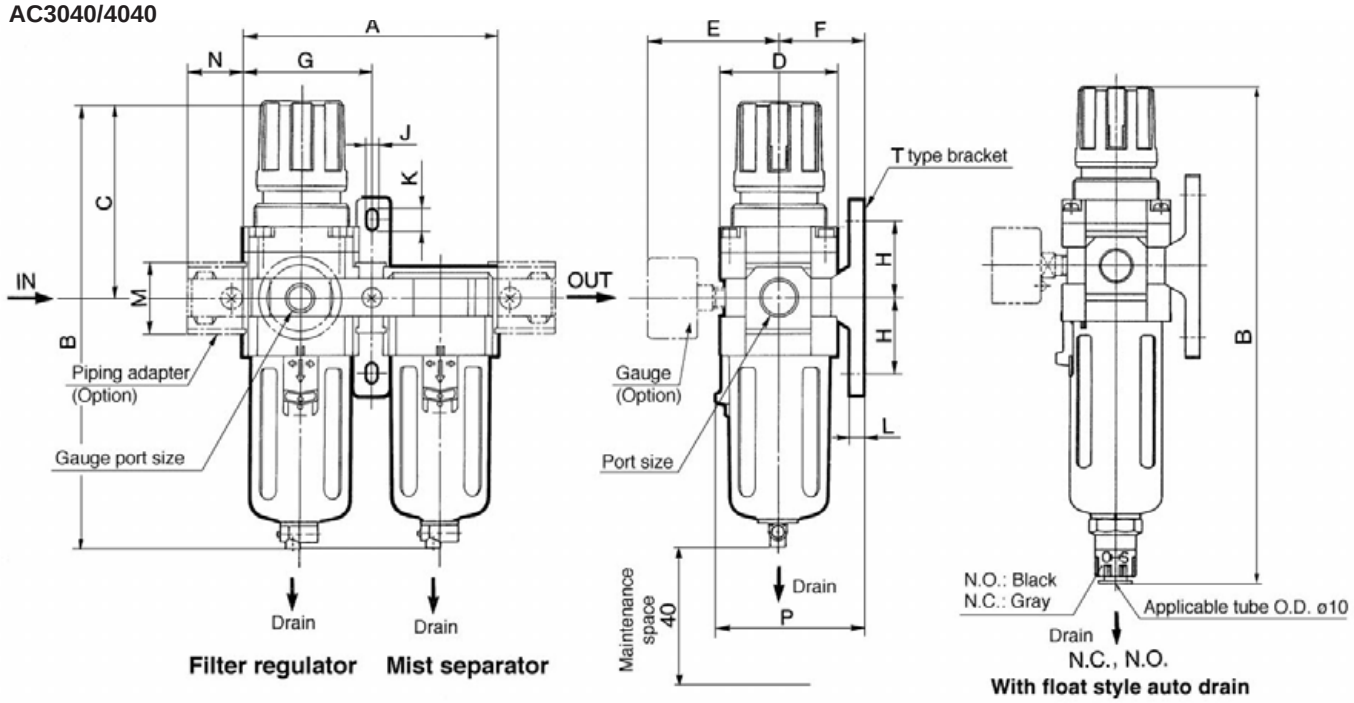
Note 4) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 5) □ in the part number indicate a connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF). G(PF) pressure gauge is unavailable. Consult SMC for NPT pressure gauges.
∗-01, -02, -04, -06 after part number indicate port size. (-01: 1/8, -02: 1/4, -03: 3/8, -04: 1/2, -06: 3/4)

Dimensions CAD

AC2040



AC3040/4040



Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	With auto drain	
							F	G	H	J	K	L				Float	Press. Diff.
																B	B
AC2040	1/8, 1/4	90	164.5	78	40	56.8	30	45	24	5.5	8.5	5	22	23	50	—	187.5
AC3040	1/4, 3/8	117	207.5	92.5	53	60.8	41	58.5	35	7	11	7	34.2	26*	70.5	248.5	—
AC4040	1/4, 3/8, 1/2	154	259	112	70	70.5	50	77	40	9	13	7	42.2	33*	88	300	—
AC4040-06	3/4	164	263	114	70	70.5	50	82	40	9	13	7	46.2	36	88	304	—

Option**

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC2040	—	—	164.5	—
AC3040	216	213.5	220.5	240.5
AC4040	267.5	265	272	292
AC4040-06	272	269.5	276.5	296.5

*For piping adapter AC3040, port size 1/2: 40mm
For AC4040, port size 3/4: 5mm

**For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

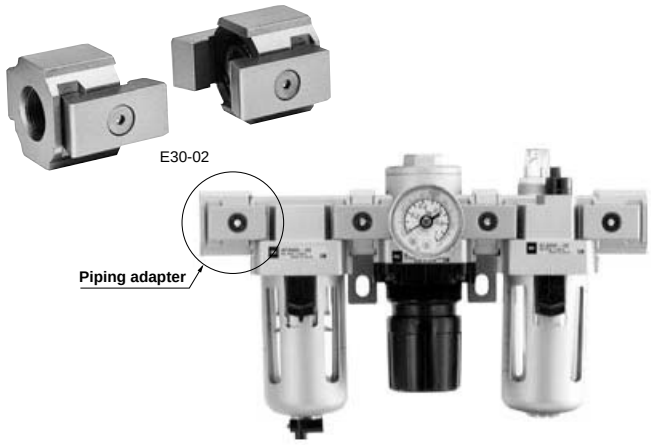
CAD
AC2040 ——— SAC2000, #1 + #4 + #14
AC3040 ——— SAC2503, #1 + #4 + #14
AC4040 ——— SAC4000, #1 + #4 + #14

Attachments

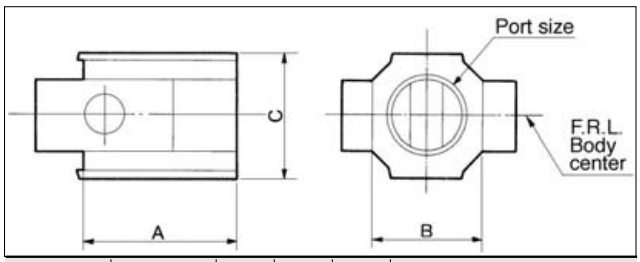
Piping Adapter

M5 X 0.8, 1/8, 1/4, 3/8, 1/2, 3/4, 1

Easy maintenance. Makes it possible to attach and detach equipment without removing piping.



∗ To order piping adapter with bracket, the parts number as shown below.
(Example) With L type bracket: E□0L-□
With T type bracket: E□0T-□
∗∗ One with AC installed is special product.



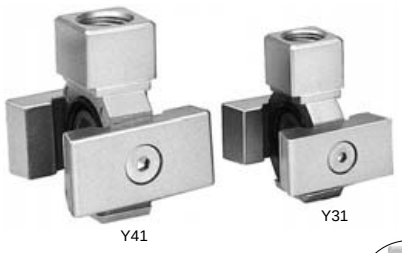
Model	Port size	A	B	C	Applicable model
E10-M5	M5 X 0.8	16	14	17.5	**AC10□0, AW1000 AF1000, AR1000, AL1000**
E20-□01	1/8	23	22	22	**AC20□0 AF2000, AR2000, AW2000 AL2000, AFM2000, AFD2000**
E20-□02	1/4				
E20-□03	3/8				
E30-□02	1/4	26	29	34.2	**AC25□0, AC30□0 AF3000, AR3000, AW3000**
E30-□03	3/8				
E30-□04	1/2	40	29	34.2	**AL3000, AFM3000, AFD3000**
E40-□02	1/4	33	35	42.2	**AC40□0 AF4000, AR4000, AW4000 AL4000, AFM4000, AFD4000**
E40-□03	3/8				
E40-□04	1/2				
E40-□06	3/4	50	35	42.2	
E50-□06	3/4	36	44	46.2	**AC40□0-06** AF4000-06, AR4000-06, AW4000-06 AL4000-06, AFM4000-06, AFD4000-06
E60-□06	3/4	40	54	55.2	**AC5000, AC5500, AC6000 AC5020, AC5520, AC6020 AF5000, AR5000, AL5000 AF6000, AR6000, AL6000**
E60-□10	1				

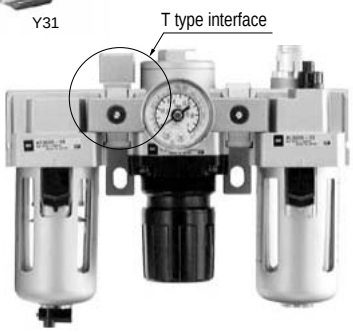
Note 1) □ in part number indicates thread type. Use nothing for Rc(PT), N for NPT and F for G(PF).

T Type Interface: (T)

M5 X 0.8, 1/8, 1/4, 3/8, 1/2

Makes it easy to diverge air out with T type interface.



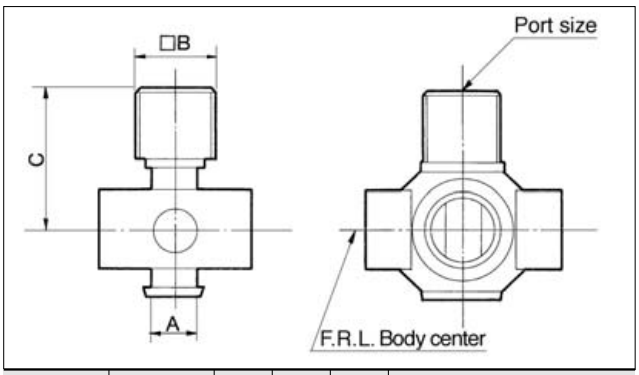


T type interface

Model	File
Y11-M5	SAC1000, #9
Y21-01, 02	SAC2000, #9
Y31-01, 02	SAC2503, #9
Y41-02, 03	SAC4000, #9
Y51-02, 03	SAC4006, #9
Y61-03, 04	SAC5000, #9

Caution on Assembling

○ T type interface cannot be mounted at IN/OUT side of AW or upward handle of AR.
○ When T type interface is used at IN side of lubricator, oil may have entered. Use check valve series AKM.

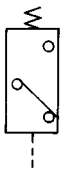


Model	Port size	A	□B	C	Applicable model
Y11-M5	M5 X 0.8	8	8	12	**AC1000, AC1020**
Y21-□01	1/8	10	19	29	**AC2000, AC2020, AR2030**
Y21-□02	1/4				
Y31-□01	1/8	11	19	33	**AC2500, AC2520, AC2530 AC3000, AC3020, AC3030**
Y31-□02	1/4				
Y41-□02	1/4	14	24	39	**AC4000, AC4020, AC4030**
Y41-□03	3/8				
Y51-□02	1/4	14	24	41	**AC4000-06, AC4020-06 AC4030-06**
Y51-□03	3/8				
Y61-□03	3/8	15	30	50.5	**AC5000, AC5500, AC6000 AC5020, AC5520, AC6020**
Y61-□04	1/2				

∗ When T type interface with bracket is required, order as example below.
(Example) With L bracket: Y□1L-□
With T bracket: Y□1T-□
∗∗ Refer to a table of attachment on P.1.1-3 for standard port size when applying to AC.
∗∗∗ □ in part number indicates thread. Use nothing for Rc(PT), N for NPT and F for G(PF).

Pressure Switch with Piping Adapter

JIS symbol

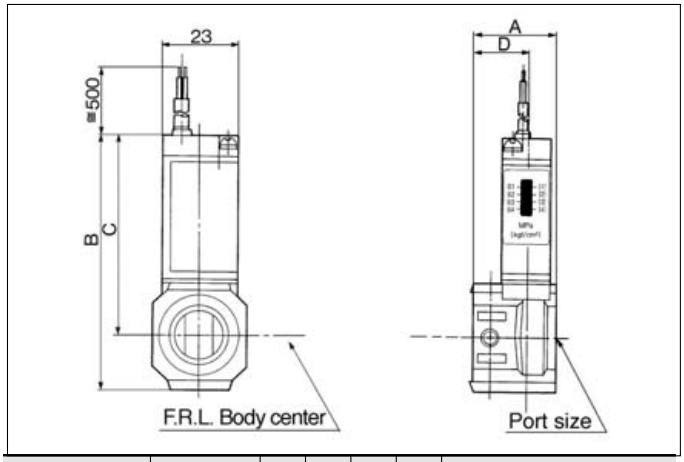


Specifications

Fluid	Air
Proof pressure	1.0MPa
Max. operating pressure	0.7MPa
Set pressure range (off)	0.1 to 0.4MPa
Differential	0.08MPa
Ambient and fluid temperature	5 to 60°C (No condensation)

Switch Characteristics

Contact point structure	1a
Max. contact point capacity	2V AC/2W DC
Voltage AC, DC	12V, 24V, 48V, 100V
Max. operating current	AC, 12V to 24V DC: 50mA AC, 48V DC: 40mA AC, 100V DC: 20mA



Model (1)	Port size	A	B	C	D	Applicable model
IS1000E-2□01Y	1/8	28	73	62	18.5	AC2000, AC2010, AC2020 AC2030, AC2040 AW2000
IS1000E-2□02Y	1/4					
IS1000E-2□03Y	3/8					
IS1000E-3□02Y	1/4	26	80	63	16.5	AC2500, AC2520, AC2530 AC3000, AC3010, AC3020 AC3030, AC3040 AW3000, AW3050
IS1000E-3□03Y	3/8					
IS1000E-3□04Y	1/2	40	80	63	17.5	
IS1000E-4□02Y	1/4	33	87	66	17.5	AC4000, AC4010, AC4020 AC4030, AC4040 AW4000, AW4050 (2)
IS1000E-4□03Y	3/8					
IS1000E-4□04Y	1/2					
IS1000E-4□06Y	3/4	50	87	66	17.5	

Note1) □ in the part number indicate a connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF).
Note2) Can NOT be mounted on "AC40□0-06" and "AW40□0-06".
∗With retainer, O ring and bolt.
∗∗Consult SMC when mounting the pressure switch on "AC40□0-06" and "AW40□0-06".

∗For more information, refer to p.3.0-0.

How to Order

IS1000E − 3 □ 03 YL — □

Pressure switch with piping adapter

Body size

2	For AC2000
3	For AC2500, AC3000
4	For AC4000-02 to 04

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Piping adapter port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Attachment

—	Without attachment
Y	With attachment
YL	With attachment and L type bracket
YT	With attachment and T type bracket

Options

X201	Length of lead wire: 3m
X202	Setting pressure range: 0.1 to 0.6MPa
X250	Reverse mounting (Left side mounting style)

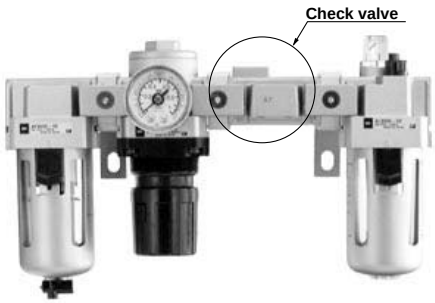
Attachments for IS1000E

Pressure switch applicable model No.	Y type standard	YL type with L type bracket	YT type with T type bracket
IS1000E-201 to 203	Y20E	Y20LE	Y20TE
IS1000E-302 to 304	Y30E	Y30LE	Y30TE
IS1000E-402 to 406	Y40E	Y40LE	Y40TE

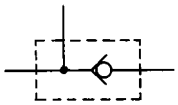
Check Valve: (K)
Rc(PT) 1/8, 1/4, 3/8

Diverges on the secondary side of regulator. Makes it easier to mount check valve with a middle take out port which prevents reverse flow of lubricant oil from lubricator when releasing air.

AKM3000



JIS symbol



Specifications

Model	Effective area (mm^2)
AKM2000	28
AKM3000	55
AKM4000	111

Note) Use this check valve when diverging on the supply side of AL. IN/OUT port is not made for thread piping.

How to Order

AKM | **30** | **00** – | | | **01**

- **Check valve**
- **Body size**

20	1/8
30	3/8
40	1/2

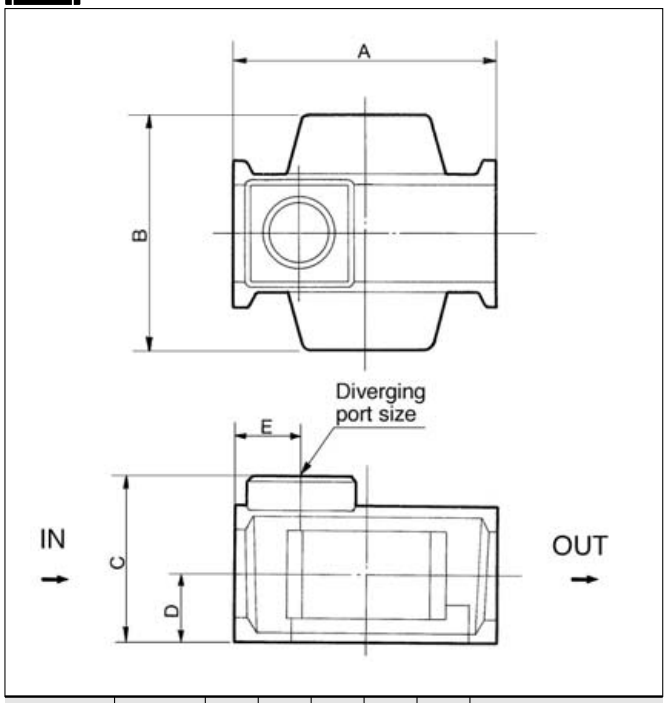
- **Thread**

—	Rc(PT)
N	NPT
F	G(PF)

- **Diverging port size**

01	1/8
02	1/4
03	3/8

CAD



Model	Diverging port size	A	B	C	D	E	Applicable model
AKM2000	1/8, 1/4	40	40	28	11	11	**AC2000, AC2010**
AKM3000	1/8, 1/4	53	48	34	14	13	**AC2500, AC2510 AC3000, AC3010**
AKM4000	1/4, 3/8	70	54	42	18	15	**AC4000, AC4010** (1)

Note 1) Not applicable to AC40□0-06.
∗Refer to the attachment list on p.1.1-3 for standard diverging port size when applying to AC.

CAD **Check valve**

Model	File
AKM2000	SAC2000, #7
AKM3000	SAC2503, #7
AKM4000	SAC4000, #7

Caution on Assembling

Pressure switch and T type interface can not be mounted on the IN side.

CAD **Piping adapter**

Model	File
E10-M5	SAC1000, #5
E20-01 to03	SAC2000, #5
E30-02 to04	SAC2503, #5
E40-02 to06	SAC4000, #5
E50-06	SAC4006, #5
E60-06.10	SAC5000, #5

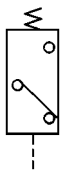
CAD **Pressure switch with piping adapter**

Model	File
IS1000E-201 to 203	SAC2000, #6
IS1000E-302 to 304	SAC2503, #6
IS1000E-402 to 406	SAC4000, #6

Pressure Switch: (S)

Compact pressure switch can be mounted easily.
Makes it easier to detect pressure in lines.

JIS symbol



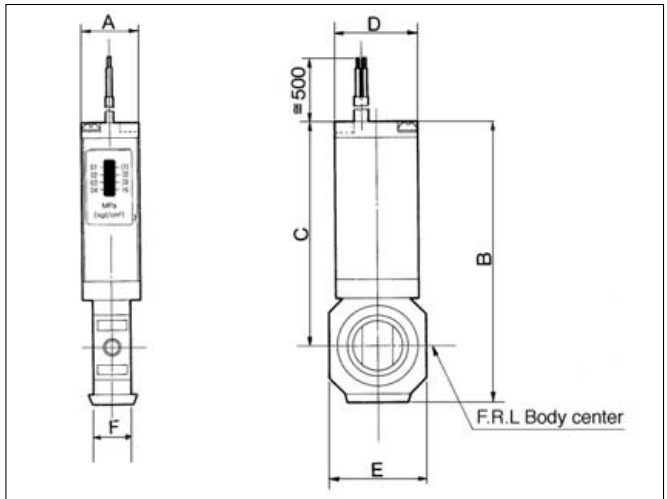
Specifications

Fluid	Air
Proof pressure	1.0MPa
Max. operating pressure	0.7MPa
Set pressure range (off)	0.1 to 0.4MPa
Differential	0.08MPa
Ambient and fluid temperature	5 to 60°C(No condensation)

Switch Characteristics

Contact point structure	1a
Max. contact point capacity	2V AC/2W DC
Voltage AC, DC	12V, 24V, 48V, 100V
Max. operating current	AC, 12V to 24V DC: 50mA AC, 48V DC: 40mA AC, 100V DC: 20mA

∗For more information, refer to SMC
Pressure switch catalog. (Catalog No.E824)



Model	A	B	C	D	E	F	Applicable model
IS1000M-2Y	15	73.5	62.6	23	28	10	**AC2000, AC2020, AC2030**
IS1000M-3Y	15	82	64.9	23	29	11	**AC2500, AC2520, AC2530 AC3000, AC3020, AC3030**
IS1000M-4Y	15	88.7	67.6	23	35	14	**AC4000, AC4020, AC4030**
IS1000M-5Y	15	91	68	23	44	14	**AC4000-06, AC4020-06 AC4030-06**
IS1000M-6Y	15	100	72.5	23	54	15	**AC5000, AC5500, AC6000 AC5020, AC5520, AC6020**

Caution on Assembling

Attachment for pressure switch can be installed at the IN/OUT side of AF, AR, AL, AFM and AFD. Mounting at the IN/OUT side of AW and upward handle ofAR is not possible.

How to Order

IS1000M – **4** **YT** – ☐

Pressure switch

Body size

2	For AC2000
3	For AC2500, AC3000
4	For AC4000-02 to 04
5	For AC4000-06
6	For AC5000, AC6000

Attachment

—	Without attachment
Y	With attachment
YL	With attachment and L type bracket
YT	With attachment and T type bracket

Options

X201	Length of lead wire: 3m
X202	Set pressure range: 0.1 to 0.6MPa

Attachments for IS1000M

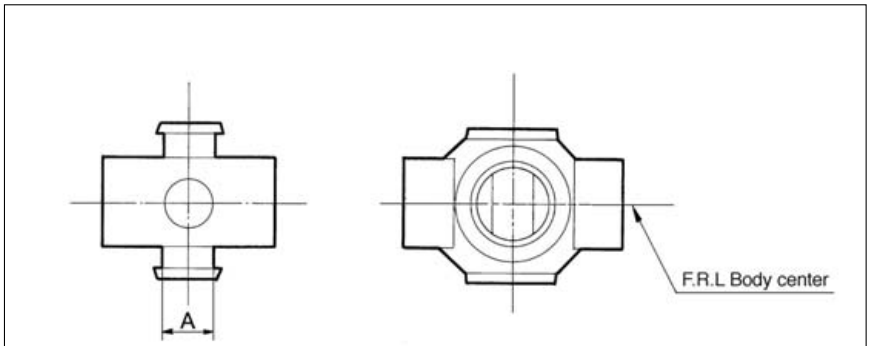
Pressure switch applicable model No.	Y type standard	YL type with L type bracket	YT type with T type bracket
IS1000M-2	Y20M	Y20LM	Y20TM
IS1000M-3	Y30M	Y30LM	Y30TM
IS1000M-4	Y40M	Y40LM	Y40TM
IS1000M-5	Y50M	Y50LM	Y50TM
IS1000M-6	Y60M	Y60LM	Y60TM

Interface

Y30

CAD Interface

Model	File
Y10	SAC1000, #12
Y20	SAC2000, #12
Y30	SAC2503, #12
Y40	SAC4000, #12
Y50	SAC4006, #12
Y60	SAC5000, #12



Model	A	Applicable model
Y10	8	**AC1000 to AC1020**
Y20	10	**AC2000 to AC2040**
Y30	11	**AC2500 to AC2540** **AC3000 to AC3040**
Y40	14	**AC4000 to AC4040**
Y50	14	**AC4000-06 to AC4040-06**
Y60	15	**AC5000, AC5500, AC6000** **AC5020, AC5520, AC6020**

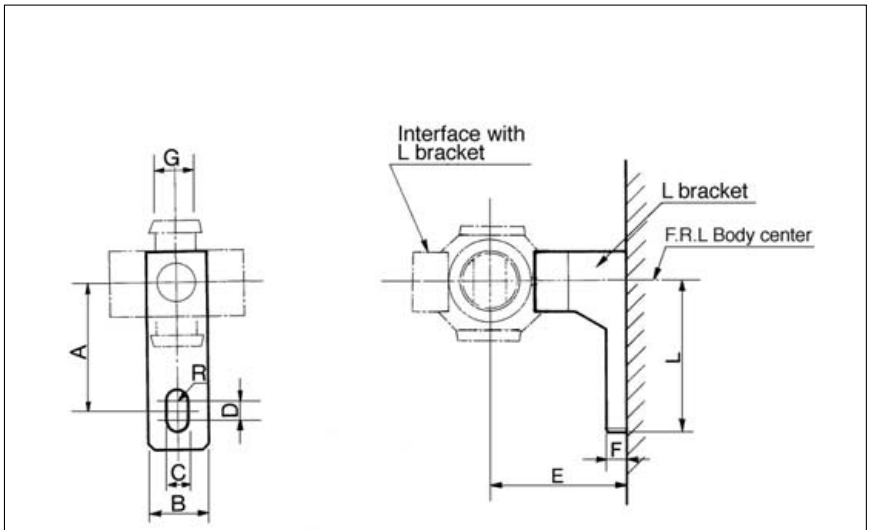
L Bracket/ Interface with L Bracket

Interface with L bracket

L bracket

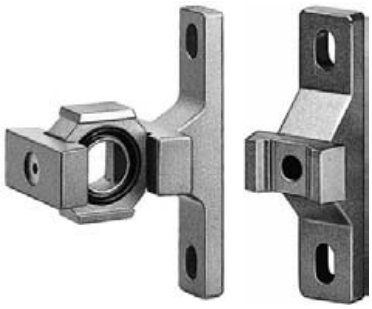
CAD L bracket, Interface with L bracket

Model		File
L bracket	Interface with L bracket	
B110L	**Y10L**	SAC1000, #13
B210L	**Y20L**	SAC2000, #13
B310L	**Y30L**	SAC2503, #13
B410L	**Y40L**	SAC4000, #13
B510L	**Y50L**	SAC4006, #13
B610L	**Y60L**	SAC5000, #13



L bracket	Interface with L bracket	A	B	C	D	E	F	G	R	L	Applicable model
B110L	**Y10L**	20	12	4.5	3	25	5	8	2.25	27	**AC1000 to AC1020**
B210L	**Y20L**	24	15	5.5	3	30	6	10	2.75	33	**AC2000 to AC2040**
B310L	**Y30L**	35	16	7	4	41	7	11	3.5	45	**AC2500 to AC2540** **AC3000 to AC3040**
B410L	**Y40L**	40	22	9	4	50	7	14	4.5	50	**AC4000 to AC4040**
B510L	**Y50L**	40	22	9	4	50	7	14	4.5	60	**AC4000-06 to AC4040-06**
B610L	**Y60L**	50	24	12	4	70	10	15	6	62.5	**AC5000, AC5500, AC6000** **AC5020, AC5520, AC6020**

T Bracket/ Interface with T Bracket

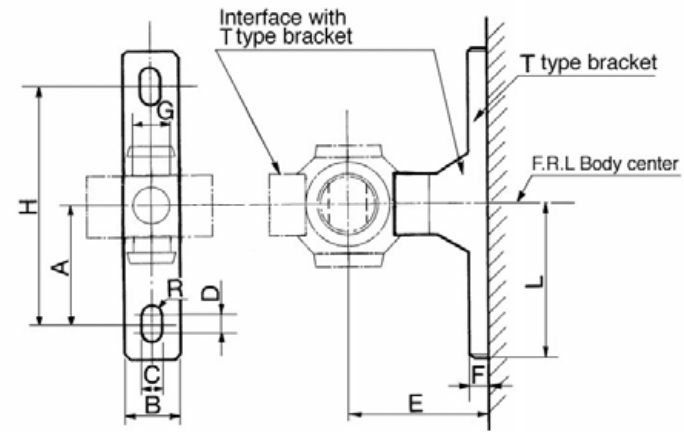


Interface with T bracket

T bracket

CAD **T bracket, Interface with T bracket**

Model		File
T bracket	Interface with T bracket	
B110T	**Y10T**	SAC1000, #14
B210T	**Y20T**	SAC2000, #14
B310T	**Y30T**	SAC2503, #14
B410T	**Y40T**	SAC4000, #14
B510T	**Y50T**	SAC4006, #14
B610T	**Y60T**	SAC5000, #14



T bracket	Interface with T bracket	A	B	C	D	E	F	G	H	R	L	Applicable model
B110T	**Y10T**	20	12	4.5	3	25	5	8	40	2.25	27	**AC1000 to AC1020**
B210T	**Y20T**	24	15	5.5	3	30	5	10	48	2.75	33	**AC2000 to AC2040**
B310T	**Y30T**	35	16	7	4	41	7	11	70	3.5	45	**AC2500 to AC2540 AC3000 to AC3040**
B410T	**Y40T**	40	22	9	4	50	7	14	80	4.5	50	**AC4000 to 4040**
B510T	**Y50T**	40	22	9	4	50	7	14	80	4.5	50	**AC4000-06 to AC4040-06**
B610T	**Y60T**	50	24	12	4	70	10	15	100	6	62.5	**AC5000, AC5500, AC6000 AC5020, AC5520, AC6020**

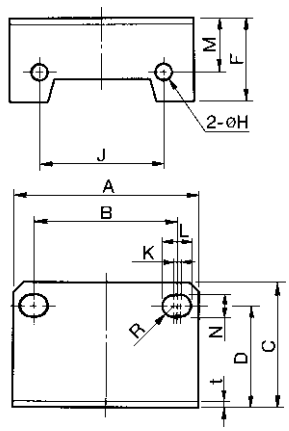
Bracket
For AF/AL
For AFM/AFD
For AR

B340

B240

CAD **Bracket/ For AF, AL, AFM, AFD, and AR**

Model	File
B240	SAC2000, #15
B340	SAC2503, #15
B440	SAC4000, #15
B540	SAC4006, #15
B640	SAC5000, #15



Model	A	B	C	D	F	H	J	K	L	M	N	R	t	Mounting thread	Applicable model
B240A	40	27	33	27	18	4.5	26	3	8.4	14	5.4	2.7	2.3	M4 X 8ℓ (Round head Phillips screw)	**AF2000, AL2000 AFM2000, AFD2000**
B340A	53	40	39	32	22.5	4.5	35	1.5	8	19	6.5	3.25	2.3	M4 X 8ℓ (Hexagon socket head cap screw)	**AF3000, AL3000 AFM3000, AFD3000**
B440A	70	54	47	38	31.5	5.5	47	2	10.5	20	8.5	4.25	2.3	M5 X 10ℓ (Hexagon socket head cap screw)	**AF4000, AL4000 AFM4000, AFD4000**
B540A	70	54	47	38	27.5	5.5	47	2	10.5	20	8.5	4.25	2.3	M5 X 10ℓ (Hexagon socket head cap screw)	**AF4000-06, AL4000-06 AFM4000-06, AFD4000-06**
B640A	90	66	64	52	43	6.5	65	2	13	30	11	5.5	3.2	M6 X 10ℓ (Hexagon socket head cap screw)	**AF5000, 6000 AR5000, 6000, 5060, 6060 AL5000, 6000**

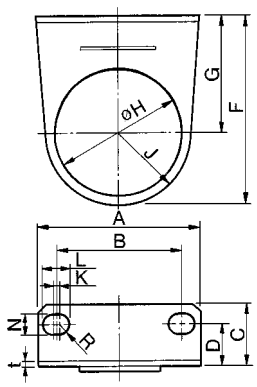
∗With 2 mounting screws.

Bracket/For AR/AW

B220

Bracket/For AR, AW

Model	File
B120	SAC1000, #16
B220	SAC2000, #16
B320	SAC2503, #16
B420	SAC4000, #16



Model	A	B	C	D	F	G	øH	J	K	L	N	R	t	Appliable model
B120	40	28	17	11	37.3	25	20.5	12.3	2	6.5	4.5	2.25	2	**AR1000, AW1000**
B220	55	34	25	19	50	30	33.5	20	10	15.4	5.4	2.7	2.3	**AR2000, 2060 AR2500, 2550, 2560 AW2000, AWM2000 AWD2000**
B320	53	40	21	13.5	66	41	42.5	25	1.5	8	6.5	3.25	2.3	**AR3000, 3050, 3060 ARP3000, AW3000, 3050 AWM3000, AWD3000**
B420	70	54	27	18	80	50	52.5	30	2	10.5	8.5	4.25	2.3	**AR4000, 4000-06, 4050, 4050-06, 4060, 4060-6 AW4000, 4000-06 AW4050, 4050-06 AWM4000, AWD4000**

Standard Combinations

Combination	Model	Port size	Constructing equipment				
			Air filter AF	Regulator AR	Lubricator AL	Filter regulator AW	Mist separator AFM
AF+AR+AL 	**AC2001**	1/8, 1/4	AF2000	AR2001	AL2000		
	AC2501	1/4, 3/8	AF3000	AR2501	AL3000		
	AC3001	1/4, 3/8	AF3000	AR3001	AL3000		
	AC4001	1/4, 3/8, 1/2	AF4000	AR4001	AL4000		
AW+AL 	**AC2011**	1/8, 1/4			AL2000	AW2001	
	AC3011	1/4, 3/8			AL3000	AW3001	
	AC4011	1/4, 3/8, 1/2			AL4000	AW4001	
AF+AR 	**AC2021**	1/8, 1/4	AF2000	AR2001			
	AC2521	1/4, 3/8	AF3000	AR2501			
	AC3021	1/4, 3/8	AF3000	AR3001			
	AC4021	1/4, 3/8, 1/2	AF4000	AR4001			
AF+AFM+AR 	**AC2031**	1/8, 1/4	AF2000	AR2001			AFM2000
	AC2531	1/4, 3/8	AF3000	AR2501			AFM3000
	AC3031	1/4, 3/8	AF3000	AR3001			AFM3000
	AC4031	1/4, 3/8, 1/2	AF4000	AR4001			AFM4000
AW+AFM 	**AC2041**	1/8, 1/4				AW2001	AFM2000
	AC3041	1/4, 3/8				AW3001	AFM3000
	AC4041	1/4, 3/8, 1/2				AW4001	AFM4000

How to Order

AC 30 01 — 03 D G — ST — 12

Air combination with integral pressure gauge

Body size

20	1/8
25	1/4
30	3/8
40	1/2

Combination of equipment

Symbol	Combination of equipment				
	Filter (AF)	Regulator (AR)	Lubricator (AL)	Filter Regulator (AW)	Mist separator (AFM)
01	①	②	③	—	—
11	—	—	②	①	—
21	①	②	—	—	—
31	①	③	—	—	②
41	—	—	—	①	②

(1) Numbers in ○. indicate order of construcction of equipment from left hand side (the upper stream side) from a view of front side.
Ex.) Symbol **01** — AF+AR+AL
11 — AW+AL
(Available only for AC2011 to 4011.)
21 — AF+AR
31 — AF+AFM+AR
(Available only for AC2031 to 4031.)
41 — AW+AFM
(Available only for AC2041 to 4041.)

(2) For the ones with right to left stream direction, part number of gauge combined filter regulator with right to left stream direction is AW□□02-□□G. Because of this reason, for combinations of air combination which include filter regulator AW,indication should be AC□□12, AC□□42.
For combinations without AW, indication should be "-R" of option.

(3) Standard bracket: T bracket for a set of 2 pieces, and L bracket for a set of 3 pieces. But when a check valve (symbol "K") or a residual pressure release 3 port valve ("V") is attached, L bracket is attached for a set of 2 pieces.

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Accessories (Options)

Symbol	Description	Applicable model
C	**Auto drain**	Float style (N.C.): AC2501 to AC4001
D	**Auto drain**	Pressure differential style: AC2001 Float style (N.O.): AC2501 to AC4001

Pressure Gauge

With limit indicator: AC2001 to AC4001

Option specifications

1 (3)	Set at 0.02 to 0.2MPa (Regulator)
2	Metal bowl (Filter, Lubricator)
3	Lubricator with drain cock
6	Nylon bowl (Filter, Lubricator)
8	Metal bowl with level gauge (Filter, Lubricator) (Applicable to AC2501 to AC4001.)
C	Bowl guard(Applicable to AC20□1 only.)
J (4)	Drain guide port size 1/4 (AC2501 to AC4001)
N	Non relieving style (Regulator)
R (2)	Flow direction: Right to left
W	Drain cock with barb fitting: For ø6/ø4 nylon (Filter) (Applicable to AC2501 to AC4001.)

∗ If indicating more than one symbol, place the desired symbols in numerical order then alphabetical order.
Example) **26NW**

Note 3) Only adjusting spring of regulator is different from standard specification.
Note 4) Without valve mechanism.

Attachments

Symbol	Description	Mounting location of attachment	Applicable model	Air intermediate output port size
–	**None**	—	—	—
K	**Check valve**	AF+AR+Ⓚ+AL	AC2001 to AC4001	AC20□1: 1/8 AC25□1: 1/4 AC30□1: 1/4 AC40□1: 3/8
		AW+Ⓚ+AL	AC2011 to AC4011	
S	**Pressure switch**	AF+AR+Ⓢ+AL	AC2001 to AC6001	—
		AF+Ⓢ+AR	AC2021 to AC6021	
		AF+AFM+Ⓢ+AR	AC2031 to AC4031	
T	**T type interface**	AF+Ⓣ+AR+AL	AC2001 to AC4001	AC20□1: 1/8 AC25□1: 1/4 AC30□1: 1/4 AC40□1: 3/8
		AF+Ⓣ+AR	AC2021 to AC4021	
		AF+AFM+Ⓣ+AR	AC2031 to AC4031	
V	**Residual pressure exhaust 3 port valve**	AF+AR+AL+Ⓥ	AC2001 to AC4001	—
		AW+AL+Ⓥ	AC2011 to AC4011	
		AF+AR+Ⓥ	AC2021 to AC4021	
		AF+AFM+AR+Ⓥ	AC2031 to AC4031	
		AW+AFM+Ⓥ	AC2041 to AC4041	

Note 5) If indicating more than one symbol, place the desired symbols in alphabetical order.
Note 6) For piping adapter, pressure switch with piping adapter and cross interface, indicate part number separately.
Note 7) Consult SMC if using pressure switch and T type interface simultaneously attaching to AC□□21.

Option Specifications Combination List

◎: Combination possible ▭: Combination impossible ●: Depends on the model

	Description	Symbol	Accessory (Auto drain)			Option specification										F.R.L. Combination applicable model							
			D	D	C	1	2	3	6	8	C	J	N	R	W	AC2001 AC2011	AC2021 AC2031 AC2041	AC2501	AC2521 to AC2531	AC3001 AC4001	AC3011 AC4011	AC3021 AC4021	AC3031 AC4031	AC3041 AC4041
Accessory	Auto drain press. differential	D				◎	◎	◎	◎		●		◎	◎		◎	◎							
	Auto drain float style (N.O.)	D				◎	◎	◎	◎	●			◎	◎				◎	◎	◎	◎	◎	◎	◎
	Auto drain float style (N.C.)	C				◎	◎	◎	◎	●			◎	◎				◎	◎	◎	◎	◎	◎	◎
Option specification	Set at 0.02 to 0.2MPa	–1	◎	◎	◎		◎	◎	◎	●	●	●	◎	◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Metal bowl	–2	◎	◎	◎	◎		◎				●	◎	◎		◎	◎	◎	◎	◎	◎	◎	◎	◎
	Lubricator with drain cock	–3	◎	◎	◎	◎	◎		◎	●	●	●	◎	◎	●	◎		◎		◎	◎			
	Nylon bowl	–6	◎	◎	◎	◎		◎			●	●	◎	◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Metal bowl with level gauge	–8		◎	◎	◎		◎				●	◎	◎				◎	◎	◎	◎	◎	◎	◎
	With bowl guard	–C	◎			◎		◎	◎				◎	◎		◎	◎							
	Drain guide (Post size $^1/_4$)	–J				◎	◎	◎	◎	●			◎	◎				◎	◎	◎	◎	◎	◎	◎
	Non relieving style	–N	◎	◎	◎	◎	◎	◎	◎	●	●	●		◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Flow direction: right to left	–R	◎	◎	◎	◎	◎	◎	◎	●	●	●	◎		●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	One-touch drain cock w/ barb fitting	–W				◎		◎	◎				◎	◎				◎	◎	◎	◎	◎	◎	◎

Attachments

	Port size	Mechanism
Piping adapter	1/8, 1/4, 3/8, 1/2, 3/4	Able to connect and disconnect equipment without detaching piping.
Pressure switch with piping adapter	1/8, 1/4, 3/8, 1/2, 3/4	Compact switch united with piping adapter
Check valve	1/8, 1/4, 3/8	Prevents reverse flow from lubricator.
Pressure switch	—	Compact switch
T type interface	1/8, 1/4, 3/8	Able to diverge air.
Residual pressure exhaust 3 port valve	1/8, 1/4, 3/8	Able to exhaust residual pressure in the line.
Cross interface	1/8, 1/4, 3/8	Able to diverge piping in all directions.

How to Order

AC 30 01 — 03 D G — ST — 12

Air combination with integral pressure gauge

Body size

20	1/8
25	1/4
30	3/8
40	1/2

Combination of equipment

Symbol	Combination of equipment				
	Filter (AF)	Regulator (AR)	Lubricator (AL)	Filter Regulator (AW)	Mist separator (AFM)
01	①	②	③	—	—
11	—	—	②	①	—
21	①	②	—	—	—
31	①	③	—	—	②
41	—	—	—	①	②

(1) Numbers in ○. indicate order of construcction of equipment from left hand side (the upper stream side) from a view of front side.
Ex.) Symbol **01** — AF+AR+AL
11 — AW+AL
(Available only for AC2011 to 4011.)
21 — AF+AR
31 — AF+AFM+AR
(Available only for AC2031 to 4031.)
41 — AW+AFM
(Available only for AC2041 to 4041.)

(2) For the ones with right to left stream direction, part number of gauge combined filter regulator with right to left stream direction is AW□□02-□□G. Because of this reason, for combinations of air combination which include filter regulator AW,indication should be AC□□12, AC□□42.
For combinations without AW, indication should be "-R" of option.

(3) Standard bracket: T bracket for a set of 2 pieces, and L bracket for a set of 3 pieces. But when a check valve (symbol "K") or a residual pressure release 3 port valve ("V") is attached, L bracket is attached for a set of 2 pieces.

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Accessories (Options)

Symbol	Description	Applicable model
C	**Auto drain**	Float style (N.C.): AC2501 to AC4001
D	**Auto drain**	Pressure differential style: AC2001 Float style (N.O.): AC2501 to AC4001

Pressure Gauge

With limit indicator: AC2001 to AC4001

Option specifications

1 (3)	Set at 0.02 to 0.2MPa (Regulator)
2	Metal bowl (Filter, Lubricator)
3	Lubricator with drain cock
6	Nylon bowl (Filter, Lubricator)
8	Metal bowl with level gauge (Filter, Lubricator) (Applicable to AC2501 to AC4001.)
C	Bowl guard(Applicable to AC20□1 only.)
J (4)	Drain guide port size 1/4 (AC2501 to AC4001)
N	Non relieving style (Regulator)
R (2)	Flow direction: Right to left
W	Drain cock with barb fitting: For ø6/ø4 nylon (Filter) (Applicable to AC2501 to AC4001.)

∗ If indicating more than one symbol, place the desired symbols in numerical order then alphabetical order.
Example) **26NW**

Note 3) Only adjusting spring of regulator is different from standard specification.
Note 4) Without valve mechanism.

Attachments

Symbol	Description	Mounting location of attachment	Applicable model	Air intermediate output port size
–	**None**	—	—	—
K	**Check valve**	AF+AR+Ⓚ+AL	AC2001 to AC4001	AC20□1: 1/8 AC25□1: 1/4 AC30□1: 1/4 AC40□1: 3/8
		AW+Ⓚ+AL	AC2011 to AC4011	
S	**Pressure switch**	AF+AR+Ⓢ+AL	AC2001 to AC6001	—
		AF+Ⓢ+AR	AC2021 to AC6021	
		AF+AFM+Ⓢ+AR	AC2031 to AC4031	
T	**T type interface**	AF+Ⓣ+AR+AL	AC2001 to AC4001	AC20□1: 1/8 AC25□1: 1/4 AC30□1: 1/4 AC40□1: 3/8
		AF+Ⓣ+AR	AC2021 to AC4021	
		AF+AFM+Ⓣ+AR	AC2031 to AC4031	
V	**Residual pressure exhaust 3 port valve**	AF+AR+AL+Ⓥ	AC2001 to AC4001	—
		AW+AL+Ⓥ	AC2011 to AC4011	
		AF+AR+Ⓥ	AC2021 to AC4021	
		AF+AFM+AR+Ⓥ	AC2031 to AC4031	
		AW+AFM+Ⓥ	AC2041 to AC4041	

Note 5) If indicating more than one symbol, place the desired symbols in alphabetical order.
Note 6) For piping adapter, pressure switch with piping adapter and cross interface, indicate part number separately.
Note 7) Consult SMC if using pressure switch and T type interface simultaneously attaching to AC□□21.

Option Specifications Combination List

◎: Combination possible ▭: Combination impossible ●: Depends on the model

	Description	Symbol	Accessory (Auto drain)			Option specification										F.R.L. Combination applicable model							
			D	D	C	1	2	3	6	8	C	J	N	R	W	AC2001 AC2011	AC2021 AC2031 AC2041	AC2501	AC2521 to AC2531	AC3001 AC4001	AC3011 AC4011	AC3021 AC4021	AC3031 AC4031	AC3041 AC4041
Accessory	Auto drain press. differential	D				◎	◎	◎	◎		●		◎	◎		◎	◎							
	Auto drain float style (N.O.)	D				◎	◎	◎	◎	●			◎	◎				◎	◎	◎	◎	◎	◎	◎
	Auto drain float style (N.C.)	C				◎	◎	◎	◎	●			◎	◎				◎	◎	◎	◎	◎	◎	◎
Option specification	Set at 0.02 to 0.2MPa	–1	◎	◎	◎		◎	◎	◎	●	●	●	◎	◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Metal bowl	–2	◎	◎	◎	◎		◎				●	◎	◎		◎	◎	◎	◎	◎	◎	◎	◎	◎
	Lubricator with drain cock	–3	◎	◎	◎	◎	◎		◎	●	●	●	◎	◎	●	◎		◎		◎	◎			
	Nylon bowl	–6	◎	◎	◎	◎		◎			●	●	◎	◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Metal bowl with level gauge	–8		◎	◎	◎		◎				●	◎	◎				◎	◎	◎	◎	◎	◎	◎
	With bowl guard	–C	◎			◎		◎	◎				◎	◎		◎	◎							
	Drain guide (Post size $^1/_4$)	–J				◎	◎	◎	◎	●			◎	◎				◎	◎	◎	◎	◎	◎	◎
	Non relieving style	–N	◎	◎	◎	◎	◎	◎	◎	●	●	●		◎	●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	Flow direction: right to left	–R	◎	◎	◎	◎	◎	◎	◎	●	●	●	◎		●	◎	◎	◎	◎	◎	◎	◎	◎	◎
	One-touch drain cock w/ barb fitting	–W				◎		◎	◎				◎	◎				◎	◎	◎	◎	◎	◎	◎

Attachments

	Port size	Mechanism
Piping adapter	1/8, 1/4, 3/8, 1/2, 3/4	Able to connect and disconnect equipment without detaching piping.
Pressure switch with piping adapter	1/8, 1/4, 3/8, 1/2, 3/4	Compact switch united with piping adapter
Check valve	1/8, 1/4, 3/8	Prevents reverse flow from lubricator.
Pressure switch	—	Compact switch
T type interface	1/8, 1/4, 3/8	Able to diverge air.
Residual pressure exhaust 3 port valve	1/8, 1/4, 3/8	Able to exhaust residual pressure in the line.
Cross interface	1/8, 1/4, 3/8	Able to diverge piping in all directions.

Modular Style Air Combination
with Integral Pressure Gauge

Air Filter + Regulator + Lubricator

AC2001 to 4001

AC4001

AC3001

AC2001

Standard Specifications

Model		AC2001	AC2501	AC3001	AC4001
Combination equipment	Air filter	**AF2000**	**AF3000**	**AF3000**	**AF4000**
	Regulator	**AR2001**	**AR2501**	**AR3001**	**AR4001**
	Lubricator	**AL2000**	**AL3000**	**AL3000**	**AL4000**
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air			
Proof pressure		1.5MPa			
Max. operating pressure		1.0MPa			
Set pressure range		0.05 to 0.85MPa			
Flow (ℓ/min(ANR))(Port size) (1)		500($^1/_4$)	1500($^3/_8$)	2000($^3/_8$)	4000($^1/_2$)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)			
Filtration		5μm			
Recommended lubricant		Turbin oil class 1 (ISO VG32)			
Bowl material		Polycarbonate			
Construction/Regulator		Relieving style			
Weight (kg)		0.74	1.04	1.18	2.14
Accessory (Standard equipment)	Bowl guard	—	●	●	●
	Bracket	B210L	B310L	B310L	B410L

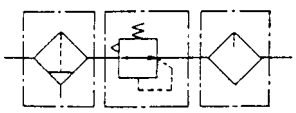
Note 1) Supply pressure: 0.7MPa, Set pressure: 0.5MPa

Attachments/Accessories (Options)

	Description \ Model		Part No. For AC2001	For AC2501	For AC3001	For AC4001
Attachment	Piping adapter		E20-□ 01 □ 02 □ 03	E30-□ 02 □ 03 □ 04	E30-□ 02 □ 03 □ 04	E40-□ 02 □ 03 □ 04 □ 06
	Pressure switch with piping adapter		IS1000E-2□ 01 2□ 02 Y 2□ 03	IS1000E-3□ 02 3□ 03 Y 3□ 04	IS1000E-3□ 02 3□ 03 Y 3□ 04	IS1000E-4□ 02 4□ 03 4□ 04 Y 4□ 06
	Check valve (2)		AKM2000-□01 □(02)	AKM3000-□(01) □02	AKM3000-□(01) □02	AKM4000-□(02) □03
	Pressure switch		IS1000M-2Y	IS1000M-3Y	IS1000M-3Y	IS1000M-4Y
	T type bracket (2)		Y21-□01 □(02)	Y31-□(01) □02	Y31-□(01) □02	Y41-□(02) □03
	Residual press. exhaust 3 port valve		VHS2000-□01 □02	VHS3000-□02 □03	VHS3000-□02 □03	VHS4000-□02 □03
	Cross interface		Y24-□01 □02	Y34-□01 □02	Y34-□01 □02	Y44-□02 □03
Accessory	T type bracket		B210T	B310T	B310T	B410T
	Interface		Y20	Y30	Y30	Y40
	Pressure gauge	1.0MPa	GC30-10	GC30-10	GC30-10	GC30-10
		0.2MPa	GC30-2	GC30-2	GC30-2	GC30-2
	Auto drain (3) float style	N.O.	—	AD43	AD43	AD44
		N.C.	—	AD53	AD53	AD54
	Auto drain pressure differential style		AD62	—	—	—

Note 2) Standard specification of air combination: Port size without ( )
Note 3) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 4) □ in part number indicate connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF).
∗ -01, -02, -03, -04, -06, -10 after part number indicate port size.
(-01: $^1/_8$, -02: $^1/_4$, -03: $^3/_8$, -04: $^1/_2$, -06: $^3/_4$, -10: 1)

JIS symbol

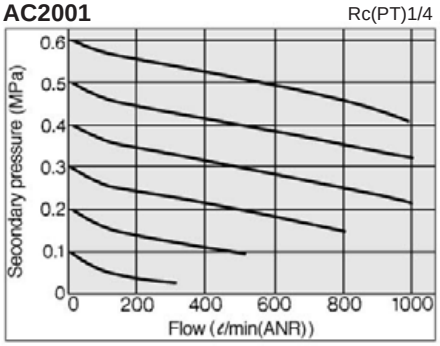


Air filter Regulator Lubricator

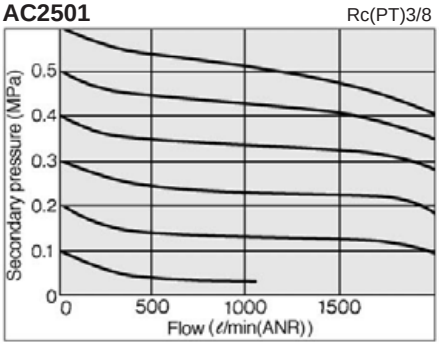
Flow Characteristics

Condition: Supply pressure 0.7MPa

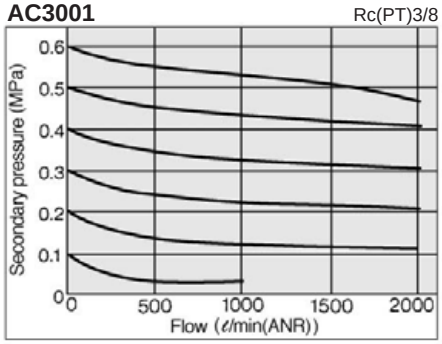
AC2001 Rc(PT)1/4



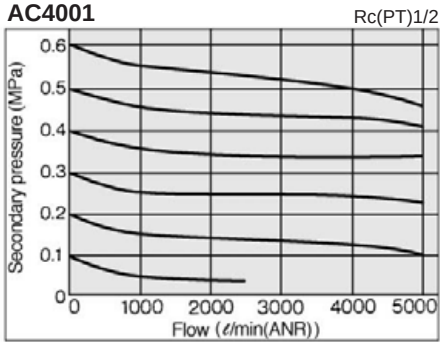
AC2501 Rc(PT)3/8



AC3001 Rc(PT)3/8



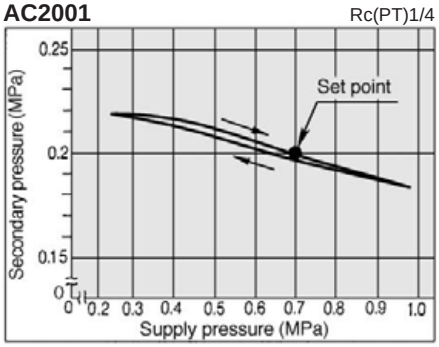
AC4001 Rc(PT)1/2



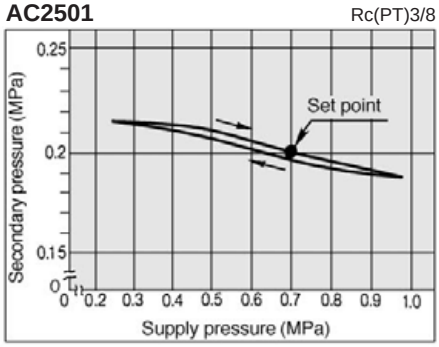
Pressure Characteristics

Conditions: Supply pressure 0.7MPa
Secondary pressure 0.2MPa
Flow 20ℓ/min(ANR)

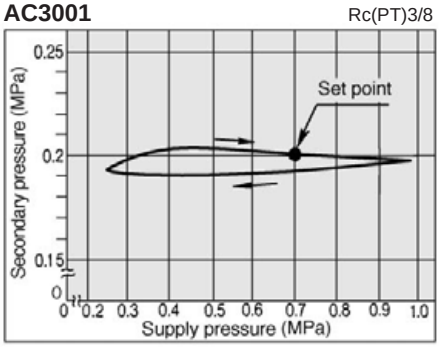
AC2001 Rc(PT)1/4



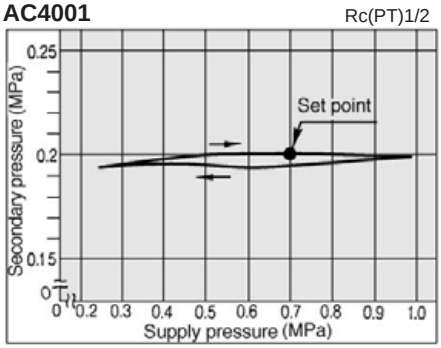
AC2501 Rc(PT)3/8



AC3001 Rc(PT)3/8



AC4001 Rc(PT)1/2



⚠ Precaution

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠Warning

①For AC3031, 4031, 3041 and 4041 with float style auto drain (N.O.), use 202kW or larger compressor. Because 2 auto drains are used and 200 ℓ/min air is needed, it might malfunction with a compressor weaker than the required ability.

⚠Caution

①In case of mounting a regulator in up right direction, no pressure switch(IS1000M-□) attachment or T type interface can be mounted, for it touches bonnet.
It is just the same as a filter regulator.
②There is possibility of oil flowing back when mounting T type interface onto the supply side of lubricator and take out in the middle. It cannot be used for air non lubrication style. To use it as for air non lubrication style, it is necessary to use check valve (Series AKM) to prevent reverse flow.
③Mounting pressure switch and T type interface on the IN side of check valve makes it impossible to take out piping in the middle of check valve.
④When mounting residual pressure release 3 port valve directly to the IN side of a lubricator, use check valve (Series AKM) to prevent reverse flow of oil.
⑤Pressure switch and T type interface cannot be mounted to OUT side of residual pressure release 3 port valve, as a part of the products interferes.

Piping

⚠Warning

①When mounting check valve, make sure of the position of ▷ mark which indicates an entrance of air (IN side), and connect.

Air Supply

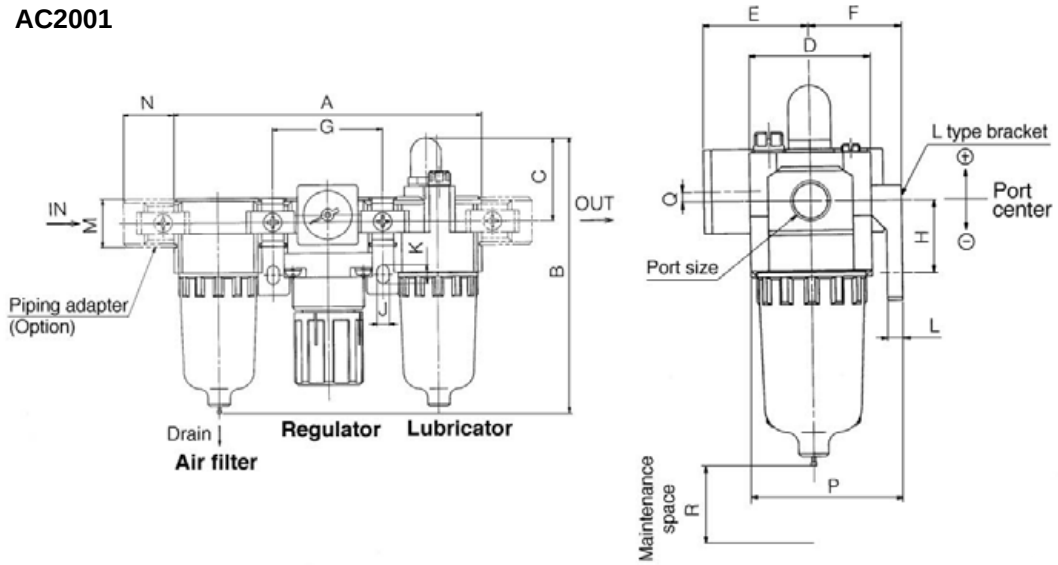
⚠Caution

①If residual pressure release 3 port valve is to be mounted, use an air filter 5μm filtration rating or less to prevent any damage on sheet part by dust, paper, etc.

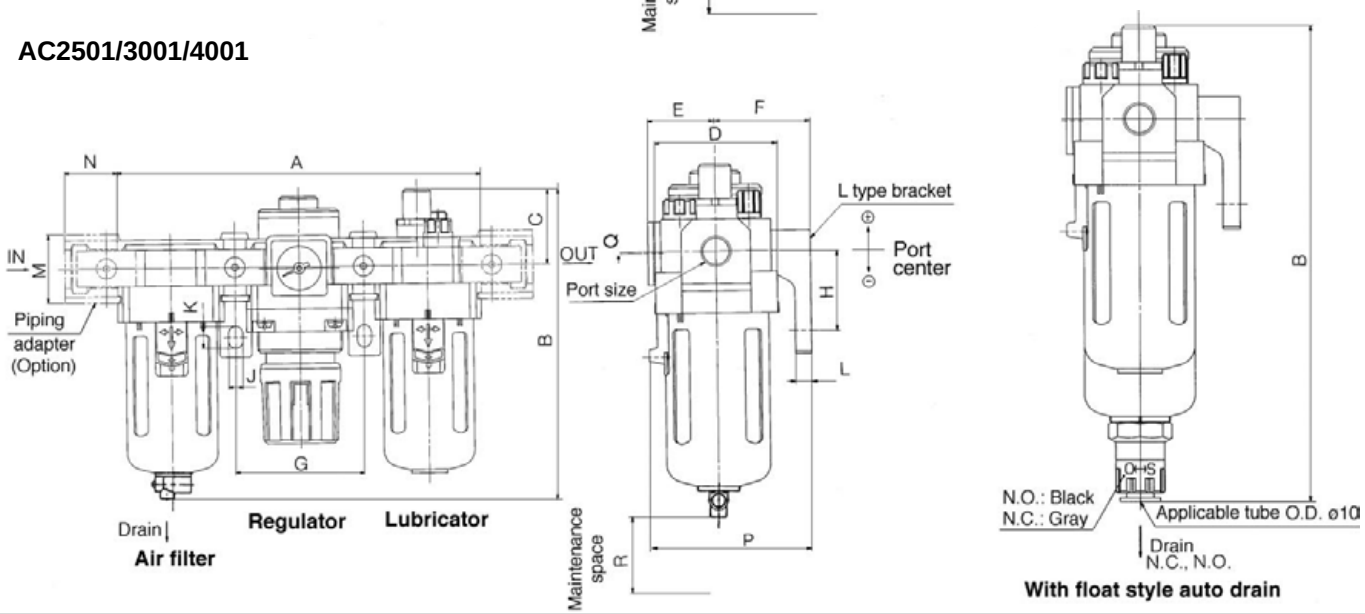
AC2001 to 4001

Dimensions

AC2001



AC2501/3001/4001



Model	Port size	A	B	C	D	Bracket mounting size							M	N	P	Q*	R	With auto drain	
						E	F	G	H	J	K	L						Float	Press. Diff.
																		B	B
AC2001	1/8, 1/4	140	124.5	38	40	56.8	30	50	24	5.5	8.5	5	22	23	50	⊕3.3	80	—	147.5
AC2501	1/4, 3/8	181	153	38	48	60.8	41	64	35	7	11	7	34.2	26**	70.5	⊕4.3	80	194	—
AC3001	1/4, 3/8	181	153	38	53	60.8	41	64	35	7	11	7	34.2	26**	70.5	⊖0.8	80	194	—
AC4001	1/4, 3/8, 1/2	238	188	41	70	65.5	50	84	40	9	13	7	42.2	33**	88	⊖0.8	105	229	—

Option***

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	
AC2001	—	—	125	—
AC2501	161.5	159	166	186
AC3001	161.5	159	166	186
AC4001	196.5	194	201	221

*⊕⊖marks in the dimension diagram show the direction of inclination from port center to gauge center.

**For piping adapter AC2501, 3001, port size 1/2: 40mm
For AC4001, port size 3/4: 50mm

***For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

Modular Style Air Combination with Integral Pressure Gauge

Filter Regulator + Lubricator

AC2011 to 4011

AC4011

AC3011

AC2011

Standard Specifications

Model		AC2011	AC3011	AC4011
Combination equipment	Filter regulator	**AW2001**	**AW3001**	**AW4001**
	Lubricator	**AL2000**	**AL3000**	**AL4000**
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Set pressure range		0.05 to 0.85MPa		
Flow (ℓ/min (ANR)) (Port size) (1)		500(1/4)	1700(3/8)	3000 (1/2)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)		
Filtration		5μm		
Recommended lubricant		Turbin oil class 1 (ISO VG32)		
Bowl material		Polycarbonate		
Construction/Filter regulator		Relieving style		
Weight (kg)		0.66	0.98	1.93
Accessory (Standard equipment)	Bowl guard	—	●	●
	Bracket	B210T	B310T	B410T

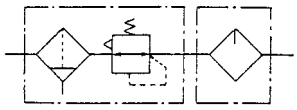
Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa

Attachments/Accessories (Options)

	Description \ Model		Part No. For AC2011	Part No. For AC3011	Part No. For AC4011
Attachment	Piping adapter		E20-□ 01 / □ 02 / □ 03	E30-□ 02 / □ 03 / □ 04	E40-□ 02 / □ 03 / □ 04 / □ 06
	Pressure switch with piping adapter		IS1000E-2□ 01 / 2□ 02 / 2□ 03 Y	IS1000E-3□ 02 / 3□ 03 / 3□ 04 Y	IS1000E-4□ 02 / 4□ 03 / 4□ 04 / 4□ 06 Y
	Check valve (2)		AKM2000-□ 01 / □ (02)	AKM3000-□ (01) / □ 02	AKM4000-□ (02) / □ 03
	Residual pressure exhaust 3 port valve		VHS2000-□ 01 / □ 02	VHS3000-□ 02 / □ 03	VHS4000-□02 / □03 / □04
	Cross interface		Y24-□ 01 / □ 02	Y34-□01 / □02	Y44-□02 / □03
Accessory	Interface		Y20	Y30	Y40
	Pressure gauge	1.0MPa	GC30-10	GC30-10	GC30-10
		0.2MPa	GC30-2	GC30-2	GC30-2
	Auto drain (3) float style	N.O.	—	AD43	AD44
		N.C.	—	AD53	AD54
	Auto drain pressure differential style		AD62	—	—

Note 2) Standard specification of air combination: Port size without ( )
Note 3) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 4) □ in part number indicate connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF).
∗-01, -02, -03, -04 after part number indicate port size. (-01: 1/8, -02: 1/4, -03: 3/8, -04: 1/2)

JIS symbol

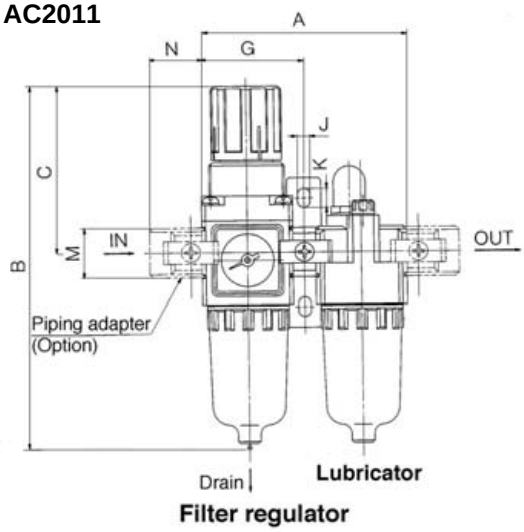


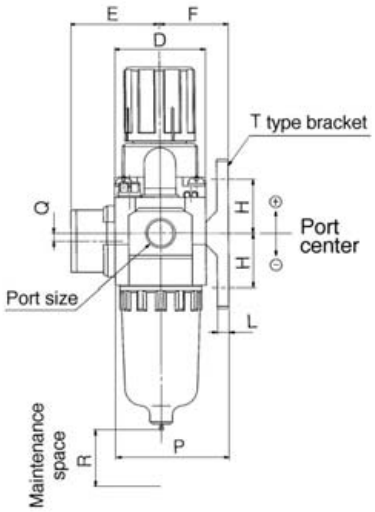
Filter regulator Lubricator

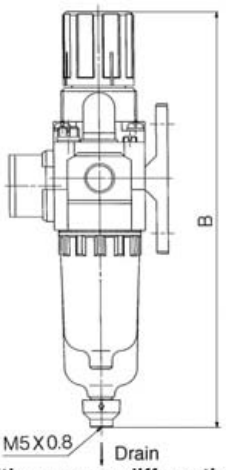
AC2011 to 4011

Dimensions

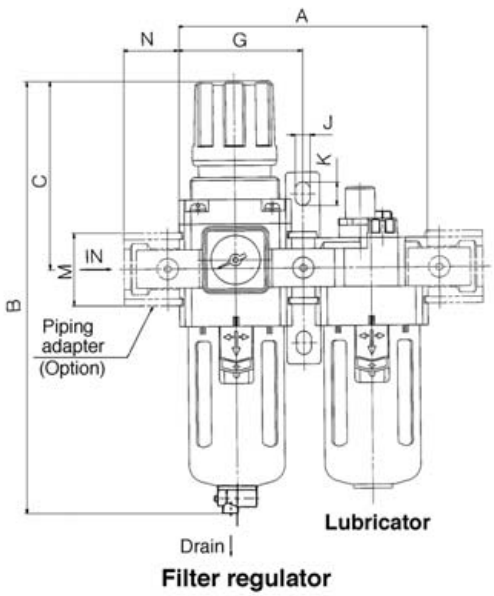
AC2011

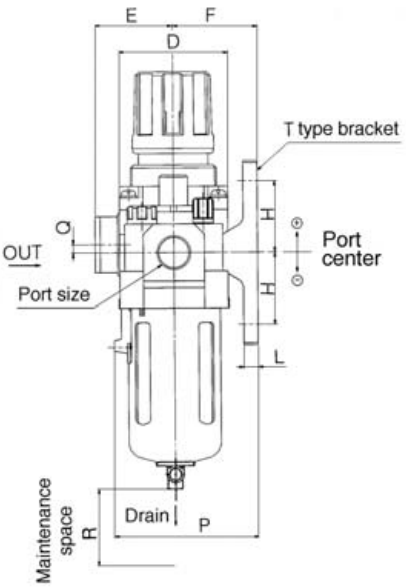


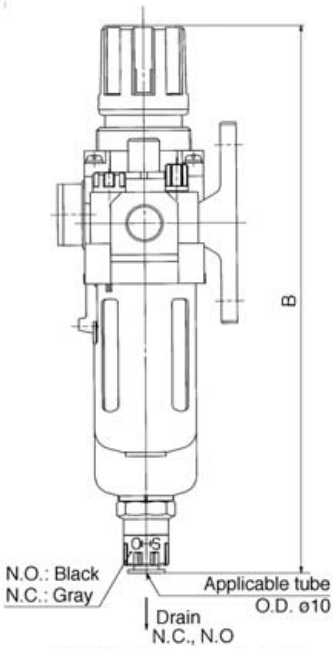




AC3011/4011







Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	Q*	R	With auto drain	
							F	G	H	J	K	L						Float	Press. Diff.
																		B	B
AC2011	1/8, 1/4	90	164.5	78	45	39.5	30	45	24	5.5	8.5	5	22	23	50	⊖3.5	80	—	187.5
AC3011	1/4, 3/8	117	207.5	92.5	55	38.5	41	58.5	35	7	11	7	34.2	26**	70.5	⊕4	80	248.5	—
AC4011	1/4, 3/8, 1/2	154	259	112	70	38	50	77	40	9	13	7	42.2	33**	88	⊕1	105	300	—

Option***

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC2011	–	—	164.5	—
AC3011	216	213.5	220.5	240.5
AC4011	267.5	265	272	292

*⊕⊖marks in the dimension diagram show the direction of inclination from port center to gauge center.

**For piping adapter AC3011, port size 1/2: 40mm
For AC4011, port size 3/4: 50mm

***For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

Modular Style Air Combination with Integral Pressure Gauge

Air Filter + Regulator

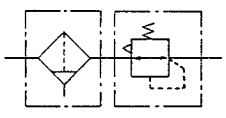
AC2021 to 4021

AC4021

AC3021

AC2021

JIS symbol



Air filter Regulator

Standard Specifications

Model		AC2021	AC2521	AC3021	AC4021
Combination equipment	Air filter	**AF2000**	**AF3000**	**AF3000**	**AF4000**
	Regulator	**AR2001**	**AR2501**	**AR3001**	**AR4001**
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air			
Proof pressure		1.5MPa			
Max. operating pressure		1.0MPa			
Set pressure range		0.05 to 0.85MPa			
Flow (ℓ/min(ANR)) (Port size) (1)		550 (1/4)	1500 (3/8)	2000 (3/8)	4000 (1/2)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)			
Filtration		5μm			
Bowl material		Polycarbonate			
Construction/Regulator		Relieving style			
Weight (kg)		0.54	0.68	0.82	1.61
Accessory (Standard equipment)	Bowl guard	—	●	●	●
	Bracket	B210T	B310T	B310T	B410T

Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa

Attachments/Accessories (Options)

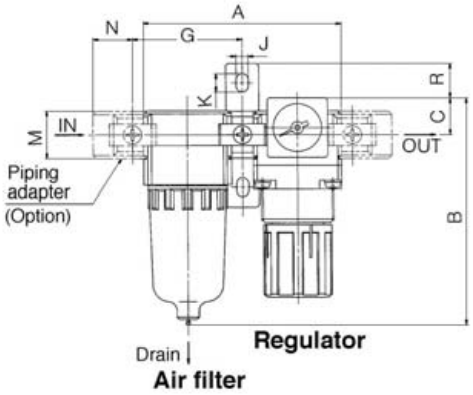
	Description \ Model		Part No. For AC2021	For AC2521	For AC3021	For AC4021
Attachment	Piping adapter		E20-□01/□02/□03	E30-□02/□03/□04	E30-□02/□03/□04	E40-□02/□03/□04/□06
	Pressure switch with piping adapter		IS1000E-2□01/2□02/2□03 Y	IS1000E-3□02/3□03/3□04Y	IS1000E-3□02/3□03/3□04Y	IS1000E-4□02/4□03/4□04/4□06 Y
	Pressure switch		IS1000M-2Y	IS1000M-3Y	IS1000M-3Y	IS1000M-4Y
	T type interface (2)		Y21-□01/□(02)	Y31-□(01)/□02	Y31-□(01)/□02	Y41-□(02)/□03
	Residual press. exhaust 3 port valve		VHS2000-□01/□02	VHS3000-□02/□03	VHS3000-□02/□03	VHS4000-□02/□03/□04
	Cross interface		Y24-□01/□02	Y34-□01/□02	Y34-□01/□02	Y44-□02/□03
Accessory	Interface		Y20	Y30	Y30	Y40
	Pressure gauge	1.0MPa	GC30-10	GC30-10	GC30-10	GC30-10
		0.2MPa	GC30-2	GC30-2	GC30-2	GC30-2
	Auto drain (3) floating style	N.O.	—	AD43	AD43	AD44
		N.C.	—	AD53	AD53	AD54
	Auto drain pressure differential style		AD62	—	—	—

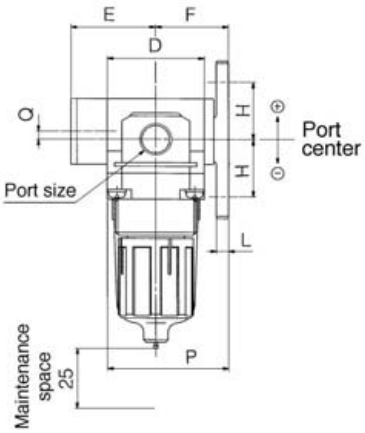
Note 2) Standard specification of air combination: Port size without ( )
Note 3) □ in part number indicate connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF).
Note 4) Minimum operating pressure: [N.O.: 0.1MPa], [N.C.: 0.15MPa]
∗-01, -02, -03, -04, -06, after part number indicate port size. (-01: 1/8, -02: 1/4, -03: 3/8, -04: 1/2)

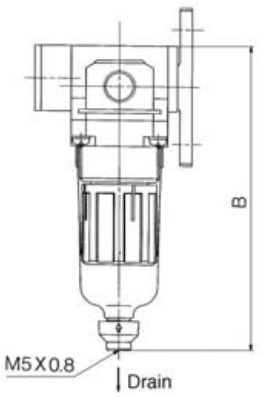
AC2021 to 4021

Dimensions

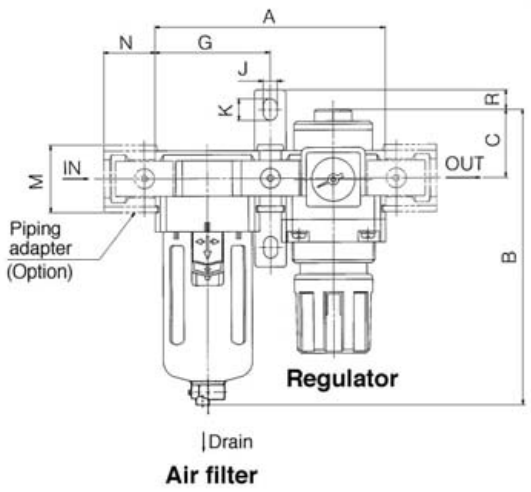
AC2021

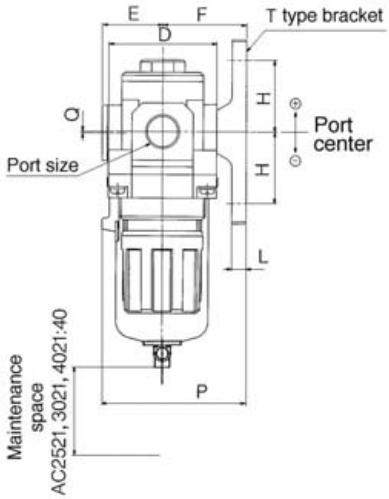


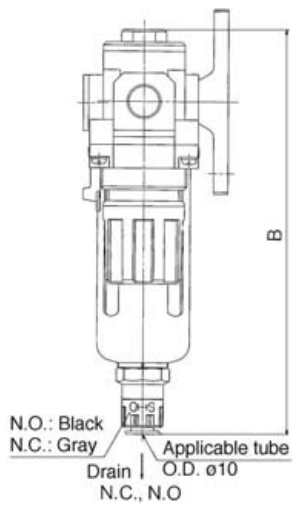




AC2521/3021/4021







Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	Q*	R	With auto drain	
							F	G	H	J	K	L						Float	Press. Diff.
																		B	B
AC2021	1/8, 1/4	90	103.5	17	40	35	30	45	24	5.5	8.5	5	22	23	50	⊕3.3	16	—	126.5
AC2521	1/4, 3/8	117	140	25	48	32	41	58.5	35	7	11	7	34.2	26**	70.5	⊕4.3	20	181	—
AC3021	1/4, 3/8	117	150	35	53	29.5	41	58.5	35	7	11	7	34.2	26**	70.5	⊖0.8	10	191	—
AC4021	1/4, 3/8, 1/2	154	184.5	37.5	70	38	50	77	40	9	13	7	42.2	33**	88	⊖0.8	12.5	225.5	—

Option***

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC2021	–	—	103.5	—
AC2521	152	146	153	173
AC3021	162	156	163	183
AC4021	196.5	190.5	197.5	217.5

*⊕⊖marks in the dimension diagram show the direction of inclination from port center to gauge center.

**For piping adapter AC2521, 3021 port size 1/2: 40mm
For AC4021, port size 3/4: 50mm

***For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

Modular Style Air Combination with Integral Pressure Gauge

Air Filter + Mist Separator + Regulator

AC2031 to 4031

AC4031

AC3031

AC2031

Standard Specifications

Model		AC2031	AC2531	AC3031	AC4031
Combination equipment	Air filter	**AF2000**	**AF3000**	**AF3000**	**AF4000**
	Mist separator	**AFM2000**	**AFM3000**	**AFM3000**	**AFM4000**
	Regulator	**AR2001**	**AR2501**	**AR3001**	**AR4001**
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air			
Proof pressure		1.5MPa			
Max. operating pressure		1.0MPa			
Min. operating pressure		0.05MPa			
Set pressure range		0.05 to 0.85MPa			
Flow (ℓ/min(ANR)) (1)		200	450	450	1100
Ambient and fluid temperature		–5 to 60°C (Non-freezing)			
Filtration		AF: 5μm, AFM: 0.3μm(95% scavening particle size)			
Density of oil mist on secondary side		Max 1.0mgf/Nm³(≅ 0.8ppm) (2)			
Bowl material		Polycarbonate			
Construction/Filter regulator		Relieving style			
Weight (kg)		0.71	1.03	1.17	2.21
Accessory (Standard equipment)	Bowl guard	—	●	●	●
	Bracket	B210L	B310L	B310L	B410L

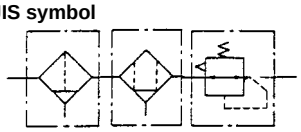
Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa
Rated flow changes depending on flow.
Note 2) When density of air compressed from compressor is 30mgf/Nm³

Attachments/Accessories (Options)

	Description \ Model		Part No. For AC2031	For AC2531	For AC3031	For AC4031
Attachment	Piping adapter		E20-□01/□02/□03	E30-□02/□03/□04	E30-□02/□03/□04	E40-□02/□03/□04/□06
	Pressure switch with piping adapter		IS1000E-201/202/203Y	IS1000E-302/303/304Y	IS1000E-302/303/304Y	IS1000E-402/403/404/406Y
	Pressure switch		IS1000M-2Y	IS1000M-3Y	IS1000M-3Y	IS1000M-4Y
	T type interface (3)		Y21-□01/□(02)	Y31-□(01)/□02	Y31-□(01)/□02	Y41-□(02)/□03
	Residual press. exhaust 3 port valve		VHS2000-□01/□02	VHS3000-□02/□03	VHS3000-□02/□03	VHS4000-□02/□03/□04
	Cross interface		Y24-□01/□02	Y34-□01/□02	Y34-□01/□02	Y44-□02/□03
Accessory	T type bracket		B210T	B310T	B310T	B410T
	Interface		Y20	Y30	Y30	Y40
	Pressure gauge	1.0MPa	GC30-10	GC30-10	GC30-10	GC30-10
		0.2MPa	GC30-2	GC30-2	GC30-2	GC30-2
	Auto drain float (4)	N.O.	—	AD43	AD43	AD44
		N.C.	—	AD53	AD53	AD54
	Auto drain pressure differential		AD62	—	—	—

Note 2) Standard specification of air combination: Port size without ( )
Note 3) □ in part number indicates connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF).
Note 4) Minimum operating pressure: [N.O. 0.1MPa], [N.C. 0.15MPa]
∗-01, -02, -03, -04, -06, -10 after part number indicate port size. (-01: 1/8, -02: 1/4, -03: 3/8, -04: 1/2)

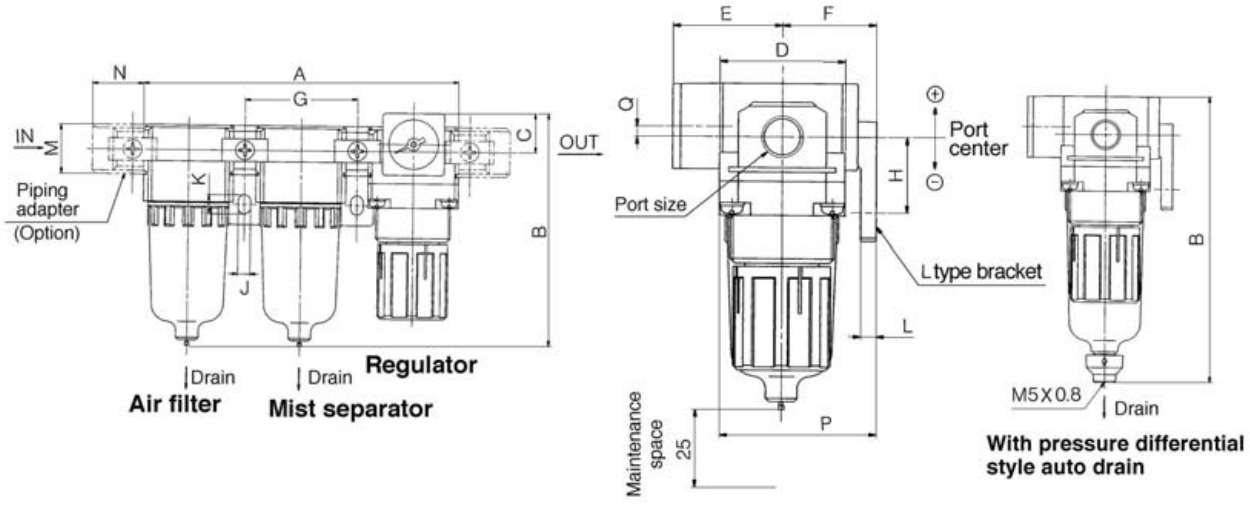
JIS symbol



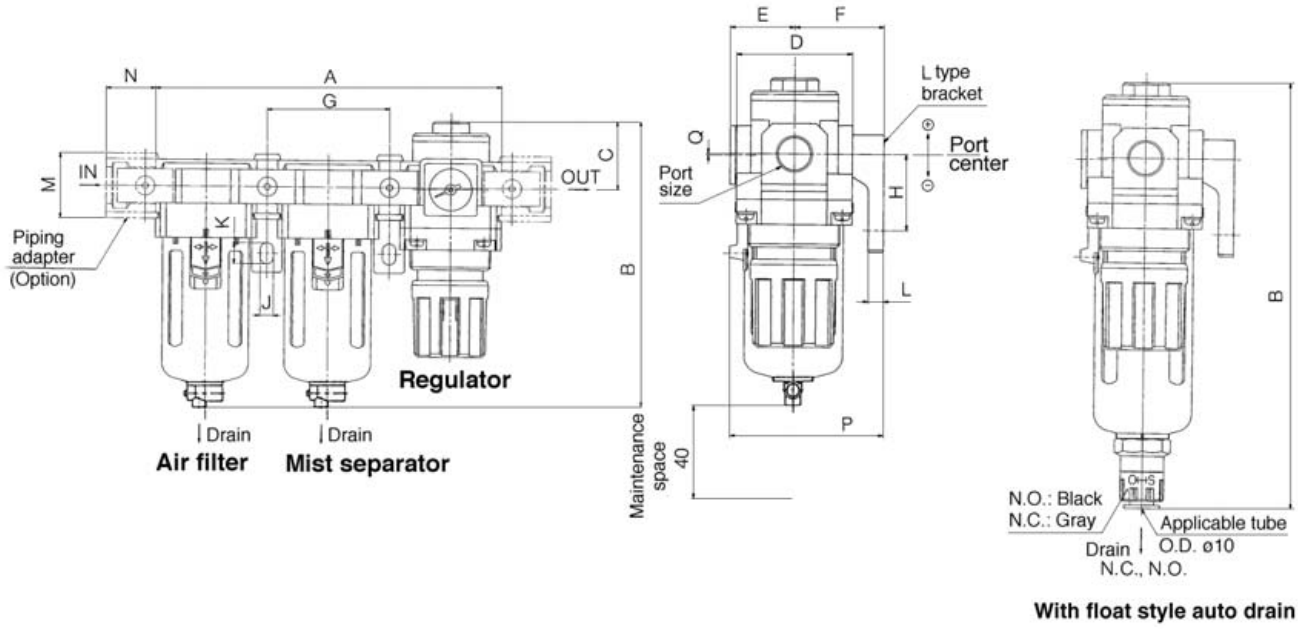
AC2031 to 4031

Dimensions

AC2031



AC2531/3031/4031



Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	Q*	With auto drain	
							F	G	H	J	K	L					Float	Press. Diff.
																	B	B
AC2031	1/8, 1/4	140	103.5	17	40	56.8	30	50	24	5.5	8.5	5	22	23	50	⊕3.3	—	126.5
AC2531	1/4, 3/8	181	140	25	53	60.8	41	64	35	7	11	7	34.2	26**	70.5	⊕4.3	181	—
AC3031	1/4, 3/8	181	150	35	53	60.8	41	64	35	7	11	7	34.2	26**	70.5	⊖0.8	191	—
AC4031	1/4, 3/8, 1/2	238	184.5	37.5	70	65.5	50	84	40	9	13	7	42.2	33**	88	⊖0.8	225.5	—

Option***

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level guge
	B	B	B	B
AC2031	–	—	103.5	—
AC2531	148.5	146	153	173
AC3031	158.5	156	163	183
AC4031	193	190.5	197.5	217.5

*⊕⊖ marks in the dimension diagram show the direction of inclination from port center to gauge center.

**For piping adapter AC2531, 3031 port size $^{1}/_{2}$: 40mm
For AC4031, port size $^{3}/_{4}$: 50mm

***For options (with barb fitting, with drain guide, metal bowl, with level gauge), body length (B dimension) is different.

Modular Style Air Combination with Integral Pressure Gauge

Filter Regulator + Mist Separator

AC2041/3041/4041

AC4041

AC3041

AC2041

Standard Specifications

Model		AC2041	AC3041	AC4041
Combination equipment	Filter regulator	AW2001	AW3001	AW4001
	Mist separator	AFM2000	AFM3000	AFM4000
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Min. operating pressure		0.05MPa		
Set pressure range		0.05 to 0.85MPa		
Flow (ℓ/min(ANR)) (1)		150	330	800
Ambient and fluid temperature		–5 to 60°C (Non-freezing)		
Filtration		AW: 5µm, AFM: 0.3µm(95% scavenging particle size)		
Density of oil mist on secondary side		Max. 1.0mgf/Nm^3(≅ 0.8ppm) (2)		
Bowl material		Polycarbonate		
Construction/Filter regulator		Relieving style		
Weight (kg)		0.63	0.97	1.91
Accessory (Standard equipment)	Bowl guard	—	●	●
	Bracket	B210T	B310T	B410T

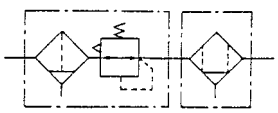
Note 1) Conditions: Supply pressure 0.7MPa, Set pressure 0.5MPa
Rated flow changes depending on set pressure.
Note 2) When density of air compressed from compressor is 30mgf/Nm^3

Attachments/Accessories (Options)

	Description \ Model		Part No. For AC2041	For AC3041	For AC4041
Attachment	Piping adapter		E20-□01/□02/□03	E30-□02/□03/□04	E40-□02/□03/□04/□06
	Pressure switch with piping adapter		IS1000E-□201/□202/□203Y	IS1000E-□302/□303/□304Y	IS1000E-□402/□403/□404/□406Y
	Residual press. exhaust 3 port valve		VHS2000-□01/□02	VHS3000-□02/□03	VHS4000-□02/□03/□04
	Cross interface		Y24-□01/□02	Y34-□01/□02	Y44-□02/□03
Accessory	Interface		Y20	Y30	Y40
	Pressure gauge	1.0MPa	GC30-10	GC30-10	GC30-10
		0.2MPa	GC30-2	GC30-2	GC30-2
	Auto drain floating style (3)	N.O.	—	AD43	AD44
		N.C.	—	AD53	AD54
	Auto drain pressure differential style		AD62	—	—

Note 3) Minimum operating pressure: N.O. 0.1MPa, N.C. 0.15MPa
Note 4) □ in part number indicate connecting thread. Use nothing for Rc(PT), N for NPT and F for G(PF).
∗-01, -02, -03, -04 after part number indicate port size. (-0: 1/8, -02: 1/4, -03: 3/8, -04: 1/2)

JIS symbol

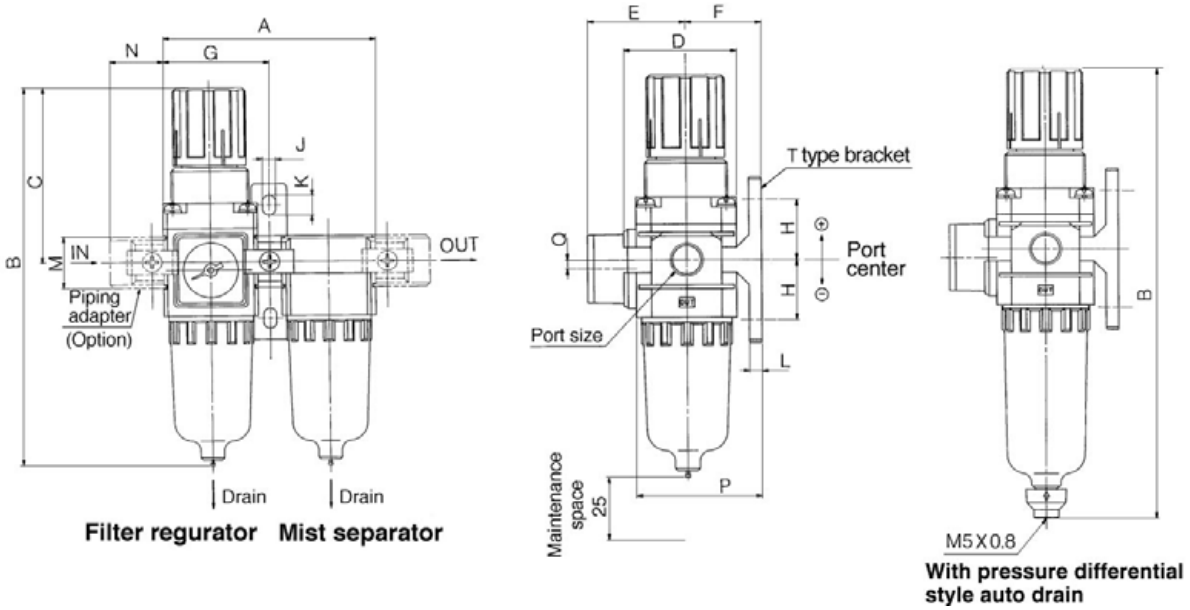


Filter regulator Mist separator

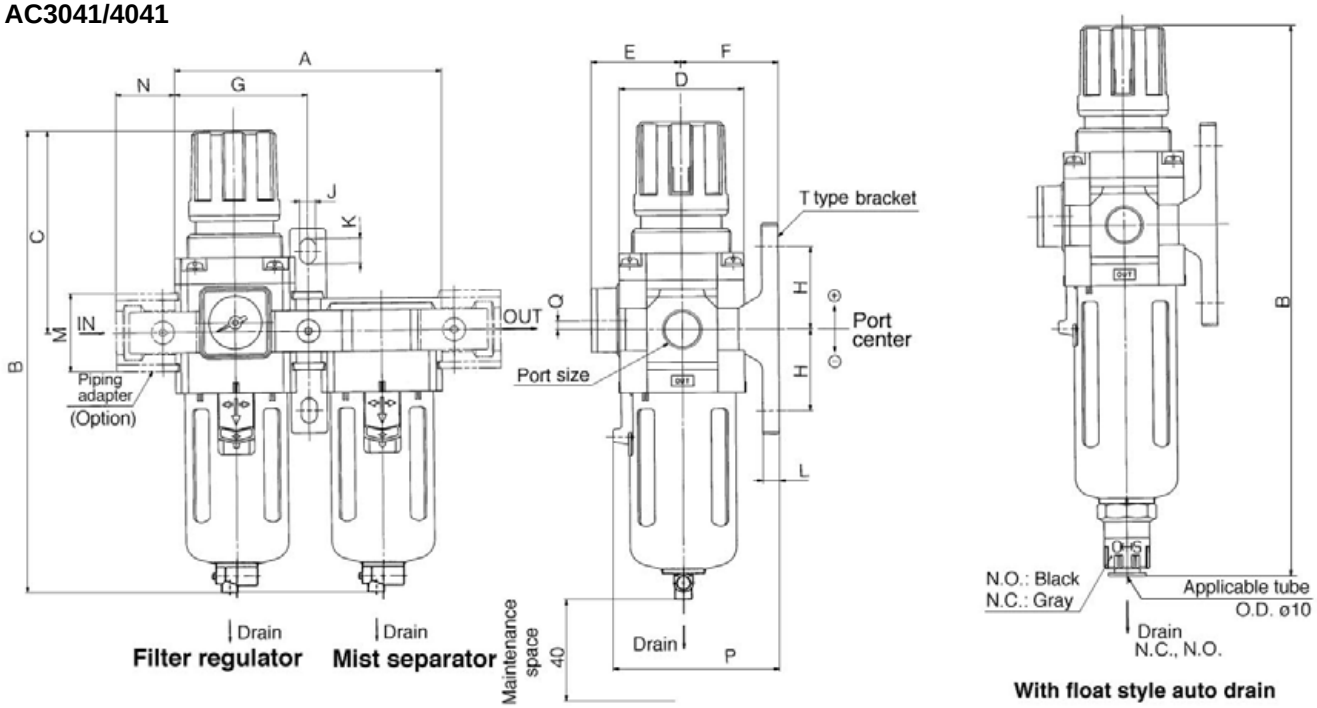
AC2041 to 4041

Dimensions

AC2041



AC3041/4041



Model	Port size	A	B	C	D	E	Bracket mounting size						M	N	P	Q*	With auto drain	
							F	G	H	J	K	L					Float	Press. Diff.
																	B	B
AC2041	1/8, 1/4	90	164.5	78	45	35	30	45	24	5.5	8.5	5	22	23	50	⊖3.5	–	187.5
AC3041	1/4, 3/8	117	207.5	92.5	55	29.5	41	58.5	35	7	11	7	34.2	26**	70.5	⊕ 4	248.5	–
AC4041	1/4, 3/8, 1/2	154	259	112	70	38	50	77	40	9	13	7	42.2	33**	88	⊕ 1	300	–

Option***

Model	Barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC2041	–	–	164.5	–
AC3041	216	213.5	220.5	240.5
AC4041	267.5	265	272	292

*⊕⊖ marks in the dimension diagram show the direction of inclination from port center to gauge center.

** For piping adapter AC3041 port size 1/2: 40mm
For AC4041, port size 3/4: 50mm

***For options (with barb fitting, with drain guide, metal blow, with level gauge), body length (B dimension) is different.

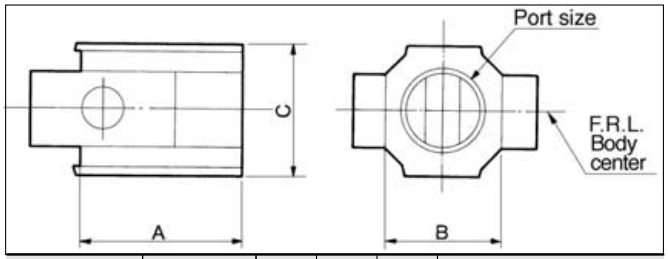
Attachments

Piping Adapter

$1/8$, $1/4$, $3/8$, $1/2$, $3/4$

Easy maintenance. Makes it possible to attach and detach equipment without removing piping.

E30-02



Model	Port size	A	B	C	Applicable model
E20-□01	$1/8$	23	22	22	**AC2001, AC2011, AC2021**
E20-□02	$1/4$				**AC2031, AC2041**
E20-□03	$3/8$				**AR2001, AW2001**
E30-□02	$1/4$	26	29	34.2	**AC2501, AC2521, AC2531**
E30-□03	$3/8$				**AC3001, AC3011, AC3021**
E30-□04	$1/2$	40	29	34.2	**AC3031, AC3041, AR3001**
E40-□02	$1/4$	33	35	42.2	**AW3001**
E40-□03	$3/8$				**AC4001, AC4011, AC4021**
E40-□04	$1/2$				**AC4031, AC4041**
E40-□06	$3/4$	50	35	42.2	**AR4001, AW4001**

Note 1) □ in part number indicates threads.
Use nothing for Rc(PT), N for NPT, F for G(PF).

∗ To order piping adapter with bracket, indicate the parts number as shown below.
Example) With L type bracket: E□ 0L-□
With T type bracket: E□ 0T-□

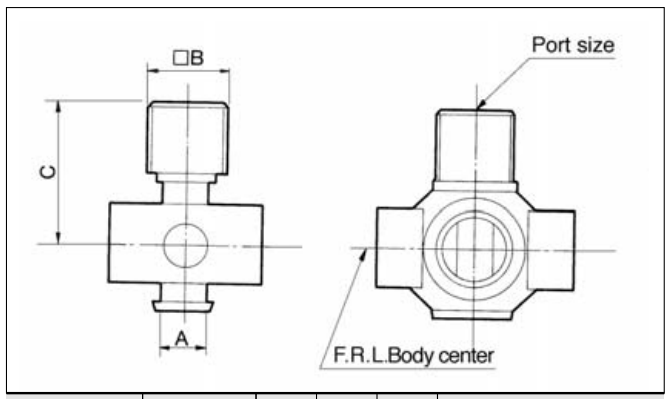
∗∗ One with AC installed is special product.

T Type Interface: (T)

$1/8$, $1/4$, $3/8$

T type interface makes it easier to diverge air output.

Y41 Y31



Model	Port size	A	□B	C	Applicable model
Y21-□01	1/8	10	19	29	**AC2001, AC2021, AC2031**
Y21-□02	1/4				
Y31-□01	1/8	11	19	33	**AC2501, AC2521, AC2531**
Y31-□02	1/4				**AC3001, AC3021, AC3031**
Y41-□02	1/4	14	24	39	**AC4001, AC4021, AC4031**
Y41-□03	3/8				

Note 1) □ in part number indicates threads.
Use nothing for Rc(PT), N for NPT, F for G(PF).

∗ To order T type interface with bracket, indicate the parts number as shown below.
Example) With L type bracket: Y□ 1L-□
With T type bracket: Y□ 1T-□

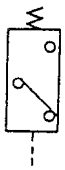
∗∗ Refer to attachment list on p.1.1-27 for standard port size for AC use.

Caution on Assembling

○ T type interface cannot be mounted at IN/OUT side of AW or upward handle of AR.
○ When T type interface is used at IN side of lubricator, oil may have entered. Use check valve AKM series.

Pressure Switch with Piping Adapter

JIS symbol



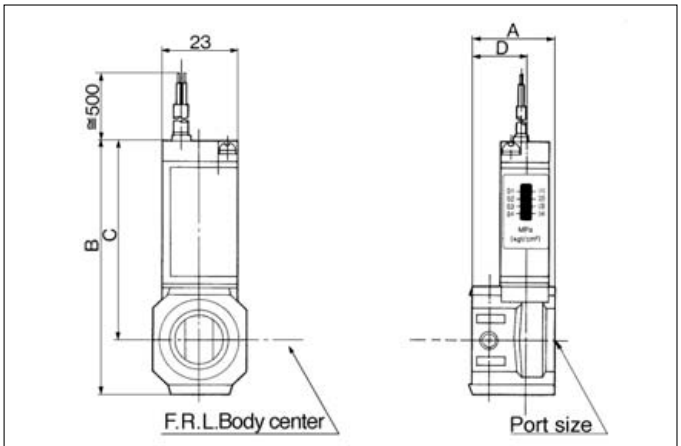
Specifications

Fluid	Air
Proof pressure	1.0MPa
Max. operating pressure	0.7MPa
Set pressure range (off)	0.1 to 0.4MPa
Pressure differential	0.08MPa
Ambient and fluid temperature	–5 to 60°C (Non-freezing)

Switch Characteristics

Contact point structure	1a
Max. contact point capacity	2VA AC/2W DC
Voltage AC, DC	12V, 24V, 48V, 100V
Max. operating current	AC, 12V to 24V DC: 50mA AC, 48V DC: 40mA AC, 100V DC: 20mA

∗For more information, refer to p.3.0-0.



Model(1)	Port size	A	B	C	D	Applicable model
IS1000E-2□01Y	1/8	28	73	62	18.5	AC2001, AC2011, AC2021 AC2031, AC2041 AW2001
IS1000E-2□02Y	1/4					
IS1000E-2□03Y	3/8					
IS1000E-3□02Y	1/4	26	80	63	16.5	AC2501, AC2521, AC2531 AC3001, AC3011, AC3021 AC3031, AC3041 AW3001, AW3051
IS1000E-3□03Y	3/8					
IS1000E-3□04Y	1/2	40	80	63	17.5	
IS1000E-4□02Y	1/4	33	87	66	17.5	AC4001, AC4011, AC4021 AC4031, AC4041 AW4001, AW4051
IS1000E-4□03Y	3/8					
IS1000E-4□04Y	1/2					
IS1000E-4□06Y	3/4	50	87	66	17.5	

Note 1) □ in the part number indicates thread.
Use nothing for Rc(PT), N for NPT and F for G(PF).
Note 2) With retainer, O ring and bolt.

How to Order

IS1000E − 3 □ 03 YL − □

Pressure switch with piping adapter

Body size

2	For AC2001
3	For AC2501, AC3001
4	For AC4001-02 to 04

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Piping adapter port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Attachment

—	Without attachment
Y	With attachment
YL	With attachment and L type bracket
YT	With attachment and T type bracket

Options

X201	Length of lead wire: 3m
X202	Setting pressure range: 0.1 to 0.6Mpa
X250	Reverse mounting (Left side mounting style)

Attachments for IS1000

Pressure switch applicable model No.	Y type standard	YL type with L type bracket	YT type with T type bracket
IS1000E-201 to 203	Y20E	Y20LE	Y20TE
IS1000E-302 to 304	Y30E	Y30LE	Y30TE
IS1000E-402 to 406	Y40E	Y40LE	Y40TE

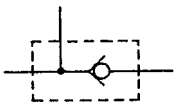
Check Valve: (K)

Rc(PT) 1/8, 1/4, 3/8

Diverges on the secondary side of regulator. Makes it easier to mount check valve with a middle take out port which prevents reverse flow of lubricant oil from lubricator when releasing air.

AKM3000

JIS symbol



Specifications

Type	Effective area (mm^2)
AKM2000	28
AKM3000	55
AKM4000	111

Note) Use this check valve when diverging on the supply side of AL. IN/OUT port is not made for thread piping.

How to Order

AKM **30** **00** – [ ] **01**

Check valve

Body size

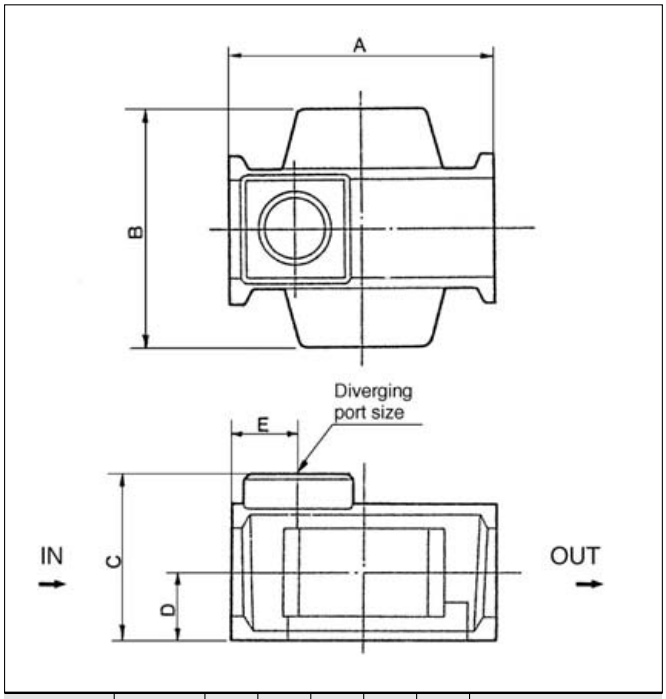
20	1/8
30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Diverging port size

01	1/8
02	1/4
03	3/8



Model	Diverging port size	A	B	C	D	E	Applicable model
AKM2000	1/8, 1/4	40	40	28	11	11	**AC2001, AC2011**
AKM3000	1/8, 1/4	53	48	34	14	13	**AC2501, AC2511 AC3001, AC3011**
AKM4000	1/4, 3/8	70	54	42	18	15	**AC4001, AC4011**(1)

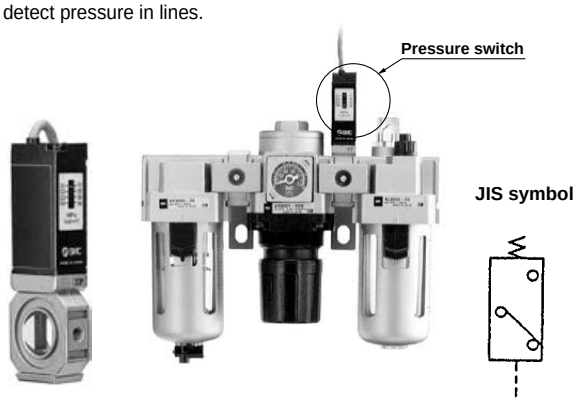
∗Refer to the attachment list on p.1.1-27 for standard diverging port size for AC.

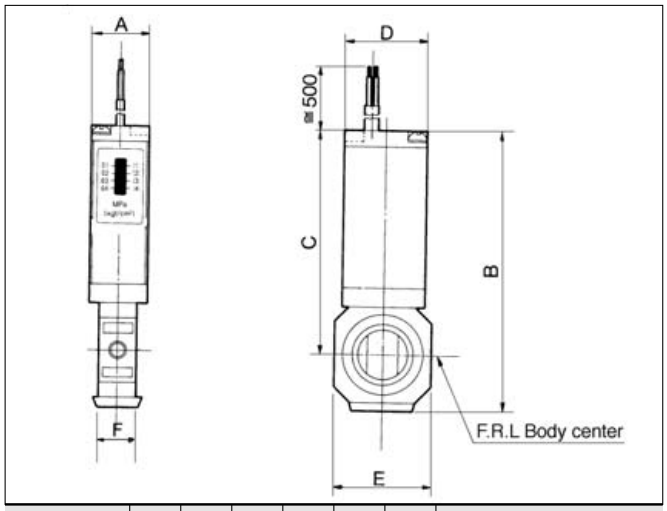
Caution on Assembling

Pressure switch and T type interface cannot be mounted on IN side.

Pressure Switch: (S)

Compact pressure switch can be mounted easily. Makes it easier to detect pressure in lines.





Model	A	B	C	D	E	F	Applicable model
IS1000M-2Y	15	73.5	62.6	23	28	10	**AC2001, AC2021, AC2031**
IS1000M-3Y	15	82	64.9	23	29	11	**AC2501, AC2521, AC2531 AC3001, AC3021, AC3031**
IS1000M-4Y	15	88.7	67.6	23	35	14	**AC4001, AC4021, AC4031**

Specifications

Fluid	Air
Proof pressure	1.0MPa
Max. operating pressure	0.7MPa
Set pressure range (off)	0.1 to 0.4MPa
Pressure differential	0.08MPa
Ambient and fluid temperature	–5 to 60°C(Non-freezing)

Switch Characteristics

Contact point construction	1a
Max. contact point capacity	2VA AC/2W DC
Voltage AC, DC	12V, 24V, 48V, 100V
Max. operating current	AC, 12V to 24V DC: 50mA AC, 48V DC: 40mA AC, 100V DC: 20mA

∗For more information, refer to SMC Pressure switch catalog. (Catalog No.E824)

Caution on Assembling

Attachment for pressure switch can be mounted on IN/OUT side of AF, AR, AL, AFM and AFD. Mounting at IN/OUT side of AW and upward handle of AR is not possible.

How to Order

IS1000M – **4** **YT** – ☐

Pressure switch

Body size

2	For AC2001
3	For AC2501, AC3001
4	For AC4001-02 to 04

Attachment

—	Without attachment
Y	With attachment
YL	With attachment and L type bracket
YT	With attachment and T type bracket

Options

X201	Length of lead wire: 3m
X202	Set pressure range: 0.1 to 0.6MPa

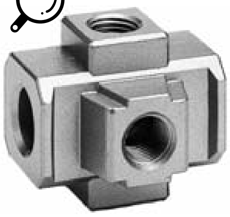
Attachments for IS1000

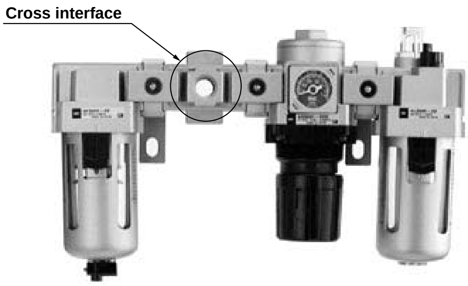
Pressure switch applicable model No.	Y type standard	YL type with L type bracket	YT type with T type bracket
IS1000M-2	Y20M	Y20LM	Y20TM
IS1000M-3	Y30M	Y30LM	Y30TM
IS1000M-4	Y40M	Y40LM	Y40TM

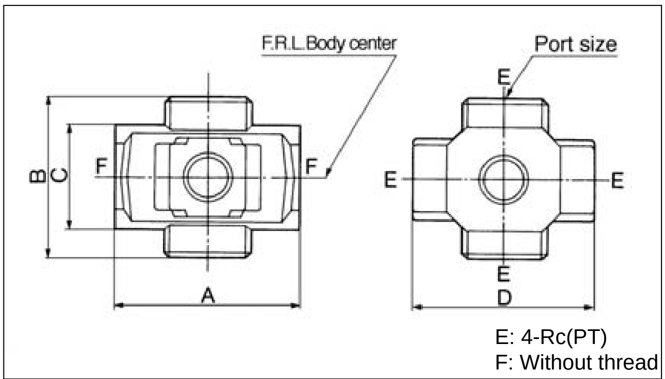
Cross Interface

1/8, 1/4, 3/8, 1/2

Make it possible to diverge piping in all directions.







Model	Port size	A	B	C	D	Applicable model
Y24-□01	1⁄8	40	40	22	40	AC2000, AC2010, AC2020 AC2030, AC2040
Y24-□02	1⁄4					
Y34-□01	1⁄8	49	43	28	48	AC2500, AC2520, AC2530 AC3000, AC3010, AC3020 AC3030, AC3040
Y34-□02	1⁄4					
Y44-□02	1⁄4	60	48	36	54	AC4000, AC4010, AC4020 AC4030, AC4040
Y44-□03	3⁄8					

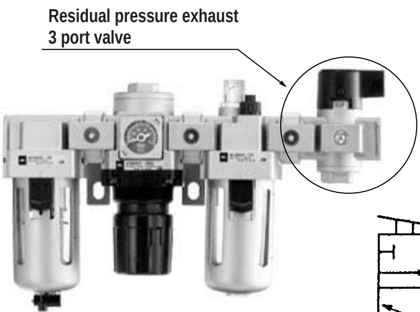
Note 1) □ in part number indicates thread.
Use nothing for Rc(PT), N for NPT and F for G(PF).

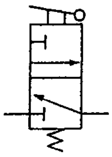
Caution on Assembling

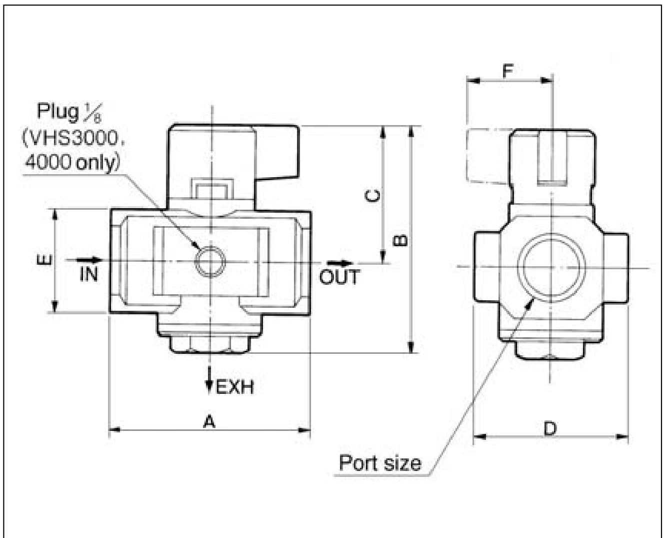
- When mounting directly onto the IN side of lubricator, use check valve series AKM between the interface and lubricator.
- Installation to AC will be available as a special product. Please consult SMC.

Residual Pressure Exhaust 3 Port Valve: (V)

Residual pressure exhaust 3 port valve makes it easier to exhaust pressure.







Specifications

Model	port size	Effective area (mm^2) IN to OUT	Effective area (mm^2) OUT to EXH
VHS2000	1⁄8	10	11
	1⁄4	14	16
VHS3000	1⁄4	16	14
	3⁄8	31	29
VHS4000	1⁄4	22	15
	3⁄8	38	29
	1⁄2	57	51

Note) Use air filter on IN side to protect operation .

Model	IN/OUT Port size	EXH Port size	A	B	C	D	E	F
VHS2000	1⁄8, 1⁄4	1⁄8	40	56	36	28	22	25
VHS3000	1⁄4, 3⁄8	1⁄4	53	74	45	48	28	30
VHS4000	1⁄4, 3⁄8, 1⁄2	3⁄8	70	80	48	54	36	30

How to Order

VHS 30 00 – □ 02

Residual pressure exhaust 3 port valve

Body size

20	1⁄8
30	3⁄8
40	1⁄2

Thread

–	Rc(PT)
N	NPT
F	G(PF)

Port size

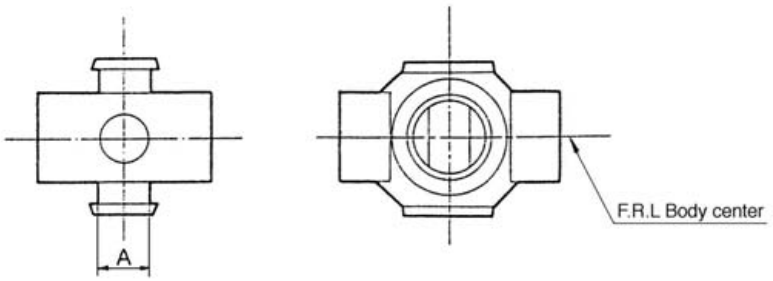
01	1⁄8
02	1⁄4
03	3⁄8
04	1⁄2

Caution on Assembling

Pressure switch and T type interface cannot be mounted to the OUT side of residual pressure exhaust 3 port valve.

Interface

Y30

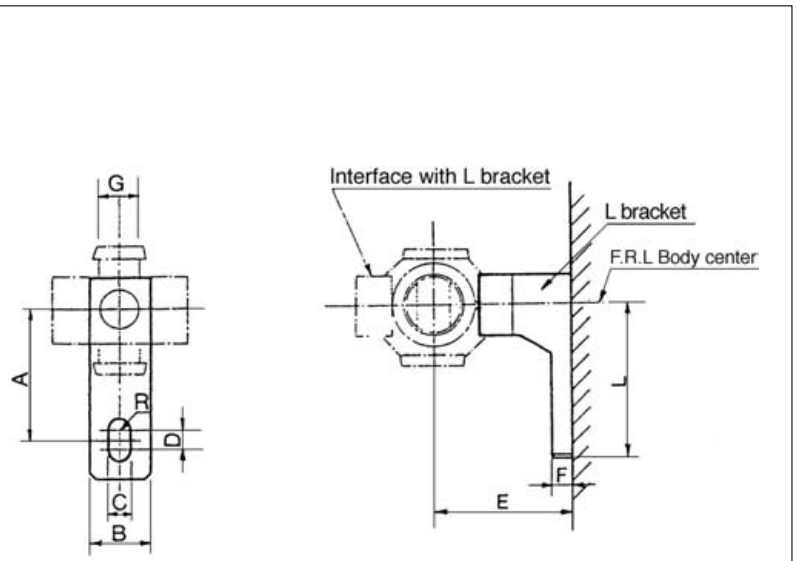


Model	A	Applicable model
Y20	10	**AC2001 to AC2041**
Y30	11	**AC2501 to AC2541** **AC3001 to AC3041**
Y40	14	**AC4001 to AC4041**

L Bracket/ Interface with L Bracket

Interface with L bracket

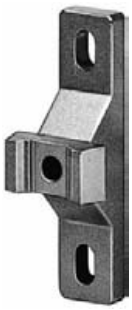
L bracket



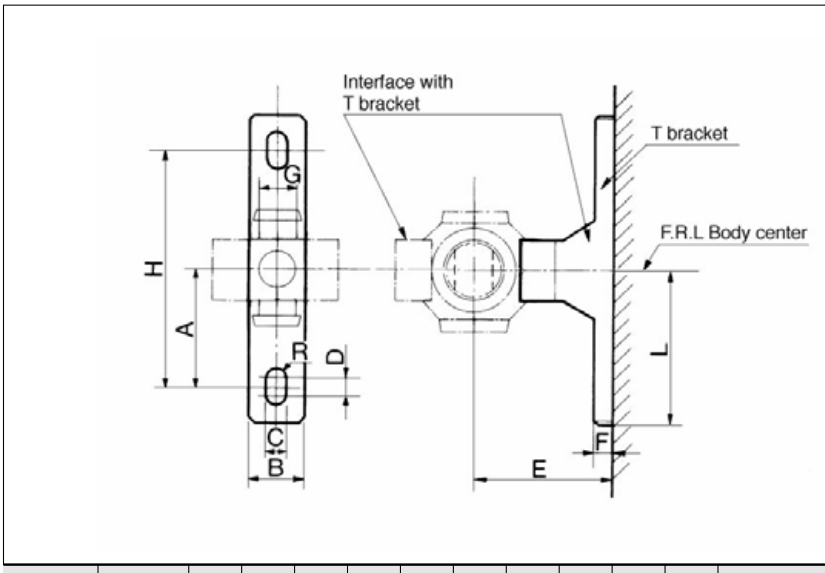
L bracket	Interface with L bracket	A	B	C	D	E	F	G	R	L	Applicable model
B210L	**Y20L**	24	15	5.5	3	30	6	10	2.75	33	**AC2001 to AC2041**
B310L	**Y30L**	35	16	7	4	41	7	11	3.5	45	**AC2501 to AC2541**
B410L	**Y40L**	40	22	9	4	50	7	14	4.5	50	**AC3001 to AC3041** **AC4001 to AC4041**

T Bracket/ Interface with T Bracket

Interface with T bracket



T bracket

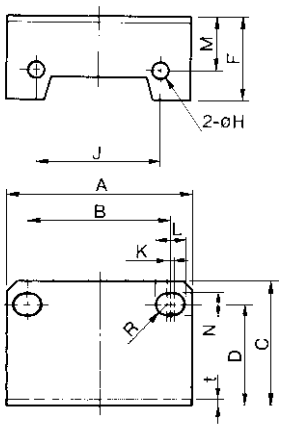


T bracket	Interface with T bracket	A	B	C	D	E	F	G	H	R	L	Applicable model
B210T	**Y20T**	24	15	5.5	3	30	5	10	48	2.75	33	**AC2001 to AC2041**
B310T	**Y30T**	35	16	7	4	41	7	11	70	3.5	45	**AC2501 to AC2541 AC3001 to AC3041**
B410T	**Y40T**	40	22	9	4	50	7	14	80	4.5	50	**AC4001 to AC4041**

Bracket
For AF/AL
For AFM/AFD

B340

B240

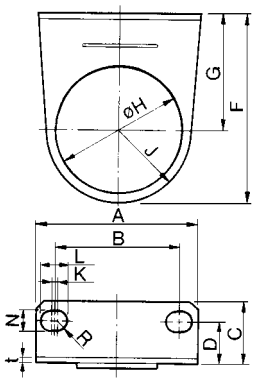


Model	A	B	C	D	F	H	J	K	L	M	N	R	t	Mounting thread	Applicable model
B240A	40	27	33	27	18	4.5	26	3	8.4	14	5.4	2.7	2.3	M4 X 8ℓ (Round head phillips screw)	**AF2000, AL2000 AFM2000, AFD2000**
B340A	53	40	39	32	22.5	4.5	35	1.5	8	19	6.5	3.25	2.3	M4 X 8ℓ (Hexagon socket head cap screw)	**AF3000, AL3000 AFM3000, AFD3000**
B440A	70	54	47	38	31.5	5.5	47	2	10.5	20	8.5	4.25	2.3	M5 X 10ℓ (Hexagon socket head cap screw)	**AF4000, AL4000 AFM4000, AFD4000**

∗With 2 mounting screws.

Bracket/For AR/AW

B220



Model	A	B	C	D	F	G	øH	J	K	L	N	R	t	Appliable model
B220	55	34	25	19	50	30	33.5	20	10	15.4	5.4	2.7	2.3	**AR2001 AR2501 AW2001**
B320	53	40	21	13.5	66	41	42.5	25	1.5	8	6.5	3.25	2.3	**AR3001, AW3001**
B420	70	54	27	18	80	50	52.5	30	2	10.5	8.5	4.25	2.3	**AR4001, AW4001**

Modular Style Air Filter *Series AF*

CAD

	Model	Port size	Filtration μm	Accessories
Air Filter Series AF 	**AF1000**	M5 x 0.8	5	Bracket Float style auto drain Pressure differential auto-drain
	AF2000	1/8, 1/4		
	AF3000	1/4, 3/8		
	AF4000	1/4, 3/8, 1/2		
	AF4000-06	3/4		
	AF5000	3/4, 1		
	AF6000	1		
Mist Separator Series AFM 	**AFM2000**	1/8, 1/4	0.3	Bracket Float style auto drain Pressure differential auto-drain
	AFM3000	1/4, 3/8		
	AFM4000	1/4, 3/8, 1/2		
	AFM4000-06	3/4		
Micro Mist Separator Series AFD 	**AFD2000**	1/8, 1/4	0.01	Bracket Float style auto drain Pressure differential auto-drain
	AFD3000	1/4, 3/8		
	AFD4000	1/4, 3/8, 1/2		
	AFD4000-06	3/4		

	Model	Port size	Filtration μm	Accessories
Large Flow Air Filter Series AF 	**AF800**	1 1/4, 1 1/2	5	Float style auto drain
	AF900	2		

Air Filter

AF1000 to 6000

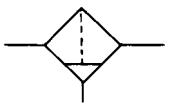
AF4000

AF3000

AF2000

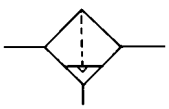
AF1000

JIS symbol



With auto drain

JIS symbol



Standard Specifications

Model		AF1000	AF2000	AF3000	AF4000	AF4000-06	AF5000	AF6000
Port size		M5 X 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid		Air						
Proof pressure		1.5MPa						
Max. operating pressure		1.0MPa						
Ambient and fluid temperature		–5 to 60°C (No freezing)						
Filtration		5μm						
Bowl material		Polycarbonate						
Bowl capacity (cm^3)		2.5	8	23	45	45	45	45
Weight (kg)		0.07	0.19	0.29	0.55	0.58	1.08	1.18
Accessory (Standard)	Bowl guard	—	—	●	●	●	●	●

Accessory (optional) Part No.

Description \ Model		Part No. AF1000	AF2000	AF3000	AF4000	AF4000-06	AF5000	AF6000
Bracket assembly (1)		—	B240A	B340A	B440A	B540A	B640A	B640A
Float style auto drain (2)	N.O.	—	—	AD43	AD44	AD44	AD44	AD44
	N.C.	—	—	AD53	AD54	AD54	AD54	AD54
Pressure differential auto drain (3)		AD61	AD62	—	—	—	—	—

Note 1) Bracket with two mounting threads.
Note 2) Min. operating pressure: 0.1MPa (N.O.), 0.15MPa (N.C.)
Note 3) Min. pressure differential: 0.01MPa

How to Order

AF 30 00 — 03 B — 2R

Air filter

Body size

10	M5
20	1/8
30	3/8
40	1/2
50	3/4
60	1

Thread

	Meter thread (M5)
—	Rc(PT)
N	NPT
F	G(PF)

Port size

M5	M5 X 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessory

Symbol	Description	Applicable model
—	—	—
B	Bracket	AF2000 to AF6000
C	Float auto drain (N.C.)	AF3000 to AF6000
D	Float auto drain (N.O.)	AF3000 to AF6000
	Press. differential auto-drain	AF1000/ AF2000

Option

2	Metal bowl
6	Nylon bowl
8	Metal bowl with level gauge (AF3000 to AF6000)
C	With bowl guard (AF2000 only)
J	Drain guide Rc(PT)1/4 (AF3000 to AF6000)*
R	Flow: From right to left
W	With drain cock and barb fitting (AF3000 to AF6000) (For ø6/ø4 nylon)

•When specifying more than one symbol, indicate them alphabetically.
Ex.) 6RW
*Without valve function

Combination Table/Accessory and Option

◎Combinable ▭Impossible ○Depends on the model

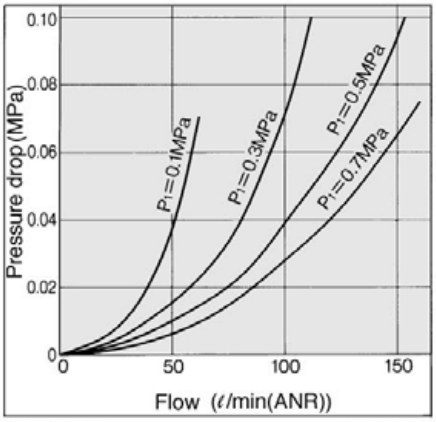
	Accessory/Option	Symbol	Auto drain			Option							Applicable filter model			
			D	D	C	2	6	8	C	J	R	W	AF1000	AF2000	AF3000	AF4000 to AF6000
Option	Pressure differential auto-drain	D				◎	◎		○		◎		◎	◎		
	Float style auto drain (N.O.)	D				◎	◎	○			◎				◎	◎
	Float style auto drain (N.C.)	C				◎	◎	○			◎				◎	◎
Accessory	Metal bowl	–2	◎	◎	◎					○	◎		◎	◎	◎	◎
	Nylon bowl	–6	◎	◎	◎				○	○	◎	○	◎	◎	◎	◎
	Metal bowl with level gauge	–8		◎	◎					○	◎				◎	◎
	Bowl guard	–C	◎				◎				◎			◎		
	Drain guide Rc(PT)1/4	–J				◎	◎	○			◎				◎	◎
	Flow direction: From right to left	–R	◎	◎	◎	◎	◎	○	○	○		○	◎	◎	◎	◎
	Barb fitting on One-touch drain cock	–W					◎				◎				◎	◎

*Refer to p.1.0-1 and 1.0-2 for FRL precautions.

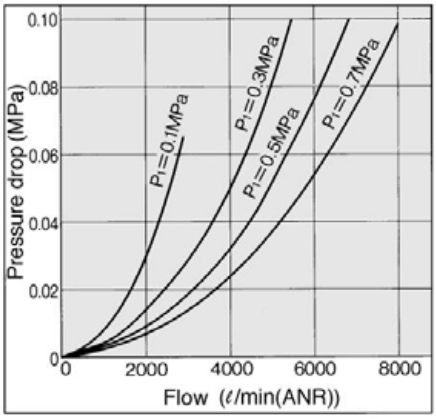
AF1000 to 6000

Flow Characteristics

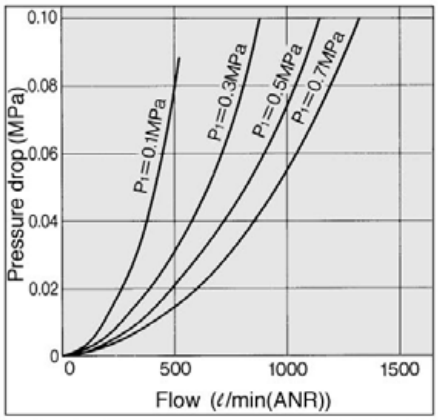
AF1000 M5



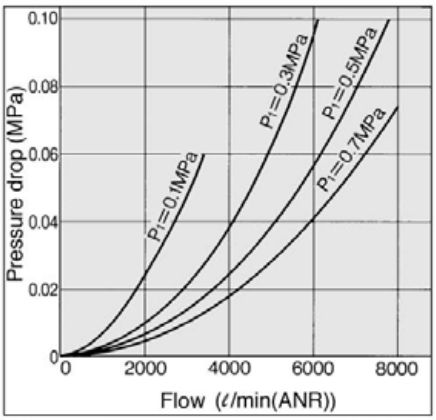
AF4000-06 Rc(PT) 3/4



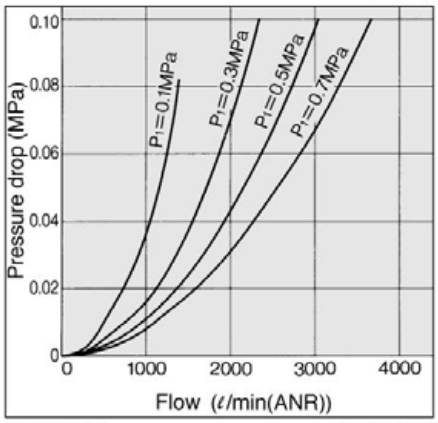
AF2000 Rc(PT) 1/4



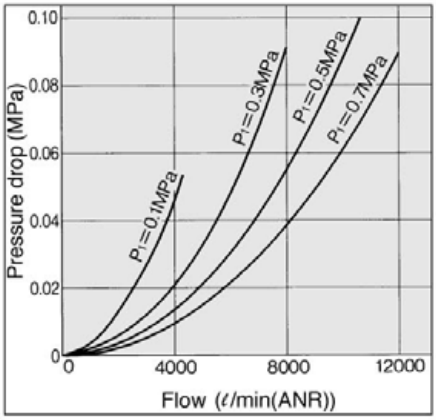
AF5000 Rc(PT) 3/4



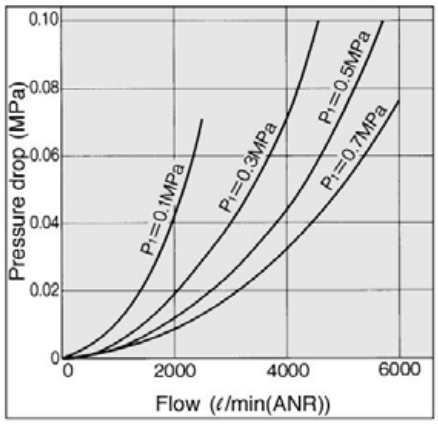
AF3000 Rc(PT) 3/8



AF6000 Rc(PT) 1



AF4000 Rc(PT) 1/2



⚠Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.1.0-1 and 1.0-2 for precautions on every series.

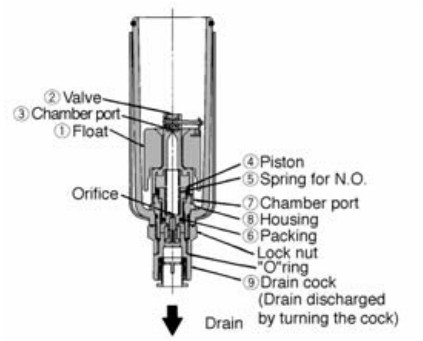
Maintenance

⚠Warning

①Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1 MPa. Failure to observe this precaution could damage the filter element.

Operation Principle: Float Style Auto Drain

N.O. type: AD43/44

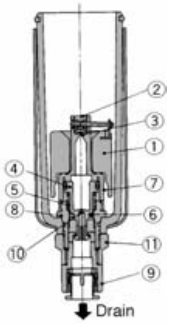


●When no pressure is applied internally to the bowl
Float ① descends due to its own weight and valve ② closes chamber hole ③. Piston ④ is pushed down by spring ⑤, and the drainage passes through chamber hole ⑦ to enter housing ⑧.

●When the pressure is applied internally to the bowl
When the pressure is greater than 1kgf/cm^2, it overcomes the force of spring ⑤, allowing piston ④ to ascend to the position that causes it to be sealed by seal ⑥. Thus, the inside of the bowl is isolated from the outside.

●When drainage has accumulated
Float ① ascends through flotation and opens the chamber's hole ③, allowing the pressure to enter the chamber. Piston ④ descends due to the force of the internal pressure and spring ⑤, and the accumulated drainage is discharged through drain outlet ⑨.

N.C. type: AD53/54

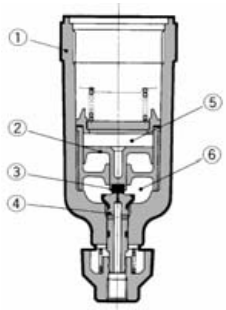


●When no drainage has accumulated
Float ① descends due to its own weight and valve ② closes the chamber's hole ③. Spring ⑤ pushes piston ④ up to the position that causes it to be sealed by seal ⑥.

●When drainage has accumulated
Float ① ascends through flotation and opens the chamber's hole ③, allowing the pressure to enter the chamber. The force of the internal pressure pushes piston ④ down, and the accumulated drainage passes through chamber hole ⑦ and drain housing ⑧, and is discharged through drain outlet ⑨. After the drainage has been discharged and valve ② closes, the chamber's internal pressure passes through the orifice ⑩ portion of piston ④, and is released externally. Therefore, piston ④ receives the case's internal pressure at its bottom, and with the additional force of spring ⑤, piston ④ is pushed upward, thus returning to the sealing position of seal ⑥.

Differential Pressure Auto Drain

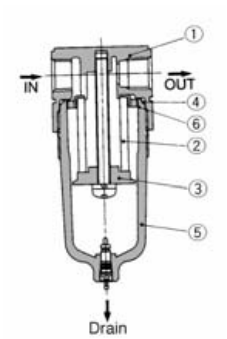
AD61/62



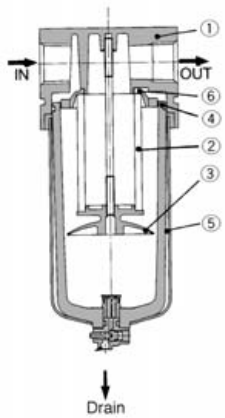
●When no pressure is applied internally to the case
With piston ② having descended, if a pressure > 0.1 MPa is applied to piston ② inside bowl ①, the hole of valve ④ becomes closed by valve seal ③. While the valve remains closed, the pressure of piston upper chamber ⑤ and lower chamber ⑥ are equalized. As soon as the air is expended, the pressure in upper chamber ⑤ decreases, thus creating a momentary difference in pressure berween upper ⑤ and lower chamber ⑥ and causing piston ② to ascend. Then, the hole of valve ④ opens to discharge (the valve opens even if no drainage has accumulated). The pressure at the bottom of piston ② decreases, causing the pressure in upper chamber ⑤ to become greater than the pressure in lower chamber ⑥. So, piston ② descends, causing the hole of valve ④ to be closed by valve seal ③. When the air consumption rate becomes constant, the pressure between piston upper ⑤ and lower chamber ⑥ becomes equalized and the hole of the valve remains closed.

Construction

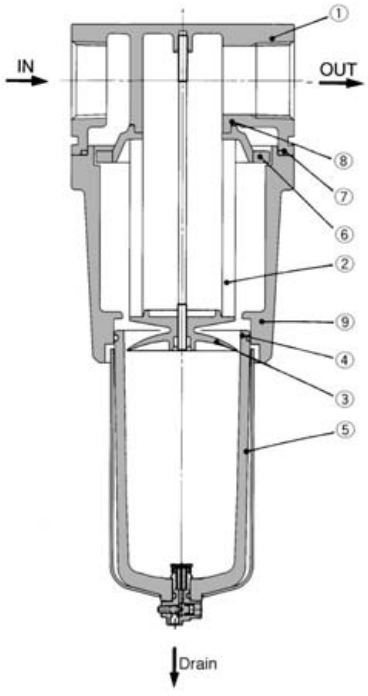
AF1000/2000



AF3000/4000



AF5000/6000



Component Parts

No.	Description	Material			Note
		AF1000/2000	AF3000/4000/4000-06	AF5000/6000	
①	Body	Zinc die cast	Aluminum die cast		Platinum silver paint
⑨	Housing	——		Aluminum die cast	Platinum silver paint

Replacement Parts

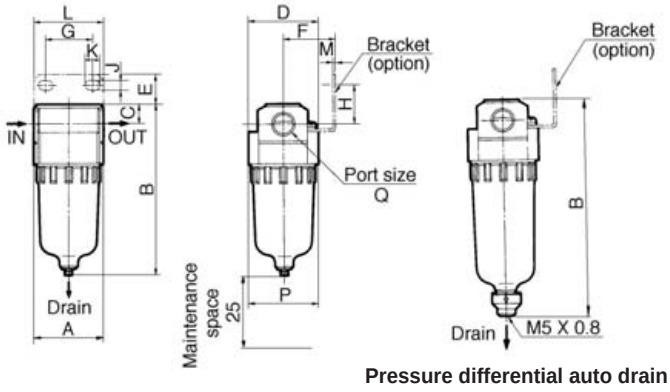
No.	Description	Material	Part No.						
			AF1000	AF2000	AF3000	AF4000	AF4000-06	AF5000	AF6000
②	Filter element	Non-woven fabric	111344	1129116	111585	1116103	1116103	111724	111825
③	Baffle	indicated in ( )	111312 (POM)	11295 (PBT)	111522 (PBT)	111622 (PBT)	111622 (PBT)	111727 (ABS)	111824 (ABS)
④	Bowl O ring	NBR	111325	11297	111512	111636	111636	111636	111636
⑤	Bowl assembly (1)	Polycarbonate	C100F	C200F	C300F	C400F	C400F	C400F	C400F
⑥	Deflector	indicated in ( )	11133A (POM/ABS)	1129111 (PBT)	11158 (PBT)	11167 (PBT)	11167 (PBT)	111726 (ABS)	111823 (ABS)
⑦	Housing O ring	NBR	——	——	——	——	——	111710	11189
⑧	Packing	NBR	——	——	——	——	——	111711	111810

Note 1) A bowl guard (material: SPCE) is included in the bowl assembly for AF3000-AF6000.

AF1000 to 6000

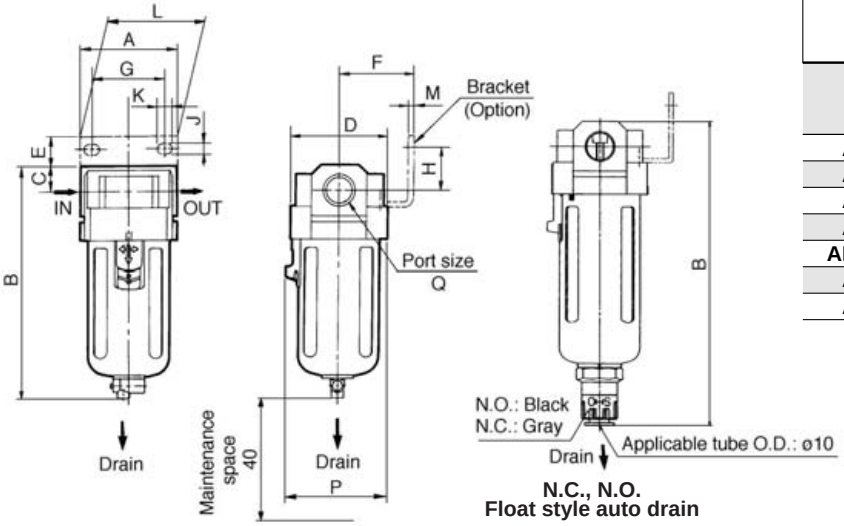
Dimensions CAD

AF1000/2000



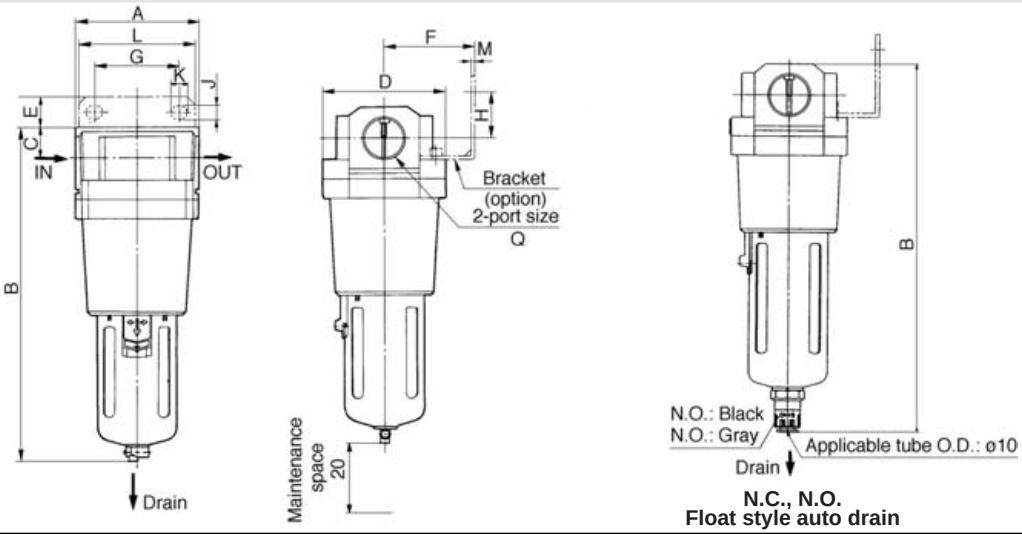
Pressure differential auto drain

AF3000/4000/4000-06



N.C., N.O.
Float style auto drain

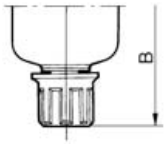
AF5000/6000



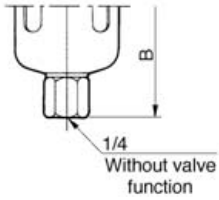
N.C., N.O.
Float style auto drain

Option (AF3000 to AF6000)

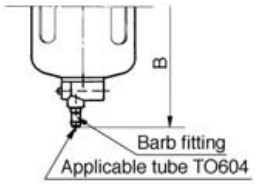
Metal bowl



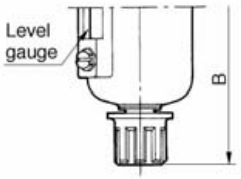
Drain guide



Drain cock/Barb fitting



Metal bowl with level gauge



Model	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	**B**	B
AF1000	—	—	66	—
AF2000	—	—	97.5	—
AF3000	137.5	135	142	162
AF4000	173.5	171	178	198
AF4000-06	177.5	175	182	202
AF5000	252.5	250	257	277
AF6000	266.5	264	271	291

Model	Port size Q	A	B	C	D	Bracket mounting dimensions E	F	G	H	J	K	L	M	P	Auto-drain Float B	Auto-drain Press. Diff. B
AF1000	M5 x 0.8	25	66	7	25	—	—	—	—	—	—	—	—	27.5	—	86.5
AF2000	1/8, 1/4	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	—	120.5
AF3000	1/4, 3/8	53	129	14	53	16	41	40	23	6.5	8	53	2.3	56	170	—
AF4000	1/4, 3/8, 1/2	70	165	18	70	17	50	54	26	8.5	10.5	70	2.3	73	206	—
AF4000-06	3/4	75	169	20	70	14	50	54	25	8.5	10.5	70	2.3	73	210	—
AF5000	3/4, 1	90	244	24	90	23	70	66	35	11	13	90	3.2	—	285.5	—
AF6000	1	95	258	24	95	23	70	66	35	11	13	90	3.2	—	299.5	—

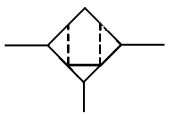
CAD
AF1000 ——— SAC1000, #1
AF2000 ——— SAC2000, #1
AF3000 ——— SAC2503, #1
AF4000 ——— SAC4000, #1
AF4000-06 ——— SAC4006, #1
AF5000 ——— SAC5000, #1
AF6000 ——— SAC6000, #1

Mist Separator CAD

AFM2000/3000/4000

AFM4000 AFM3000

JIS Symbol



Standard Specifications

Model		AFM2000	AFM3000	AFM4000	AFM4000-06
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid		Air			
Proof pressure		1.5MPa			
Max. operating pressure		1.0MPa			
Min. operating pressure		0.05MPa			
Ambient and fluid temperature		–5 to 60°C (No freezing)			
Flow rate ℓ/min (ANR) (1)		200	450	1100	1100
Filtration		0.3μm (95% particle size collection)			
Oil mist density at the exhaust side		Max.1.0mgf/Nm³(≅ 0.8ppm) (2)			
Element life expectancy		For two years or when pressure drop reaches 0.1MPa			
Bowl material		Polycarbonate			
Bowl capacity (cm³)		8	23	45	45
Weight (kg)		0.19	0.29	0.54	0.58
Accessory (standard)	Bowl guard	—	●	●	●

Note 1) At supply pressure 0.7MPa. Flow rate is subject to the primary side pressure.
Note 2) When oil mist density of the compressor exhaust is 30mgf/cm³ (ANR).

Accessory (optional) Part No.

Description \ Model			Part No. AFM2000	AFM3000	AFM4000	AFM4000-06
Accessory	Bracket assembly (1)		B240A	B340A	B440A	B540A
	Float style auto drain (2)	N.O.	—	AD43	AD44	AD44
		N.C.	—	AD53	AD54	AD54
	Pressure differential auto-drain (3)		AD62	—	—	—

Note 1) Bracket with two mounting threads.
Note 2) Min. operating pressure: 0.1MPa (N.O.), 0.15MPa (N.C.)
Note 3) Min. pressure differential: 0.01MPa

How to Order

AFM 30 00 — □ 03 B — 2R

Mist separator

Body size

20	1/8
30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Accessory

Symbol		Description	Applicable model
—		—	—
B		Bracket	AFM2000 to AFM4000-06
C	Auto -drain	Float style auto-drain (N.C.)	AFM3000 to AFM4000-06
D	Auto -drain	Press. differential auto drain	AFM2000
D	Auto -drain	Float style auto drain (N.O.)	AFM3000 to AFM4000-06

Option

2	Metal bowl
6	Nylon bowl
8	Metal bowl with level gauge (AFM3000/AFM4000 only)
C	With bowl guard (AFM2000 only)
J	Drain guide Rc(PT)1/4 (AFM3000/AFM4000 only)*
R	Flow direction: From right to left
W	With drain cock and barb fitting (AFM3000/4000 only) (For ø6/ø4 nylon)

•When specifying more than one symbol, indicate them alphabetically.
Ex.) 2R
*Without valve function

Combination Table/Accessory and Option

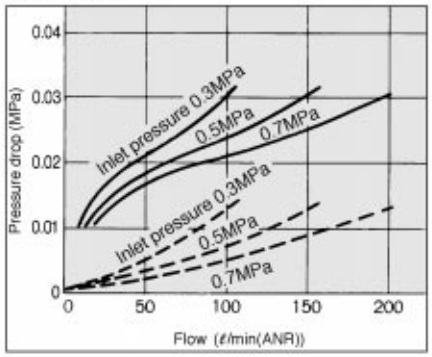
◎Combinable ▒ Impossible ○Depends on the model

Accessory/Option		Sym	Auto drain			Option							Applicable mist separator		
			D	D	C	2	6	8	C	J	R	W	AFM2000	AFM3000	AFM4000
Accessory	Pressure differential auto-drain	D				◎	◎		○		◎		◎		
	Float style auto drain (N.O.)	D				◎	◎	○			◎			◎	◎
	Float style auto drain (N.C)	C				◎	◎	○			◎			◎	◎
Option	Metal bowl	–2	◎	◎	◎						◎		◎	◎	◎
	Nylon bowl	–6	◎	◎	◎				○	○	◎	○	◎	◎	◎
	Metal bowl with level gauge	–8		◎	◎					○	◎			◎	◎
	Bowl guard	–C	◎				◎				◎		◎		
	Drain guide Rc(PT)1/4	–J				◎	◎	○			◎			◎	◎
	Flow direction: From right to left	–R	◎	◎	◎	◎	◎	○	○	○		○	◎	◎	◎
	Barb fitting on One-touch drain cock	–W					◎				◎			◎	◎

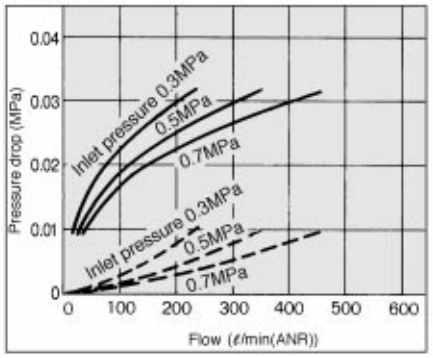
Flow Characteristics

—— Element with oil saturated ····· Initial condition

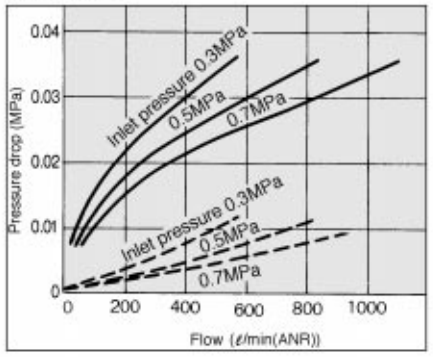
AFM2000



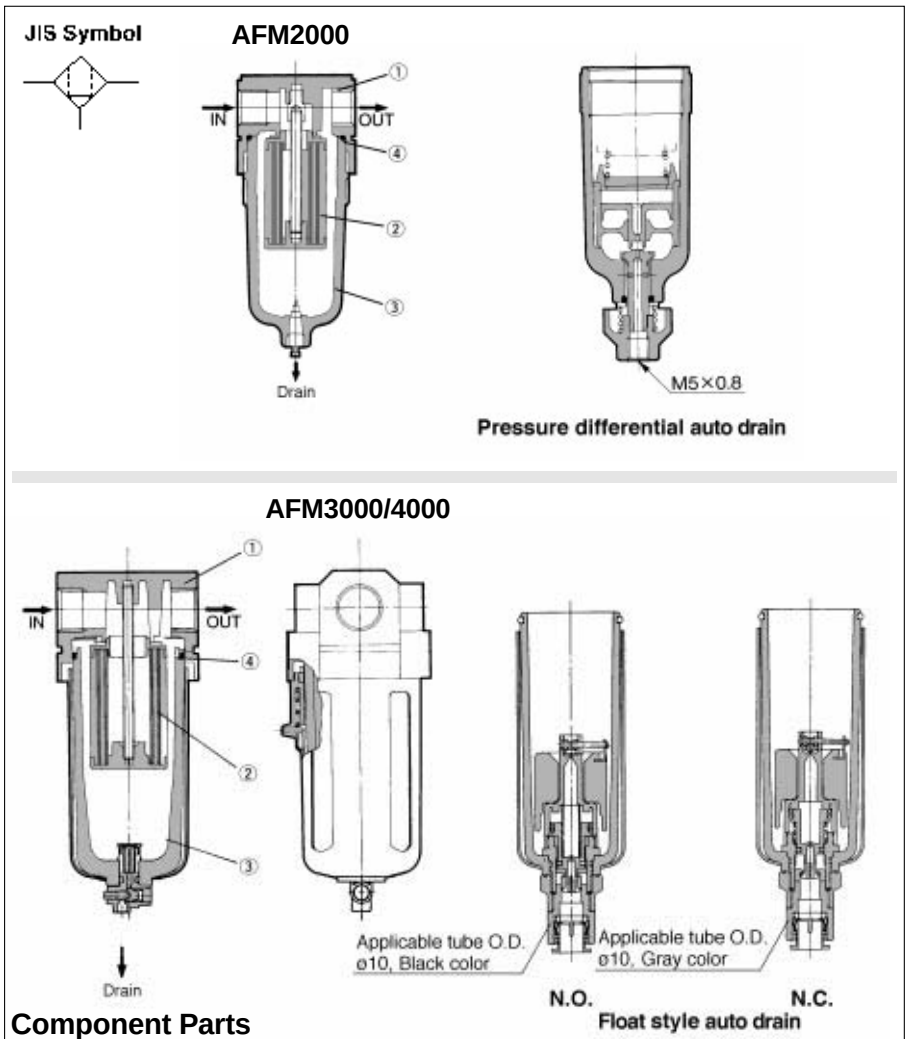
AFM3000



AFM4000



Construction



Component Parts

No.	Description	Material		Note
		AFM2000	AFM3000/AFM4000/AFM4000-06	
①	Body	Zinc die cast	Aluminum die cast	Platinum silver paint

Replacement Parts

No.	Description	Material	Part No.		
			AFM2000	AFM3000	AFM4000 AFM4000-06
②	Element assembly	—	630611	630617	630623
③	Bowl assembly (1)	Polycarbonate	C200F	C300F	C400F
④	Bowl O ring	NBR	11297	111512	111636

Note 1) A bowl guard (material: SPCE) is included in the bowl assembly for AFM3000 to AFM4000-06.

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Maintenance

⚠Warning

①Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1 MPa.
Failure to observe this precaution could damage the filter element.

Designing of Layout

⚠Caution

①Design the layout so that this product is installed in a location that is not susceptible to pulsation. The filter element could become damaged if the internal/external pressure difference exceeds 0.1 MPa.

Selection

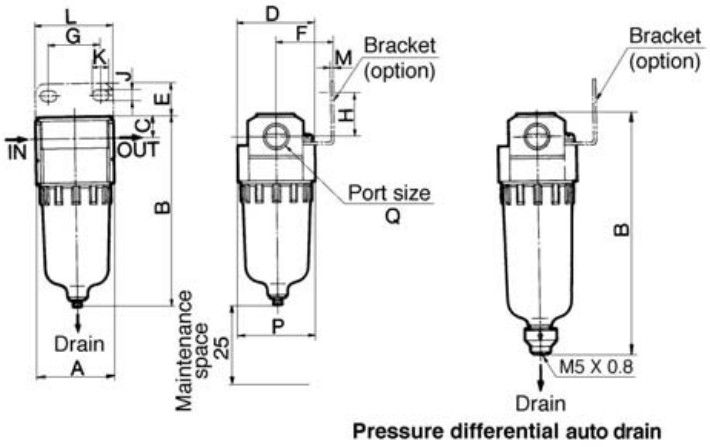
⚠Caution

①Do not apply airflow that is greater than the rated flow rate.
If airflow that is greater than the rated flow rate is applied even momentarily, it could cause the drainage and oil to splatter from the secondary side or damage the equipment.

②Do not use with low air pressure (blower).
The cleaning equipment, which operates at a specific minimum operating pressure in accordance with the equipment to be used, is designed to be used exclusively with compressed air. Using it below the minimum operating pressure could lower its performance or cause a malfunction. If it must be used under such conditions due to unavoidable circumstances, contact SMC beforehand.

Dimensions

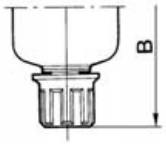
AFM2000



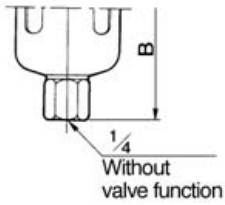
Pressure differential auto drain

Option

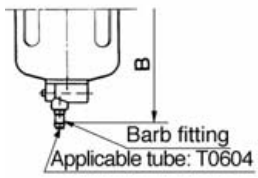
Metal bowl



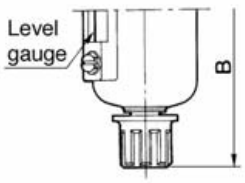
Drain guide



Drain cock/Barb fitting

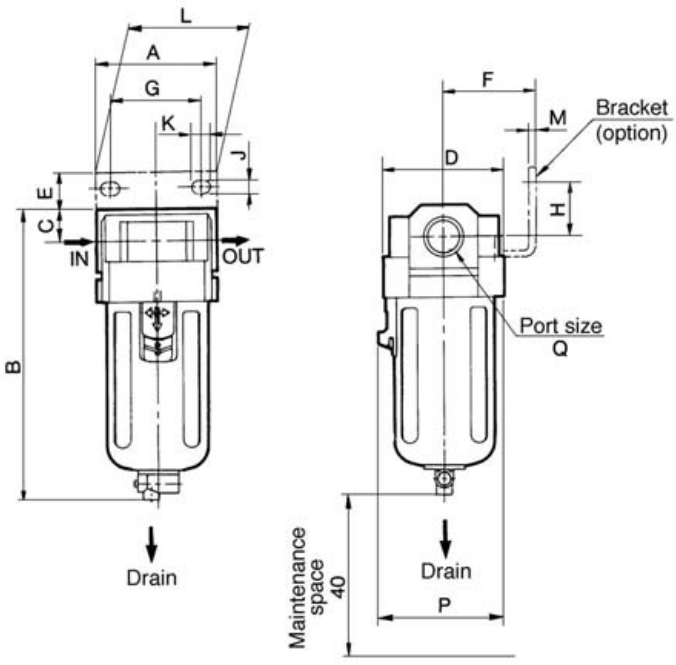


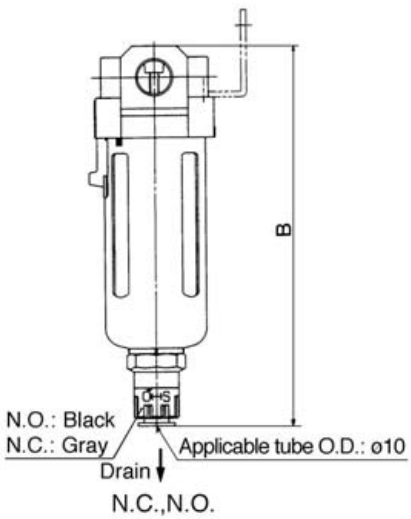
Level gauge



Model	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AFM2000	—	—	97.5	—
AFM3000	137.5	135	142	162
AFM4000	173.5	171	178	198
AFM4000-06	177.5	175	182	202

AFM3000/4000





Float style auto drain

Model	Port size Q	A	B	C	D	Bracket mounting dimensions								P	Auto-drain	
						E	F	G	H	J	K	L	M		Float	Press. Diff.
															B	B
AFM2000	1/8, 1/4	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	—	120.5
AFM3000	1/4, 3/8	53	129	14	53	16	41	40	23	6.5	8	53	2.3	56	170	—
AFM4000	1/4, 3/8, 1/2	70	165	18	70	17	50	54	26	8.5	10.5	70	2.3	73	206	—
AFM4000-06	3/4	75	169	20	70	14	50	54	25	8.5	10.5	70	2.3	73	210	—

CAD
AFM2000 ——— SAC2000, #1
AFM3000 ——— SAC2503, #1
AFM4000 ——— SAC4000, #1
AFM4000-06 ——— SAC4006, #1

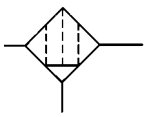
Micro Mist Separator CAD

AFD2000/3000/4000

AFD4000

AFD3000

JIS Symbol



Standard Specifications

Model	AFD2000	AFD3000	AFD4000	AFD4000-06
Port size	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Min. operating pressure	0.05MPa			
Ambient and fluid temperature	–5 to 60°C (No freezing)			
Flow rate (1)	120	240	600	600
Filtration	0.01μm (95% particle size collection)			
Oil mist density at the exhaust side	Max. 0.1mgf/Nm³ (Before saturated with oil: 0.01mgf/Nm³ or less ≅ 0.008ppm) (2)			
Element life expectancy	For two years or when pressure drop reaches 0.1MPa			
Bowl material	Polycarbonate			
Bowl capacity (cm³)	8	23	45	45
Weight (Kg)	0.19	0.29	0.54	0.58
Accessory (standard) Bowl guard	—	●	●	●

Note 1) At supply pressure 0.7MPa. Flow rate is subject to the primary side pressure.
Note 2) When oil mist density of the compressor exhaust is 30mgf/cm³ (ANR).

Accessory (optional) Part No.

Description		Model	Part No. AFD2000	AFD3000	AFD4000	AFD4000-06
Accessory	Bracket assembly (1)		B240A	B340A	B440A	B540A
	Float style (2) auto drain	N.O.	—	AD43	AD44	AD44
		N.C.	—	AD53	AD54	AD54
	Pressure differential auto drain (3)		AD62	—	—	—

Note 1) Bracket with two mounting threads.
Note 2) Min. operating pressure: 0.1MPa (N.O.), 0.15MPa (N.C.)
Note 3) Min. pressure differential: 0.01MPa

How to Order

AFD **30** **00** – ☐ **03** **B** – **2R**

Micro mist separator

Body size

20	1/8
30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Accessory

Symbol		Description	Applicable model
—		—	—
B		Bracket	AFD2000 to AFD4000-06
C	Auto-drain	Float auto-drain (N.C.)	AFD3000 to AFD4000-06
D	Auto-drain	Pressure differential auto drain	AFD2000
	Auto-drain	Float auto drain (N.O.)	AFD3000 to AFD4000-06

Option

2	Metal bowl
6	Nylon bowl
8	Metal bowl with level gauge (AFD3000/AFD4000 only)
C	With bowl guard (AFD2000 only)
J	Drain guide Rc(PT) 1/4 (AFD3000/AFD4000 only)*
R	Flow direction: From right to left
W	With drain cock and barb fitting (AFD3000/AFM4000 only) For ø6/ø4 nylon)

•When specifying more than one symbol, indicate them alphabetically.
Ex.) 2R
*Without valve function

Combination Table/Accessory and Option

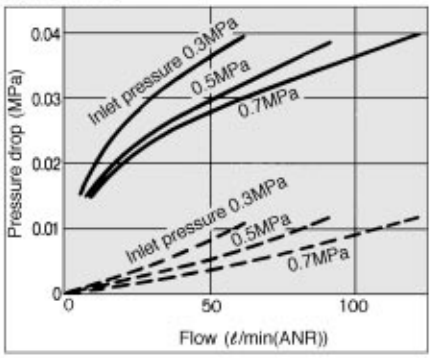
◎Combinable ■Impossible ○Depends on the model

	Accessory/Option	Sym	Auto drain D	D	C	Option 2	6	8	C	J	R	W	Applicable mist separator AFD2000	AFD3000	AFD4000
Accessory	Pressure differential auto-drain	D				◎	◎		○		◎		◎		
	Float style auto drain (N.O.)	D				◎	◎	○			◎			◎	◎
	Float style auto drain (N.C.)	C				◎	◎	○			◎			◎	◎
Option	Metal bowl	–2	◎	◎	◎						◎		◎	◎	◎
	Nylon bowl	–6	◎	◎	◎				○	○	◎	○	◎	◎	◎
	Metal bowl with level gauge	–8		◎	◎					○	◎			◎	◎
	Bowl guard	–C	◎				◎				◎		◎		
	Drain guide Rc(PT)1/4	–J				◎	◎	○			◎			◎	◎
	Flow direction: From right to left	–R	◎	◎	◎	◎	◎	○	○	○		○	◎	◎	◎
	Barb fitting on One-touch drain cock	–W					◎				◎			◎	◎

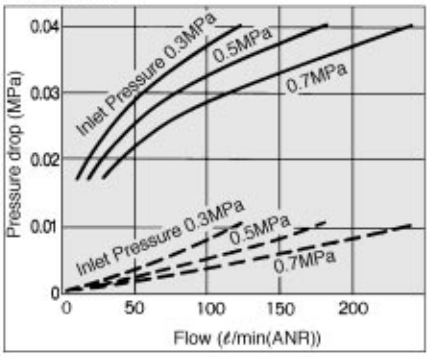
Flow Characteristics

—— Element with oil saturated ····· Initial condition

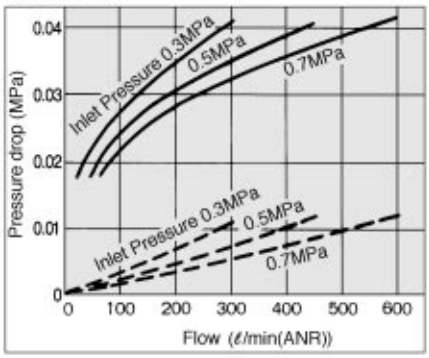
AFD2000



AFD3000

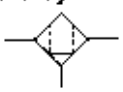


AFD4000

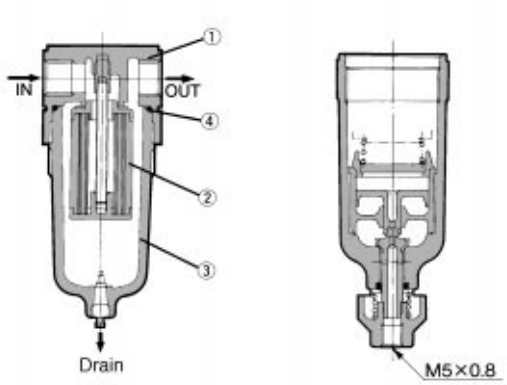


Construction

JIS Symbol

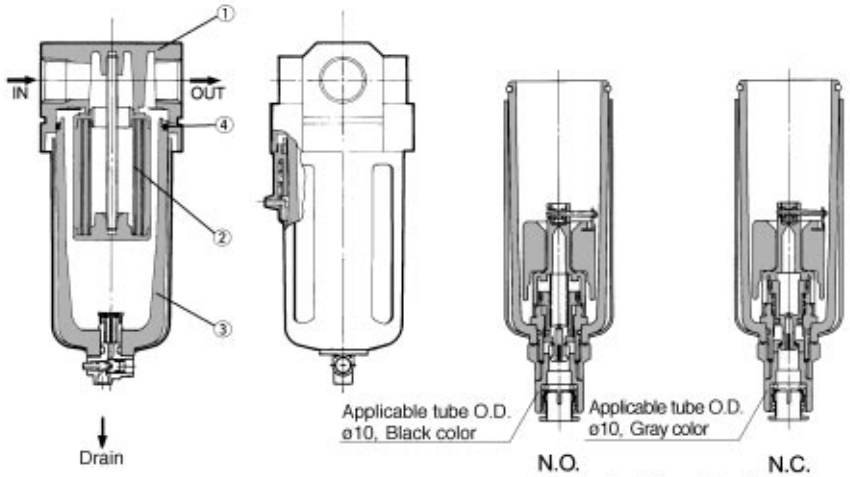


AFD2000



Pressure differential auto drain

AFD3000/4000



Float style auto drain

Component Parts

No.	Description	Material		Note
		AFD2000	**AFD3000/AFD4000/4000-06**	
①	Body	Zinc die cast	Aluminum die cast	Platinum silver paint

Replacement Parts

No.	Description	Material	Part No.		
			AFD2000	**AFD3000**	**AFD4000 AFD4000-06**
②	Element assembly	—	63092	63093	63094
③	Bowl assembly (1)	Polycarbonate	C200F	C300F	C400F
④	Bowl O ring	NBR	11297	111512	111636

Note 1) A bowl guard (material: SPC) is included in the bowl assembly for AFD3000 to AFD4000-06.

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Air Source

⚠Caution

①To prevent premature clogging, install a mist separator (AFM series) to act as a prefilter on the primary side of the micromist separator.

②Installing a dryer on the primary side could cause the filter element to become clogged prematurely. Therefore, it must be installed on the secondary side.

Maintenance

⚠Warning

①Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1 MPa.
Failure to observe this precaution could damage the filter element.

Designing of Layout

⚠Caution

①Design the layout so that this product is installed in a location that is not susceptible to pulsation. The filter element could become damaged if the internal/external pressure difference exceeds 0.1 MPa

Selection

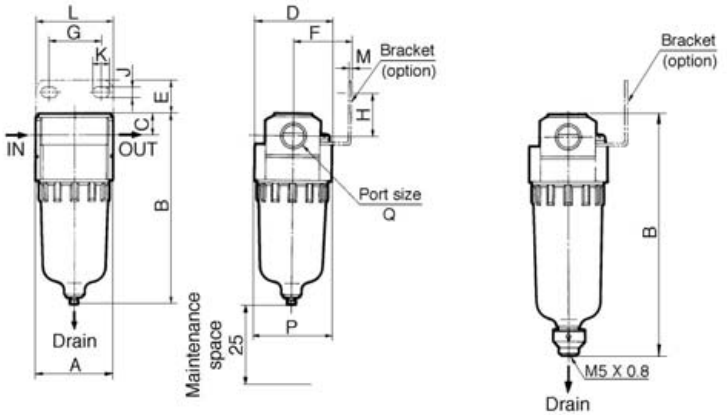
⚠Caution

①Do not apply airflow that is greater than the rated flow rate.
If so, it could cause the drainage and oil to splatter from the secondary side or damage the equipment.

②Do not use with low air pressure (blower).
The cleaning equipment, is designed to be used exclusively with compressed air. Using it below the minimum operating pressure could lower its performance or cause a malfunction. If it must be used under such conditions, contact SMC beforehand.

AFD2000/3000/4000

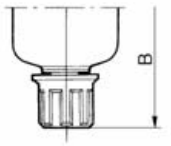
Dimensions CAD



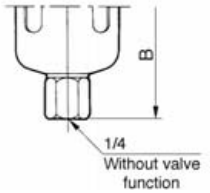
Pressure differential auto drain

Option

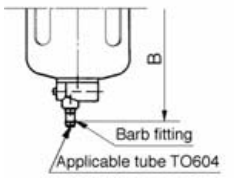
Metal bowl



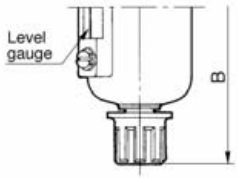
Drain guide



Drain cock/Barb fitting

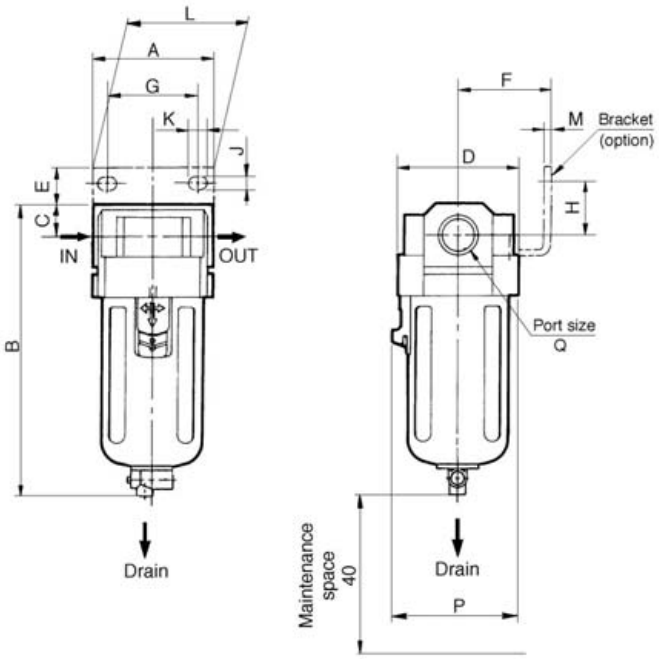


Level gauge



Model	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AFD2000	—	—	97.5	—
AFD3000	137.5	135	142	162
AFD4000	173.5	171	178	198
AFD4000-06	177.5	175	182	202

AFD3000/4000



N.C., N.O.
Float style auto drain

Model	Port size	A	B	C	D	Bracket mounting dimensions								P	Auto-drain	
						E	F	G	H	J	K	L	M		Float	Press. Diff.
															B	B
AFD2000	1/8, 1/4	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	—	120.5
AFD3000	1/4, 3/8	53	129	14	53	16	41	40	23	6.5	8	53	2.3	56	170	—
AFD4000	1/4, 3/8, 1/2	70	165	18	70	17	50	54	26	8.5	10.5	70	2.3	73	206	—
AFD4000-06	3/4	75	169	20	70	14	50	54	25	8.5	10.5	70	2.3	73	210	—

CAD AFD2000 ——— SAC2000, #1 AFD4000 ——— SAC4000, #1
AFD3000 ——— SAC2503, #1 AFD4000-06 ——— SAC4006, #1

Pressure Control Equipment

Regulator

Series	Application/Characteristics	Port size	Set pressure (MPa)	Option	Page
Miniature regulator ARJ1020F	Direct operated reliveving style Back flow function	M5	0.1 to 0.7	Manifold	1.5-3
Miniature regulator ARJ210	Direct operated reliveving style	M5 to 1/8	0.2 to 0.7	Bracket Pressure gauge	1.5-5
Regulator AR1000-6000	Direct operated reliveving style Modular style	M5 1/8 to 1	0.05 to 0.7 0.05 to 0.85	Bracket Pressure gauge	1.5-8
Regulator with integral pressure gauge AR2001-4001	Built-in pressure gauge Space saving	1/8 to 1/2	0.05 to 0.85	Bracket Pressure gauge	1.5-15
Pilot operated regulator AR425-925 AR435-935	Internal pilot Relieving style	1/4 to 2	0.05 to 0.85 0.02 to 0.2	Bracket Pressure gauge	1.5-18
Regulator manifold ARM1000/2000	Manifold (Common IN/Individual IN) Direct operated reliveving style Back flow function	1/8 to 1/4	0.08 to 0.7	Pressure gauge	1.5-21
Regulator manifold ARM2500/3000	Manifold (Common IN/Individual IN) Modular style	1/4 , 3/8	0.05 to 0.85	Bracket Pressure gauge	1.5-24
Direct operated precision regulator ARP3000	Setting sensitivity: 0.001MPa Direct operated relieving style	1/4	0.005 to 0.3	Bracket Pressure gauge	1.5-28
Regulator with check valve AR1000/AR2060-6060	Built-in check valve (with back flow function) Direct operated reliveving style	M5 to 1	0.05 to 0.7	Bracket Pressure gauge	1.5-30
Regulator with residual pressure exhaust mechauism AR2550-4050	Exhaust of residual pressure for safety purpose Direct operated reliveving style	1/4 to 3/4	0.05 to 0.85	Bracket Pressure gauge	1.5-36
Precision regulator IR1000/2000/3000	Tension control Contact pressure control Setting sensitivity: 0.2%F.S. Repeatability: ±0.5%F.S.	1/8 to 1/2	(IR1000/2000) 0.005 to 0.2 0.005 to 0.4 0.005 to 0.8 (IR3000) 0.01 to 0.2 0.01 to 0.4 0.01 to 0.8	Bracket Pressure gauge	1.6-1
Precision regulator VEX1□33	Large capacity exhaust Setting sensitivity: 0.2%F.S. Repeatability: ±0.5%F.S.	M5 1/8 to 2	0.01 to 0.7 0.05 to 0.7	Bracket Foot Pressure gauge Silencer	1.7-1

Combination

Series	Application/Characteristics	Port size	Set pressure (MPa)	Option	Page
Filter regulator AW1000-4000	Filter and regulator are combined Direct operated relieving style	M5 1/8 to 3/4	0.05 to 0.7 0.05 to 0.85	Bracket Pressure gauge Auto drain	1.8-1
Filter regulator with integral pressure gauge	Built-in pressure gauge Space saving	1/8 to 1/2	0.05 to 0.85	Bracket Pressure gauge	1.8-7
Filter regulator with residual pressure exhaust mechanism AW3050-4050	Safety countermeasures with residual pressure discharge Filter and regulator integrated Direct operated relieving style	1/4 to 3/4	0.05 to 0.85	Bracket Pressure gauge Auto drain	1.8-13
MR unit AMR3000-6000	Mist separator and regulator integrated Filtration: 0.3µm	1/4 to 1	0.05 to 0.85	Adapter assembly Auto drain Pressure switch	1.9-1
Mist separator regulator (Modular style) AWM2000-4000	Mist separator and regulator integrated Filtration: 0.3µm	1/8 to 1/2	0.05 to 0.85	Bracket Pressure gauge Auto drain	1.10-1
Micro mist separator regulator (Modular style) AWD2000-4000	Micro Mist separator and regulator integrated Filtration: 0.01µm	1/8 to 1/2	0.05 to 0.85	Bracket Pressure gauge Auto drain	1.11-1

New Function/Multi-application Valve

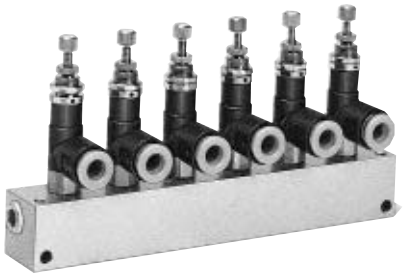
Series	Application/Characteristics	Port size	Set pressure (MPa)	Option	Page
Electro-pneumatic regulator ITV2000/3000	Pressure controlled steplessly by electric signals Electrostatic painting	1/4 to 1/2	0.005 to 0.1 0.005 to 0.5 0.005 to 0.9	Bracket	1.12-1
ITV209□	Pressure controlled steplessly by electric signals	1/4	–80 to –1.3kPa		1.12-12
Booster regulator VBA1110-4200	Pressure increased up to 2 times the primary pressure Highly effective energy savings	1/4 to 1/2	0.2 to 2.0(VBA1110) 0.2 to 1.0(VBA4200)	Pressure gauge Silencer Air tank	1.13-1
Electro-pneumatic proportional control valve VEF2000/3000 VEP2000/3000	Pressure and flow rate controlled steplessly by electric signals Pressure control for press die cushion, solvent bridge and low pressure casting Multistage speed control of air cylinders and rpm control of air motors	1/4 to 3/4		Exclusive power amplifier	1.14-1
5 port electro-pneumatic proportional control valve VER2000/4000	A single unit that actuates a cylinder and steplessly controls the applied pressure Applicable cylinders: ø25 to ø125. Exhaust air throttling or B port pressure reduction possible	1/4 to 3/4	0.1 to 0.9	Exclusive power amplifier	1.14-14
E-P HYREG Series VY1	Pressure controlled steplessly by electric signals Cylinder thrust control Nozzle suction flow control Tank pressure control	M5 to 2	0.05 to supply pressure	Bracket Pressure gauge Silencer	1.15-1
4 port E-P HYREG Series VY3	Cylinder acceleration/ deceleration control Applied pressure control	3/8 , 1/2	0.05 to 0.57	Pressure gauge	1.15-18
Balance controller VY511, VYU5	Auto balancing	1/4	0.2 to 0.7		1.15-29

Miniature Regulator

ARJ1020F

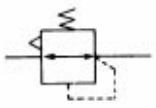
Compact and lightweight (16g)
Low cracking pressure 0.02MPa
Standard model equipped with backflow function

ARJ1020F-M5-04 ARJ1020F-M5-06



ARJM10-6

JIS symbol



Standard Specifications

Model		ARJ1020F	
Port size	IN side	M5 (Male thread)	
	OUT side (Applicable tube O.D.)	ø4	ø6
Fluid		Air	
Proof pressure		1.2MPa	
Max. operating temperature		0.8MPa	
Set pressure range		0.1 to 0.7MPa	
Ambient and fluid temperature		–5 to 60° (Non-freezing)	
Construction		Relieving style	
Weight (kg)		0.015	0.016
Cracking pressure (Valve)		0.02MPa	
Applicable tube material(1)		Nylon, Soft nylon, Polyurethane	

Note 1) Be sure to recognize the maximum operating pressure for soft nylon and polyurethane. (Refer to p.2.0-0 of fittings and tubing.)

Accessory (Option) Part No.

Description	Part No.
Manifold base	ARJM10–4, –6, –10

How to Order

ARJ 10 20 F —M5— 04 –1

Miniature regulator

Body size

10	M5

Piping

20	Elbow style

With One-touch fitting

Port size

M5	M5 X 0.8

Applicable tube O.D.

04	4mm
06	6mm

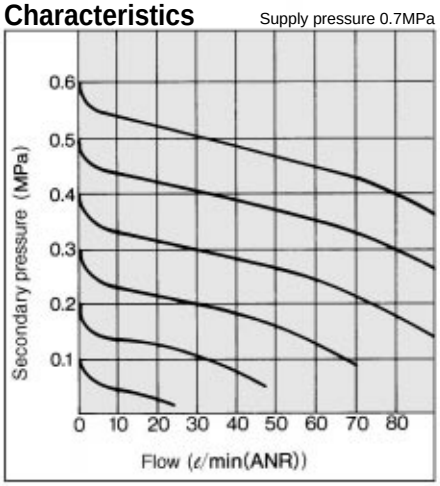
Option

1	Set at 0.2MPa

*Only the adjusting spring is different from standard.

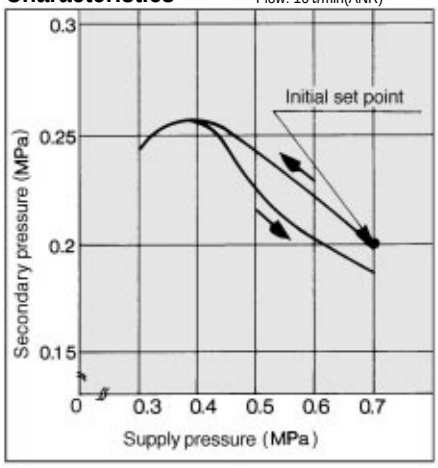
Flow Characteristics

Supply pressure 0.7MPa

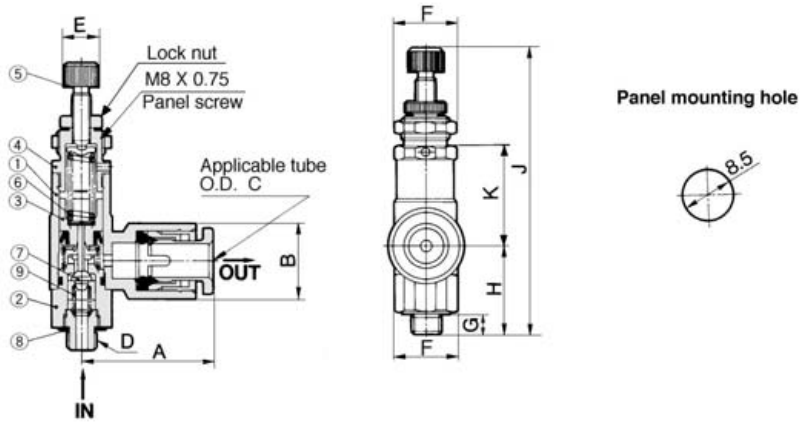


Pressure Characteristics

Initial setting: Supply pressure: 0.7MPa
Secondary pressure: 0.2MPa
Flow: 10 ℓ/min(ANR)



Construction/Dimensions



Component Parts

No.	Description	Material	Note
①	Body	PBT	
②	Valve guide	Brass	Electroless nickel plated
③	Piston	Polyacetal	
④	Bonnet	Brass	Electroless nickel plated
⑤	Handle	Brass	Electroless nickel plated
⑥	Adjusting spring	Steel wire	Zinc chromated
⑦	Valve	Brass	Rubber lining

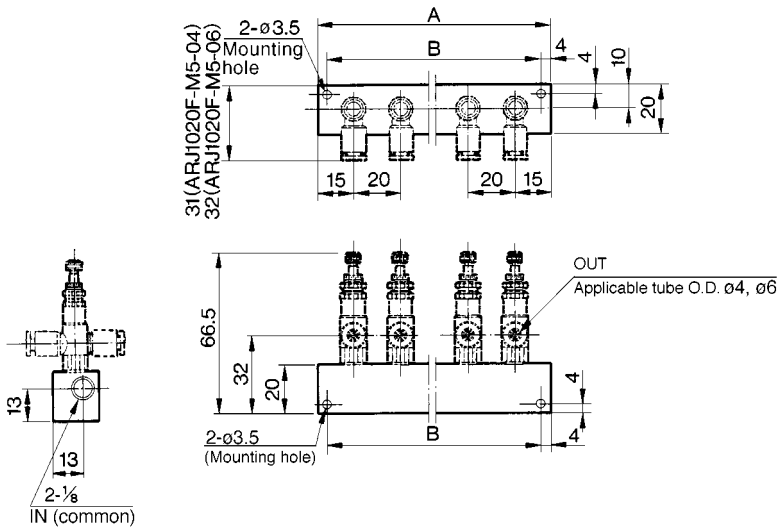
Replacement Parts

No.	Description	Material	Part no.
⑦	Valve	Brass/NBR	13434
⑧	Gasket	Stainless steel/ NBR	P233014-04
⑨	Spring	Stainless steel	134313

Dimensions

Model	A	B	C	D	E	F	G	H	J	K
ARJ1020F-M5-04	21	10.4	4	M5 X 0.8	6	10.6 (Width across flats: 10)	3.5	15.5	50	17.2
ARJ1020F-M5-06	22	12.8	6							

Manifold Base (Option)/Dimensions



Manifold base part No.	Stations	A dimension	B dimension
ARJM10-4	4	90	82
ARJM10-6	6	130	122
ARJM10-10	10	210	202

⚠Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Piping

⚠Warning

①To connect the IN side, hold the valve guide at its wrench flats (opposite side 10) and tighten it at the recommended torque of 1.5 to 2Nm. Excessive torque or holding it at an area other than the specified area could lead to equipment damage.

②When connecting piping to the product or operating the handle, make sure that no bending moment is applied to the product in order to prevent damage.

Mounting/Adjustment

⚠Warning

①Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

⚠Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock.
Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.
〈Lock operating method〉
Loosen the lock nut to unlock it, and tighten it to lock it.

Miniature Regulator

Series ARJ210

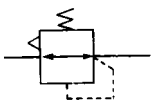
Lightweight body made of aluminum (60g)

Two styles of piping connections provided for the IN side: 1/8 (male threads) and M5 (female threads)

ARJ210-M5

ARJ210-M5BG

JIS symbol



Standard Specifications

Model		ARJ210-M5
Port size	IN side	1/8(Male thread), M5 X 0.8 (Female thread)
	OUT side	M5 X 0.8 (Female thread 2 pcs.)
Fluid		Air
Proof pressure		1.2MPa
Max. operating temperature		0.8MPa
Set pressure range		0.2 to 0.7MPa
Pressure gauge port size		M5 x 0.8(Female thread)
Ambient and fluid temperature		–5 to 60°C (Non-freezing)
Weight (kg)		0.06

Accessories (Options) Part No.

Bracket	134856
Pressure gauge (1)	G27-10-M5-X 201

Note 1) If ordering the pressure gauge, M-5N (nipple) is required. A pressure gauge for 0.2MPa is not available.

How to Order

ARJ 2 10 – M5 BG – 1

Miniature regulator

Body size

Style

1	Relieving style (standard)

Port size

M5	IN	1/8 (Male thread)
		M5 X 0.8(Female thread)
	OUT	M5 X 0.8 (Female thread)

Option

1	Set at 0.2MPa

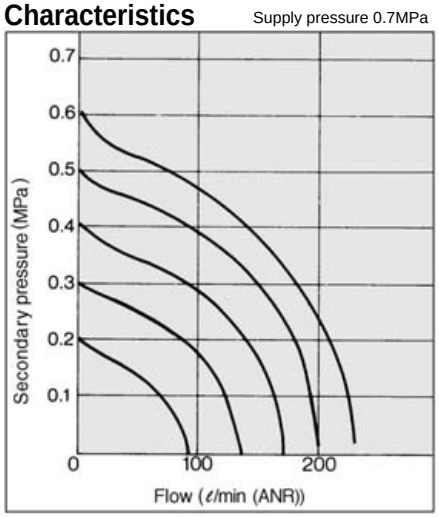
* Only the adjusting spring is different from standard.

Accessories (Options)

Symbol	Description
—	None
B	Bracket
G	Pressure gauge

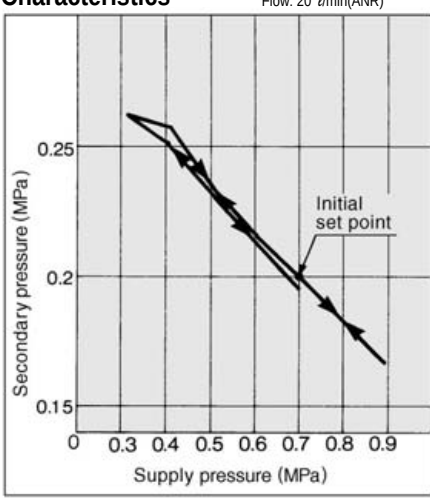
Flow Characteristics

Supply pressure 0.7MPa

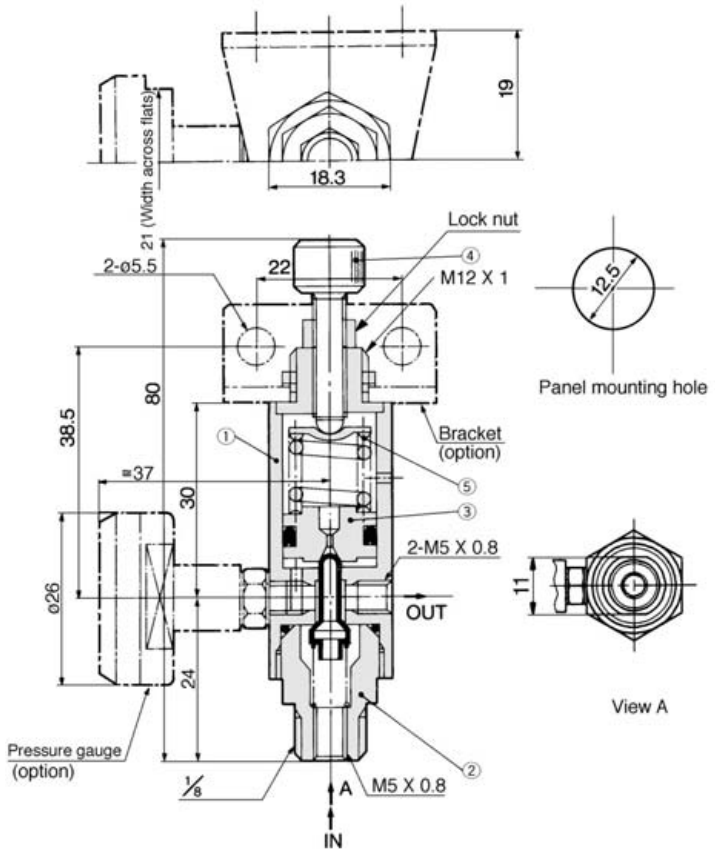


Pressure Characteristics

Initial setting: Supply pressure: 0.7MPa
Secondary pressure: 0.2MPa
Flow: 20 ℓ/min(ANR)



Construction/Dimensions



No.	Description	Material	Note
①	Body	Aluminum alloy	Black anodized
②	Valve guide	Brass	Electroless nickel plated
③	Piston	Brass	
④	Adjusting screw	Brass	Electroless nickel plated
⑤	Adjusting spring	Steel wire	Zinc chromated

⚠Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠Warning

①This product cannot be used as a check regulator by installing it between the solenoid valve and the actuator. Doing so could lead to equipment damage.

②When connecting a pipe to the IN side, hold the valve guide at its wrench flats (opposite side 11), and when connecting to the OUT side, hold the body at its hexagon portion and tighten it to the recommended torque. {M5: 1.5 to 2 Nm, R(PT)1/8: 7 to 9 Nm. Excessive torque or holding it other than at the specified area could lead to equipment damage.

③When connecting piping to the product or operating the handle, make sure that no bending moment is applied to the product in order to prevent damage.

Mounting/Adjustment

⚠Warning

①Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

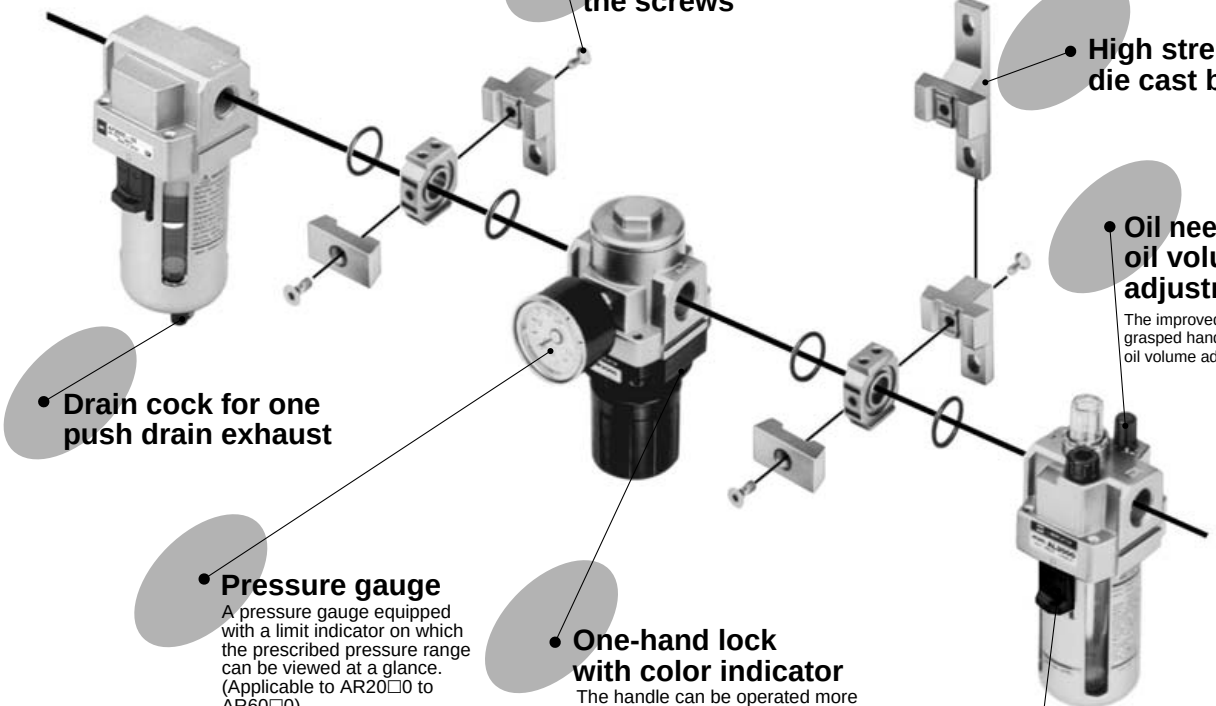
⚠Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock.
Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.
〈Lock operating method〉
Loosen the lock nut to unlock it, and tighten it to lock it.

Regulator/Modular Style

AR1000 to 6000

- **Can be combined with a modular style air filter and lubricator**
- **A rich variety of models enables precise and stable pressure settings to meet user needs**



Assembled by simply tightening the screws

High strength die cast bracket

Oil needle for easy oil volume adjustments

The improved needle and the easily grasped handle make for easier oil volume adjustments.

Drain cock for one push drain exhaust

Pressure gauge

A pressure gauge equipped with a limit indicator on which the prescribed pressure range can be viewed at a glance. (Applicable to AR20□0 to AR60□0)

One-hand lock with color indicator

The handle can be operated more reliably because the locked state of the pressure regulation handle can be checked at a glance by whether the orange mark is visible.
If the orange mark is visible, the pressure can be regulated.
(AR30□0, 40□0, 50□0 only)

Bowl can be attached and detached with one hand (Turn proof structure at pressurized state)

AR1000 to 6000

Standard Specifications

Model	AR1000	AR2000	AR2500	AR3000	AR4000	AR4000-06	AR5000	AR6000
Port size	M5 X 0.8	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1
Fluid	Air							
Proof pressure	1.5MPa							
Max. operating pressure	1.0MPa							
Set pressure range	0.05 to 0.7MPa	0.05 to 0.85MPa						
Pressure gauge port size	1/16	1/8	1/8	1/8	1/4	1/4	1/4	1/4
Ambient and fluid temperature	–5 to 60°C (Non-freezing)							
Construction	Relieving style							
Weight (kg)	0.08	0.27	0.27	0.41	0.84	0.94	1.19	1.55

Accessories (Options) Part No.

Description \ Model		Part No. AR1000	AR2000	AR2500	AR3000	AR4000	AR4000-06	AR5000	AR6000
Bracket		B120	B220	B220	B320	B420	B420	B640A(3)	B640A(3)
Pressure gauge(1)	1.0MPa	G27-10-R1	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02
	0.2MPa	(G27-10-R1)(2)	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02

Note 1) In the gauge part no. (e.g. G36-10-□01)□ indicates kind of the connecting thread. Put nothing for Rc(PT) and "N" for NPT thread. Consult SMC for NPT pressure gauge.
Note 2) For 1.0MPa.
Note 3) With 2 mounting screws.

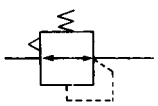

AR4000


AR3000-□□BG


AR2500


AR2000-□□BG

JIS symbol



How to Order

AR 30 00 – □ 03 BG – 1N

Regulator

Body size

10	M5
20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
60	1

Thread

–	Meter thread (M5) Rc(PT)
N	NPT
F	G(PF)

Port size

M5	M5 X 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Option

1(Note)	Set at 0.2MPa
N	Non-relieving style
R	Reverse flow

● If ordering more than one option, indicate symbols numerically then alphabetically. Ex.) 1NR

Note) Only the adjusting spring is different from the standard model.

Accessories (Options)

Symbol		Description	Applicable model
Blank		—	—
B		Bracket	AR1000 to AR6000
G	Gauge	Without limit indicator	AR1000
		With limit indicator	AR2000 to AR6000

Option/Combination Table ◎Combination available ■ Combination not available

Option	Symbol	Option 1	Option N	Option R	Applicable regulator AR1000	AR2000	AR2500	AR3000 to AR6000
0.02 to 0.2MPa	–1	■	◎	◎	◎	◎	◎	◎
Non-relieving	–N	◎	■	◎	◎	◎	◎	◎
Reverse flow	–R	◎	◎	■	◎	◎	◎	◎

Order Made P.1.5-14

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Mounting/Adjustment

⚠Warning

①The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.

②Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

③The pressure gauge that is provided with the product for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that a pressure that exceeds 0.2MPa is not applied to it. However, for the AR1000, the gauge for setting a pressure between 0.02 to 0.2MPa is the 1.0MPa style.

⚠Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock.
Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

A) On the AR1000 to AR2500 types, pull the adjustment handle to release the lock and push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.

B) On the AR3000 to AR5000 types, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

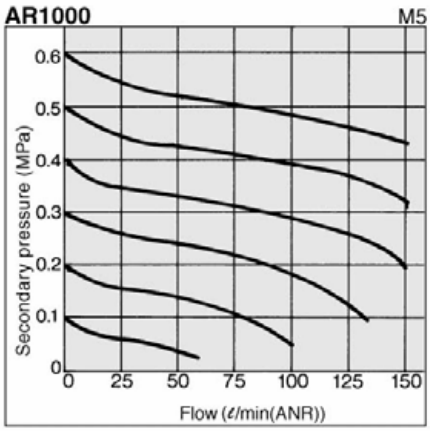
C) On the AR6000 type, loosen the lock nut to release the lock, and tighten it to lock it.

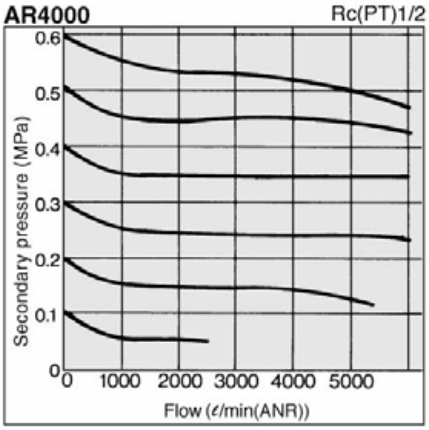
②Install the valve guide (on the opposite side of the handle) 60mm away from the ground surface to facilitate maintenance inspection.

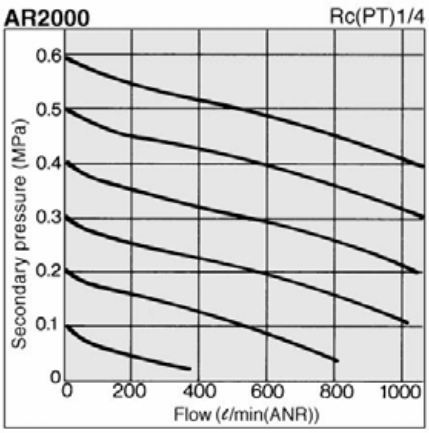
③To use this product between the solenoid valve and the actuator, contact SMC.

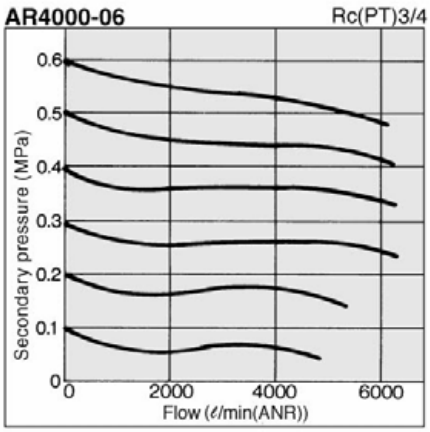
Flow Characteristics

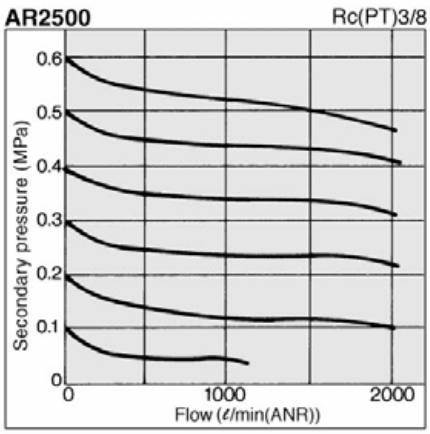
Supply pressure: 0.7MPa

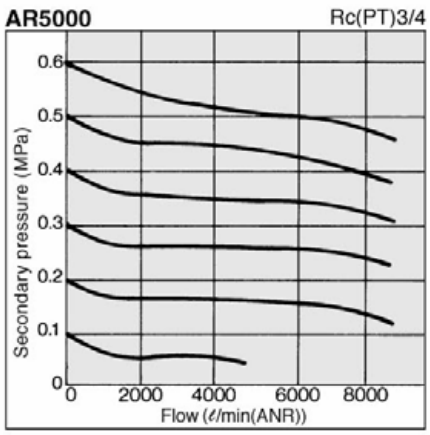


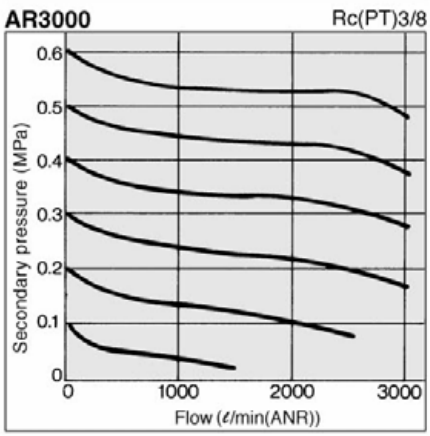


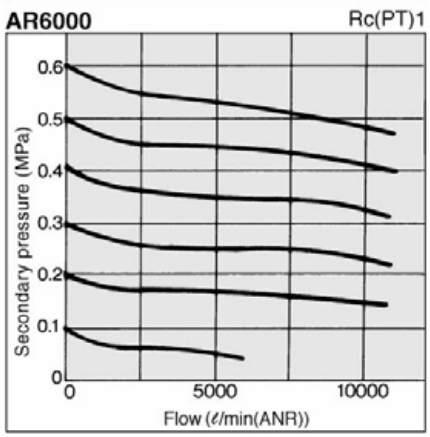








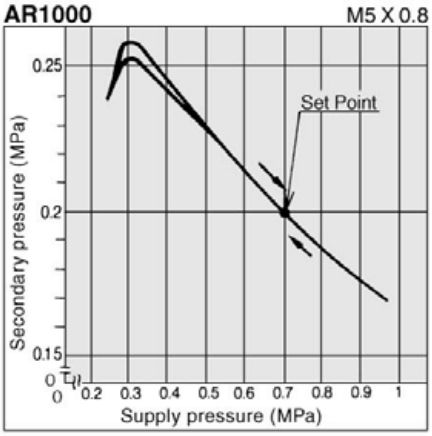




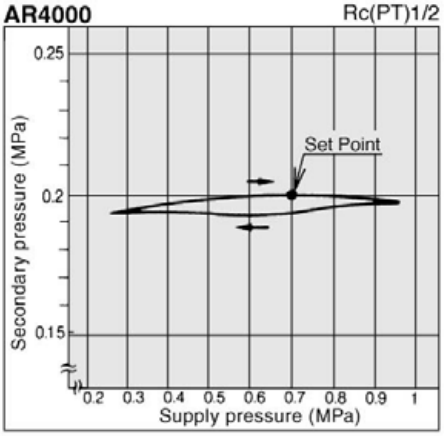
AR1000 to 6000

Pressure Characteristics
Supply pressure: 0.7MPa, Secondary pressure: 0.2MPa, Flow: 20 ℓ/min (ANR)

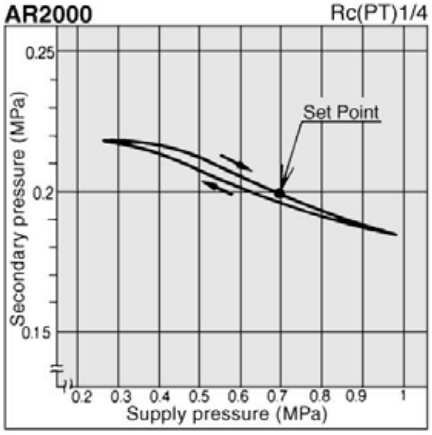
AR1000 M5 X 0.8



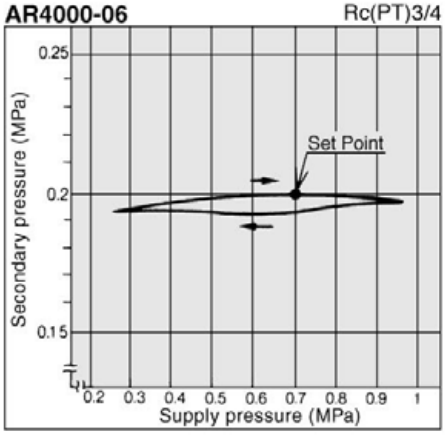
AR4000 Rc(PT)1/2



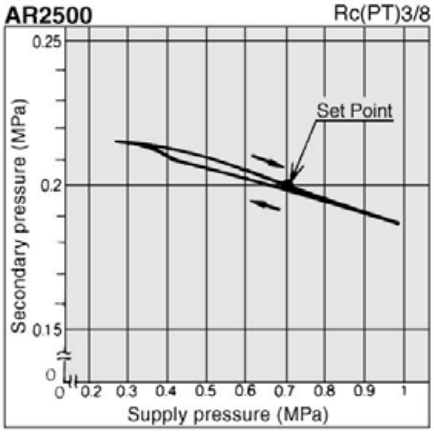
AR2000 Rc(PT)1/4



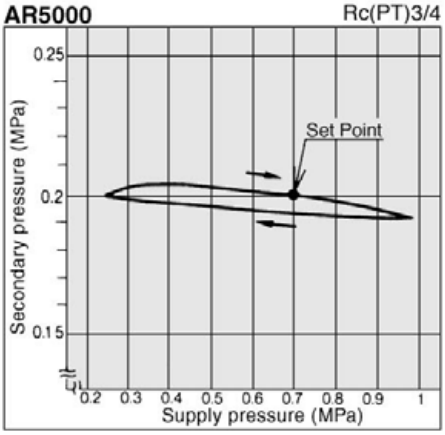
AR4000-06 Rc(PT)3/4



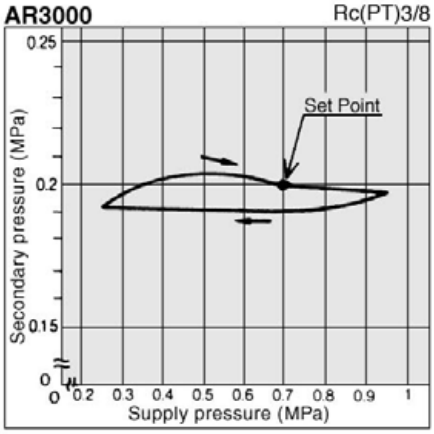
AR2500 Rc(PT)3/8



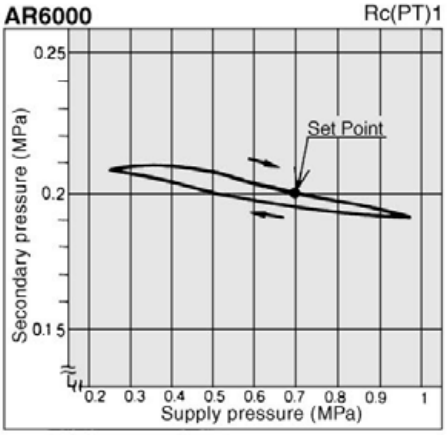
AR5000 Rc(PT)3/4



AR3000 Rc(PT)3/8



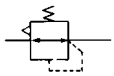
AR6000 Rc(PT)1

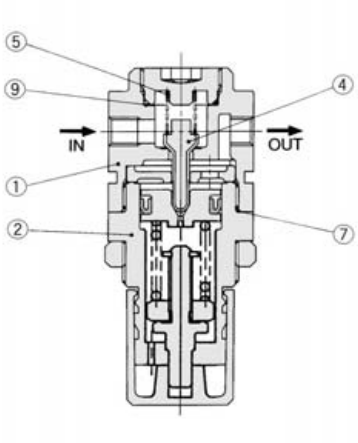


Construction

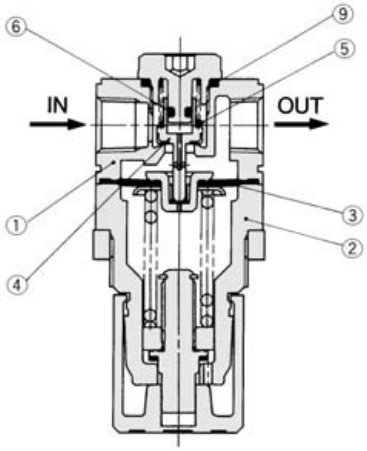
AR1000

JIS symbol

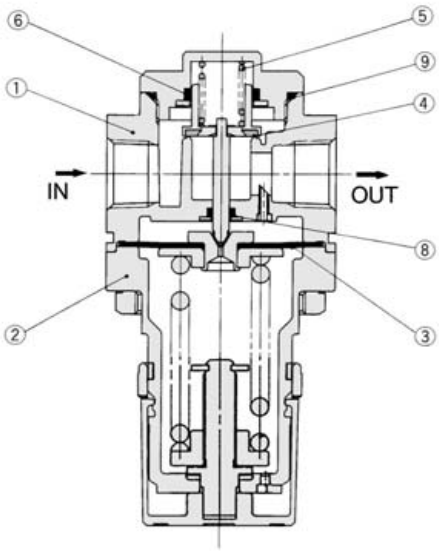




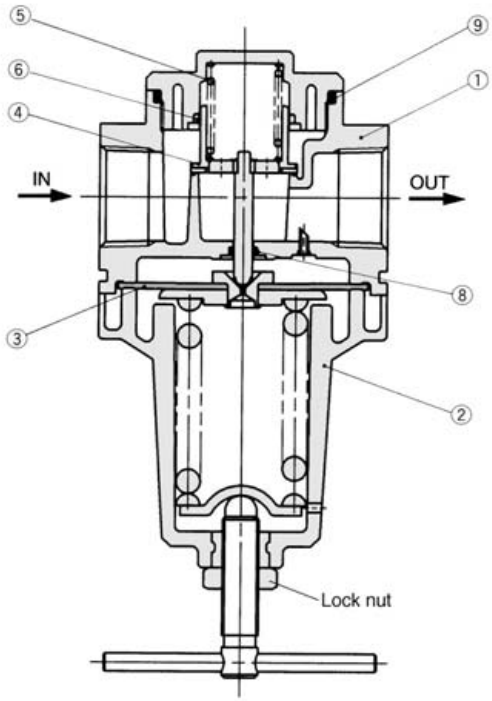
AR2000



AR2500/3000/4000/5000



AR6000



Component Parts

No.	Description	Material			Note
		AR1000/2000	AR2500/3000	AR4000 to AR6000	
①	Body	Zinc die cast	Aluminum die cast		Painted silver
②	Bonnet	Polyacetal		Aluminum die cast	Painted black

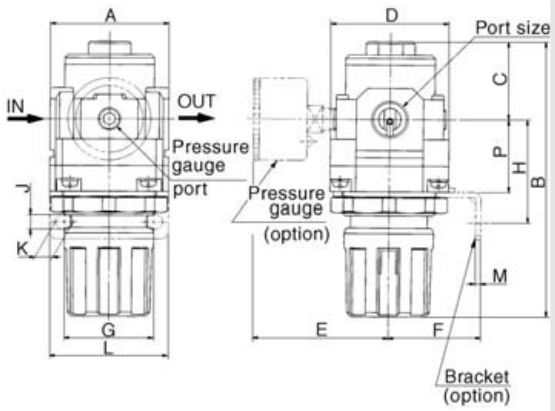
Replacement Parts

No.	Description	Material	Part No.							
			AR1000	AR2000	AR2500	AR3000	AR4000	AR4000-06	AR5000	AR6000
③	Diaphragm ass'y	NBR	—	131445A	1349161A	131515A	131614A	131614A	131614A	131815A
④	Valve ass'y	Brass/NBR	134819	1349160	13144A	13154A	13164A	1316102A	131750A	13184A
⑤	Valve spring	Stainless steel	134824	1349158	13143	131558	131613	131613	13174	131810
⑥	Valve O ring	NBR	—	1349247	JISB2401P11	JISB2401P14	131643	131643	131710	131811
⑦	Piston mini Y packing	NBR	MYN-10A	—	—	—	—	—	—	—
⑧	O ring	NBR	—	—	JISB2401P3	JISB2401P5	JISB2401P5	JISB2401P5	JISB2401P5	JISB2401P6
⑨	O ring	NBR	131336	JISB2401P14	JISB2401P22	131545	131647	131647	JISB2401G50	JISB2401G55

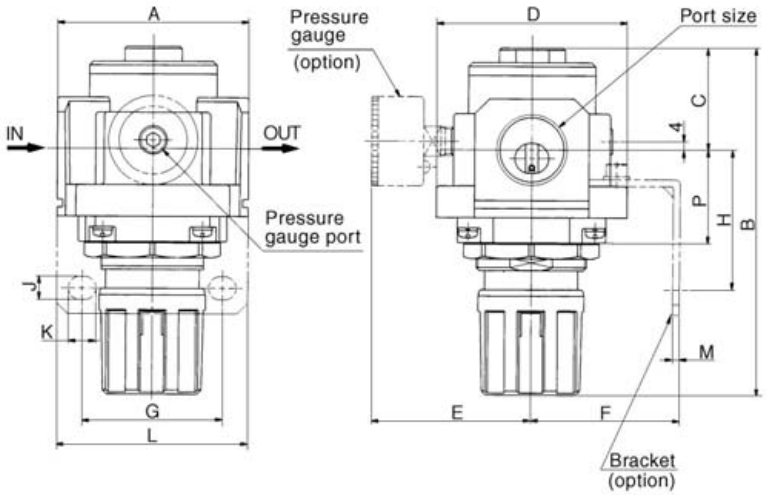
AR1000 to 6000

Dimensions

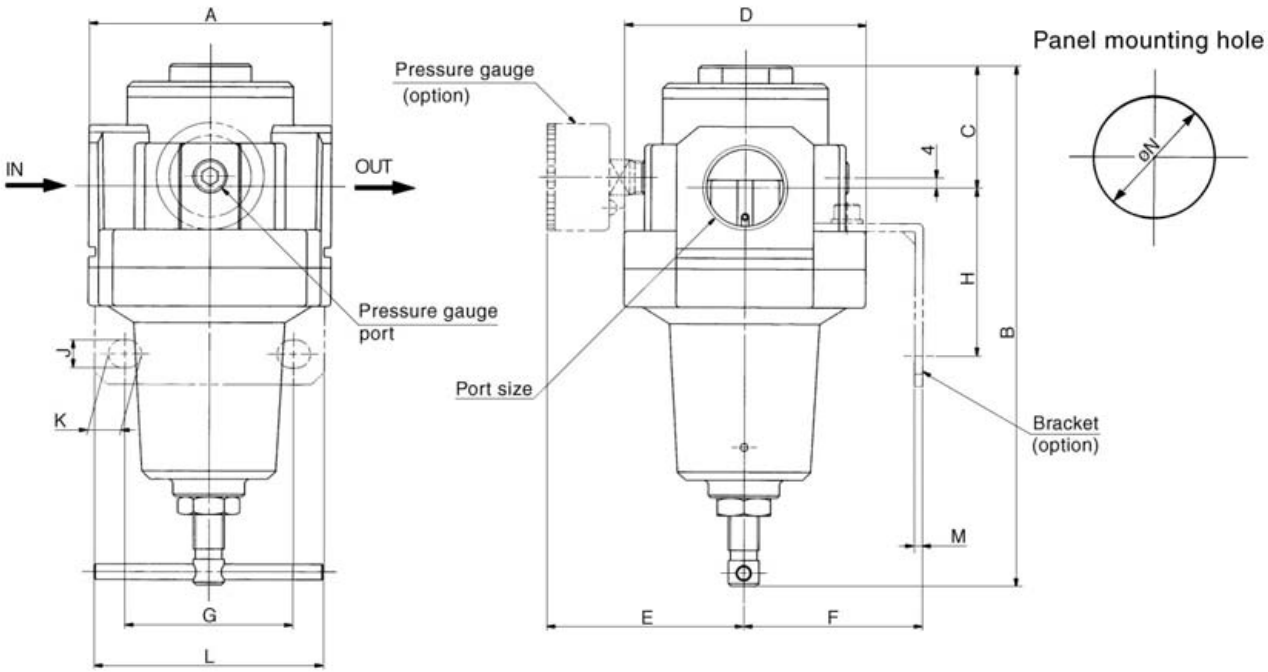
AR1000 to AR4000



AR5000



AR6000



Model	Port size	A	B	C	D	E	Bracket mounting dimensions							øN	P
							F	G	H	J	K	L	M		
AR1000	M5 X 0.8	25	61.5	11	25	26	25	28	30	4.5	6.5	40	2	20.5	19
AR2000	1/8, 1/4	40	95	17	40	56.8	30	34	44	5.4	15.4	55	2.3	33.5	25
AR2500	1/4, 3/8	53	102.5	25	48	60.8	30	34	44	5.4	15.4	55	2.3	33.5	25
AR3000	1/4, 3/8	53	127.5	35	53	60.8	41	40	46	6.5	8	53	2.3	42.5	32.5
AR4000	1/4, 3/8, 1/2	70	149.5	37.5	70	65.5	50	54	54	8.5	10.5	70	2.3	52.5	36
AR4000-06	3/4	75	154.5	40.5	70	69.5	50	54	56	8.5	10.5	70	2.3	52.5	38
AR5000	3/4, 1	90	168	48	90	75.5	70	66	65.8	11	13	90	3.2	52.5	44
AR6000	1	95	204.5	48	95	78	70	66	65.8	11	13	90	3.2	—	—

CAD
AR1000 ——— SAC1000, #2
AR2000 ——— SAC2000, #2
AR3000 ——— SAC2503, #2
AR4000 ——— SAC4000, #2
AR4000-06 ——— SAC4006, #2
AR5000 ——— SAC5000, #2
AR6000 ——— SAC6000, #2

AR2000 to 6000
Made to Order Specifications

❶Special temperature environment

The seal, gasket, and bonnet materials have been changed to a special material to withstand varying environmental conditions such as those in cold climates or tropical regions.

Specifications

Made to Order No.		-X430	-X440
Environment		For low temperature	For high temperature
Ambient temperature°C		–30 to 60	5 to 80
Fluid temperature°C		–5 to 60 (Non-freezing)	–5 to 60 (Non-freezing)
Material	Rubber part	Special NBR	FKM
	Component	Metal (ADC etc.)	Metal (ADC etc.)

Applicable Model

Model	AR2500	AR3000	AR4000	AR4000-06	AR5000	AR6000
Port size	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1

How to Order

AR **30** 00 – **03** **BG3** – **X430**

Body size

25	1/4
30	3/8
40	1/2
50	3/4
60	1

Port size

02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessories (Options)

—	None
B	Bracket
G3	Pressure gauge (G43)

For low/high temperature environment

X430	Low temp.
X440	High temp.

❷Metal used for external parts

For environmental conditions in which plastic materials cannot be used, the external parts have been changed to metal materials.

Applicable Model

Model	AR2000	AR2500	AR3000	AR4000	AR4000-06	AR5000
Port size	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1

How to Order

AR **30** 00 – **03** **BG3** – **X470**

Body size

20	1/8
25	1/4
30	3/8
40	1/2
50	3/4

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessories (Options)

—	None
B	Bracket
G3	Pressure gauge (G43)

External parts metal

∗"X470" for "AR6000" is not required since metal is used for external parts on the standard model.

Modular Style Regulator with Integral Pressure Gauge

Series AR2001/2501/3001/4001

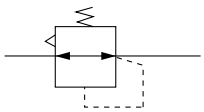
Specifications

Model	AR2001	AR2501	AR3001	AR4001
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Set pressure range	0.05 to 0.85MPa			
Ambient and fluid temperature	–5 to 60°C (Non-freezing)			
Construction	Relieving style			
Weight (kg)	0.28	0.26	0.40	0.88

Accessories (Options) Part No.

Description \ Model		Part No. AR2001	AR2501	AR3001	AR4001
Bracket		B220	B220	B320	B420
Gauge	1.0MPa	GC30-10			
	0.2MPa	GC30-2			

JIS symbol



How to Order

AR | **30** | **01** – | | | **03** | **B** | **G** – | **1N**

Regulator

Thread

–	Rc(PT)
N	NPT
F	G(PF)

Body size

20	1/8
25	1/4
30	3/8
40	1/2

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Accessories (Options)

Symbol	Description	Applicable model
–	–	–
B	With bracket	AR2001 to AR4001

Option specifications

1	0.2MPa setting
N	Non-relieving
R	IN-OUT reversal

·When specifying more than one option, please list numerically then alphabetically.
Example) 1NR

Options/Combination Table

Option specifications	Symbol	Option specifications 1	N	R	Applicable regulator model AR2001	AR2501	AR3001 AR4001
0.02 to 0.2MPa	-1		◎	◎	◎	◎	◎
Non-relieving	-N	◎		◎	◎	◎	◎
IN-OUT reversal	-R	◎	◎		◎	◎	◎

◎Available combination Combination not available

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Mounting/Adjustment

⚠Warning

①The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.

②Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

③The pressure gauge that is provided with the product for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that a pressure that exceeds 0.2MPa is not applied to it.

⚠Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock.
Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

A) On the AR2001 and AR2501 types, pull the adjustment handle to release the lock and push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.

B) On the AR3001 and AR4001 types, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

②Install the valve guide (on the opposite side of the handle) 60mm away from the ground surface to facilitate maintenance inspection

Maintenance

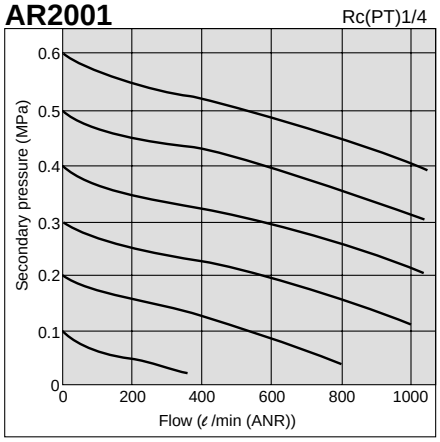
⚠Caution

①Tighten the screws (M3) for mounting the pressure gauge in the range of 0.6 ± 0.06Nm. Tighten the screws (M3) for mounting the blank cover in the range of 0.3 ± 0.03Nm. Failure to observe these torque values could lead to equipment damage.

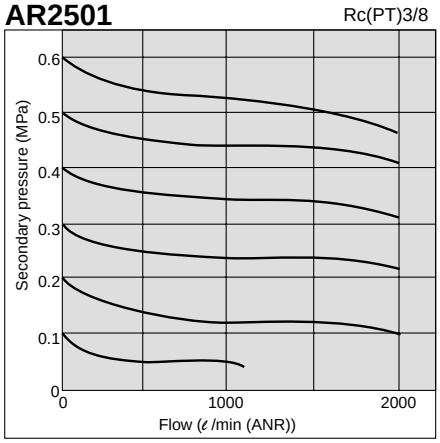
Flow Characteristics

Supply pressure: 0.7 MPa

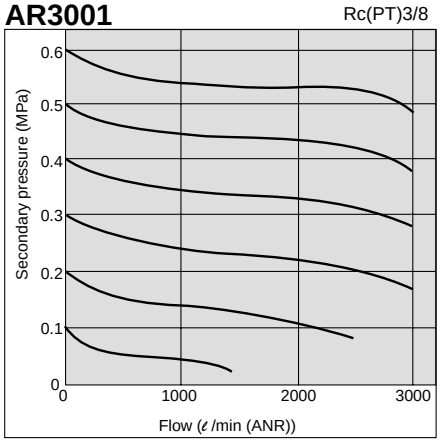
AR2001 Rc(PT)1/4



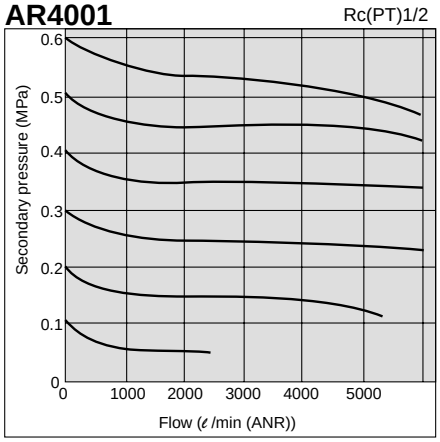
AR2501 Rc(PT)3/8



AR3001 Rc(PT)3/8



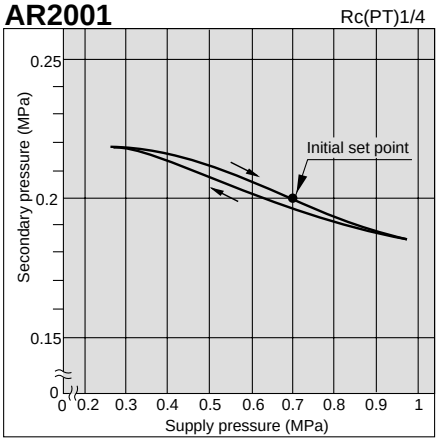
AR4001 Rc(PT)1/2



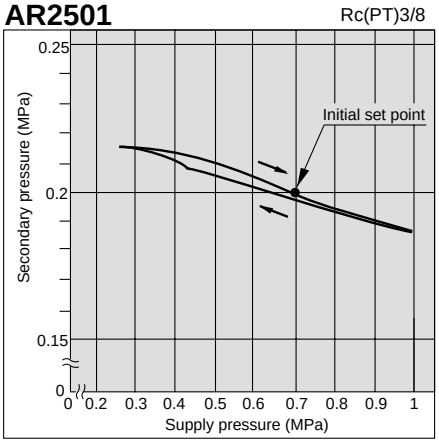
Pressure Characteristics

Supply pressure: 0.7MPa
Secondary pressure: 0.2MPa Flow: 20ℓ/min (ANR)

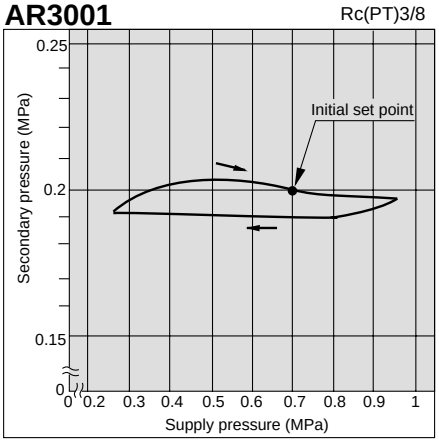
AR2001 Rc(PT)1/4



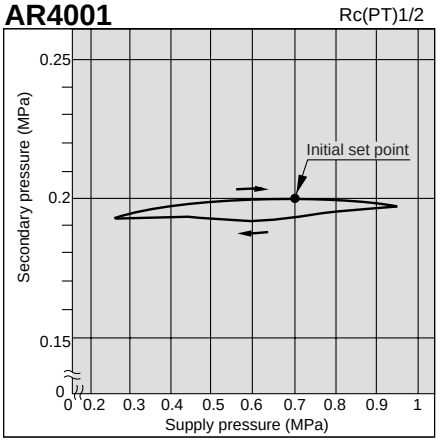
AR2501 Rc(PT)3/8



AR3001 Rc(PT)3/8

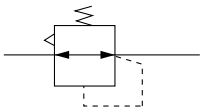


AR4001 Rc(PT)1/2

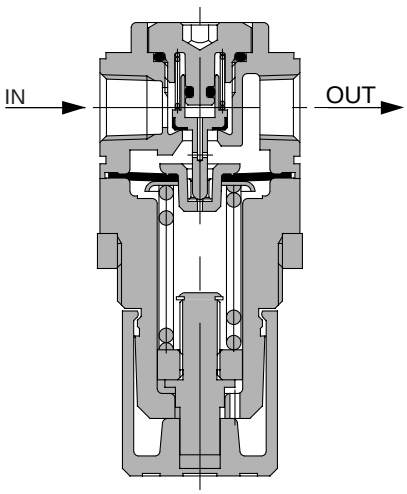


Construction

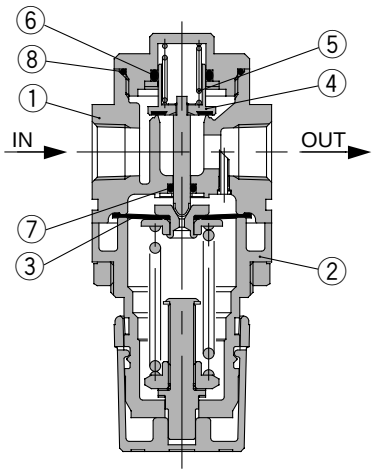
JIS symbol



AR2001



AR2501/3001/4001



Component Parts

No.	Description	Material				Note
		AR2001	**AR2501**	**AR3001**	**AR4001**	
①	Body	Zinc die cast	Aluminum die cast			Platinum silver paint
②	Bonnet	Polyacetal			Aluminum die cast	Black paint

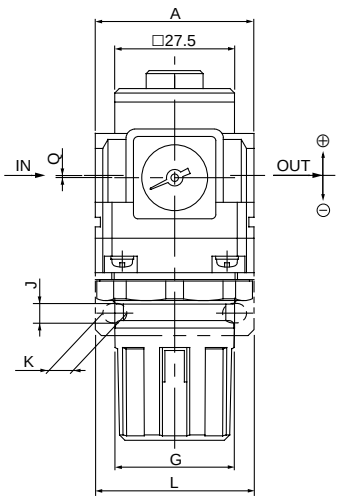
Replacement Parts

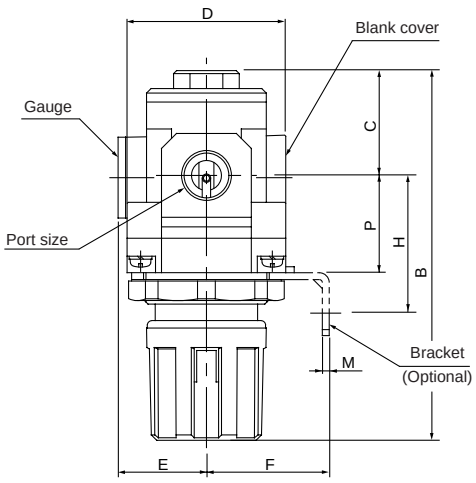
No.	Description	Material	Part No.			
			AR2001	**AR2501**	**AR3001**	**AR4001**
③	Diaphragm ass'y	NBR	131445A	1349161A	131515A	131614A
④	Valve ass'y	Brass/NBR	1349160	13144A	13154A	13164A
⑤	Valve spring	Stainless steel	1349158	13143	131558	131613
⑥	Valve O ring	NBR	1349247	JISB2401P11	JISB2401P14	131643
⑦	O ring	NBR	—	JISB2401P3	JISB2401P5	JISB2401P5
⑧	O ring	NBR	JISB2401P14	JISB2401P22	131545	131647

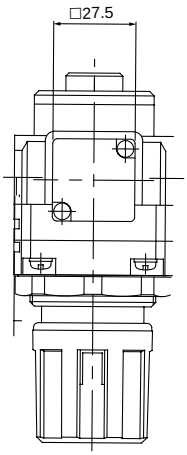
Dimensions

(mm)

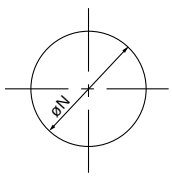
AR2001 to AR4001







Panel mounting hole



AR2001/2501/3001: Max. 3.5t
AR4001: Max. 5.0t

Model	Port size	A	B	C	D	E	Bracket mounting dimensions							N	P	Q*
							F	G	H	J	K	L	M			
AR2001	1/8, 1/4	40	95	17	40	35	30	34	44	5.4	15.4	55	2.3	33.5	25	⊖3.3
AR2501	1/4, 3/8	53	102.5	25	48	32	30	34	44	5.4	15.4	55	2.3	33.5	25	⊖4.3
AR3001	1/4, 3/8	53	127.5	35	53	29.5	41	40	46	6.5	8	53	2.3	42.5	32.5	⊕0.8
AR4001	1/4, 3/8, 1/2	70	149.5	37.5	70	38	50	54	54	8.5	10.5	70	2.3	52.5	36	⊕0.8

The ⊕ and ⊖ symbols given for the dimensions marked with "*" indicate the direction of eccentricity of the center of the pressure gauge from the center of the port.

AR2550/3050/4050

AR4050-□□BG

AR3050-□□BG

AR2550

Standard Specifications

Model	AR2550	AR3050	AR4050	AR4050-06
Port size	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Set pressure range	0.05 to 0.85MPa			
Pressure gauge port size	1/8	1/8	1/4	1/4
Ambient and fluid temperature	–5 to 60°C (Non-freezing)			
Construction	Relieving style			
Weight (kg)	0.27	0.41	0.84	0.94

Accessories (Options) Part No.

Description \ Model		Part No. AR2550	AR3050	AR4050	AR4050-06
Bracket		B220	B320	B420	B420
Pressure gauge(1)	1.0MPa	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
	0.2MPa	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02

Note1) • In the guage part no.(□) indicates the type of threads used for connection. For Rc(PT), leave the symbol blank, and for NPT, enter "N".
• Contact SMC concerning the supply of NPT pressure gauges.

How to Order

AR 30 50 – □ 03 BG – 1N

Regulator

Body size

25	1/4
30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

02	1/4
03	3/8
04	1/2
06	3/4

Accessories (Options)

—	None
B	Bracket
G	Pressure gauge

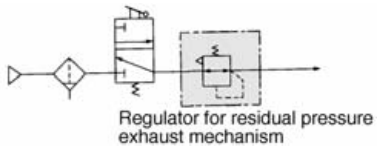
Options

1*	0.2MPa
N	Non-relieving style
R	Reverse flow

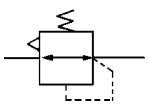
* Only the adjusting spring is different from standard.

Circuit

When the air supply is stopped and the primary side air is released to the atmosphere, the residual air in the secondary side can be reliably discharged as a safety measure.

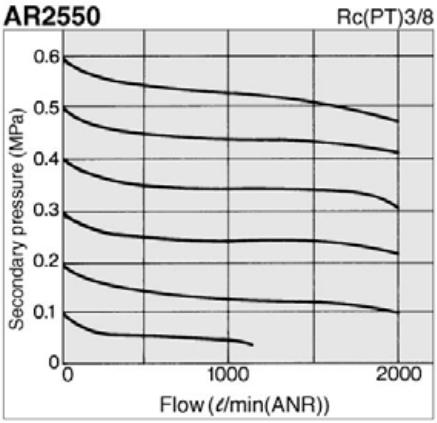


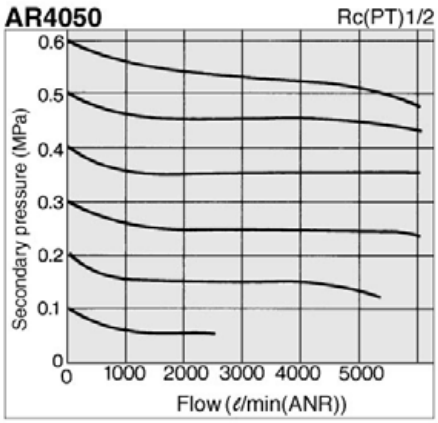
JIS symbol

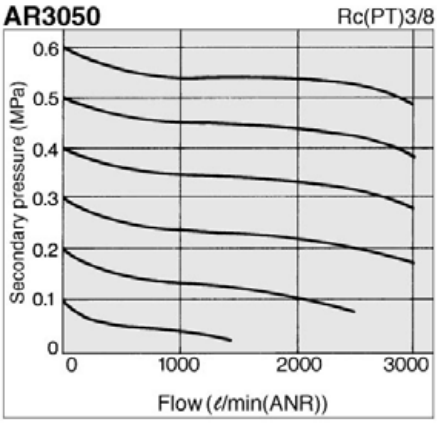


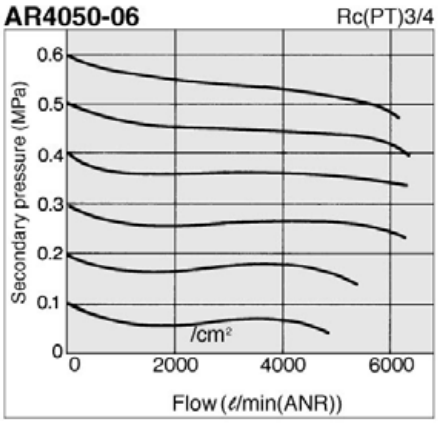
Flow Characteristics

Supply pressure: 0.7MPa



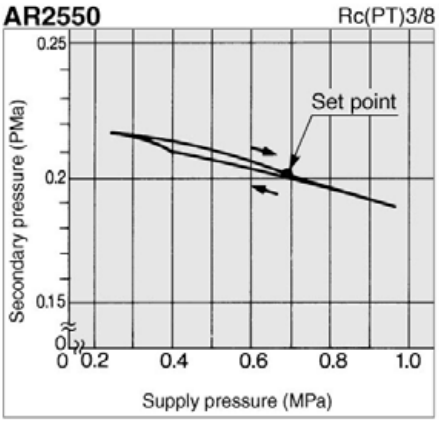


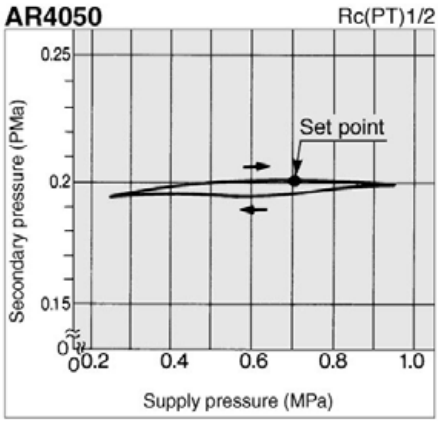


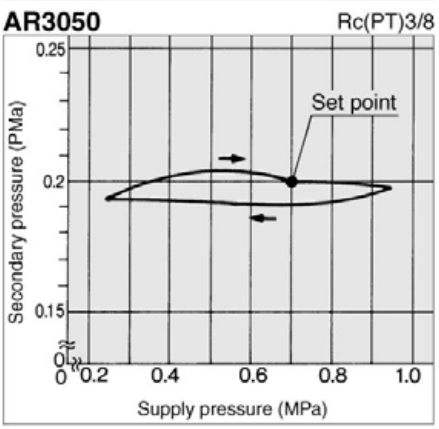


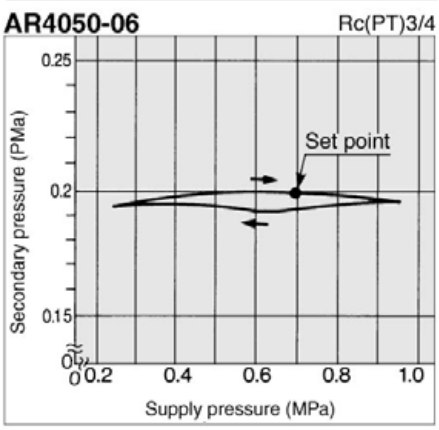
Pressure Characteristics

Supply pressure: 0.7MPa, Secondary pressure: 0.2MPa, Flow: 20 ℓ/min(NAR)









⚠ Precautions

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠ Warning

①Do not use it between the cylinder and the switching valve.
To prevent a lag in the discharge time, use a regulator with a check valve.

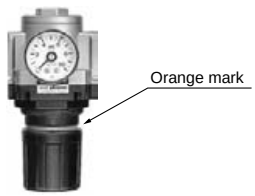
Mounting/Adjustment

⚠ Warning

①The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.
②Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.
③The pressure gauge that is provided with the product for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that a pressure that exceeds 0.2MPa is not applied to it.

⚠ Caution

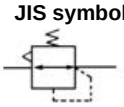
①Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.
A) On the AR2550 type, pull the adjustment handle to release the lock and push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.
B) On the AR3050 and AR4050 types, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.



②Install the valve guide (on the opposite side of the handle) 60mm away from the ground surface to facilitate maintenance inspection.
③To use this product between the solenoid valve and the actuator, contact SMC.

Operation Principles/Construction

JIS symbol



AR2550/3050/4050

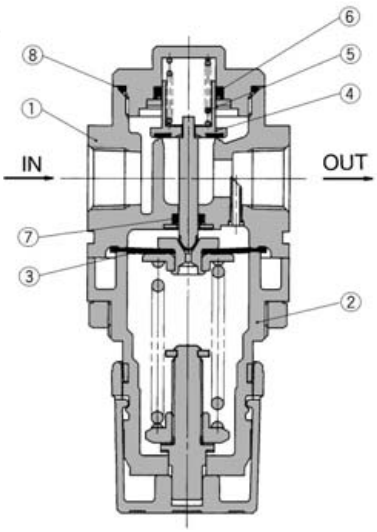


Figure 1

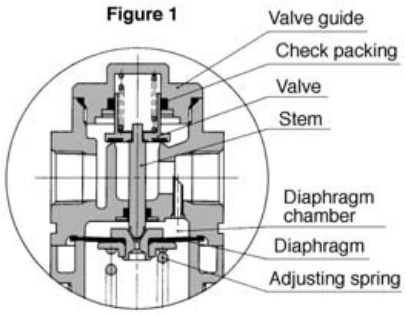
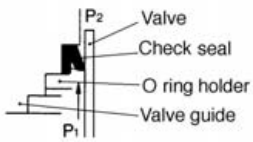
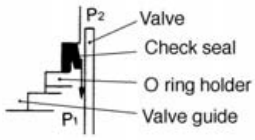


Figure 2



When the primary pressure is introduced

Figure 3



When the primary pressure is shut down and discharged

Component Parts

No.	Description	Material				Note
		AR2550	AR3050	AR4050	AR4050-06	
①	Body	Aluminum die cast				Painted silver
②	Bonnet	Polyacetal		Aluminum die cast		Painted black (AR4050)

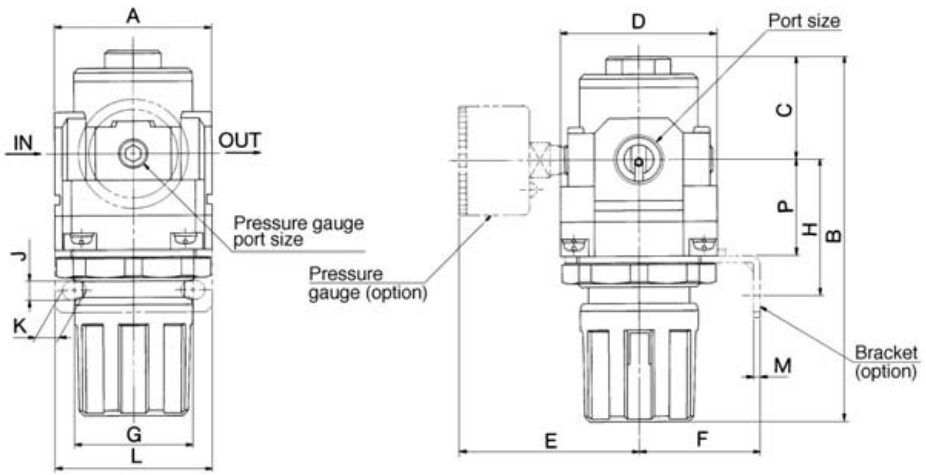
Replacement Parts

No.	Description	Material	Part No.			
			AR2550	AR3050	AR4050	AR4050-06
③	Diaphragm ass'y	NBR	1349161A	131515A	131614A	131614A
④	Valve ass'y	Brass/NBR	13144A	13154A	1316218A	1316219A
⑤	Valve spring	Stainless steel	13143	131558	131613	131613
⑥	Check seal	NBR	131446	1315101	131694	131694
⑦	O ring	NBR	JIS B2401P3	JIS B2401P5	JIS B2401P5	JIS B2401P5
⑧	O ring	NBR	JIS B2401P22	131545	131647	131647

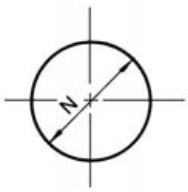
①When the primary > set pressure, the check seal expands sideways, thus sealing the valve (Fig. 2). The secondary enters the lower valve chamber through the clearance between the valve and the stem. When the primary is off and discharged, the check seal opens, allowing the lower valve chamber to discharge to the primary side (Fig. 3). Because the check seal portion of the passage area is greater than the clearance between the valve and the stem, a pressure difference is created between the upper and lower portions of the valve, which causes the valve to open. As the valve opens, the secondary and pressure in the diaphragm chamber drops, enabling the adjustment spring to push the diaphragm down. Thus the valve opens fully, allowing the secondary pressure to be discharged rapidly to the primary side.

Dimensions

AR2550/3050/4050



Panel mounting hole



AR2550 to 3050: Max.3.5t

AR4050: Max.5t

Model	Port size	A	B	C	D	E	Bracket mounting dimensions							N	P
							F	G	H	J	K	L	M		
AR2550	1/4, 3/8	53	102.5	25	48	60.8	30	34	44	5.4	15.4	55	2.3	33.5	25
AR3050	1/4, 3/8	53	127.5	35	53	60.8	41	40	46	6.5	8	53	2.3	42.5	32.5
AR4050	1/4, 3/8, 1/2	70	149.5	37.5	70	65.5	50	54	54	8.5	10.5	70	2.3	52.5	36
AR4050-06	3/4	75	154.5	40.5	70	69.5	50	54	56	8.5	10.5	70	2.3	52.5	38

CAD
AR2550 ——— SAC2000, #2
AR3050 ——— SAC2503, #2
AR4050 ——— SAC4000, #2
AR4050-06 ——— SAC4006, #2

Filter Regulator

AW1000 to 4000

CAD

Standard Specifications

Model		AW1000	AW2000	AW3000	AW4000	AW4000-06
Port size		M5 X 0.8	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid		Air				
Proof pressure		1.5MPa				
Max. operating pressure		1.0MPa				
Set pressure range		0.05 to 0.7MPa	0.05 to 0.85MPa			
Gauge port size		1/16	1/8	1/8	1/4	1/4
Ambient and fluid temperature		–5 to 60°C (No freezing)				
Filtration		5μm				
Drain capacity (cm^3)		2.5	8	23	45	45
Bowl material		Polycarbonate				
Construction		Relieving style				
Weight (kg)		0.09	0.36	0.53	1.09	1.15
Accessory (Std. equipment)	Bowl guard	—	—	●	●	●

Accessory (option)/Part No.

Description \ Model			Part No. AW1000	AW2000	AW3000	AW4000	AW4000-06
Accessory	Bracket		B120	B220	B320	B420	B420
	Gauge (1)	1.0MPa	G27-10-R1	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
		0.2MPa	(G27-10-R1)(2)	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02
	Auto drain float style (3)	N.O.	—	—	AD43	AD44	AD44
		N.C.	—	—	AD53	AD54	AD54
	Auto drain pressure differential		AD61	AD62	—	—	—

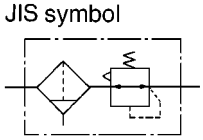
Note 1) □ in the part number for gauge (e.g. G36-10-□01) indicates threading. No symbol for Rc(PT) and "N" for NPT.
Note 2) A gauge for pressure 1.0MPa is used.
Note 3) Minimum operating pressure N.O.: 0.1MPa, N.C.: 0.15MPa
∗ "–01, –02, –03, –04, –06," after the part numbers indicates port size. (01: 1/8, 02: 1/4, 03: 3/8, 04: 1/2, 06: 3/4).
∗ Gauge for "AW1000-M5G-1" is "G27-10-R1" for the pressure at 1.0MPa.

Minimizes space and piping due to the integration of the filter and the regulator.

Direct operated, relieving style

Order Made P.1.8-6

JIS symbol



AW1000 to 4000

How to Order

AW | **30** | **00** – | | | **03** | **BG** – **2N**

Filter Regulator

Body size

10	M5
20	1/8
30	3/8
40	1/2

Thread

—	Metric (M5)
	Rc(PT)
N	NPT
F	G(PF)

Port size

M5	M5 X 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Accessory

Symbol		Description	Applicable model
—		—	—
B		Bracket	AW1000 to AW4000-06
C	Auto drain	Auto drain float style (N.C.)	AW3000 to AW4000-06
D	Auto drain	Auto drain pressure differential	AW1000/2000
	Auto drain	Auto drain float style (N.O.)	AW3000 to AW4000-06
G	Gauge	Without limit indicator	AW1000
	Gauge	With limit indicator	AW2000 to AW4000-06

Option

1(1)	Set at 0.02 to 0.2MPa
2	Metal bowl
6	Nylon bowl
8	Metal bowl with level gauge (AW3000/4000 only)
C	Bowl guard (AW2000 only)
J(2)	Drain guide (AW3000/4000 only)
N	Non relieving
R	Flow direction: Right to left
W	With drain cock and barb fittings (AW 3000/4000 only) (For nylon ø6, ø4)

∗If more than one symbol is required to be listed when ordering, list in the alphabetical order. (Ex. 2NR)

Note 1) Only regulating spring is different from the standard model.
Note 2) Without valve mechanism

Option Combinations

◎Combinable ▭Impossible ●Depends on the model

	Description	Symbol	Auto drain			Option									Applicable Filter Regulator			
			D	D	C	1	2	6	8	C	J	N	R	W	AW1000	AW2000	AW3000	AW4000
Accessory	Auto drain pressure differential style	D				◎	◎	◎		●		◎	◎		◎	◎		
	Auto drain float style (N.O.)	D				◎	◎	◎	◎			◎	◎				◎	◎
	Auto drain float style (N.C.)	C				◎	◎	◎	◎			◎	◎				◎	◎
Option	0.02 to 0.2MPa	–1	◎	◎	◎		◎	◎	●	●	●	◎	◎	●	◎	◎	◎	◎
	Metal bowl	–2	◎	◎	◎	◎					●	◎	◎		◎	◎	◎	◎
	Nylon bowl	–6	◎	◎	◎	◎				●	●	◎	◎	●	◎	◎	◎	◎
	Metal bowl with level gauge	–8		◎	◎	◎					◎	◎	◎				◎	◎
	With bowl guard	–C	◎			◎		◎				◎	◎			◎		
	Drain guide (Bore size: 1/4)	–J				◎	◎	◎	◎			◎	◎				◎	◎
	Non relieving	–N	◎	◎	◎	◎	◎	◎	●	●	●		◎	●	◎	◎	◎	◎
	Flow direction: Right to left	–R	◎	◎	◎	◎	◎	◎	●	●	●	◎		●	◎	◎	◎	◎
	One-touch drain cock with barb fittings	–W				◎		◎				◎	◎				◎	◎

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠Warning

①The residual secondary pressure cannot be released by releasing the supply pressure. To release the residual pressure, use a filter regulator designed for such use.

Installation and Adjustment

⚠Warning

①Set up the regulator while verifying the pressure that is indicated on the supply and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

①The pressure gauge that is provided with the product for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that pressure in excess of 0.2MPa is not applied.

③The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.

⚠Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock.
Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

1) On the AW1000 and AW2000 styles, pull the adjustment handle to release the lock and push the handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.

2) On the AW3000 and AW4000 styles, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

Maintenance Inspection

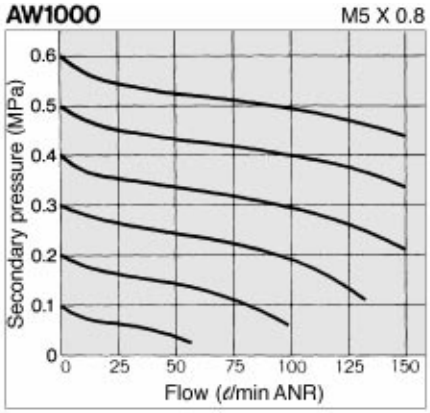
⚠Warning

①Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1MPa. Failure to observe this precaution could damage the filter element.

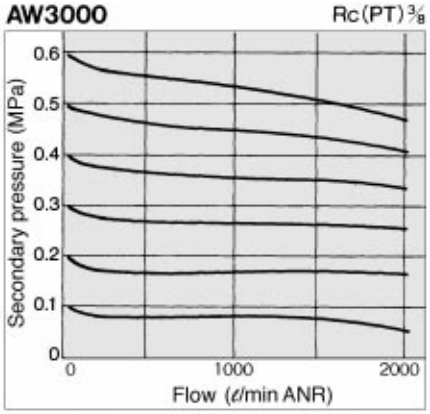
Flow Characteristics

Conditions: Supply pressure 0.7MPa

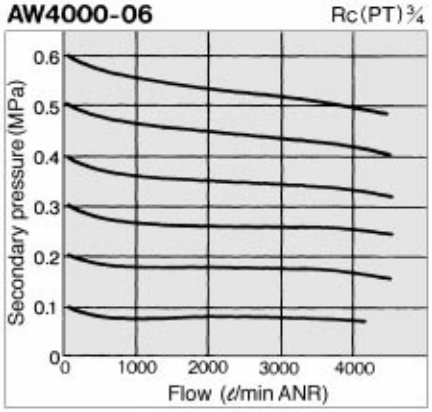
AW1000 M5 X 0.8



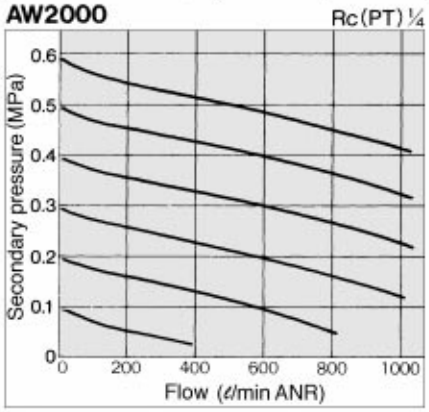
AW3000 Rc(PT) 3/8



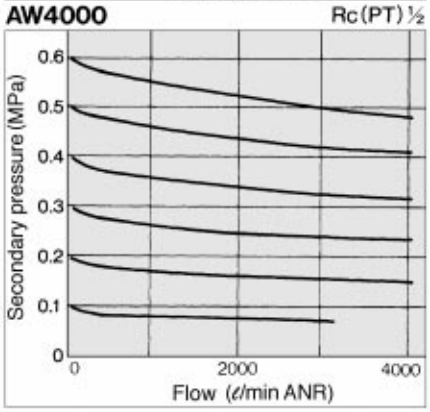
AW4000-06 Rc(PT) 3/4



AW2000 Rc(PT) 1/4



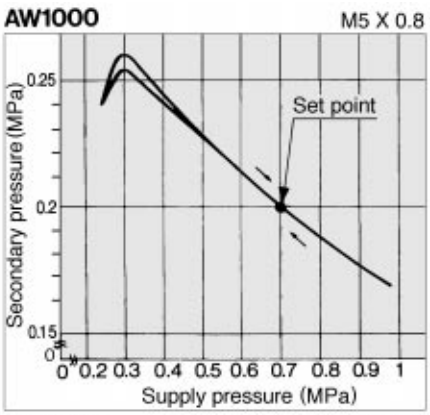
AW4000 Rc(PT) 1/2



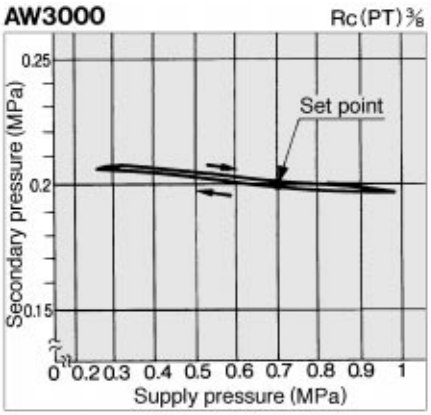
Pressure Chracteristics

Conditions: Supply pressure 0.7MPa, Secondary pressure 0.2MPa, Flow 20 ℓ/min (ANR)

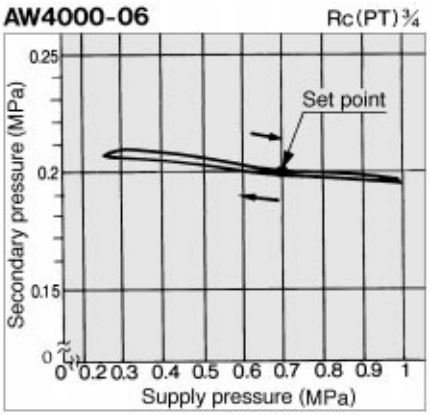
AW1000 M5 X 0.8



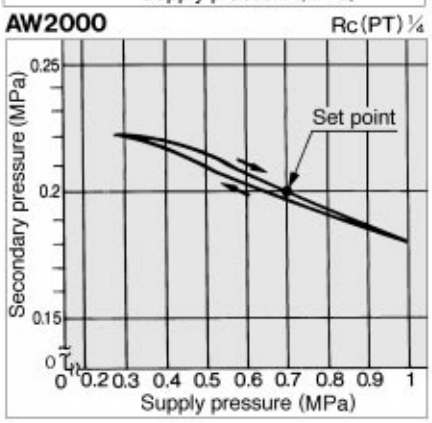
AW3000 Rc(PT) 3/8



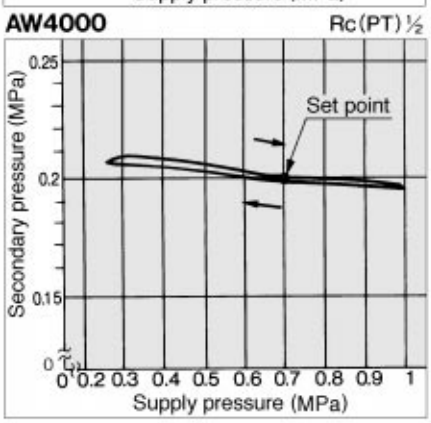
AW4000-06 Rc(PT) 3/4



AW2000 Rc(PT) 1/4



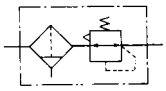
AW4000 Rc(PT) 1/2



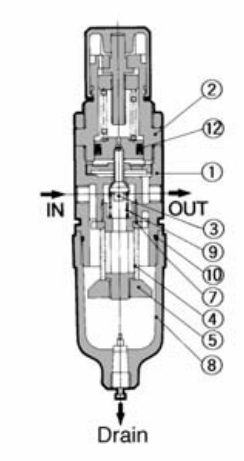
AW1000 to 4000

Construction

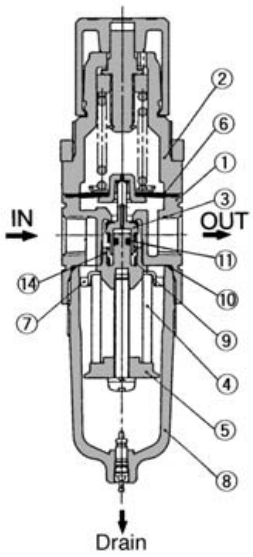
JIS symbol



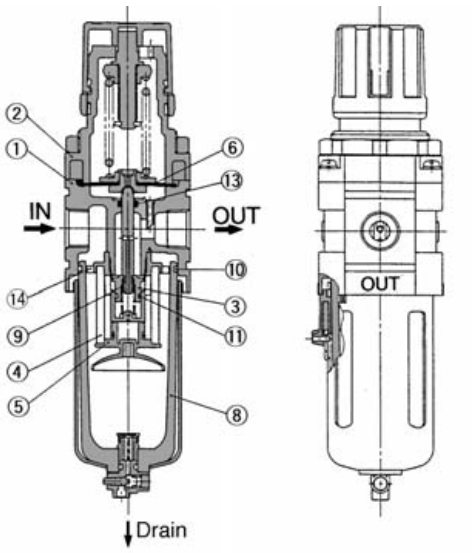
AW1000



AW2000



AW3000/4000



Component Parts

No.	Description	Material			Note
		AW1000, 2000	AW3000	AW4000, 4000-06	
①	Body	Zinc die cast	Aluminum die cast		Painted Silver
②	Bonnet	Polyacetal		Aluminum die cast	Painted Black

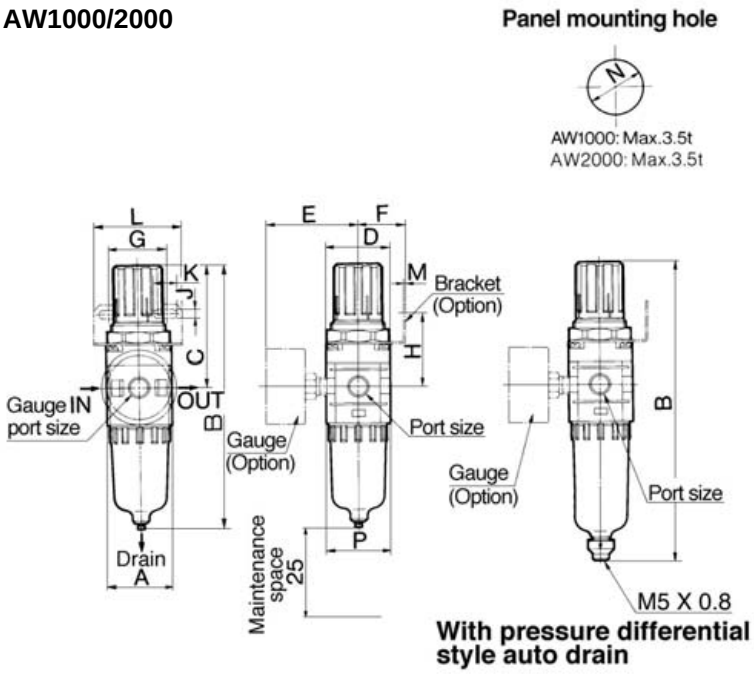
Replacement Parts

No.	Description	Material	Part No.				
			AW1000	AW2000	AW3000	AW4000	AW4000-06
③	Valve assembly	Brass, NBR	134819	1349160	1315216A	1316212A	1316213A
④	Element	Non-woven material	111344	1129116	111585	1116103	1116103
⑤	Baffle	Indicated in (parentheses).	111312 (POM)	11295 (PBT)	1315541 (POM)	1316276 (POM)	1316276 (POM)
⑥	Diaphragm assembly	NBR	——	131445A	1315215A	1316211A	1316211A
⑦	Deflector	PBT	11133A	1129111	——	——	——
⑧	Bowl assembly(1)	Poly-carbonate	C100F	C200F	C300F	C400F	C400F
⑨	Valve spring	Stainless steel	134824	1349158	131525	131625	131625
⑩	Bowl O ring	NBR	111325	11297	111512	111636	111636
⑪	Valve O ring	NBR	——	1349247	131544	131645	131645
⑫	Mini Y packing	NBR	MYN-10A	——	——	——	——
⑬	O ring	NBR	——	——	JIS B2401P5	JIS B2401P5	JIS B2401P5
⑭	Valve guide	Indicated in (parentheses).	——	134132 (ZDC)	1315540 (POM)	1316275 (POM)	1316275 (POM)

Note 1) Bowl guard (SPC) is attached to the bowl assembly of "AW3000" to "AW4000-06".

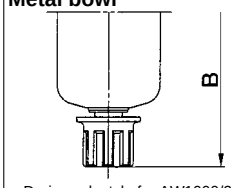
Dimensions CAD

AW1000/2000



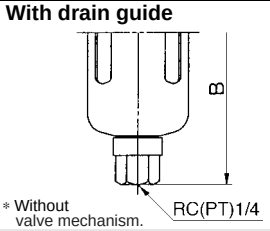
Options (AW3000/4000)

Metal bowl



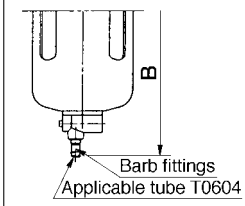
∗ Drain cock style for AW1000/2000 is same as the standard.

With drain guide

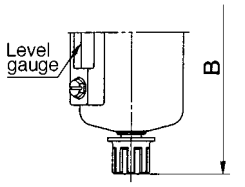


∗ Without valve mechanism.

With drain cock/barb fittings



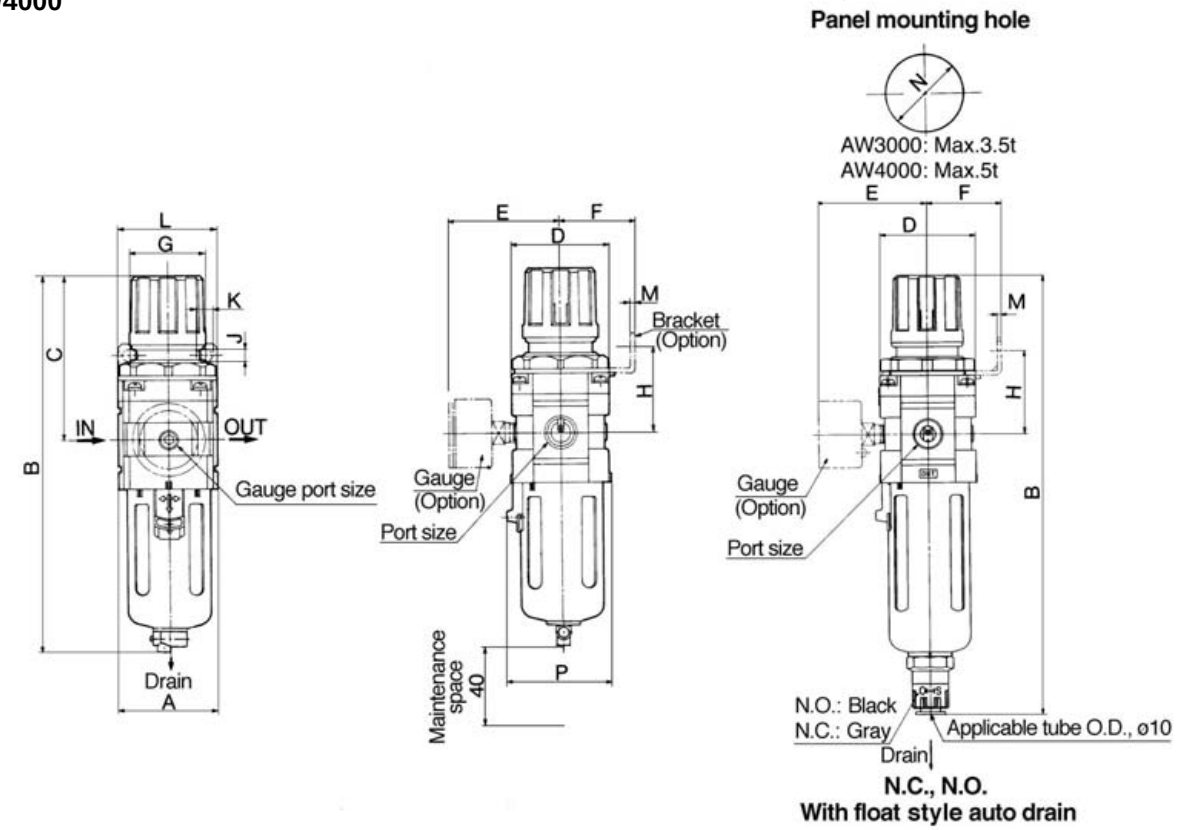
Metal bowl with level gauge



Model	With barb fittings	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AW1000	——	——	109.5	——
AW2000	——	——	164.5	——
AW3000	216	213.5	220.5	240.5
AW4000	267.5	265	272	292
AW4000-06	271.5	269.5	276.5	296.5

∗Dimensions except for B is the same as the shown on the left.

AW3000/4000



Model	Port size	A	B	C	D	E	Bracket mounting dimensions F	G	H	J	K	L	M	N	P	With auto drain Float B	Press. Diff. B
AW1000	M5 X 0.8	25	109.5	50.5	25	26	25	28	30	4.5	6.5	40	2.0	20.5	28	—	130
AW2000	1/8, 1/4	40	164.5	78	40	56.8	30	34	44	5.4	15.4	55	2.3	33.5	40	—	187.5
AW3000	1/4, 3/8	53	207.5	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	248.5	—
AW4000	1/4, 3/8, 1/2	70	259	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	300	—
AW4000-06	3/4	75	263	114	70	70.5	50	54	56	8.5	10.5	70	2.3	52.5	73	304	—

CAD
AW1000 —— SAC1000, #4
AW2000 —— SAC2000, #4
AW3000 —— SAC2503, #4
AW4000 —— SAC4000, #4
AW4000-06 —— SAC4006, #4

Made to Order Specifications

❶Special Temperature Environment

The seal, gasket, and bonnet materials have been changed to a special material to withstand varying environmental conditions such as those in cold climates or tropical regions.

Specification

Part no. for made to order		–X430	–X440
Environment		Low temperatures	High temperatures
Ambient temperature °C		–30 to 60	–5 to 80
Fluid temperature °C		–5 to 60 (No freezing)	–5 to 60 (No freezing)
Material	Rubber part	Special NBR	FKM
	Main part	Metal (ADC, etc.)	Metal (ADC, etc.)

Applicable model

Model	AW3000	AW4000	AW4000-06
Port size	1/4 3/8	1/4 3/8 1/2	3/4

How to Order

AW **30** 00 — **□** **03** **BG3** — **X430**

Body size

30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

02	1/4
03	3/8
04	1/2
06	3/4

Accessory

—	None
B	With bracket
G3	With gauge (G43 is used)

For environment at low/high temperatures

X430	Low temp.
X440	High temp.

❷External Parts Metal

For environmental conditions in which plastic materials cannot be used, the external parts have been changed to metal materials.

Applicable model

Model	AW2000	AW3000	AW4000	AW4000-06
Port size	1/8 3/4	1/4 3/8	1/4 3/8 1/2	3/4

How to Order

AW **30** 00 — **□** **03** **BG3** — **X470**

Body size

20	1/8
30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Accessory

—	None
B	With bracket
G3	With gauge (G43 is used)

External metallic part

Filter Regulator with Residual Pressure Exhaust Mechanism

Series AW3050/4050

AW3050

AW3050-□□BG

Standared Specifications

Model		AW3050	AW4050	AW4050-06
Port size		1/4, 3/8	1/4, 3/8, 1/2	3/4
Fluid		Air		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Set pressure range		0.05 to 0.85MPa		
Gauge port size		1/8	1/4	1/4
Ambient and fluid temperature		–5 to 60°C(No freezing)		
Filtration		5μm		
Drain capacity (cm^3)		23	45	45
Bowl material		Polycarbonate resin		
Construction		Relieving style		
Weight		0.56	1.15	1.21
Accessory (Std. equipment)	Bowl guard	●	●	●

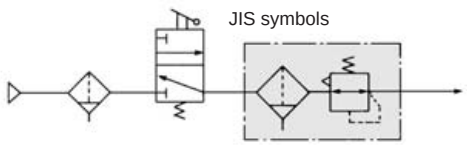
Accessory (Option)/Part No.

Description		Part No.		
		AW3050	AW4050	AW4050-06
Bracket		B320	B420	B420
Gauge(1)	1.0MPa	G36-10-□01	G46-10-□02	G46-10-□02
	0.2MPa	G36-2-□01	G46-2-□02	G46-2-□02
Float style(2) auto drain	N.O.	AD43	AD44	AD44
	N.C.	AD53	AD54	AD54

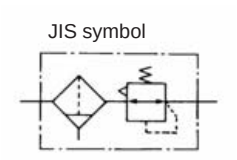
Note 1)· □ in the gauge part number (e.g. G36-10-□01) indicates connecting threading. No symbol for "Rc(PT)" and "N" for "NPT".
· Consult SMC for "NPT" gauge.
Note 2) Min. operating pressure N.O.: 0.1MPa, N.C.: 0.15MPa

Circuit

When air supply is stopped and the supplied air is released, the residual pressure of the air on the secondary side can be released without fail for safety.



Filter regulator
with residual pressure
exhaust mechanism



How to Order

AW 30 50 – □ 03 BG – 2N

Filter Regulator

Body size

30	3/8
40	1/2

Thread

–	Rc(PT)
N	NPT
F	G(PF)

Port size

02	1/4
03	3/8
04	1/2
06	3/4

Accessory

Symbol		Description
–		—
B		Bracket
C	Auto drain	Float style auto drain (N.C.)
D		Float style auto drain (N.O.)
G	Gauge	With limit indicator

Option

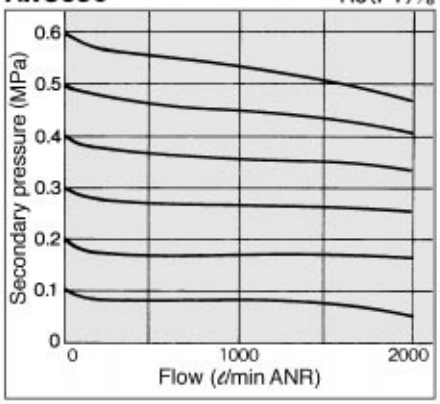
1 (1)	Set at 0.02 to 0.2MPa
2	Metal bowl
6	Nylon bowl
8	Metal bowl with level gauge
J (2)	Drain guide
N	Non relieving style
R	Flow direction: Right to left
W	With drain cock and barb fittings (For nylon ø6/ø4)

Note 1) Only adjusting spring is different from standard.
Note 2) Without valve mechanism.
*Specify the symbols alphanumerically.
Ex.) 2NR.

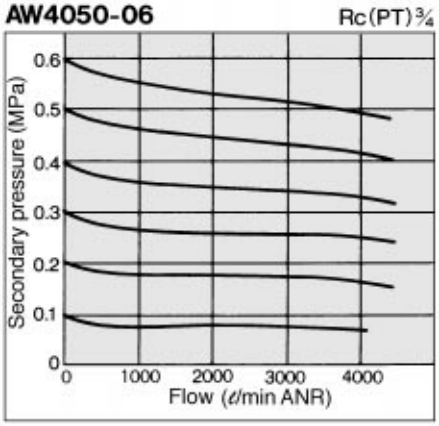
Flow characteristics

Condition: Supply pressure 0.7MPa

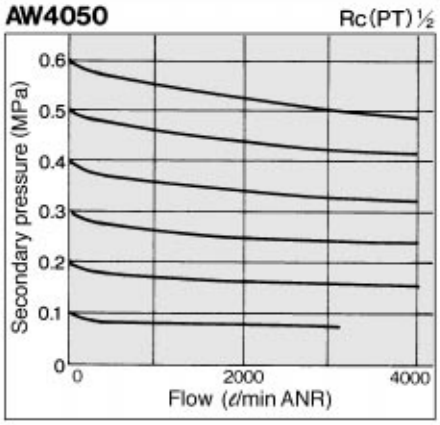
AW3050 Rc(PT)3/8



AW4050-06 Rc(PT)3/4



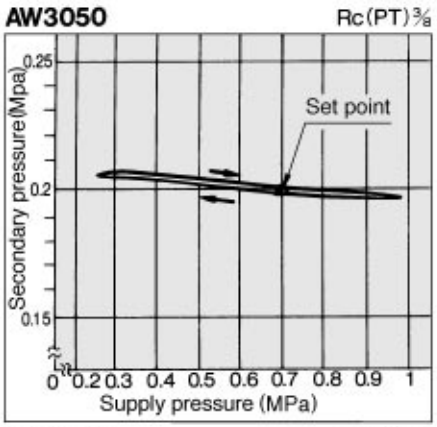
AW4050 Rc(PT)1/2



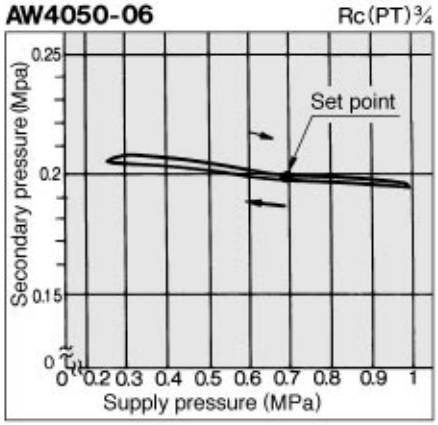
Pressure characteristics

Condition: Supply pressure 0.7MPa, Secondary pressure 0.2MPa, Flow 20 ℓ/min(ANR)

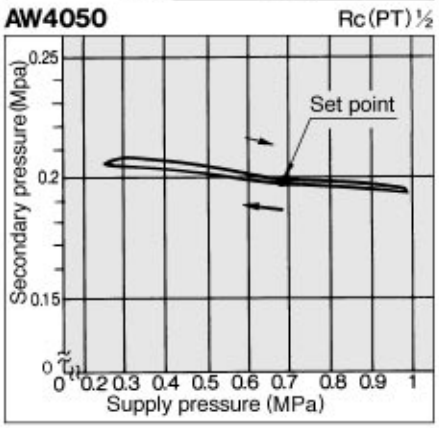
AW3050 Rc(PT)3/8



AW4050-06 Rc(PT)3/4



AW4050 Rc(PT)1/2



⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Installation and Adjustment

⚠ Warning

① The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.
② Set up the regulator while verifying the pressure that is indicated on the supply and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.
③ The pressure gauge that is provided with the product for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that a pressure that exceeds 0.2MPa is not applied to it.

⚠ Caution

① Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.
1) Pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

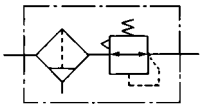
Maintenance Inspection

⚠ Warning

① Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1 MPa. Failure to observe this precaution could damage the filter element.

Operation principles of residual pressure exhaust mechanism/Construction

JIS symbol



AW3050/4050

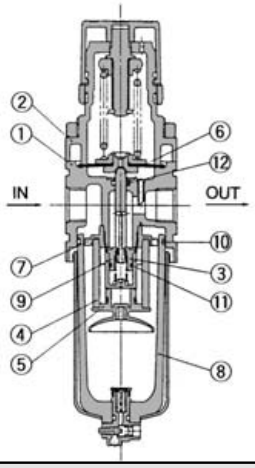
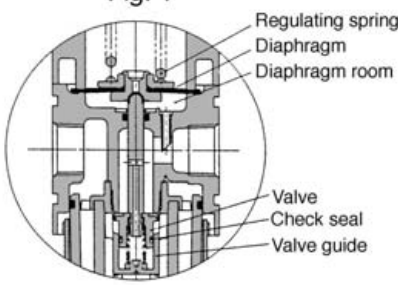


Fig. 1



Component Parts

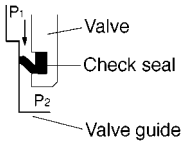
No.	Description	Material			Note
		AW3050	AW4050	AW4050-06	
①	Body	Aluminum die cast			Painted Silver
②	Bonnet	Polyacetal	Aluminum die cast		Painted Black (AW4050)

Replacement Parts

No.	Description	Material	Part No.		
			AW3050	AW4050	AW4050-06
③	Valve assembly	Brass/NBR	1315217A	1316216A	1316217A
④	Element	Non-weaved cloth	111585	1116103	1116103
⑤	Baffle	POM	1315541	1316276	1316276
⑥	Diaphragm assembly	NBR	1315215A	1316211A	1316211A
⑦	Valve guide	POM	1315540	1316275	1316275
⑧	Bowl assembly (1)	Polycarbonate	C300F	C400F	C400F
⑨	Valve spring	Stainless steel	131525	1316173	1316173
⑩	Bowl O ring	NBR	111512	111636	111636
⑪	Check seal	NBR	131591	131695	131695
⑫	O ring	NBR	JIS B2401P5	JIS B2401P5	JIS B2401P5

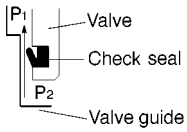
Note 1) A bowl guard (SPC) is equipped to the bowl assembly.

Fig. 2



When pressure is supplied

Fig. 3

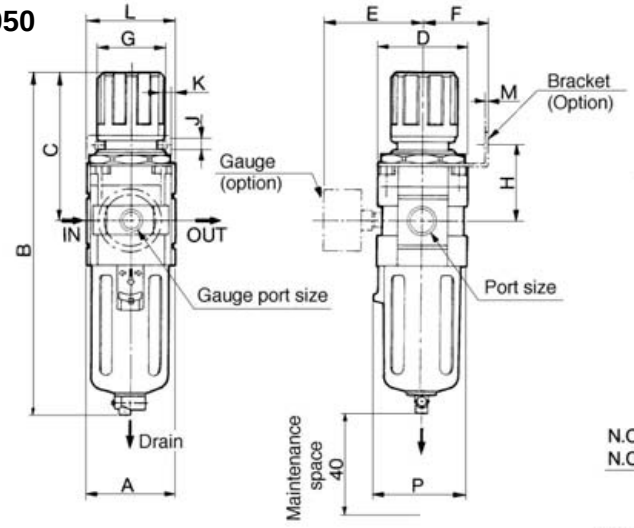


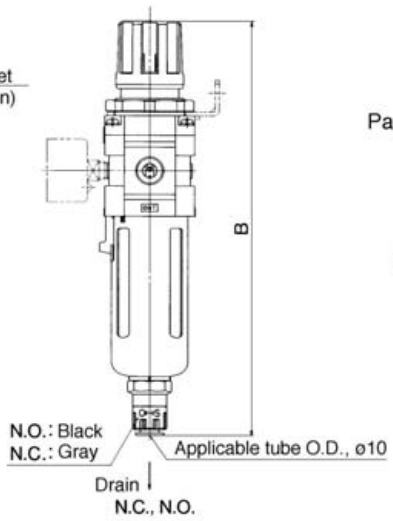
When supply pressure is stopped and air released

When the supply pressure is higher than the set pressure, the check seal expands sideways, thus sealing with the valve guide and operating as a normal pressure reducing valve (Fig. 2). At this time, the secondary pressure is introduced to the lower valve chamber through the small hole in the stem. When the supply pressure is shut off and discharged, the check seal opens, allowing the pressure from the lower valve chamber to discharge to the supply side (Fig. 3). At this time, because the check seal portion of the passage area is greater than the small hole in the stem, a pressure difference is created between the upper and lower portions of the valve, which causes the valve to open. As the valve opens and the secondary pressure drops, the pressure in the diaphragm chamber also drops, enabling the force of the pressure adjustment spring to push the diaphragm down. As a result, the valve opens fully, allowing the secondary pressure to be discharged rapidly to the supply side.

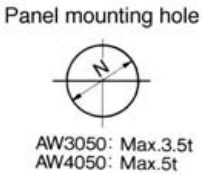
Dimensions CAD

AW3050/4050





With float style auto drain



Model	Port size	A	B	C	D	E	Bracket mounting dimensions							N	P	With auto drain Float style B
							F	G	H	J	K	L	M			
AW3050	1/4, 3/8	53	207.5	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	248.5
AW4050	1/4, 3/8, 1/2	70	259	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	300
AW4050-06	3/4	75	263	114	70	70.5	50	54	56	8.5	10.5	70	2.3	52.5	73	304

CAD
AW3050 ——— SAC2503, #4
AW4050 ——— SAC4000, #4
AW4050-06 ——— SAC4006, #4

∗ The total length (B dimension) is different for options (with barb fitting, with drain guide, metal bowl, with level gauge). Refer to p.1.8-5.

Mist Separator Regulator

AWM2000 to 4000

Integrating a pressure regulator and a mist separator, the AWM series is suitable for air blower applications that require clean air.

Filtration: 0.3μm

AWM2000

AWM4000

AWM2000-□□BG

AWM3000-□□BG

Standard Specifications

Model		AWM2000	AWM3000	AWM4000
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Set pressure range		0.05 to 0.85MPa		
Gauge port size		1/8	1/8	1/4
Ambient and fluid temperature		–5 to 60°C (No freezing)		
Filtration		0.3μm (95% particles size collection)		
Oil mist density on the secondary side		Max. 1.0mgf/Nm³ (≒0.8ppm)(1), (2)		
Expected life span of element		2 years		
Rated flow (3) ℓ/min (ANR)		150	330	820
Bowl material		Polycarbonate		
Drain capacity (cm³)		8	23	45
Construction		Relieving style		
Weight (kg)		0.44	0.59	1.25
Accessory (Standard equipment)	Bowl guard	—	●	●

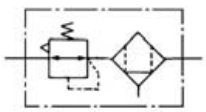
Note 1) At the compressed air density of 30mgf/Nm³
Note 2) A little amount of grease is used for bowl O ring and other O rings.
Note 3) Secondary pressure at 0.5MPa (Rated flow is different depending on the setting pressure.)
If larger amount of air than the rated flow is supplied, the oil flows into the secondary side.

Accessory (Option)/Part No.

Description		Model	Part No. AWM2000	AWM3000	AWM4000
Accessory	Bracket		B220	B320	B420
	Gauge (4)	1.0MPa	G36-10-□01	G36-10-□01	G46-10-□02
		0.2MPa	G36-2-□01	G36-2-□01	G46-2-□02
	Auto drain float style (5)	N.O.	—	AD43	AD44
		N.C.	—	AD53	AD54
	Auto drain pressure differential style		AD62	—	—

Note 4) □in the part number for gauge indicates thread types. Use no symbols for Rc(PT) and "N" for NPT. Consult SMC concerning supplement of NPT gauge.
Note 5) Minimum operating pressure N.O.: 0.1MPa, N.C.: 0.15MPa

Symbol



How to Order

AWM | **30** | **00** — | | — | **03** | **BG** — | **6W**

Mist separator Regulator

Body size

20	1/8
30	3/8
40	1/2

Thread

—	Rc(PT)
N	NPT
F	G(PF)

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Accessory

Symbol		Description	Applicable model
—		—	—
B		Bracket	AWM2000 to 4000
C	Auto drain	Auto drain float style (N.C.)	AWM3000/4000
D	Auto drain	Auto drain pressure differential style	AWM2000
	Auto drain	Auto drain float style (N.O.)	AWM3000/4000
G	Gauge	With limit indicator	AWM2000 to 4000

Option

1(1)	At 0.05 to 0.2MPa
2	Metal bowl
6	Nylon bowl
8	Metal bowl with level gauge (AWM3000/4000)
C	Bowl guard (AW2000 only)
J(2)	Drain guide (AWM3000/4000 only)
N	Non relieving style
R	Flow direction: right to left
W	With drain cock and barb fittings (AWM3000/4000 only, For nylon ø6/ø4)

• If more than one symbol is required for ordering, list in the alphabetical order.

Note 1) Only regulating spring is different form the standard.

Note 2) Without valve mechanism.

Option Combinations

◎ Available ▒ Not available ● Depends on the model

Description		Symbol	Auto drain			Option									Applicable model		
			D	D	C	1	2	6	8	C	J	N	R	W	AWM2000	AWM3000	AWM4000
Accessory	Auto drain pressure differential style	D	▒	▒	▒	▒	◎	◎	▒	●	▒	◎	◎	▒	◎	▒	▒
	Auto drain float style (N.O.)	D	▒	▒	▒	▒	◎	◎	●	▒	▒	◎	◎	▒	▒	◎	◎
	Auto drain float style (N.C.)	C	▒	▒	▒	▒	◎	◎	●	▒	▒	◎	◎	▒	▒	◎	◎
Option	0.05 to 0.2MPa	–1	▒	▒	▒	▒	◎	◎	●	●	●	◎	◎	●	◎	◎	◎
	Metal bowl	–2	◎	◎	◎	◎	▒	▒	▒	▒	●	◎	◎	▒	◎	◎	◎
	Nylon bowl	–6	◎	◎	◎	◎	▒	▒	▒	●	●	◎	◎	●	◎	◎	◎
	Metal bowl with level gauge	–8	▒	◎	◎	◎	▒	▒	▒	▒	●	◎	◎	▒	▒	◎	◎
	With bowl guard	–C	◎	▒	▒	◎	▒	◎	▒	▒	▒	◎	◎	▒	◎	▒	▒
	Drain guide (Bore size: 1/4)	–J	▒	▒	▒	◎	◎	◎	●	▒	▒	◎	◎	▒	▒	◎	◎
	Non relieving style	–N	◎	◎	◎	◎	◎	◎	●	●	●	▒	◎	●	◎	◎	◎
	Flow direction: right to left	–R	◎	◎	◎	◎	◎	◎	●	●	●	◎	▒	●	◎	◎	◎
	One-touch drain cock with barb fittings	–W	▒	▒	▒	◎	▒	◎	▒	▒	▒	◎	◎	▒	▒	◎	◎

⚠Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠ Warning

① The residual secondary pressure cannot be released by releasing the supply pressure. To release the residual pressure, contact SMC.

Air Source

⚠ Caution

① To prevent premature clogging, install an air filter (Series AF), which serves as a prefilter, on the supply side of the mist separator/regulator.

Installation and Adjustment

⚠ Warning

① The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.

② Set up the regulator while verifying the pressure that is indicated on the supply and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

③ The pressure gauge that is provided with the product for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that a pressure that exceeds 0.2MPa is not applied to it.

⚠ Caution

① Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

1) On the AWM2000 types, pull the adjustment handle to release the lock and push the handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.

2) On the AWM3000 and AWM4000 types, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it dose not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

Maintenance Inspection

⚠ Warning

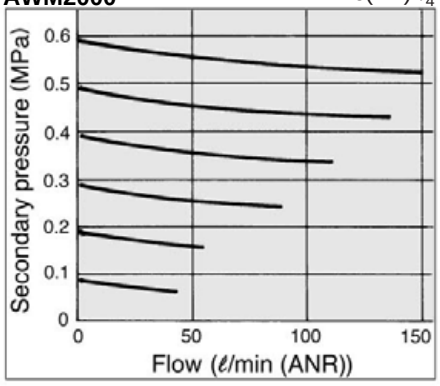
① Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1 MPa. Failure to observe this precaution could damage the filter element.

AWM2000 to 4000

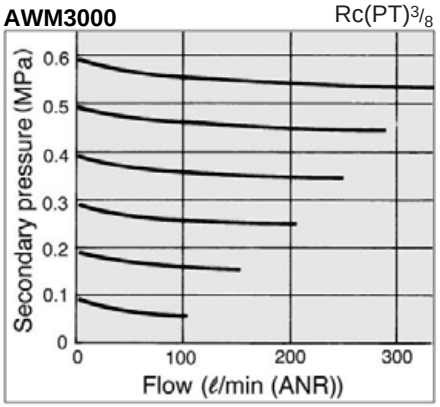
Flow characteristics

Conditions: Supply pressure 0.7MPa

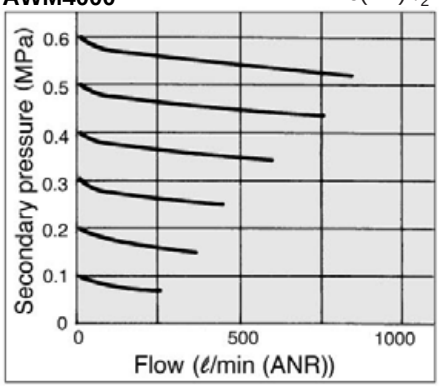
AWM2000 Rc(PT)1/4



AWM3000 Rc(PT)3/8



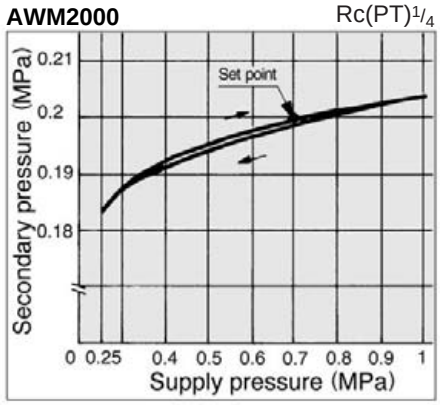
AWM4000 Rc(PT)1/2



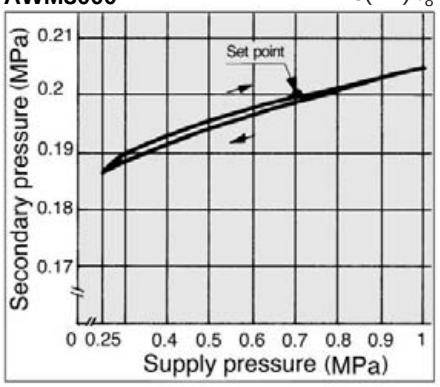
Pressure characteristics

Conditions: Supply pressure 0.7MPa, Secondary pressure 0.2MPa, Flow 20ℓ/min (ANR)

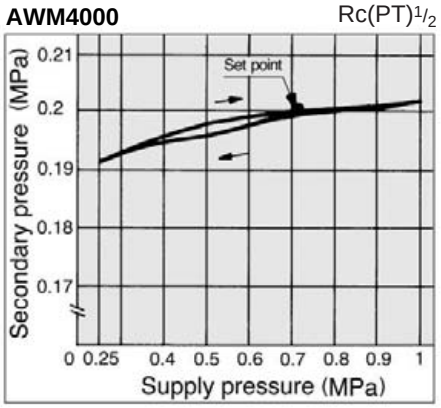
AWM2000 Rc(PT)1/4



AWM3000 Rc(PT)3/8

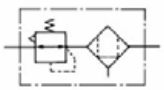


AWM4000 Rc(PT)1/2

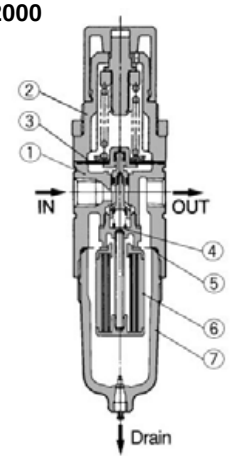


Construction

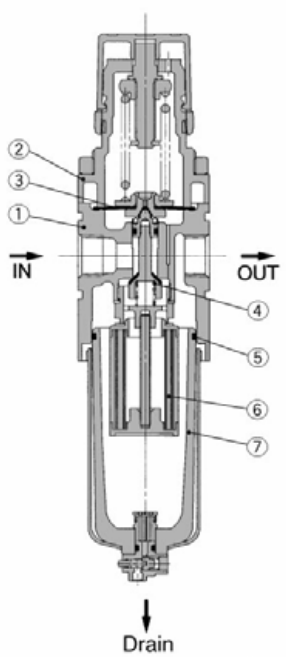
JIS symbol



AWM2000



AWM3000/4000



Component parts

No.	Description	Material			Notes
		AWM2000	AWM3000	AWM4000	
①	Body	Zinc die cast	Aluminum die cast		Painted Silver
②	Bonnet	Polyacetal		Aluminum die cast	Painted Black

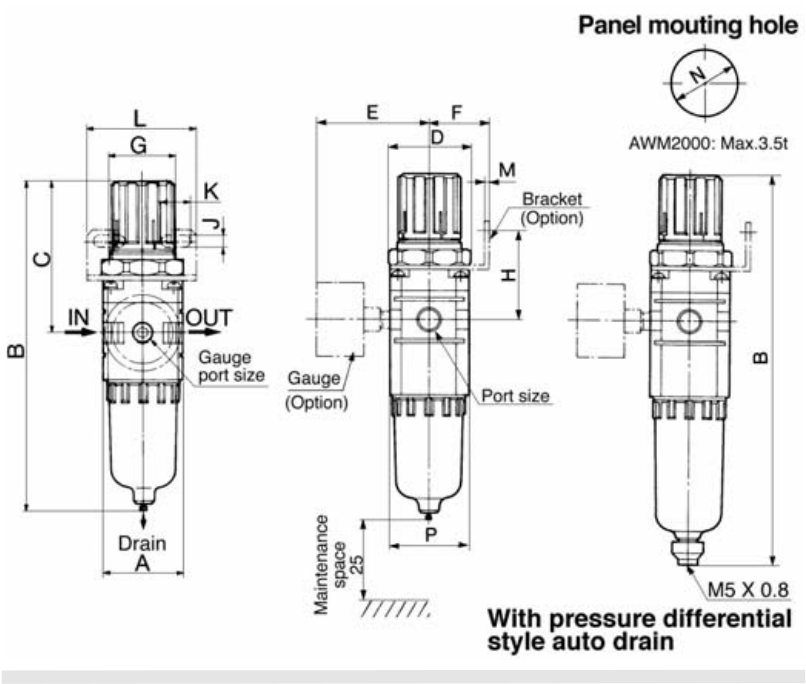
Replacement parts

No.	Description	Material	Part No.		
			AWM2000	AWM3000	AWM4000
③	Diaphragm assembly	NBR	1349161A	131515A	131614A
④	Valve spring	Stainless steel	1314246	131565	131665
⑤	Bowl O ring	NBR	11297	111512	111636
⑥	Element assembly	—	630611	630617	630623
⑦	Bowl assembly (1)	Polycarbonate	C200F	C300F	C400F

Note 1) Bowl guard (SPC) is attached to the bowl assembly of "AWM3000" and "AWM4000".

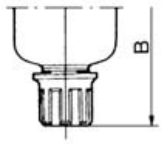
Dimensions CAD

AWM2000



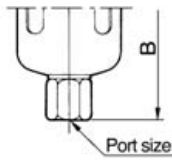
Option (AWM 3000/4000)

Metal bowl



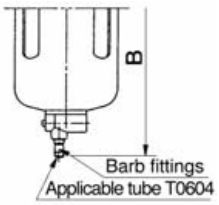
*Drain cock style for AWM2000 is same as the standard.

With drain guide

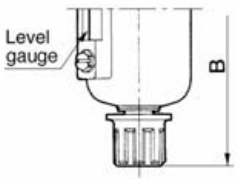


*Without valve mechanism.

With drain cock/Barb fittings

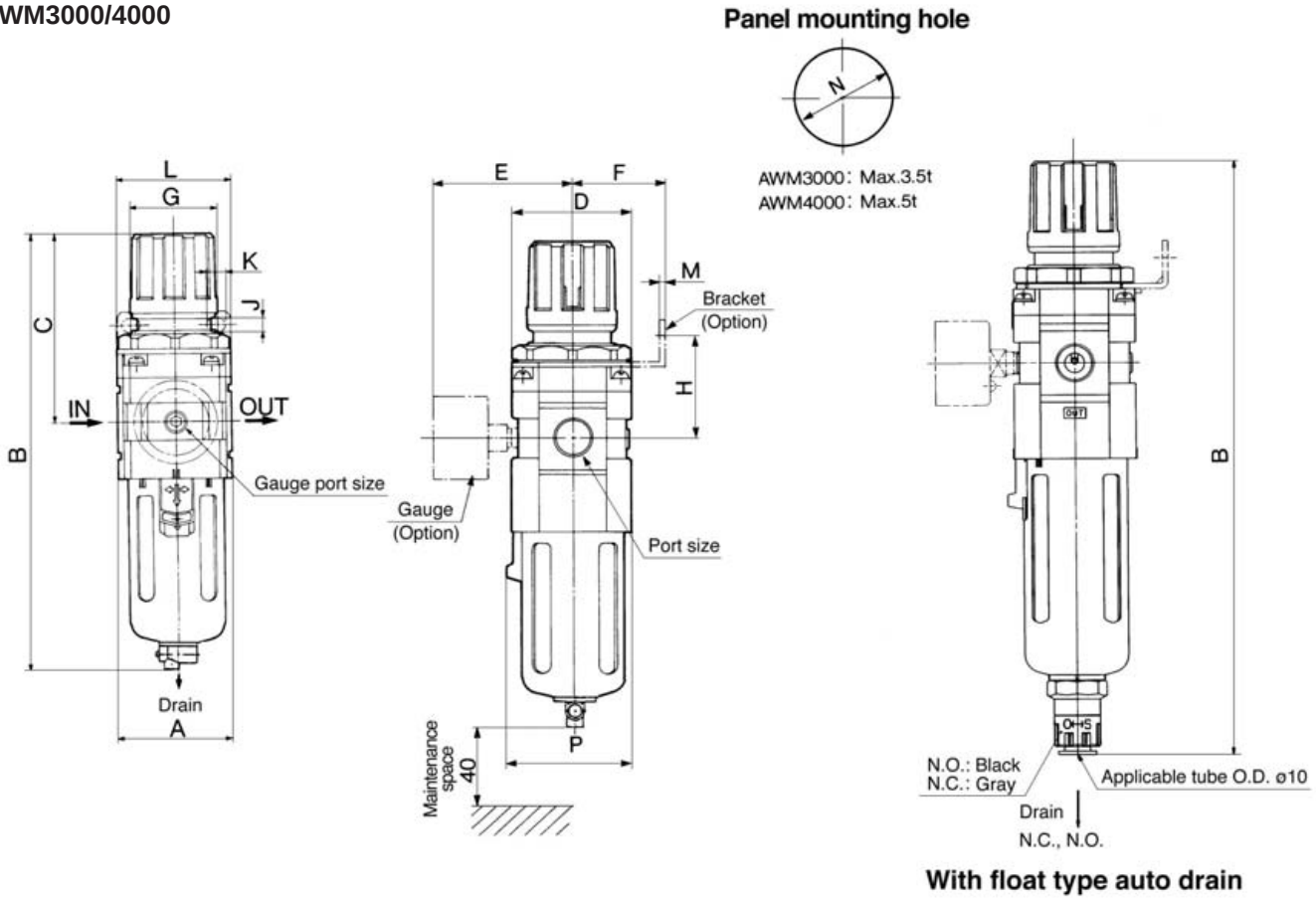


Metal bowl with level gauge



Model	With barb fittings	With drain guide	Metal bowl	Metal bowl with level gage
	B	B	B	B
AWM2000	—	—	179.5	—
AWM3000	231	228.5	235.5	255.5
AWM4000	282.5	280	287	307

AWM3000/4000



Model	Port size	A	B	C	D	E	Bracket mounting dimensions							N	P	With auto drain	
							F	G	H	J	K	L	M			Float	Press. Diff.
																B	B
AWM2000	1/8, 1/4	40	179.5	78	43	56.8	30	34	44	5.4	15.4	55	2.3	33.5	40	—	201.5
AWM3000	1/4, 3/8	53	222.5	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	263.5	—
AWM4000	1/4, 3/8, 1/2	70	274	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	315	—

CAD AWM2000 ———— SAC2000, #4
AWM3000 ———— SAC2503, #4
AWM4000 ———— SAC4000, #4

Series ITV2000/3000
Made to Order Specifications

Contact SMC regarding detailed dimensions, specifications and delivery times.

Order Made

1 Ozone Resistant Specifications

Fluoro rubber is used for the rubber parts of seals.

80 — Standard part number

● **Ozone resistant specifications**

2 Manifold Specifications (Except Series ITV3000)

2 through 8 station manifold.

How to Order Manifolds

IITV20 — □ 02 — 5

● **Valve stations**

2	2 stations
⋮	⋮
8	8 stations

● **OUT port size**

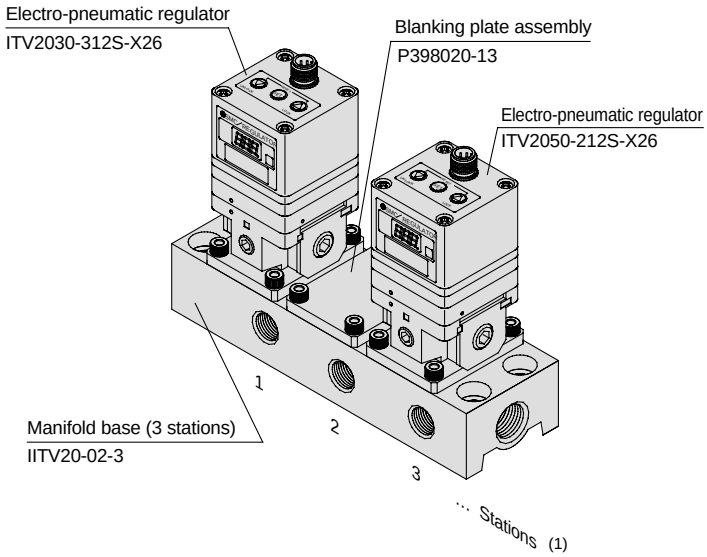
02	1/4
03	3/8

● **Connection thread type**

–	PT
N	NPT
F	PF

How to Order Manifold Assemblies

Example



IITV20-02-3..... 1set (3 station manifold base part no.)
*ITV2030-312S-X26 .....1set (Electro-pneumatic regulator part no.) (2)
*P398020-13 .....1set (Blanking plate assembly part no.)
*ITV2050-212S-X26 .....1set (Electro-pneumatic regulator part no.) (2)

The * is the symbol for mounting. Add the * symbol at the beginning of part numbers for electro-pneumatic regulators, etc. to be mounted on the base.

Note 1) Electro-pneumatic regulators are counted starting from station 1 on the left side with the OUT ports in front.

Note 2) The port size for mounted electro-pneumatic regulators is Rc(PT)1/4 only.

Note 3) When there is a large number of stations, use piping with the largest possible inside diameter for the supply side, such as steel piping.

Note 4) The use of the straight type cable connector is recommended.

Booster Regulator
VBA1110 to 4200

Specifications

Pressure increase ratio	**VBA1110 VBA2□00 VBA4□00**	MAX. 2
	VBA1111	MAX. 4
Fluid		Compressed air
Proof pressure	**VBA1110 VBA1111**	3.0MPa
	VBA2□00 VBA4□00	1.5MPa
Max. supply pressure		1.0MPa
Set pressure range	**VBA1110 VBA1111**	0.2 to 2.0MPa
	VBA2□00 VBA4□00	0.2 to 1.0MPa
Ambient and fluid temperature		2 to 50°C (No condensation)
Lubrication		Not required
Installation		Horizontal
Pressure adjustable mechanism		Relieving style

VBA1110-02

VBA1111-02

VBA4100-04

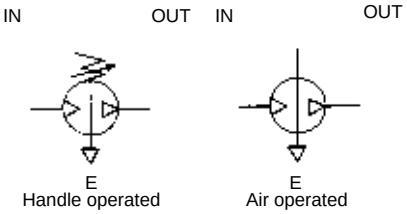
VBA2100-03

Handle operated style

VBA4200-04

VBA2200-03

Air operated style



Model

Model	Handle operated style				Air operated style	
	VBA1110-02	**VBA1111-02**	**VBA2100-03**	**VBA4100-04**	**VBA2200-03**	**VBA4200-04**
Max. flow(1) ℓ/min (ANR)	400	60	1000	1900	1000	1900
Connecting port size Rc (PT)	1/4 (IN/OUT)		3/8 (IN/OUT)	1/2 (IN/OUT)	3/8 (IN/OUT)	1/2(IN/OUT)
Exhaust port size Rc (PT)	1/4		3/8	1/2	3/8	1/2
Pilot port size Rc (PT)	—				1/8	
Pilot pressure range	—				0.1 to 0.5MPa	
Weight (kg)	0.85	0.98	3.8	7.5	3.8	7.5

Note) Flow conditions VBA1110: IN=OUT=1.0MPa, VBA1111, VBA2$\frac{2}{1}$00, 4$\frac{2}{1}$00: IN=OUT=0.5MPa
Refer to the flow characteristics table for selection.

Accessory (Option)/Part Numbers

Description \ Model	Part No.				
	For VBA1110-1111	**For VBA2100**	**For VBA4100**	**For VBA2200**	**For VBA4200**
Gauge	G27-20-R1···2pcs.	G27-10-R1-X209···2pcs.	G46-10-01···2pcs.	G27-10-R1-X209···2pcs.	G46-10-01···2pcs.
Silencer	AN200-02	AN300-03	AN400-04	AN300-03	AN400-04

How to Order

Pressure
1	2.0MPa

Pressure setting
1	Handle operated

Body size
1	1/4

Pressure increase ratio
0	Twice
1	4 times

Port size
Symbol	Port size
02	Rc(PT)1/4

VBA1000 **VBA 1 1 1 0 – 02 GN**

VBA2000/4000 **VBA 2 1 0 0 – 03 GN**

Body size
2	3/8
4	1/2

Pressure setting
1	Handle operated
2	Air operated

Pressure
0	1.0MPa

Option
G	Gauge
N	Silencer

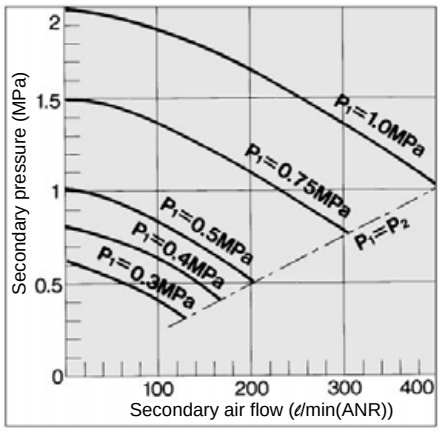
Port size
Symbol	Port size	Applicable series
03	Rc(PT)3/8	VBA2100, 2200
04	Rc(PT)1/2	VBA4100, 4200

Related Products

Description \ Model	**VBA1110/1111**	**VBA2100/2200**	**VBA4100/4200**	Notes
Mist separator	AM250-02	AM450-04/06	AM550-06/10	P.4.6-1
Exhaust cleaner	AMC310-03	AMC510-06	AMC610-10	35dB or more of noise reduction
Air tank	VBAT05 (5ℓ, Directly connected to booster regulator)	VBAT20 (20ℓ, Directly connected to booster regulator) VBAT38 (38ℓ, Directly connected to booster regulator)	——	——
	VBAT10(10ℓ, Directly connected to booster regulator)		——	

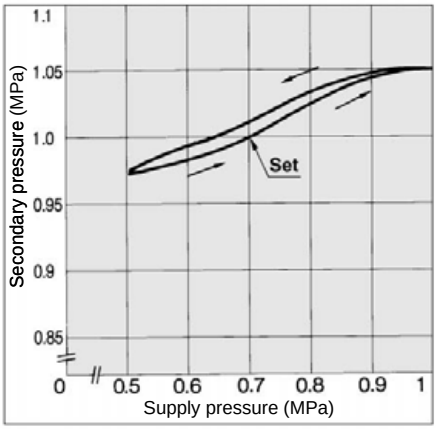
VBA1110

Flow characteristics

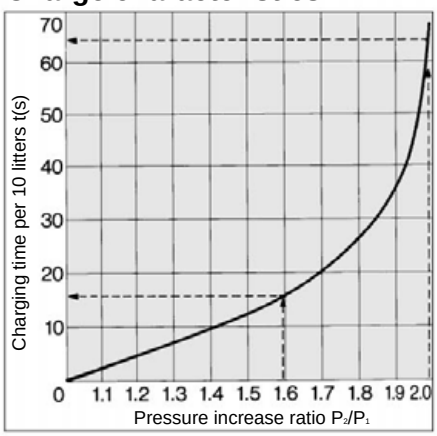


Conditions: Supply press. 0.7MPa
Secondary press. 1.0MPa
Flow: 20ℓ/min(ANR)

Pressure characteristics



Charge characteristics



VBA1110

●The required time to increase tank pressure from 0.8MPa to 1.0MPa at 0.5MPa supply pressure is calculated as follows.

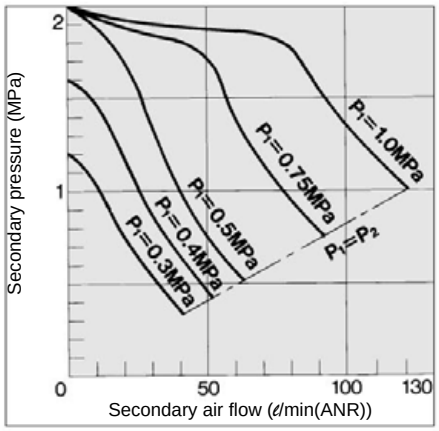
$\frac{P_2}{P_1} = \frac{0.8}{0.5} = 1.6$ $\frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$

With the pressure increase ratio from 1.6 to 2.0, the time of 65–16=49 sec.(t) is given for 10ℓ tank by the graph. Then, the charging time (T) for a 100ℓ tank,

$T = t \times \frac{V}{10} = 49 \times \frac{10}{10} = 49(s)$.

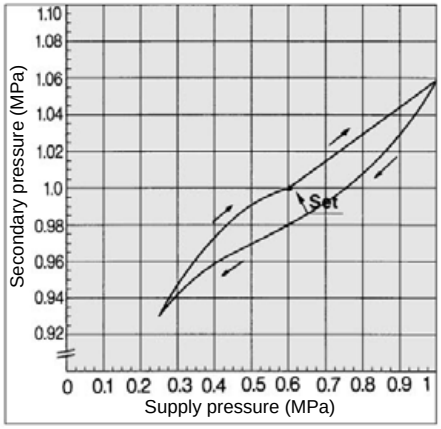
VBA1111

Flow characteristics

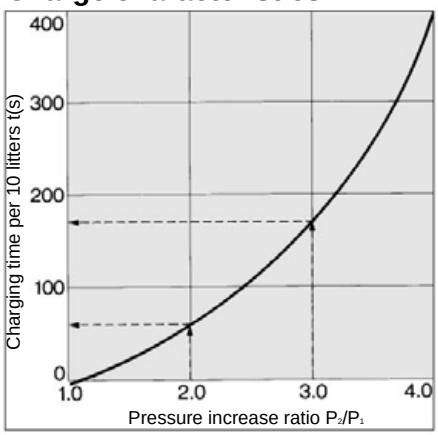


Conditions: Supply press. 0.6MPa
Secondary press. 1.0MPa
Flow: 10ℓ/min(ANR)

Pressure characteristics



Charge characteristics



VBA1111

●The required time to increase tank pressure from 1.0MPa to 1.5MPa at 0.5MPa supply pressure is calculated as follows.

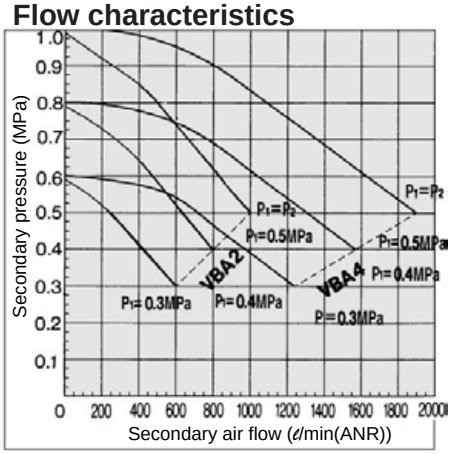
$\frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$ $\frac{P_2}{P_1} = \frac{1.5}{0.5} = 3.0$

With the pressure increase ratio from 2 to 3, the time of 170–60=110 sec.(t) is given for 10ℓ tank by the graph. Then, the charging time (T) for a 100ℓ tank,

$T = t \times \frac{V}{10} = 110 \times \frac{10}{10} = 110(s)$.

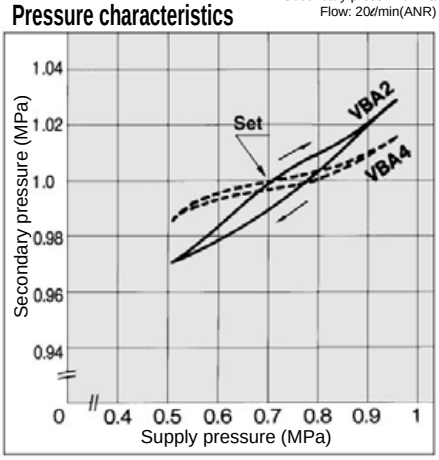
VBA2□00/4□00

Flow characteristics

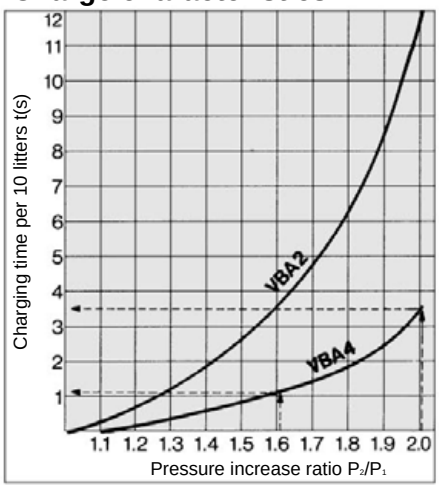


Conditions: Supply press. 0.7MPa
Secondary press. 1.0MPa
Flow: 20ℓ/min(ANR)

Pressure characteristics



Charge characteristics



VBA4

●The required time to increase tank pressure from 0.8MPa to 1.0MPa at 0.5MPa supply pressure is calculated as follows

$\frac{P_2}{P_1} = \frac{0.8}{0.5} = 1.6$ $\frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$

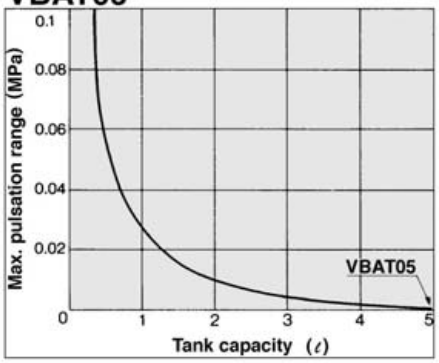
With the pressure increase ratio from 1.6 to 2.0, the time of 3.5–1.1=2.4 sec.(t) is given for 10ℓ tank by the graph. Then, the charging time (T) for a 100ℓ tank,

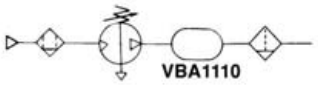
$T = t \times \frac{V}{10} = 12.4 \times \frac{100}{10} = 24(s)$.

Pulsation is decreased by using tank.

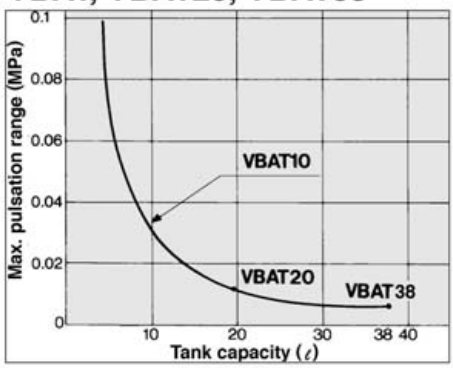
If secondary capacity is undersized, pulsation may occur.

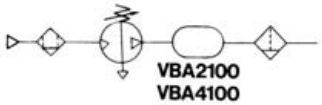
VBAT05





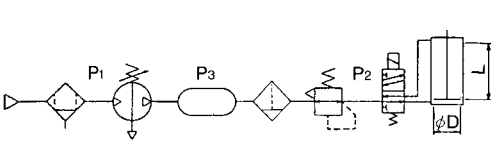
VBAT, VBAT20, VBAT38

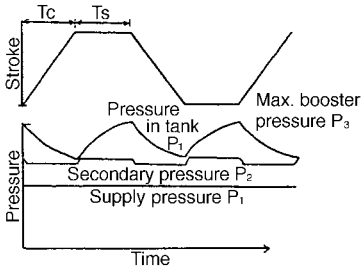




Condition:
Supply pressure: 0.5MPa
Secondary side set pressure: 1MPa
Flow rate: Between 0 and max. flow rate

Size Selection





START

: Example

Necessary conditions:
D[mm]: Cylinder bore size
L[mm]: Cylinder stroke
W[mm/s]: Cylinder operating speed
C[pc.]: Number of cylinders

Ts[s]: Cylinder stop time
P_1[MPa]: Supply pressure
P_2[MPa]: Secondary pressure
(Necessary cylinder pressure)

100	Qb[ℓ/min(ANR)]: Flow rate at secondary side at P_1 and P_2
100	Tc[s]: Cylinder stroke time
200	K: Cylinder one side press. is 1, both sides intensified press. is 2.
1	P_3[MPa]: Max. booster press. (Primary press. X intensified press.ratio)
29	T_1[s]: Charge time by P2 and P1 in charge characteristics table
0.5	T_2[s]: Charge time by P3 and P1 in charge characteristics table
0.8	Z[pc.]: Number of booster regulators

Other conditions:

Provide necessary conditions on selection.

Calculate momentary flow Q.

$$Q[\ell/\min(ANR)] = \frac{\pi \times D^2 \times W}{4 \times 10^6} \times \frac{(P_2 + 0.101)}{0.101} \times 60 \times C$$

$$Q[\ell/\min(ANR)] = \frac{\pi \times 100^2 \times 200}{4 \times 10^6} \times \frac{(0.8 + 0.101)}{0.101} \times 60 \times 1 = 841$$

Refer to p.1.13-2 for flow rate characteristics table.

Select booster regulator size from flow characteristic stable.

VBA2□00: Qb = 500 [ℓ/min(ANR)]
VBA4□00: Qb = 1100 [ℓ/min(ANR)]

Judgement of flow rate Qb < Q

NO VBA4□00

Avoid pulsation Max. 0.05MPa

NO

YES VBA2□00

Can not get necessary pressure.

YES

Calculate tank capacity

$$Tc[s] = \frac{L}{W}$$

$$V[\ell] = \frac{(Q - Qb/2) \times (Tc \times K/60)}{(P_3 - P_2) \times 9.9}$$

$$Tc[s] = \frac{100}{200} = 0.5$$

$$V[\ell] = \frac{(841 - 500/2) \times (0.5 \times 2/60)}{(1 - 0.8) \times 9.9} = 5$$

Select tank from table below.

Booster	VBA111□	VBA2□00	VBA4□00
Tank	VBAT05	VBAT10	VBAT20

Select tank with the capacity over V.

Select VBAT10 (10L) can connect directly to VBA2□00.

Calculate charge time T from charge characteristics table.

Refer to p.1.13-2 for charge characteristics table.

$T[s] = (V/10) \times (T_2 - T_1)/(Z)$

$T(s) = (4.8/10) \times (12 - 3.7) = 4$

Judgement of charge time T≦Ts

NO

Extend stop time Ts up to charge time T or more.

NO

Increase number of booster regulators (Z) to decrease T.

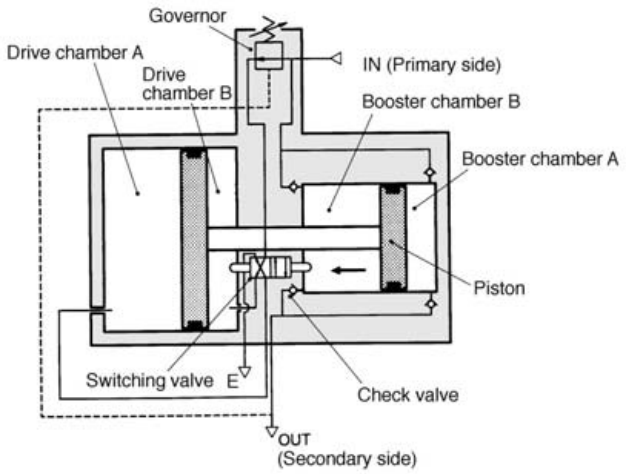
YES 4≦29

YES

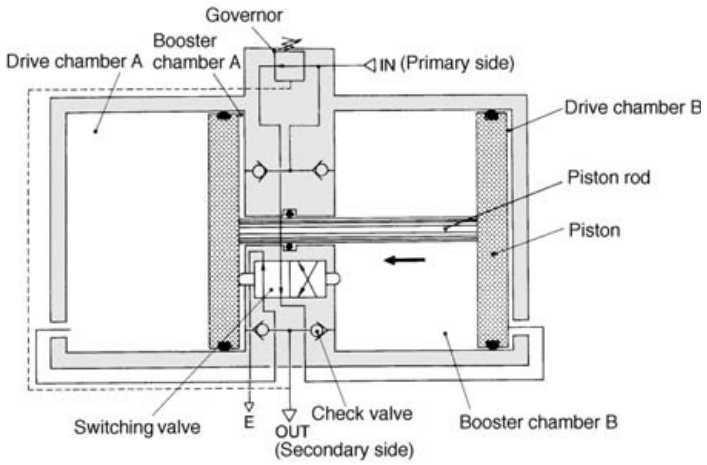
END

Construction/Principle

VBA1111



VBA1110, 2100, 4100



The IN air passes the check valve to pressure boosting chambers A and B. Meanwhile, air is supplied to actuating chamber B via the governor and the switching valve. Then, the air from chamber B and boosting chamber A are applied to the piston, boosting the air in chamber B. As the piston travels, the boosted air is pushed via the check valve to the OUT side. When the piston reaches the end, the piston causes the switching valve to switch so that chamber B is in the exhaust state and chamber A is in the supply. Then, the piston reverses its movement, this time, the pressures from chamber B and chamber A boost the air in pressure boosting chamber A and send 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 secondary pressure.

⚠ Precaution

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Precautions on design

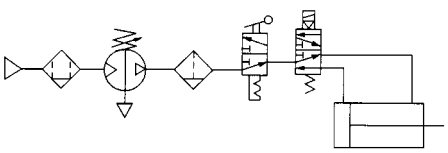
⚠ Warning

①**Warning concerning abnormal secondary pressure**

- If there is a likelihood of causing a secondary pressure drop due to unforeseen circumstances such as equipment malfunction, thus leading to a major problem, safety measures must be provided on the system side.
- Because the secondary pressure could exceed its set range if there is a large fluctuation in the primary pressure, and lead to unexpected accidents, provide safety measures against abnormal pressures.
- Operate the equipment by maintaining its maximum operating pressure and set pressure range.

②**Residual pressure measures**

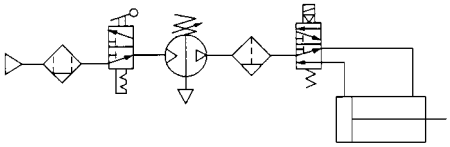
- Connect a 3 port valve to the OUT side of the booster valve if the residual pressure must be released quickly from the secondary pressure side, such as when servicing the equipment (refer to the diagram below). The residual secondary pressure cannot be released if the 3 port valve is connected to the IN side because the check valve in the booster valve will activate.



⚠ Caution

①**System Configuration**

- Make sure to install a mist separator (AM series) on the primary side of the booster valve.
- Also install a cleaning device such as an air filter or a mist separator on the secondary side as necessary. Because the booster valve contains a sliding mechanism and the inner wall of the tank for the booster valve is untreated, dust flows out to the secondary side.
- Connect a lubricator to the secondary side because the accumulation of oil in the booster valve could lead to equipment malfunction.
- After completing the work, release the supply pressure from the primary side by operating the residual pressure release valve, thus stopping any unnecessary movement and preventing equipment malfunction.



②**Exhaust air measures**

- Provide a dedicated pipe to release the exhaust air from each booster valve. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.
- Install as necessary a silencer or an exhaust cleaner on the exhaust port of the booster valve to reduce the exhaust sound.

③**Space for service access**

- Provide a sufficient space for performing maintenance and inspection.

Selection

⚠ Caution

①**Verify the specifications.**
Consider the operating conditions and operate this product within the specification range that is described in this manual.

②Based on the requirements (pressure, flow rate, tact time, etc.) of the secondary side of the booster valve, select the size of the booster valve in accordance with the selection procedure described in this manual.

Installation

⚠ Caution

①**Transporting**

- When transporting this product, hold it lengthwise with both hands. Never hold it by the black handle that protrudes from the center because the handle could become detached from the body, causing the body to fall and leading to injury.

②**Installation**

- Install this product so that the tie rod painted silver is horizontal.
- Considering the transmission of piston cycle vibration, use retaining bolts (VBA1: M5; VBA2, 4: M10) and tighten them to the specified torque (VBA1: 3Nm; VBA2, 4: 24Nm).
- If it is necessary to prevent the transmission of vibration, place an isolating rubber material in between the product and the mounting surface.

Piping

⚠ Caution

①**Flushing**

- Use an air blower to thoroughly flush the piping, or wash the piping to thoroughly remove any cutting chips, cutting oil, or debris from inside the piping, before connecting them. If they enter the inside of the booster valve, they could cause the booster valve to malfunction or its durability could be affected.

②**Piping size**

- To bring the booster valve's ability into full play, make sure to match the piping size to the port size.

Source air

⚠ Caution

①**Quality of source air**

- Connect a mist separator to the primary side near the booster valve. If the quality of the compressed air is not thoroughly controlled, the booster valve could malfunction (without being able to boost) or its durability could be affected.

Operating Environment

⚠ Caution

①**Installation location**

- Do not install this product in an area that is exposed to water or direct sunlight.
- Do not install it in an area that is exposed to vibrations. If it must be used in such an area due to unavoidable circumstances, contact SMC beforehand.

Handling

⚠ Warning

①**Pressure setting**

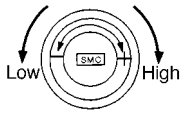
- Do not exceed the set pressure when turning the governor handle (VBA ∗1∗∗) or supplying pilot pressure (VBA$^{2}_{4}$: 200). If the primary pressure rises, the secondary pressure will also rise, possibly exceeding the maximum operating pressure.

VBA1110 to 4200

⚠ Caution

①Setting the pressure on the handle operated style (VBA ∗1∗∗, VBA1311)

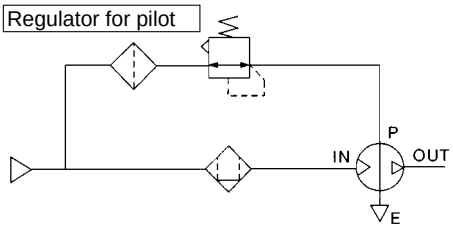
- If air is supplied to the product in the shipped state, the air will be released. Set the pressure by quickly pulling up on the governor handle, and rotating it in the direction of the arrow (+).
- After completing the pressure setting, push the handle in.
- After the pressure has been set, the secondary pressure will be released from the area of the handle, due to the relief consturction of the handle.
- To reset the pressure, first reduce the pressure so that it is lower than the desired pressure; then, set it to the desired pressure.



②Setting the pressure on the air operated style (VBA2200, VBA4200)

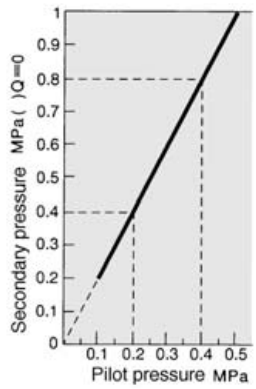
- Connect the secondary pipe of the pilot regulator for remote operation to the pilot port (P). (Refer to the diagram below.)
- Refer to the diagram below for the pilot pressure and the secondary pressure.
- The recommended pilot regulators are AR2000 and AW2000.

Regulator for pilot



- 2 times of pilot pressure is secondary pressure.
- At 0.4MPa at primary pressure

Pilot pressure
0.2MPa to 0.4MPa
Secondary pressure
0.4MPa to 0.8MPa



③Draining

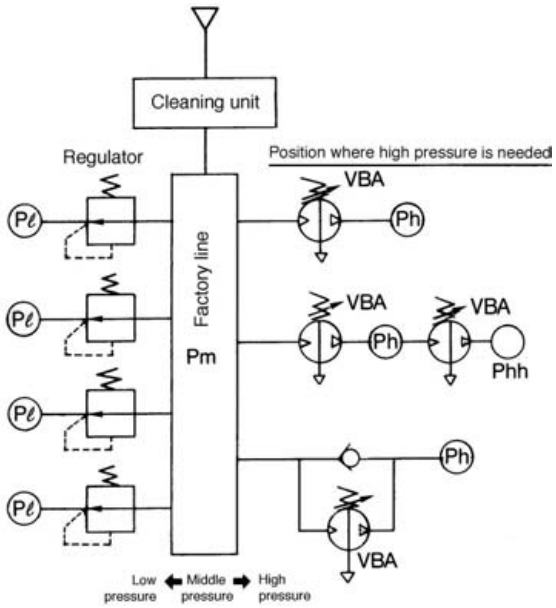
- If this product is used with a large amount of drainage accumulated in the filter, mist separator, or the tank, the drainage could flow out, leading to equipment malfunction. Therefore, drain the system once a day. If it is equipped with an auto drain, check its operation once a day.

④Exhaust air

- After operating this product for an extended time in the set state, if the booster valve is switched, it could take a longer period of time to discharge the air from the E port. This symptom is normal.

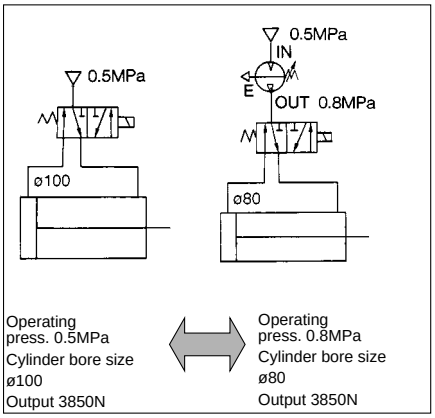
Diagram example

Energy and cost saving booster regulator for factory.



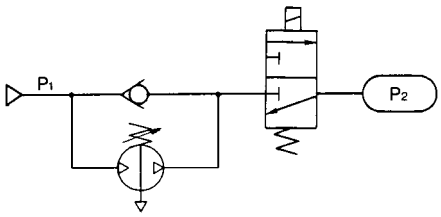
Applications

①When certain equipment requires a higher pressure than the plant's line pressure.
②When the lower limit pressure for equipment must be ensured due to the fluctuation and reduction of the plant's line pressure.
③When the actuator lacks power output for some reason but it is not feasible to replace it with a large bore cylinder due to space constraints.
④In spite of diverse pressure conditions of the end user, equipment that achieves the specified high power output must be provided.
⑤When a small cylinder size is desired while ensuring sufficient power, in order to achieve a compact drive unit.

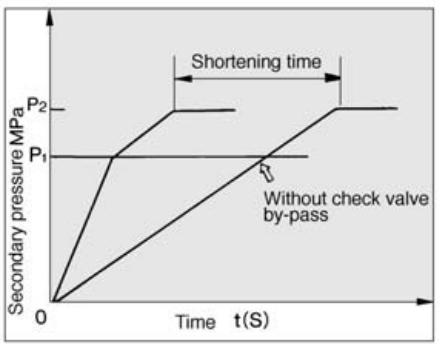


⑥When the hydraulic pressure of an air-hydro unit must be raised.
⑦When the pressure must be raised in an explosion-proof environment.
⑧To boost the pressure by remote operation, using an air operated type.

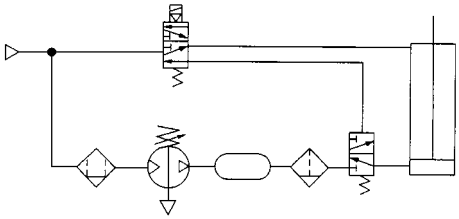
⑨When the tank must be filled from the atmosphere in a short time.



Initially, primary pressure (P) passes through the check valve, fills P_2, and results in P_1=P_2.

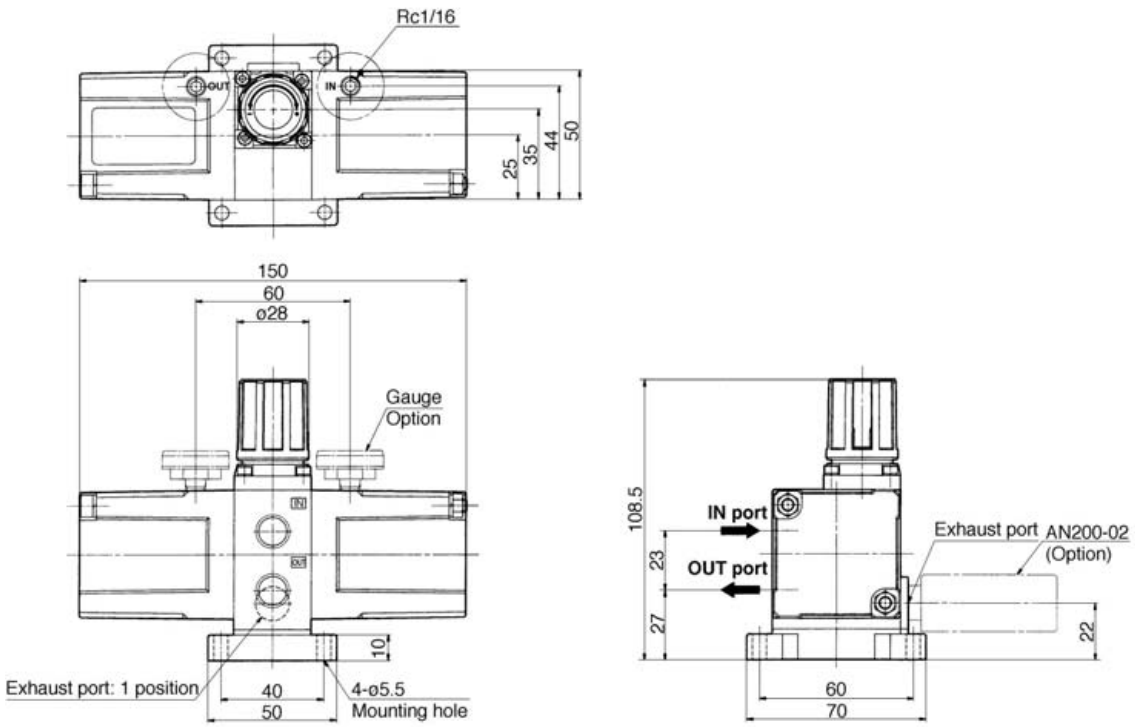


⑩When the pressure in one chamber of the cylinder must be boosted.

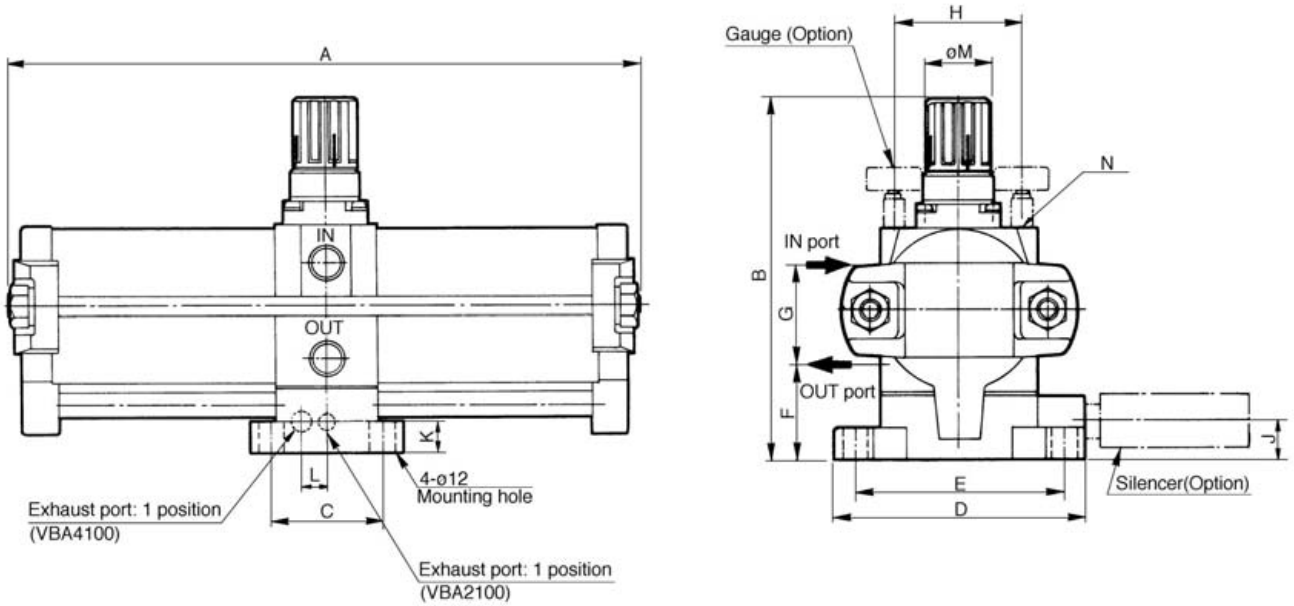


CAD

Handle operated style VBA1110-02, VBA1111-02



Handle operated style VBA2100-03, VBA4100-04



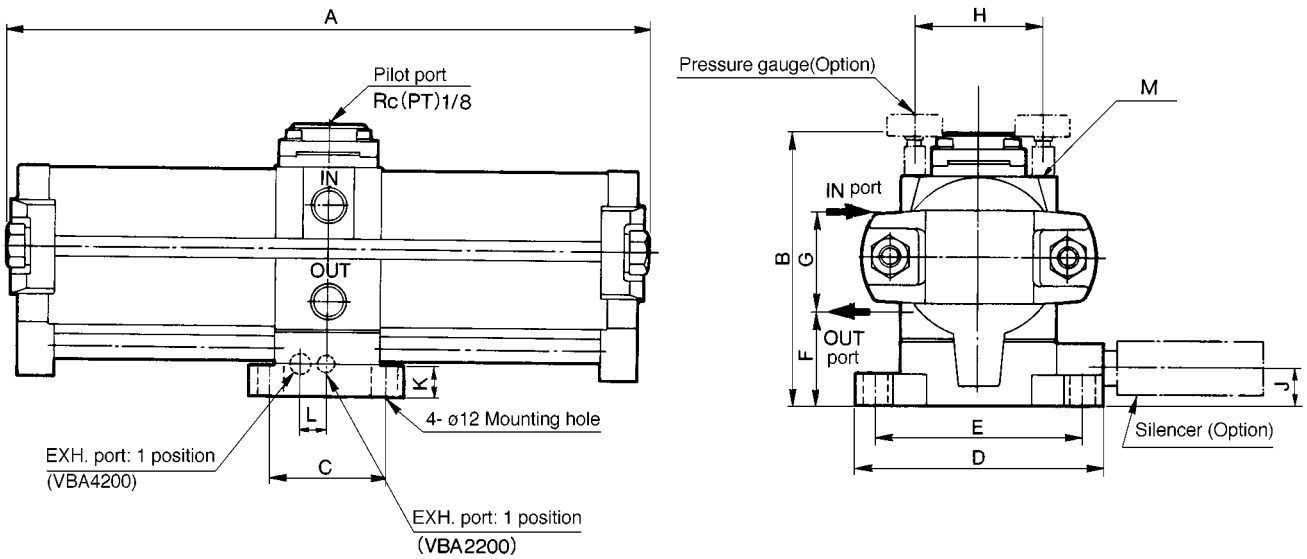
Model	Port size	A	B	C	D	E	F	G	H	J	K	L	øM	N
VBA2100-03	Rc (PT) 3/8	300	170	53	118	98	46	43	60.5	18	15	—	31	Rc1/16
VBA4100-04	Rc (PT) 1/2	404	207.5	96	150	130	62.8	62	90	17	15	20	40	Rc(PT)1/8

CAD VBA111□ —— SVBA, #1
VBA2100 —— SVBA, #2
VBA4100 —— SVBA, #4

VBA1110 to 4200

CAD

Air operated style VBA2200-03, VBA4200-04



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M
VBA2200-03	Rc(PT) 3/8	300	126.5	53	118	98	46	43	60.5	18	15	—	Rc1/16
VBA4200-04	Rc(PT)1/2	404	167	96	150	130	62.8	62	90	17	15	20	Rc(PT) 1/8

CAD VBA2200 —— SVBA, #3
VBA4200 —— SVBA, #5

⚠ Air Tank Precautions

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Design

⚠ Warning

①**Operating pressure**
- Operate this product at or below the maximum operating pressure. If it is necessary, take appropriate safety measures to ensure that the maximum operating pressure is not exceeded.
- Even when the tank alone is used, use a pressure switch or a safety valve to make sure that the maximum operating pressure is not exceeded.

②**Applicability**
- The air tank has been designed in compliance with the regulations in Japan. Compliance with the regulations in Japan might not be applicable when the product is used overseas. Therefore, verify the regulations of the country in question before operating this product.

③**Connection**
- Connect a filter or a mist separator to the OUT side of the tank. Because the inner wall of the tank is untreated, there is a possibility of dust flowing out to the secondary side.
- Using tank accessories, a VBA booster valve can be connected in the combinations indicated below.

		Booster regulator		
		VBA1∗1∗	VBA2∗00	VBA4∗00
Air tank	VBAT05(S)	●		
	VBAT10(S)	●	●	
	VBAT20(S)		●	●
	VBAT38(S)		●	●

Selection

⚠ Caution

- Consider the operating conditions and operate this product within its specification range.
- Follow the size selection procedure indicated on p.1.13-3 to select the size of the air tank if it will be used with a booster valve connected to it.

Installation

⚠ Caution

①**Accessories**
- The accessories are secured by bands to the feet of the tank. Once removed, make sure not to lose them.

②**Installation**
- To connect a booster valve to the tank, refer to the operation manual that is provided with the air tank before assembly.
- To mount the air tank on a floor surface, use the four holes to secure the tank with bolts or anchor bolts.

Maintenance and Inspection

⚠ Warning

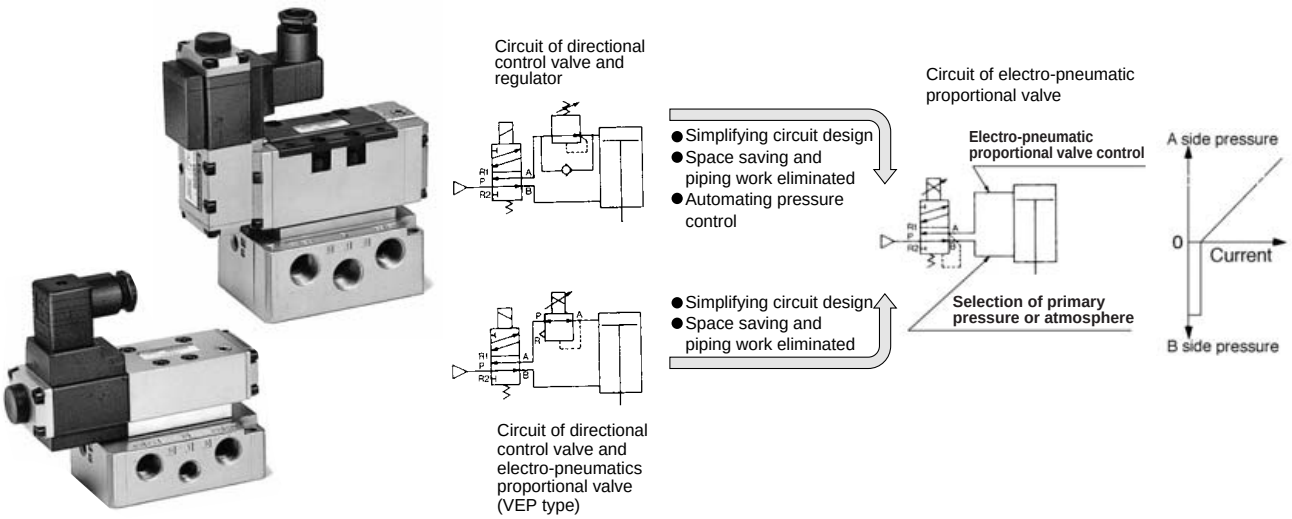
①**Inspection**
- The use of pressure vessels could lead to an unexpected accident due to external damage or internal corrosion caused by drainage. Therefore, make sure to check periodically for external damage, or the extent of internal corrosion through the port hole. An ultrasonic thickness indicator may also be used to check for any reduction in material thickness.

5 Port Electro-Pneumatic Proportional Valve

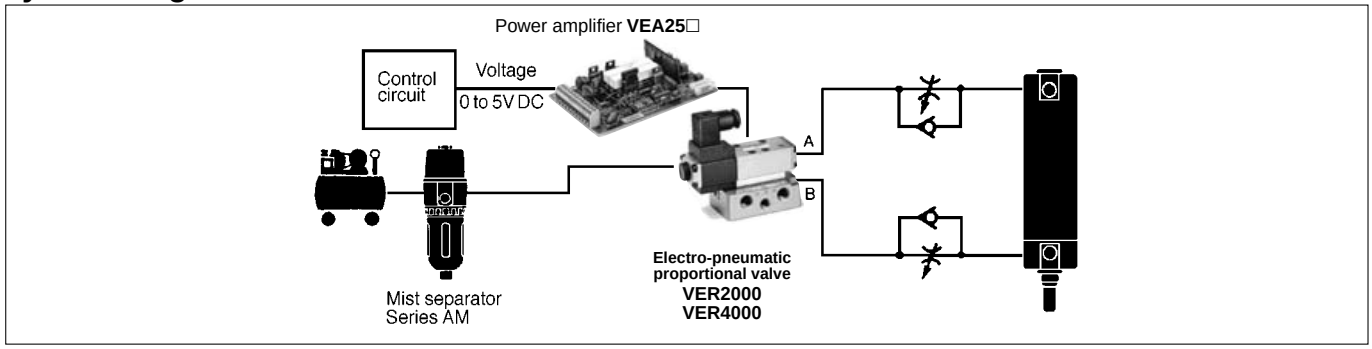
VER2000/4000

Capable of actuating a cylinder and performing analog control of pressurization

VER alone can be used to switch and actuate a cylinder and to perform stepless pressure control of port A through electric signals.



System diagram



Application examples

Purpose

Electrode pressurization control for spot welding

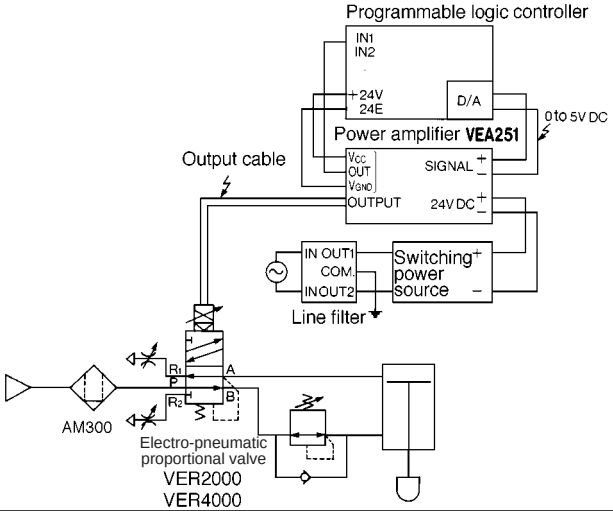
Automatically varies the applied pressure in accordance with the material, thickness, and stacked quantity of the workpieces.

Auxiliary functions

Through the use of a power amplifier that is equipped with an abnormality detection circuit,

- Open circuit in the output wire
- Malfunction in the 24V DC power supply

can be detected by a programmable logic controller, thus preventing defective workpieces or equipment damage.



VER2000/4000

VER4000

VER2000

Cylinder applicable size
ø25 to ø125

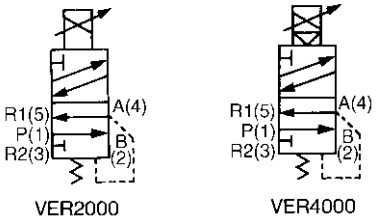
Refer to "Selection of Electro-Pneumatic Proportional Valve" on p.1.14-10 for model selection.

Standard Specifications

Item \ Model	Direct operated style VER2000	Internal pilot style VER4000	External pilot style VER4001
Port size	Rc(PT) 1/4, 3/8	Rc (PT) 3/8, 1/2, 3/4	
Fluid	Air (Inert gas)		
Max. operating pressure	1.0MPa		
Proof pressure	1.5MPa		
Ambient and fluid temperature	0 to 50°C(No condensation)		
A port setting pressure range	0.1 to 0.9MPa	0.1 to 0.9MPa(1)	0.1 to 0.9MPa(2)
Max. effective area (Cv factor)	16mm^2(0.9)	52mm^2(2.9)	
Response time	0.04s	0.06s	
Hysteresis	3%F.S.		
Repeatability	3%F.S.		
Sensitivity	0.5%F.S.	1.5%F.S.	
Linearity	3%F.S.		
Lubrication	Not required. (Lubrication: Turbine oil class 1 ISO VG32)		
Weight	1.24kg	Rc(PT) 3/8, 1/2: 2.20kg, Rc(PT) 3/4: 2.81kg	

Note 1) Supply pressure should be 0.05MPa larger than the necessary maximum setting pressure.
Note 2) Pilot pressure should be 0.05MPa larger than the necessary maximum setting pressure.

Symbol



VER2000 VER4000

Proportional Solenoid Specifications

Applicable power amplifier	VEA250,VEA251
Max. current	1A
Coil resistance	13Ω(20°C)
Rated power consumption	13W(20°C, With maximum current)
Coil insulation	Class H or equivalent (180°C)
Max. temperature rise	140°C(With maximum current)
Electrical entry	DIN terminal

Manifold

Can be made into manifold with series "VV72". "VER2000" is V type. (Refer to "Best Pneumatics 1" on p.1.17-21 for further information.)

Accessory

Model	VER2000	VER4000
Mounting screw (With washer)	M5 X 45	M6 X 53
Gasket	AXT500-13	AXT510-13, VER4-13
Feed back plate	—	VER4-3P

Option

Model	VER2000	VER4000
Spacer type regulator (B port regulator)	ARB210-00-B	ARB310-00-B
Flow control interface	AXT503-23A	AXT510-32A
Gauge	G36-10-01	G36-10-01

How to Order

Port size

—	Without sub-plate
02	1/4
03	3/8

Series VER2000 — **VER2000** — **02** □

Series VER4000 — **VER400** **0** — **03** □

Pilot type

0	Internal pilot
1	External pilot

Port size

—	Without sub-plate
03	3/8
04	1/2
06	3/4

Thread

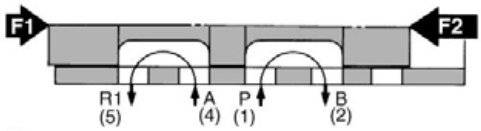
—	Rc(PT)
T	NPTF
F	G(PF)
N	NPT

Note) To order valve with interface regulator (B port regulation), interface throttle valve, or pressure gauge, indicate part number of the electro-pneumatic proportional valve and that of the option*. Refer to "Option" on p.1.14-8 for part number of option. Products will be in the same package and not assembled when delivered.

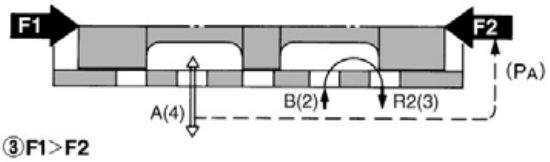
Example) VER4000-03·····1 pc.
*ARB310-00-B·····1 pc.
*G36-10-01·····1 pc.

Operating Principles

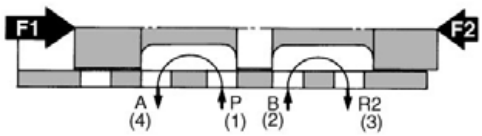
①F1<F2



②F1=F2



③F1>F2



F1: The pulling force of the solenoid when a specified amperage is applied to the solenoid, or the force that is created by the pilot pressure.
F2: The force that is created by the port A pressure (PA) that passes through the feedback passage and acts on the spool surface, and the spring force.

OFF state

F1< F2 condition: See figure 1. { **A→R1** (Exhaust air) / **P→B** (Supply air) }

ON state

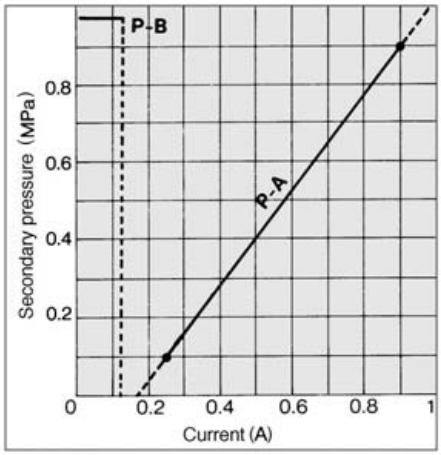
Immediately after turning on — F1> F2: See figure 3. { **P→A** (Supply air) / **B→R2** (Exhaust air) }

Thereafter — F1 = F2: See figure 2. { **A** (**PA** Setting) / **B→R2** (Exhaust air) }

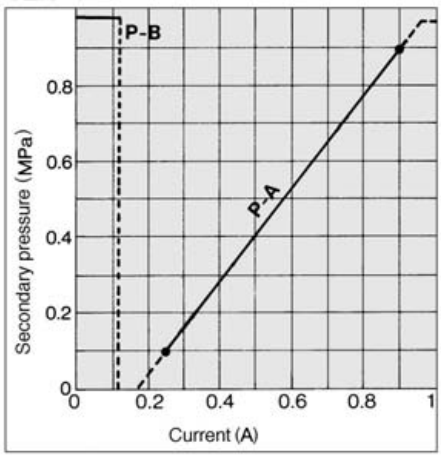
Current-Pressure Characteristics

The horizontal axis of the characteristics represents the output amperage of the power amplifier VEA25□. (If NULL and GAIN are in the shapping condition, 0 to 1A can be viewed by substituting them with command signals 0 to 5V.)

VER2000

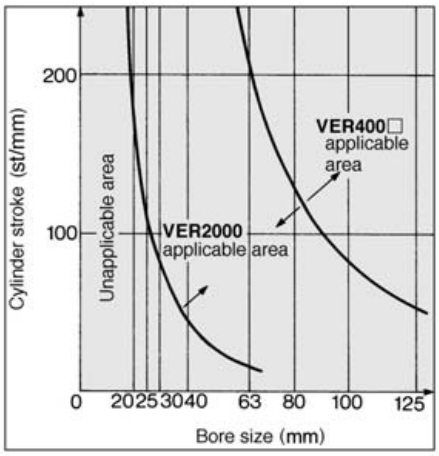


VER4000



Selecting an Electro-Pneumatic Proportional Valve

The response behavior of an electro-pneumatic proportional valve is affected by the load capacity. Therefore, select an electro-pneumatic proportional valve in accordance with the bore and the stroke of the cylinder tube to be used. (The diagram below is provided as a guide.)

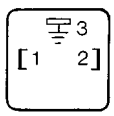


How to Use DIN Terminals

Wiring procedure

①Loosen the retaining screw and pull out the connector from the pin plug.
②Make sure to remove the retaining screw, insert the tip of a flat head screw driver into the groove below the terminal block and pry it up to separate the terminal cover from the terminal block.
③Securely connect the wires to the specified terminals in accordance with the wiring procedure.

Connection



Pin plug shape

Terminal block
Terminal "1" and "2" are used for connection "3".
∗ Coil has no polarity.

Applicable cable (Cabtire cable)

Use the specified 0.75mm^2 or 1.25mm^2, 2 or 3-core wire (external ø6.8 to ø11.5) with JISC3312 and C3322.

Outlet changing procedure

To change the wire outlet, first separate the terminal cover from the terminal block. Then, reinstall the terminal cover in the desired direction (in 90° increments).

Flow Rate Calculation

Air temperature of 20°C

Subsonic flow at $P_1 + 0.1013 < 1.89(P_2 + 0.1013)$

$$Q = 226S_N\sqrt{\triangle P(P_2 + 0.1013)}$$

Sonic flow of $P_1+0.1013 \geqq 1.89(P_2+0.1013)$

$$Q = 113S(P_1 + 0.1013)$$

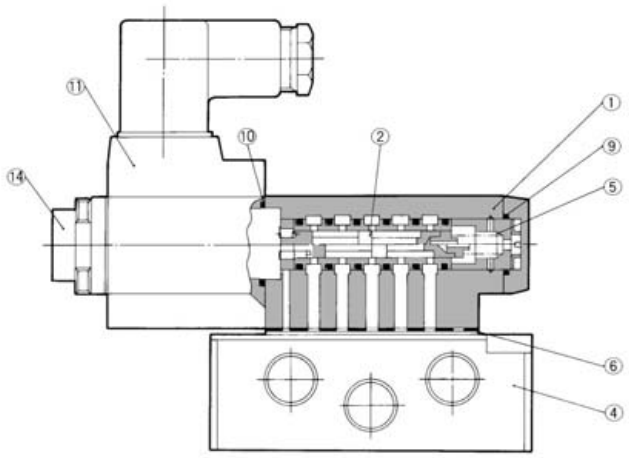
Q : Air flow rate [ℓ/min(ANR)]
S : Effective area [mm^2]
△P: Amount of pressure drop P_1-P_2[MPa]
P_1 : Upstream pressure [MPa]
P_2 : Downstream pressure [MPa]

∗Correction for varying air temperatures:
Square the coefficient indicated in the table below with the flow rate that has been obtained from the above formula.

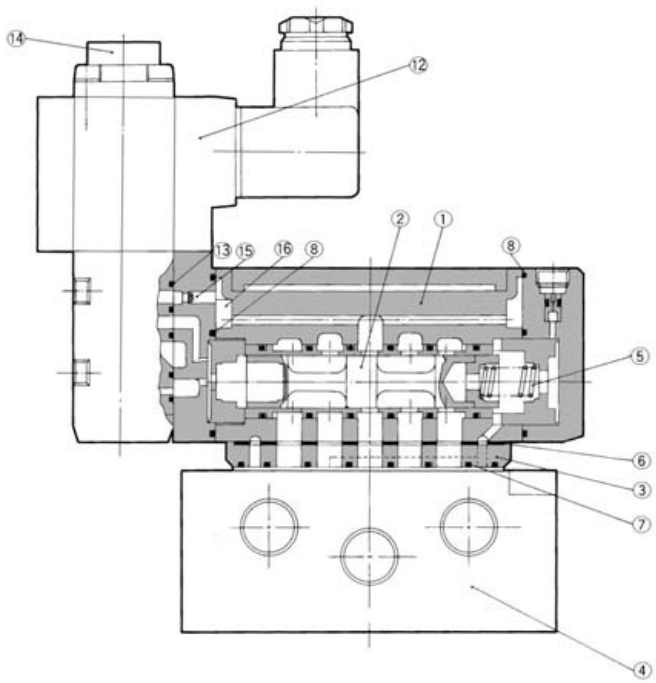
Air temp. (°C)	–20	–10	0	10	30	40	50	60
Coef. for compensation	1.08	1.06	1.04	1.02	0.98	0.97	0.95	0.94

Construction

VER2000



VER4000



Component parts

No.	Description	Material	Notes
①	Body	Aluminum alloy	Metallic painted
②	Spool sleeve	Special stainless steel	
③	Feed back plate	Aluminum alloy	Metallic painted
⑪	Proportional solenoid	–	–

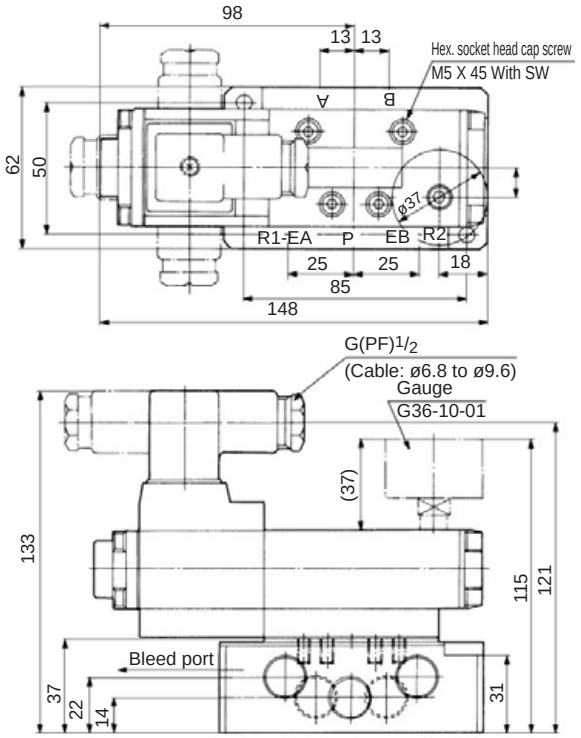
Replacement parts

No.	Description	Material	Part No.	
			VER2000	**VER4000/4001**
④	Sub-plate	Aluminum alloy	VS7-1-A□□	VS7-2-A□□
⑤	Spring B	Stainless steel	DXT172-8-6	VER4-11-4
⑥	Gasket	NBR	AXT500-13	AXT510-13
⑦	Gasket	NBR	–	VER4-13
⑧	Gasket	NBR	–	VER4-12
⑨	O ring	NBR	AS568-016	–
⑩	O ring	NBR	AS568-021	–
⑫	Pilot valve ass'y		–	VEP3121-2-00
⑬	Gasket	NBR	–	DXT172-7
⑭	Lock nut	NBR	DXT010-11-7	DXT010-11-7
⑮	Filter	Stainless steel	–	AXT500-17
⑯	Block packing	NBR	–	AXT516-6-1

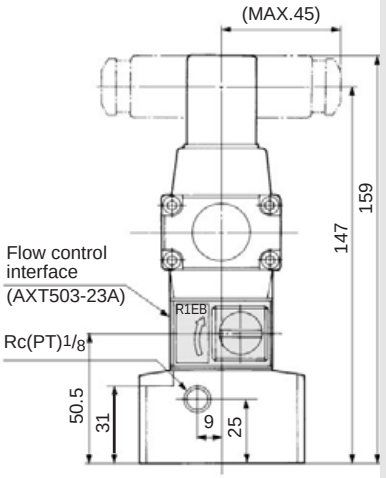
∗Block packing ⑯: VER4001 (Outer pilot)

Dimensions

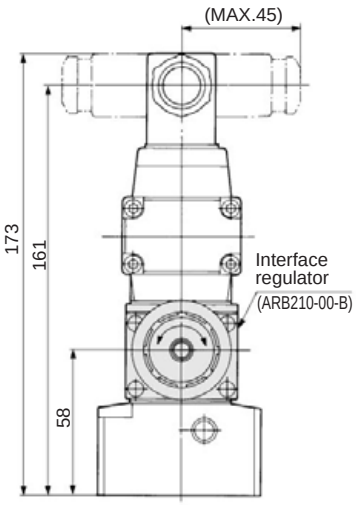
VER2000-□□□: With sub-plate



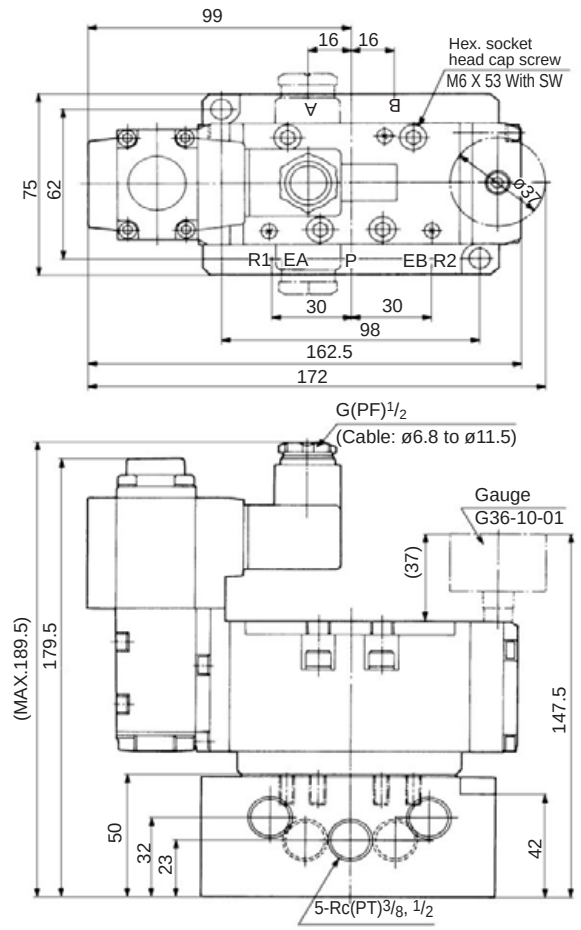
With flow control interface



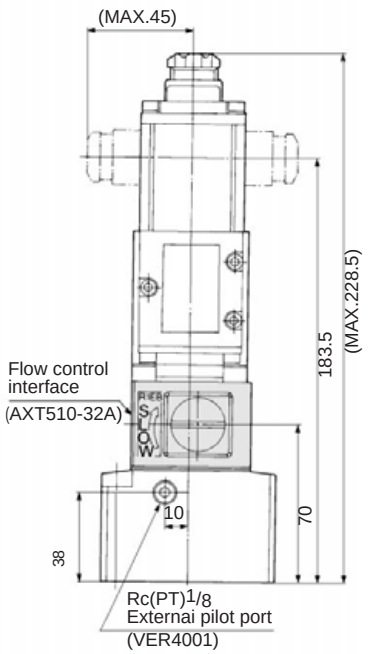
With B port regulator



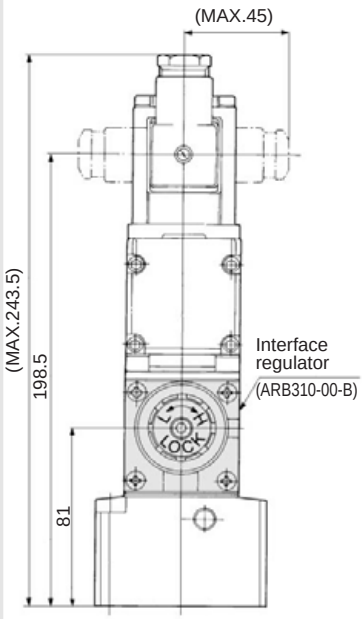
VER4000-□□□: With sub-plate
VER4001



With flow control interface



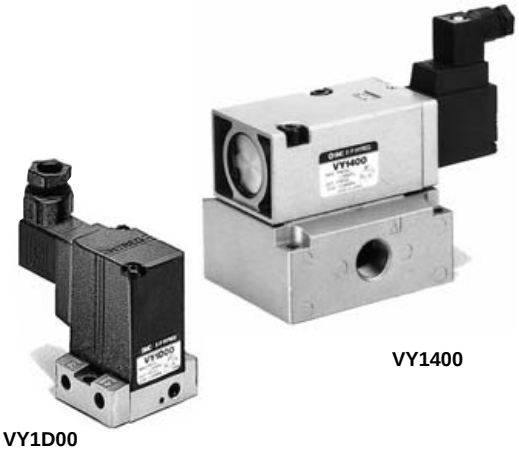
With B port regulator



E-P HYREG®

Series VY1

A hybrid regulator is created from a regulator and a solenoid valve!



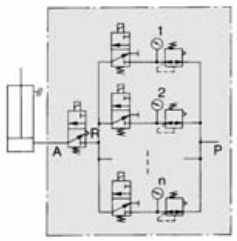
VY1400

VY1D00

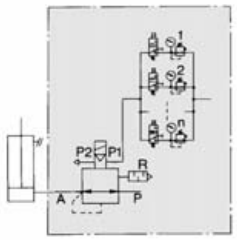
Stepless Control through Electric Signals

A maximum effective area of 670mm^2 (2B) can be covered by the combination of an ultra-compact electro-pneumatic pilot valve (22.4 X 30 X 39) and a 3 port, high-capacity exhaust main regulator (VEX1□00 series).

Simple Circuit Configuration

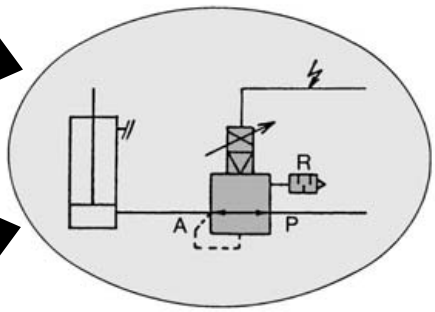


Simplified main circuit



Simplified pilot circuit

Piping labor reduced
A flexible system has been adopted.



E-P HYREG ®

Ease of handling

Having the amplifier built into the electro-pneumatic pilot valve, only an external (24V DC) power supply and (1 to 5V DC) signal voltage need to be connected.

Manifold Capable

Using the VVEXB/2/4 series, a maximum 10 station manifold is possible.

Application examples

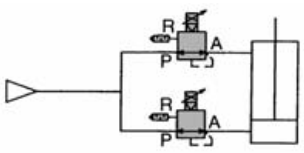
Capable of performing multistage pressure control and stepless pressure control by varying the electrical signals.

Drive and thrust control

Cylinder behavior and pressurization control for peening and stamping

Example

Welding pressure control of spot welding gun cylinder (arranged for the 4 port type)
Loading cylinder control

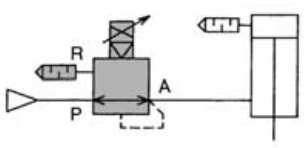


Cylinder thrust control

Tension control
Balancer

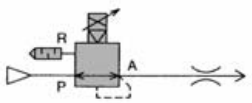
Example

Auto balancer



Air flow control of the nozzle*

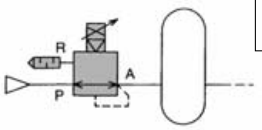
Air blowing
Air cooling



*Contact SMC.

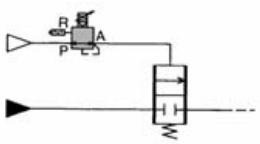
Pressure control of the tank

Automatic adjustments



Flow control of various fluids

For remote control of another air operated valve



How to Order

E-P HYREG

Pilot

0	Internal pilot
1	External pilot

VY1 1 0 0 — 01 — —

Power source/Command signal

Symbol	Power source voltage DC	Command signal DC
—	24V	1 to 5V
1		0 to 10V
2		4 to 20mA
3		0 to 20mA
5	12V	1 to 5V
6		0 to 10V
7		4 to 20mA
8		0 to 20mA

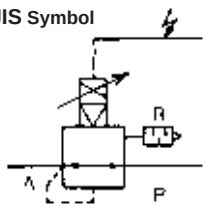
Thread

—	Rc(PT)
T	NPTF
F	G(PF)
N	NPT

Body size | **Port size** | **Option**

Mounting	Symbol	Symbol	P/A port	R port	B (Bracket)	F (Foot)	G (Pressure gauge)	N (Silencer)
Base mounted style	D	00	Without sub-plate		—	—	—	—
		M5	M5		—	—	—	●
	B	00	Without sub-plate		—	—	●	—
		M5	M5					
		01	1/8					
	2	00	Without sub-plate		—	—	●	●
		01	1/8					
		02	1/4					
	4	00	Without sub-plate		—	—	—	●
		02	1/4					
		03	3/8					
		04	1/2					
Body ported style	A	M5	M5		●	●	—	—
	1	01	1/8		●	●	●	●
		02	1/4					
	3	02	1/4		●	—	●	●
		03	3/8					
		04	1/2					
	5	04	1/2		●	—	●	●
		06	3/4					
		10	1					
	7	10	1	1 1/4	●	—	●	●
		12	1 1/4					
	9	14	1 1/2	2	●	—	●	●
		20	2					

JIS Symbol



Standard Specifications

Model		VY1D00-M5	VY1A0$^{0}_{1}$-M5	VY1B0$^{0}_{1}$-$^{M5}_{01}$		VY110$^{0}_{1}$-$^{01}_{02}$		VY120$^{0}_{1}$-$^{01}_{02}$		VY130$^{0}_{1}$-$^{02}_{03}$$^{}_{04}$			VY140$^{0}_{1}$-$^{02}_{03}$$^{}_{04}$			VY150$^{0}_{1}$-$^{04}_{06}$$^{}_{10}$			VY170$^{0}_{1}$-$^{10}_{12}$		VY190$^{0}_{1}$-$^{14}_{20}$	
Port size	Port	M5	M5	M5	01	01	02	01	02	02	03	04	02	03	04	04	06	10	10	12	14	20
	P	M5	M5	M5	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
	A																					
	R																		$1\frac{1}{4}$		2	
Effective area	mm^2	0.13	5	5	10 / 7.4	16	25	16	25	36	60	70	36	60	70	130	160	180	300	330	590	670
	Cv factor	0.007	0.28	0.28	0.56 / 0.41	0.9	1.4	0.9	1.4	2.0	3.3	3.9	2.0	3.3	3.9	7.2	8.9	10	17	18	33	37
Weight (kg) (1)		0.11	0.16	0.19		0.25		0.35		0.55			0.75			1.5			2		4	
Hysteresis (2)*		1%F.S.	2.5%F.S.										3%F.S.			5%F.S.						
Sensitivity*		0.5%F.S.	1%F.S.										1.5%F.S.			2%F.S.						
Repeatability*		± 0.5%F.S.	±1%F.S.										±1%F.S.			±2%F.S.						
Response Time*		10ms	30ms																			
Fluid		Air, Inert gas																				
Ambient and fluid temperature		0 to 50°C (No condensation)																				
Max. operating pressure		0.88MPa																				
Set pressure range		0.05MPa to Supply pressure																				
External pilot pressure		Setting pressure to 0.88MPa (VY1□01)																				
Command signal		1 to 5V DC, 0 to 10V DC, 4 to 20mA DC, 0 to 20mA DC																				
Power supply		12V DC ±10%, 24V DC ±10%, 1.8W or more																				
Electrical entry		DIN connector																				
Applicable cable		Cable O.D. ø4 to 6.5																				
Bleed air flow		When not operating: Zero, When operating: Max. 10ℓ/min {ANR} (supply pressure 0.88MPa)																				
Mounting orientation		Universal																				
Lubrication		Not required (3)																				

Note 1) The weight of the base mounted style (D/B/2/4 size) with a subplate is indicated.
Note 2) The property values with a * mark indicate max. values.
Note 3) To lubricate to the secondary side of "VY", use "VY" as an external pilot. Avoid lubrication to the pilot air.

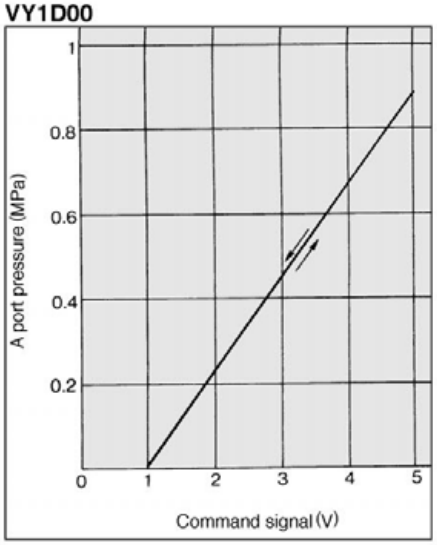
Options

Description		Part No.								
		VY1D00-M5	VY1A0$^{0}_{1}$-M5	VY1B0$^{0}_{1}$-$^{M5}_{01}$	VY110$^{0}_{1}$-$^{01}_{02}$	VY120$^{0}_{1}$-$^{01}_{02}$	VY130$^{0}_{1}$-$^{02}_{03}$$^{}_{04}$ | VY140$^{0}_{1}$-$^{02}_{03}$$^{}_{04}$	VY150$^{0}_{1}$-$^{04}_{06}$$^{}_{10}$	VY170$^{0}_{1}$-$^{10}_{12}$	VY190$^{0}_{1}$-$^{14}_{20}$
Braket (with bolt, washer)	B	—	VEXA-18-2	—	VEX1-18-1	—	VEX3-32	—	VEX5-32	VEX7-32	VEX9-32
	F	—	VEXA-18-3	—	VEX1-18-2	—	—	—	—	—	—
Pressure gauge	G	—	—	G27-10-R1-X207	G27-10-01		G36-10-01	—	G46-10-01		
Pilot EXH. port silencer	N	AN120-M5	—	—	AN120-M5		AN101-01	AN120-M5	AN210-02		

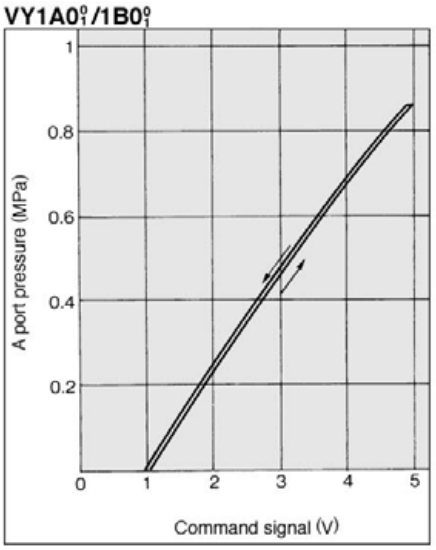
Characteristics

Signal-Secondary Pressure Characteristics (Characteristics of pressure setting)

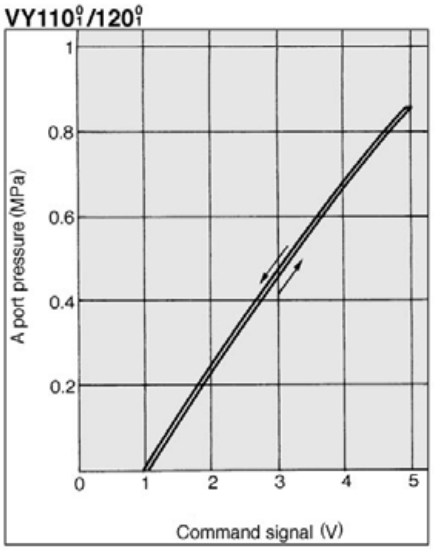
VY1D00



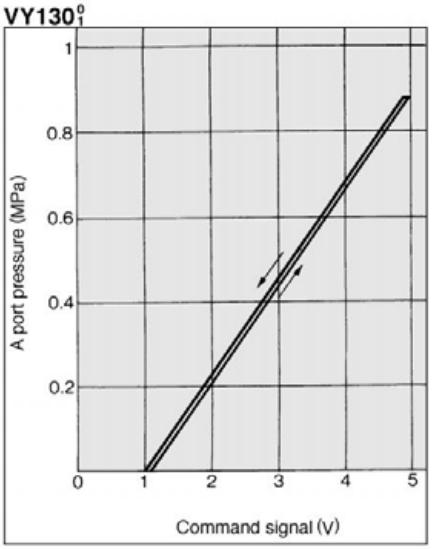
VY1A0⁰₁/1B0⁰₁



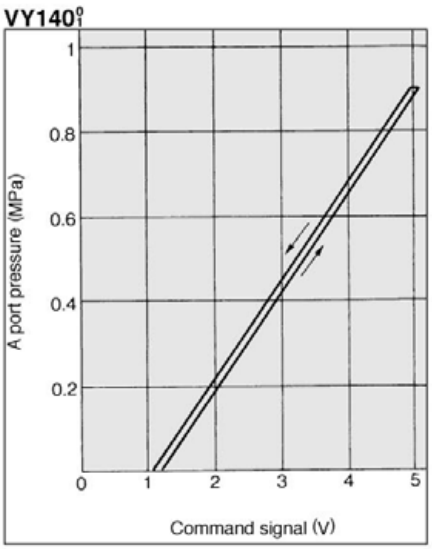
VY110⁰₁/120⁰₁



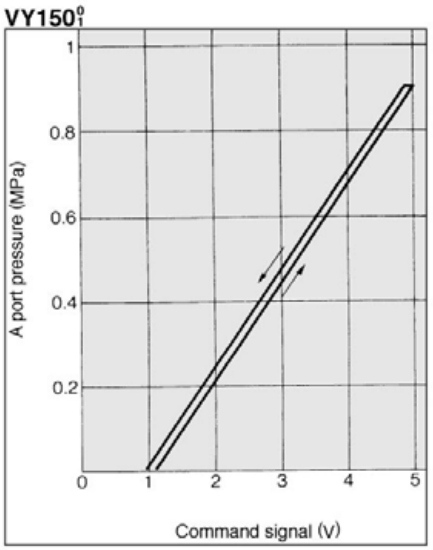
VY130⁰₁



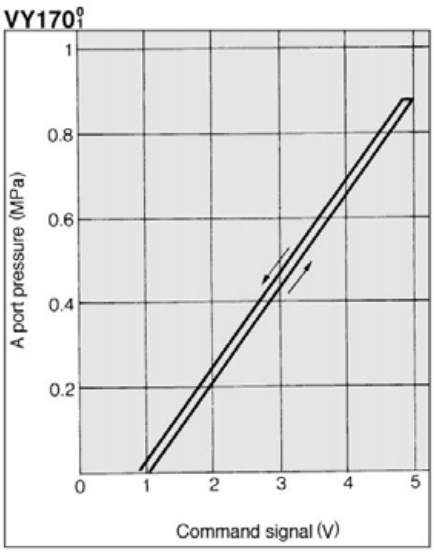
VY140⁰₁



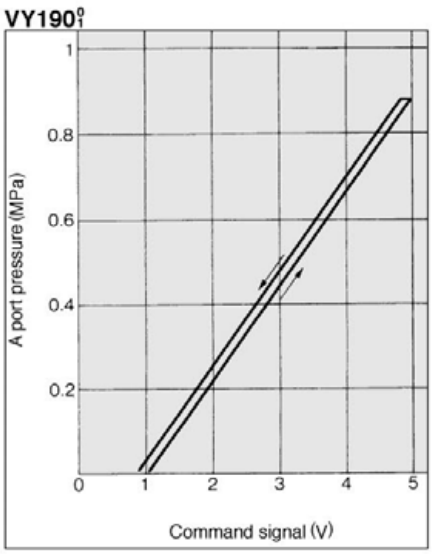
VY150⁰₁



VY170⁰₁

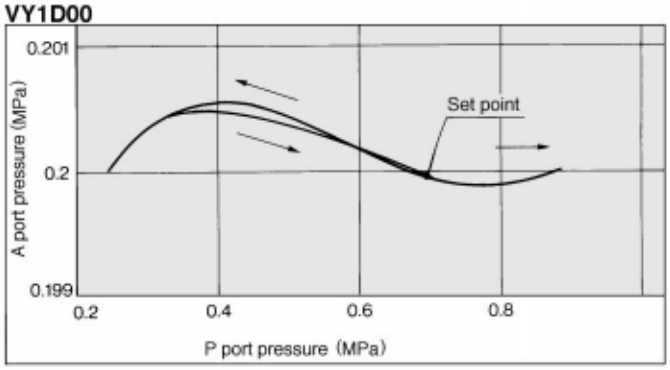


VY190⁰₁

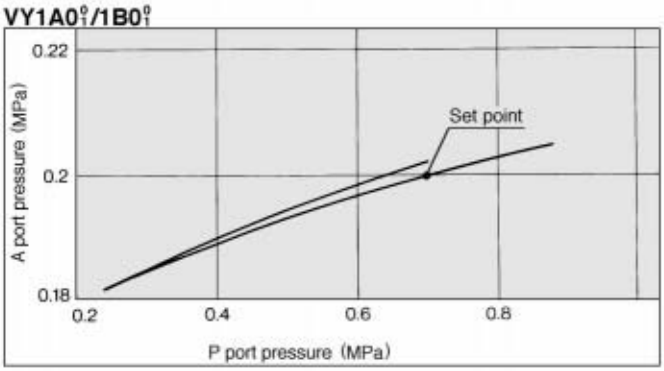


Pressure Characteristics

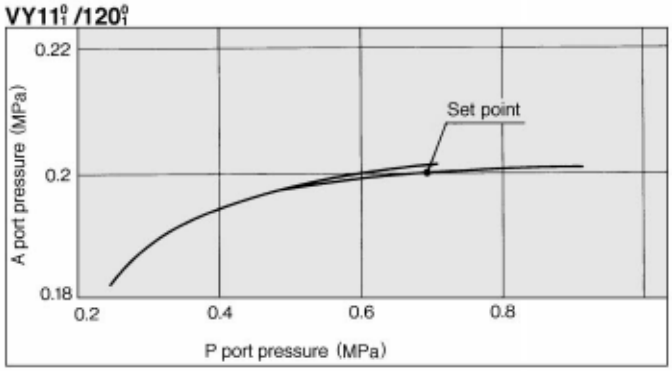
VY1D00



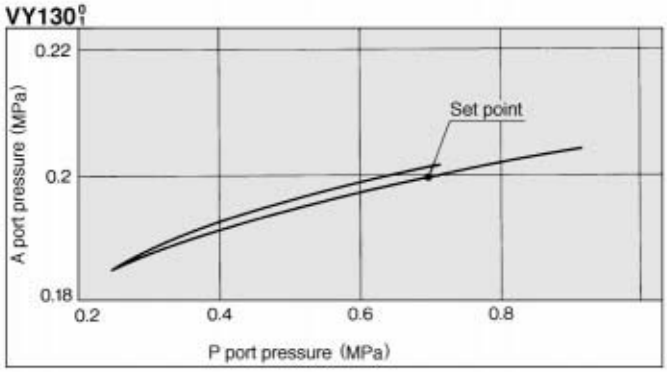
VY1A0⇕/1B0⇕



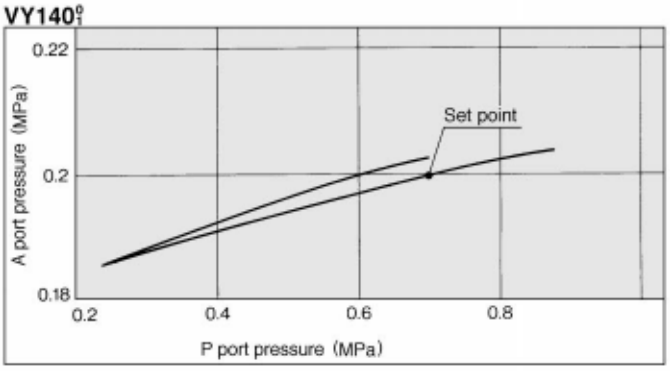
VY11⇕/120⇕



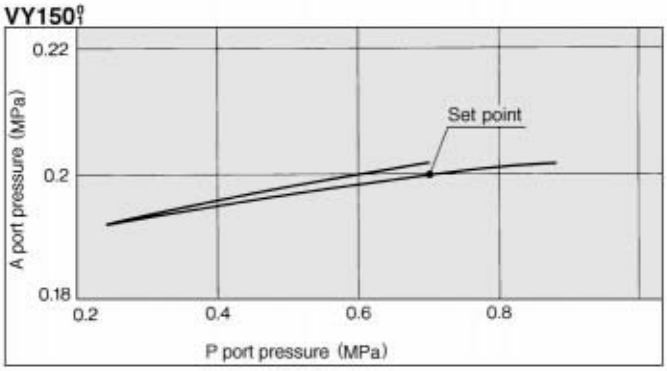
VY130⇕



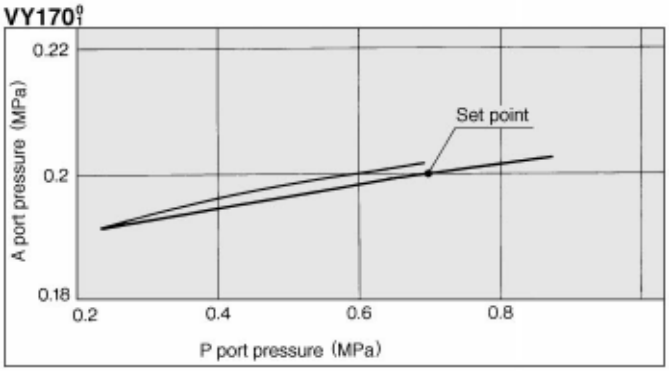
VY140⇕



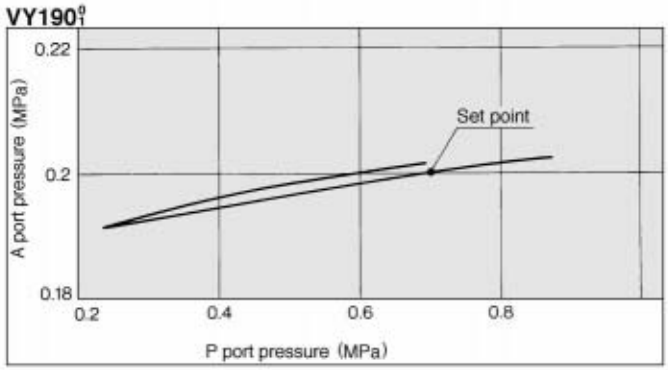
VY150⇕



VY170⇕

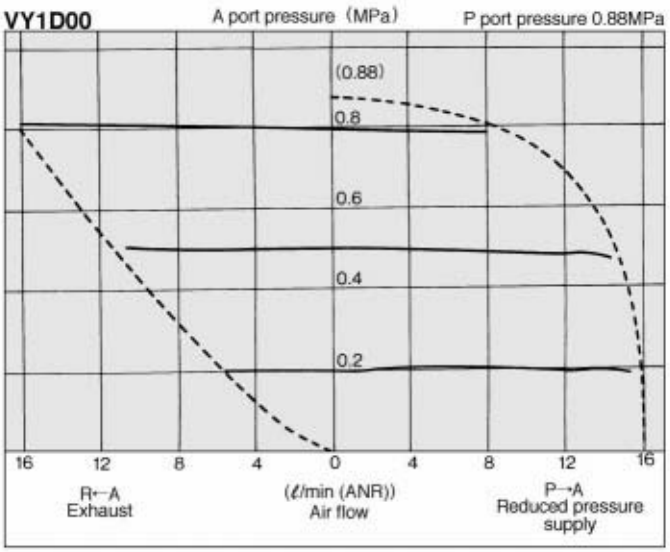


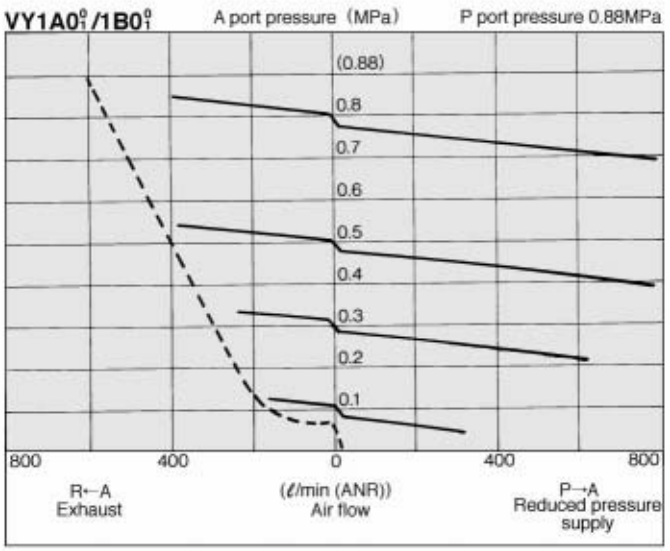
VY190⇕

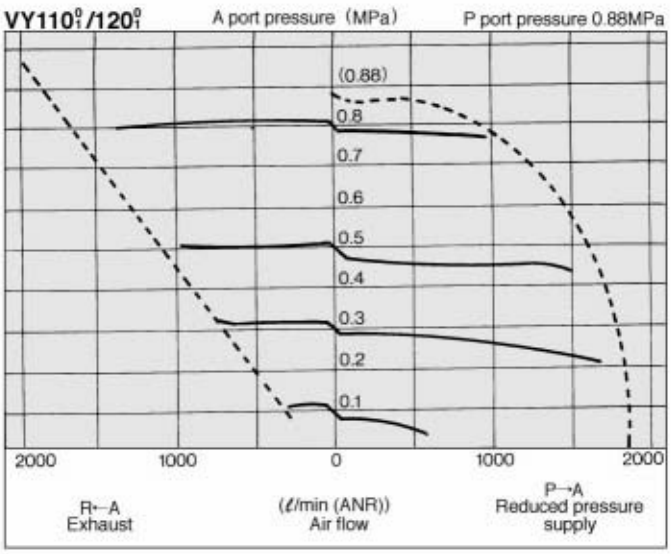


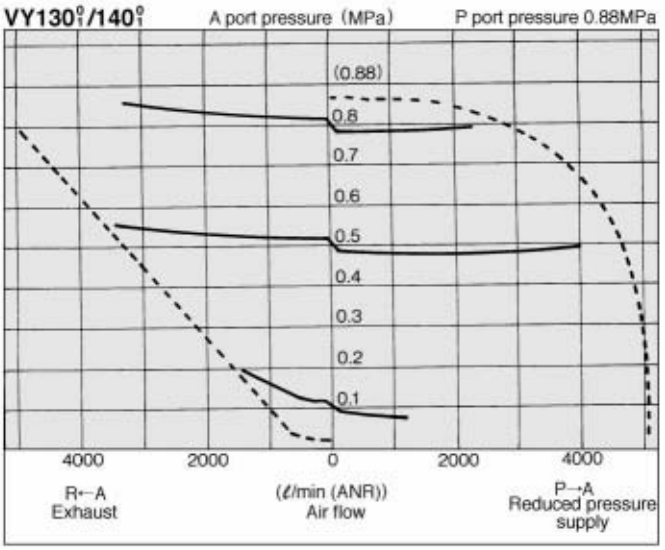
Characteristics

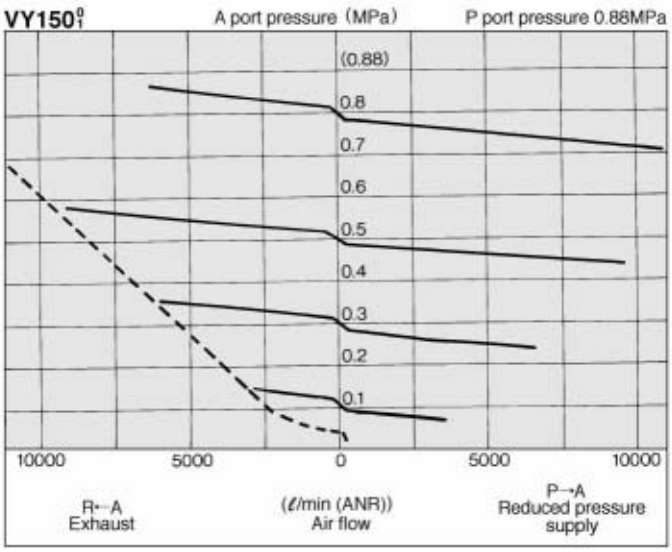
Flow Characteristics

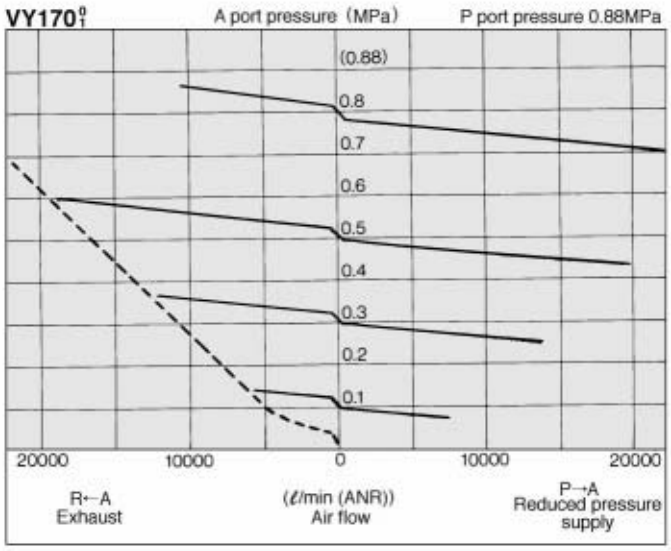


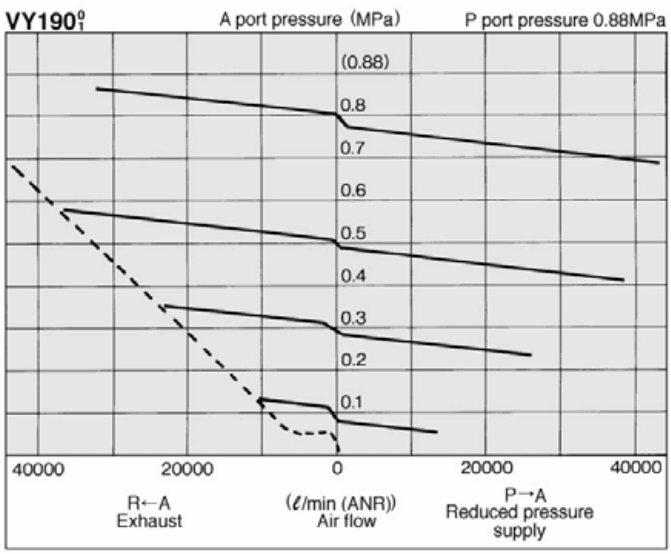






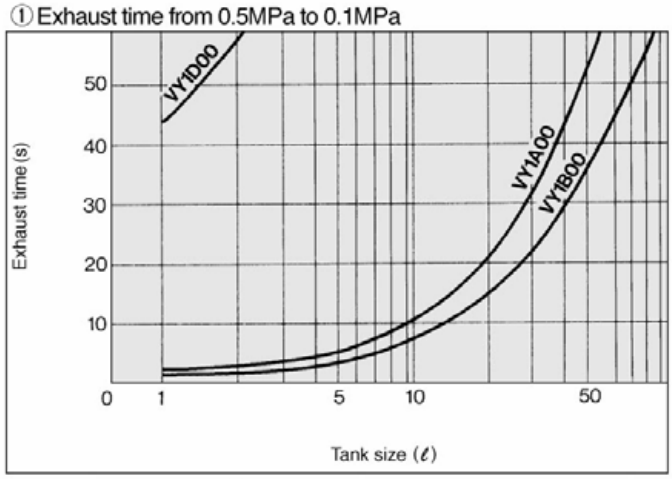




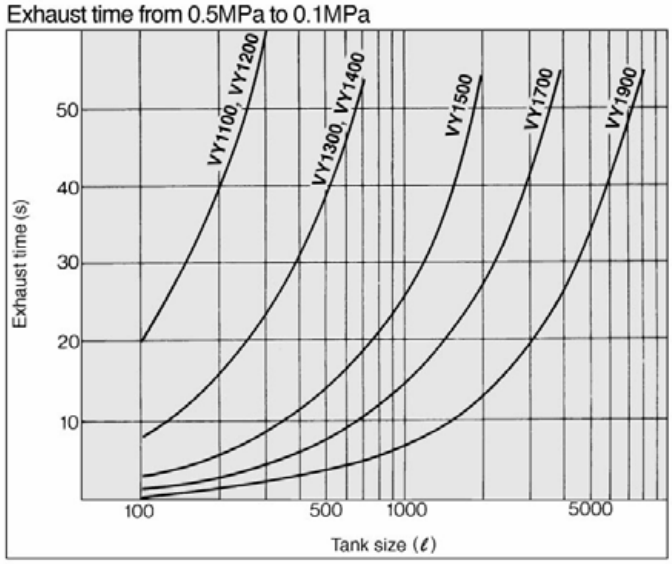


Exhaust time

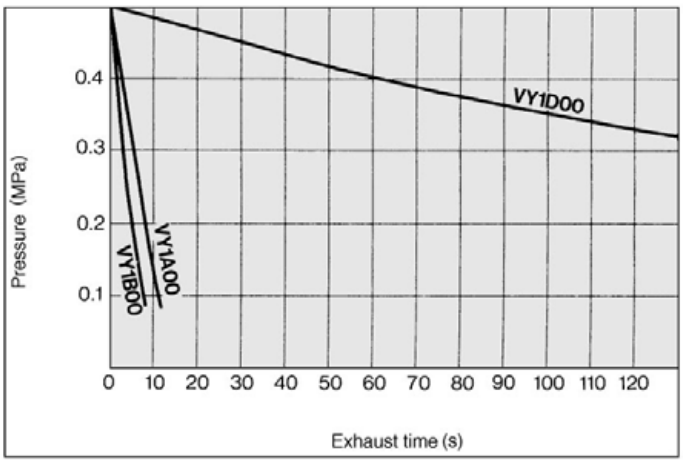
① Exhaust time from 0.5MPa to 0.1MPa



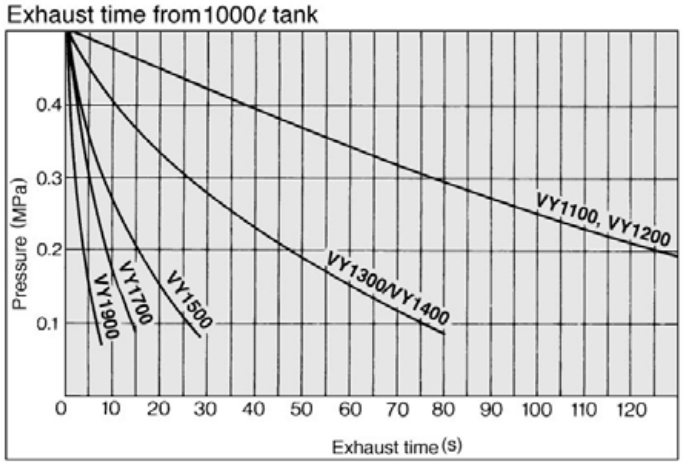
Exhaust time from 0.5MPa to 0.1MPa



② Exhaust time from 10ℓ tank



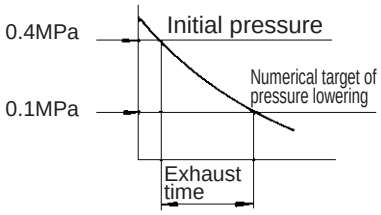
Exhaust time from 1000ℓ tank



③ Exhaust time from optional pressure point

[Ex.] Using VY1500, lower the 500ℓ tank pressure from 0.4 to 0.1.

a) If describing the above graph in accordance with graphs, the exhaust time is read; 27-3 = 24S.



→ b) Then, to convert the time into one from a 500ℓ tank.

$$t = \frac{\text{Tank capacity}}{1000} \times \left[\text{Read exhaust time}\right]$$

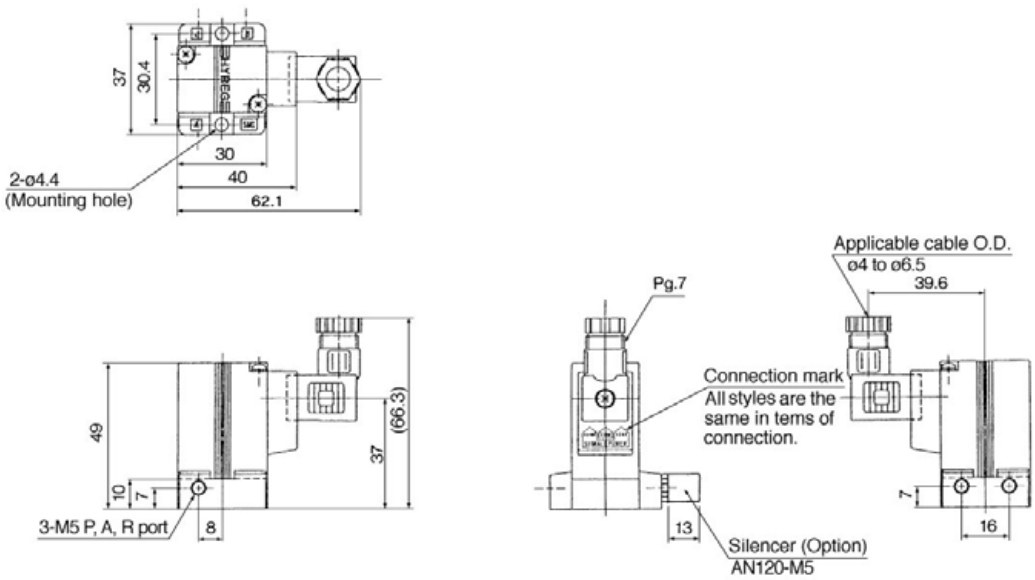
$$= \frac{500}{1000} \times 24$$

$$\cong 12$$

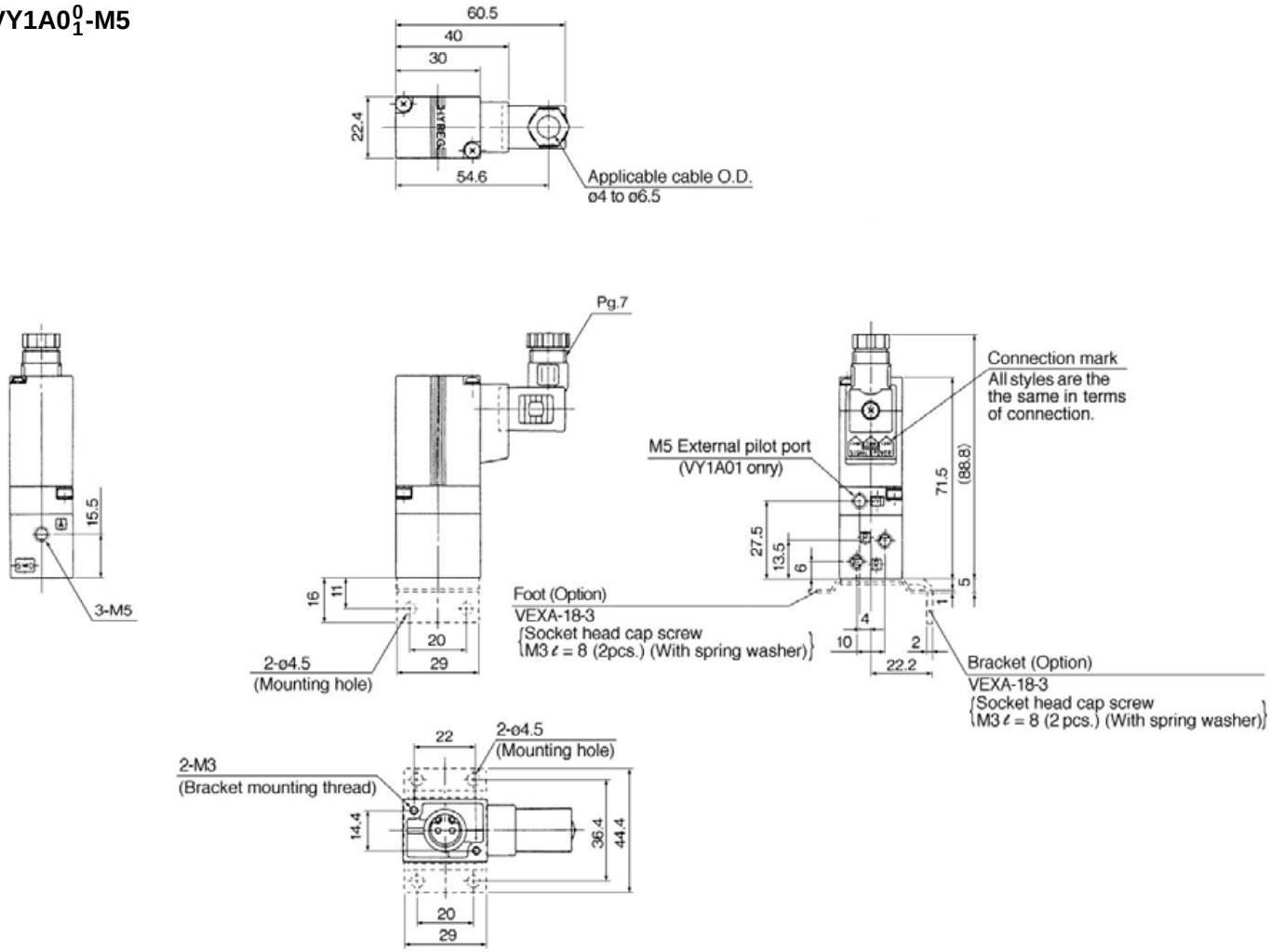
Then, the result is 12S.

Dimensions

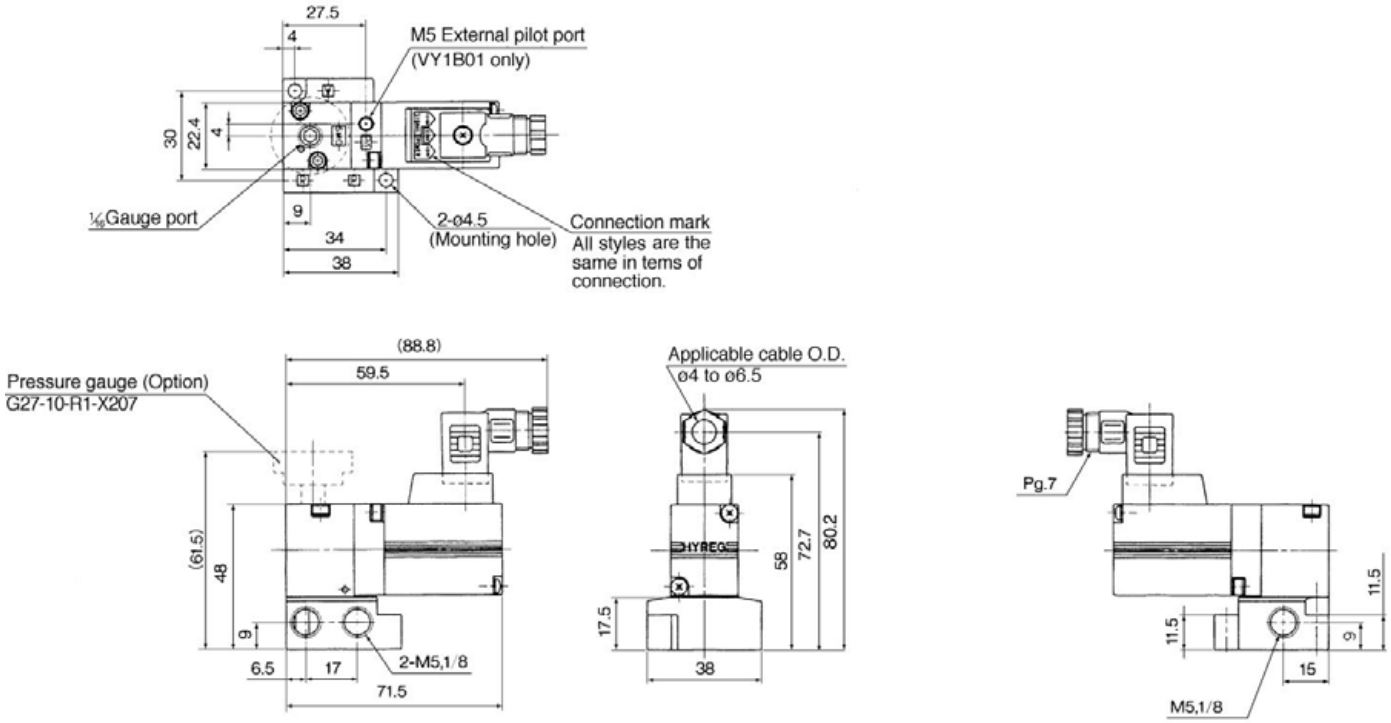
VY1D00-M5



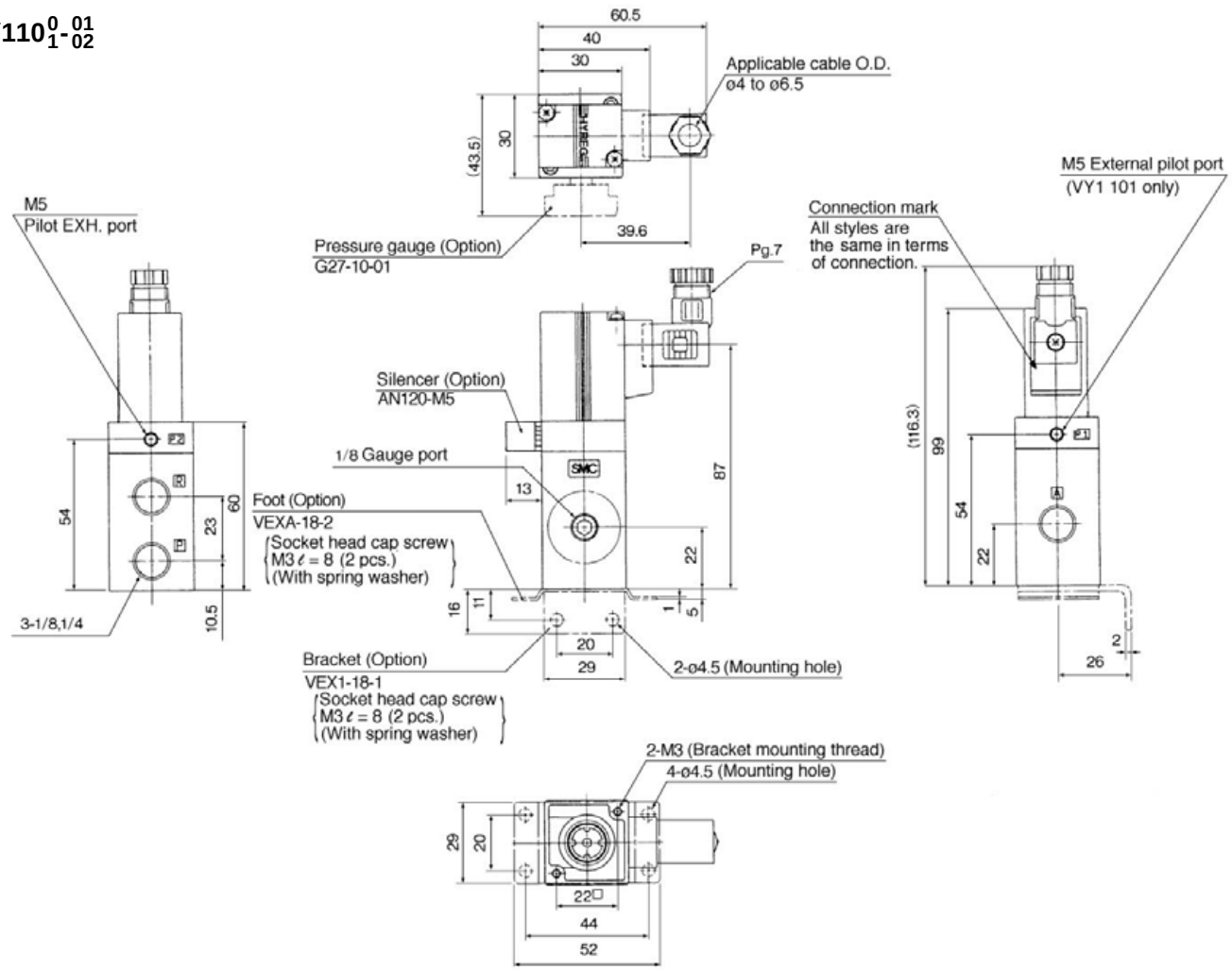
VY1A0$^{0}_{1}$-M5



VY1B0$^{0}_{1}$-$^{M5}_{01}$

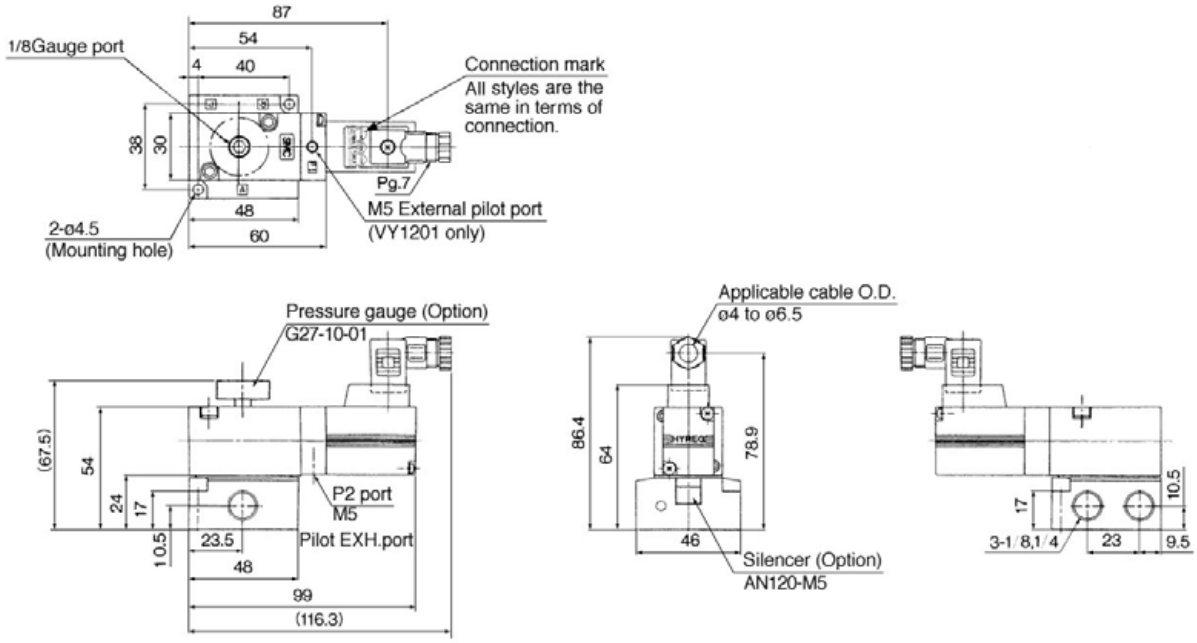


VY110$^{0}_{1}$-$^{01}_{02}$

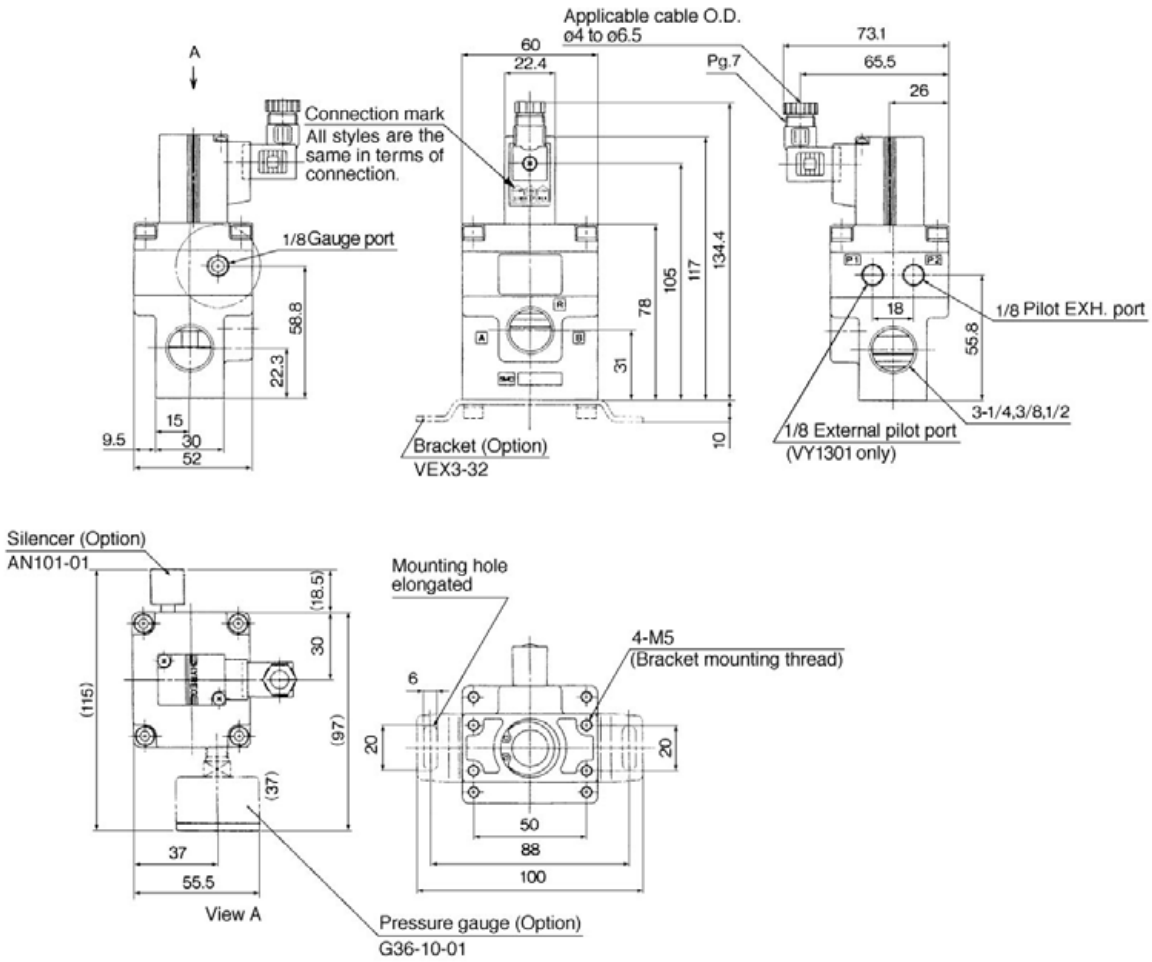


Dimensions

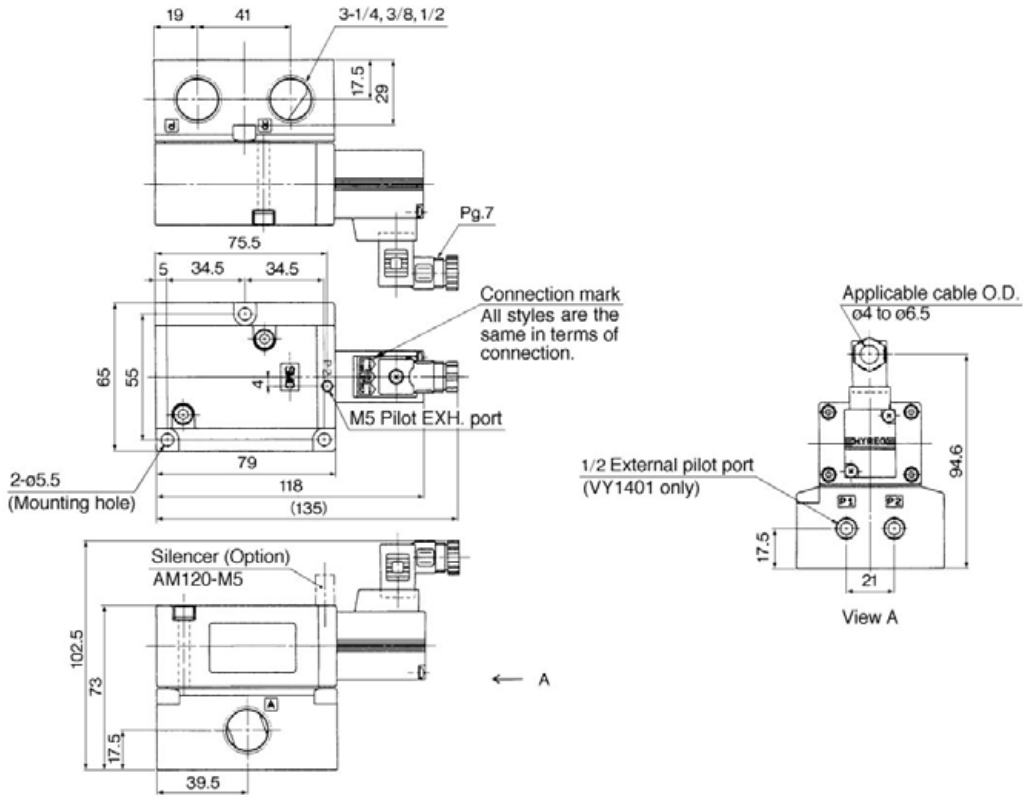
VY120$^{0}_{1}$-$^{01}_{02}$



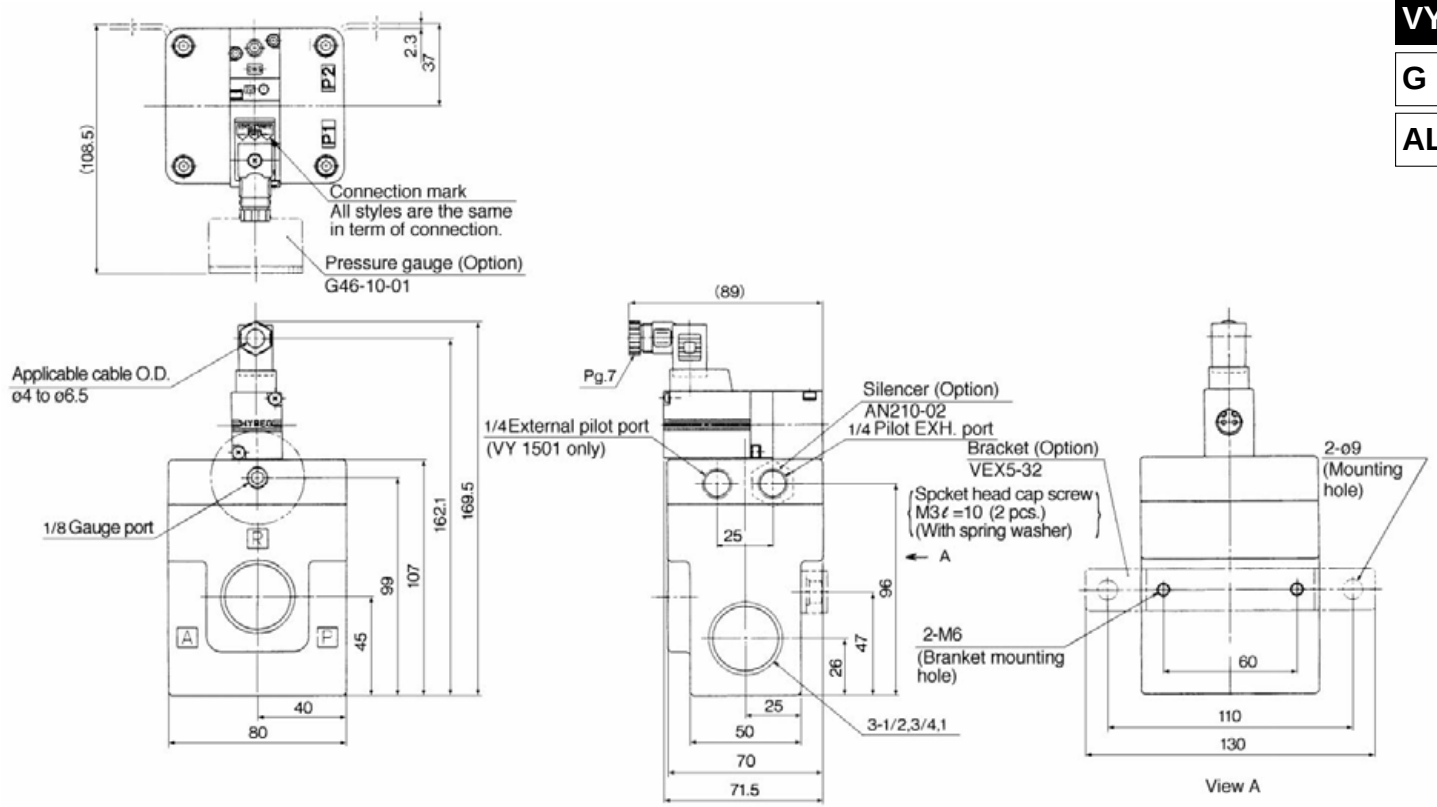
VY130$^{0}_{1}$-$^{02}_{03}_{04}$



VY140$^{0}_{1}$-$^{02}_{03}_{04}$

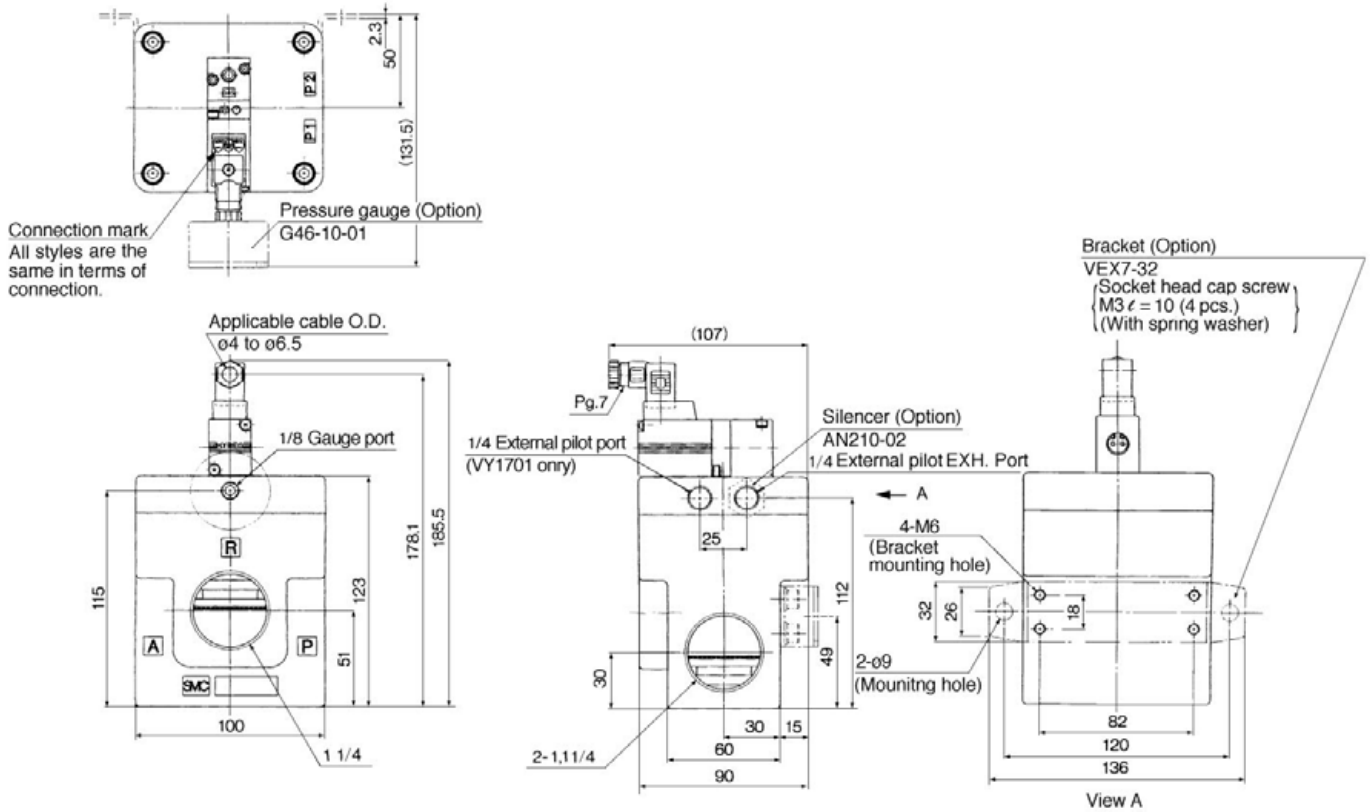


VY150$^{0}_{1}$-$^{04}_{06}_{10}$

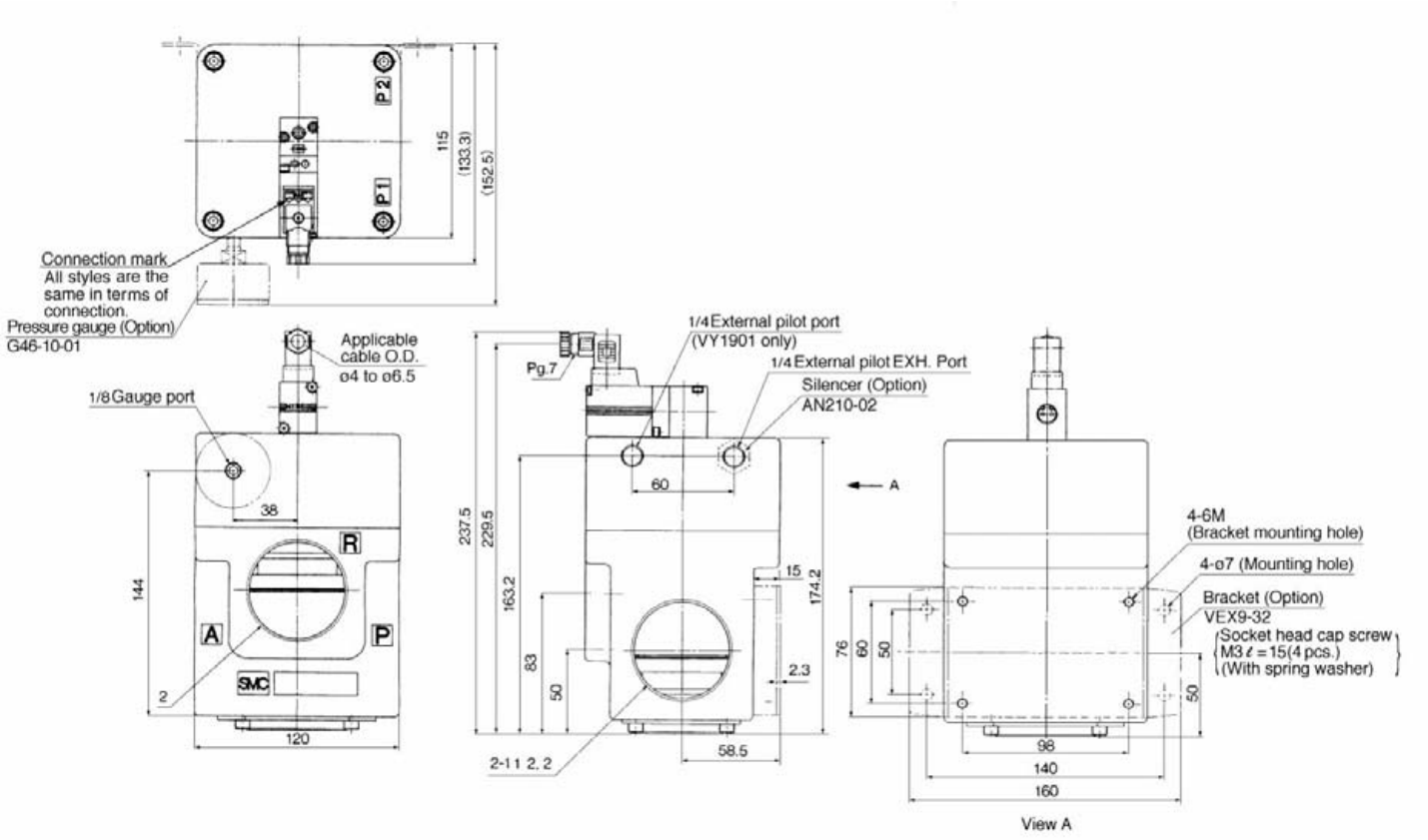


Dimensions

VY170$^{0}_{1}$-$^{10}_{12}$



VY190$^{0}_{1}$-$^{14}_{20}$



⚠Precautions

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instruction and common precautions on the products mentioned in this catalog.

Piping

⚠Caution

①**Tightening the fittings and their torque**

When screwing fittings into the valves, make sure to tighten them to the proper torque values given below.

Tightening torque when piping

Connection thread	Applicable torque N/m
M5 X 0.8	1.5 to 2 ≅ 1/6 rotation
Rc(PT) 1/8	7 to 9
Rc(PT) 1/4	12 to 14
Rc(PT) 3/8	22 to 24
Rc(PT) 1/2	28 to 30
Rc(PT) 3/4	28 to 30
Rc(PT)1	36 to 38
Rc(PT)1 1/4	40 to 42
Rc(PT)1 1/2	48 to 50
Rc(PT)2	48 to 50

Operating air quality

⚠Caution

Poor quality air could increase the spool's sliding resistance. Use compressor oil with a minimal generation of oxidants and install a mist separator (SMC's AM series). Refer to "Compressed Air Cleaning Systems" in Best Pneumatics 4.

Pressure gauge

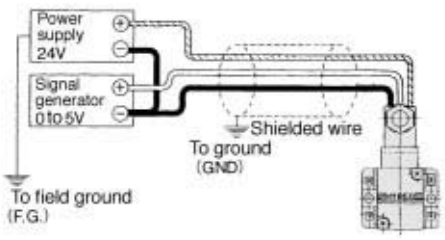
⚠Caution

If equipped with a pressure gauge, be aware of the possibility of the gauge being affected due to sudden pressure fluctuations.

Wires to be used

⚠Caution

Use 3 core shielded wires measuring 0.5 (mm^2) for the power supply and signal lines according to the respective number of conductors. When connecting the shielded braided wire, connect it to the ground of the signal generator. As a rule, the electro-pneumatic hybrid regulator should be installed in a location that is free of noise or is shielded. If it must be installed in an environment with poor noise conditions, eliminate the power supply noise by using a line filter, Z-wrap, or a spark killer on the 100V power supply or signal source line. The length of the power supply and signal lines must be kept as short as possible.



How to use DIN connector

⚠ Caution

● **Wiring procedures**

①Loosen the retaining screw and pull the connector from the solenoid valve terminal block.

②Remove the retaining screw, insert a flat head screw driver into the groove below the terminal block and pry it up to separate the terminal block from the housing.

③Loosen the terminal screws (slot head screws) on the terminal block. Then, in accordance with the wiring procedure, insert the cores of the lead wires into the terminals and tighten the terminal screws to secure the wires in place.

④Tighten the ground nut to secure the cord.

● **Outlet changing procedure**

After the terminal block has been separated from its housing, reassemble the housing in the desired direction (in four 90° increments) to change the cord outlet.

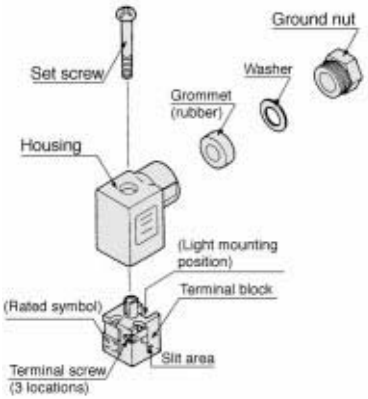
● **Precaution**

Make sure to push or pull the connector straight, without tilting it diagonally.

● **Applicable wire**

Cord external diameter: ø4 to ø6.5

c.f. 0.5mm^2 3-core wire (JISC3306 equivalent)



● Connector part no.: VK300-82-1

Related Products

Silencer (Series AN)

- Noise reducing effect: 30dB or more.
- Large effective area

Model	Connection R(PT)	Effective area (mm^2)
AN120	M5 X 0.8	5
AN110	1/8	35
AN200	1/4	35
AN300	3/8	60
AN400	1/2	90
AN500	3/4	160
AN600	1	270
AN700	1 1/4	440
AN800	1 1/2	590
AN900	2	960

● Refer to p.5.2-1 in Best Pneumatics 1 for details.

Exhaust cleaner (Series AMC)

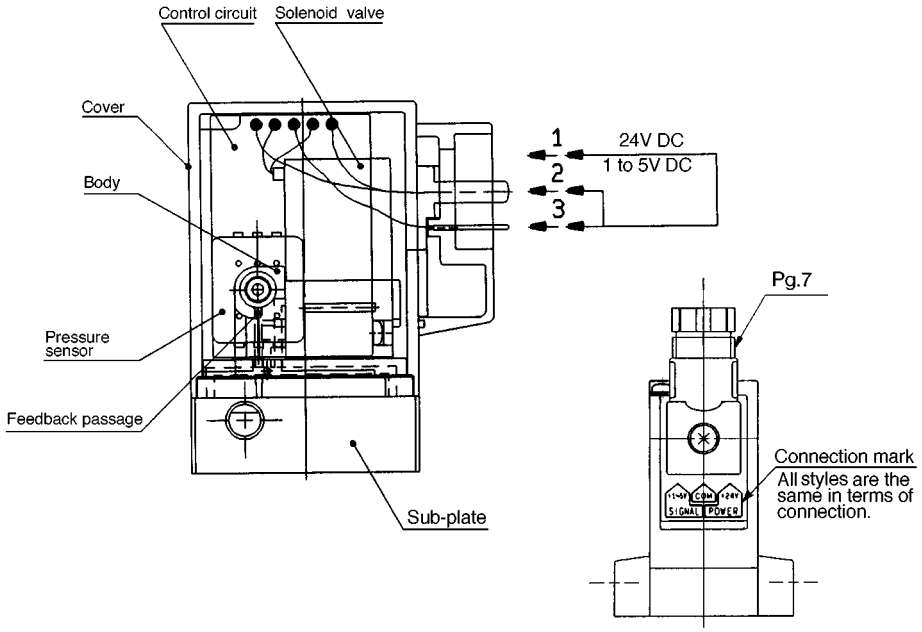
- Provides noise reduction and oil mist collecting functions.
- Can also be used in an common piping system.

Model	Connection R(PT)	Effective area (mm^2)	Max. flow capacity (ℓ/min(ANR))
AMC310	3/8	16	300
AMC510	3/4	55	1,000
AMC610	1	165	3,000
AMC810	1 1/2	330	6,000
AMC910	2	550	10,000

- Oil mist removal: 99.9%
- Noise reduction effect: 35dB or more
- Refer to p.5.3-1 in Best Pneumatics 1 for details.

Construction/Operation Principles

VY1D00-M5



Operation Principles

●When the command signal is below 1V DC, the solenoid valve is inactive, and the port A pressure is zero.

●When a command signal between 1 and 5V DC is provided, the solenoid is activated. The port A pressure is fed back to the control circuit by the pressure sensor.

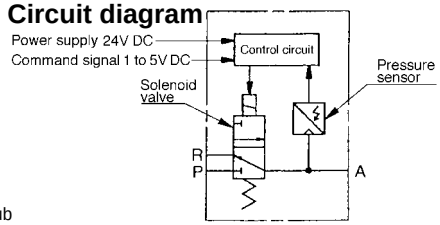
●The control circuit compares the feedback signal with the size of the command signal that was provided, and:

1) If the feedback signal is smaller, current is supplied to the solenoid valve to raise the port A pressure (from P to A).

2) If the feedback signal is greater, current is not supplied to the solenoid valve to reduce the port A pressure (from A to R).

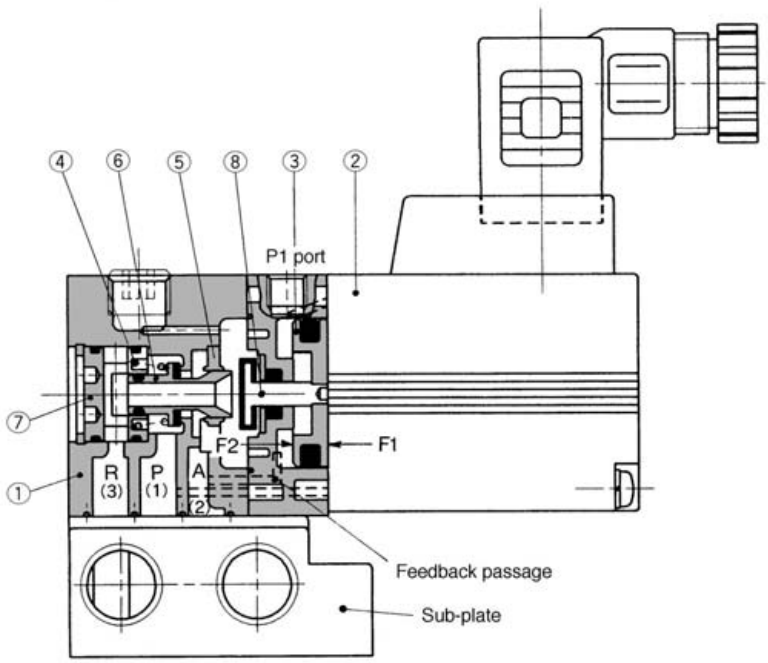
∗The above processes 1) and 2) are repeated at high speeds to establish the port A pressure.

Circuit diagram



The VY1D00, which is the smallest direct drive, consists of a solenoid, pressure sensor, control circuit, body cover, and a sub plate. The style with a sub plate can be used alone, and the style without a sub plate can also be used as a pilot valve.

VY1A0⁰₁, VY1B0⁰₁(Pilot valve: VY1D00-00)



Operation Principles

●The supply (P to A) valve of valve ⑥ and the exhaust (A to R) valve close due to the balance between actuating forces F1 and F2. Actuating force F1 is applied to the right surface of pressure regulation piston ③ by the pilot pressure (pilot valve assembly ②: VY1-D00-00), and actuating force F2 is applied to the left surface of the pressure regulation piston by the port A pressure that passes through the feedback passage. Thus, the port A pressure that corresponds to the pilot pressure is established.

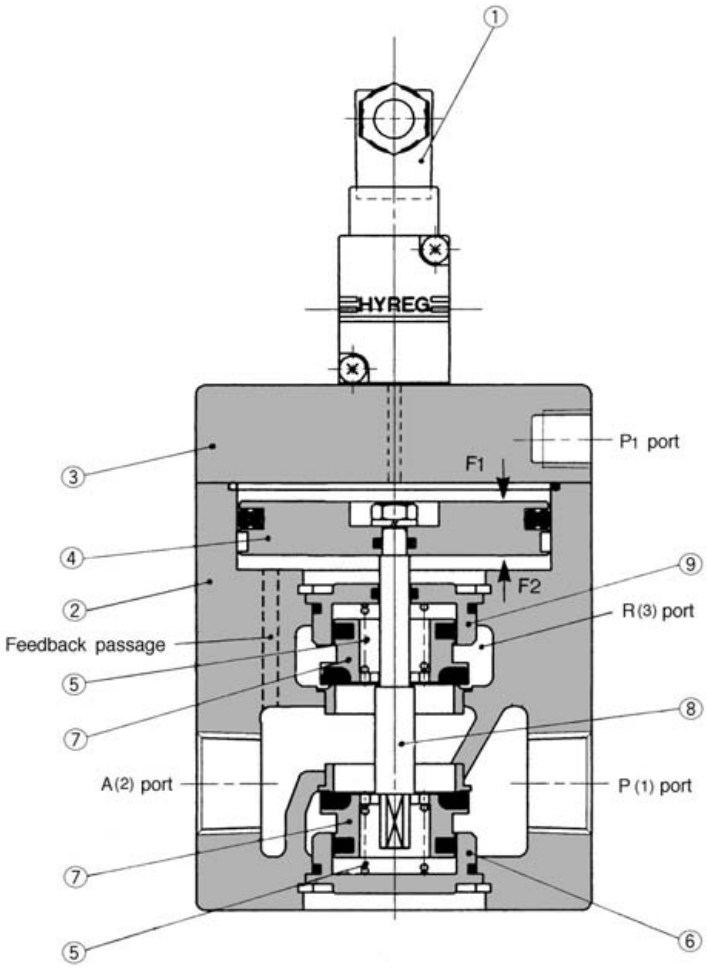
●When the port A pressure becomes higher than the pilot pressure, F2 becomes greater than F1. This causes only the pressure regulation piston to move to the right, and the exhaust valve seat to open, allowing the air to be discharged from port A to port R. When the port A pressure drops to reach a balance, the regulator returns to the set state.

●Conversely, if the port A pressure is lower than the pilot pressure, F2 becomes lower than F1. This causes the pressure regulating piston to move the valve to the left, and the supply valve seat to open, allowing the air to be supplied from port P to port A. When the port A pressure balances, the regulator returns to the set state.

Component Parts

No.	Description	Material
①	Body	Zinc alloy die cast
②	Pilot valve ass'y	—
③	Adjusting piston	Aluminum alloy
④	Spring	Stainless steel
⑤	Valve guide	Stainless steel
⑥	Valve	NBR
⑦	Retainer	Aluminum alloy
⑧	Rod	NBR

VY110$^{0}_{1}$, VY120$^{0}_{1}$, VY130$^{0}_{1}$, VY140$^{0}_{1}$ (Pilot valve: VY1D00-00)
VY150$^{0}_{1}$, VY170$^{0}_{1}$, VY190$^{0}_{1}$ (Pilot valve: VY1B00-00)



Operation Principles

●The pair of poppet valves ⑦ close due to the balance between actuating forces F1 and F2. Actuating force F1 is applied to the top surface of pressure regulation piston ④ by the pilot pressure (pilot valve assembly ①: VY1$^{D}_{B}$00-00), and actuating force F2 is applied to the bottom surface of the piston by the port A pressure that passes through the feedback passage. Thus, the port A pressure that corresponds to the pilot pressure is established. The poppet valve, which maintains a pressure balance with the port A pressure, is backed up by spring ⑤ (refer to the diagram on the left).

●When the port A pressure becomes higher than the pilot pressure, F2 becomes higher than F1. This causes the pressure regulation piston to move upward, and the top poppet valve to open, allowing the air to be discharged from port A to port R. When the port A pressure drops to reach a balance, the regulator returns to the state shown in the diagram to the left.

●Conversely, if the port A pressure is lower than the pilot pressure, F2 becomes less than F1. This causes the pressure regulation piston to move downward, and the lower poppet valve to open, allowing the air to be supplied from port P to port A. When the port A pressure rises to reach a balance, the regulator returns to the state shown in the diagram to the left.

Component Parts

No.	Description	Material
①	Pilot valve ass'y	–
②	Body	Zinc alloy die cast
③	Cover	Zinc alloy die cast
④	Adjusting piston	Aluminum alloy
⑤	Spring	Stainless steel
⑥	Valve guide	NBR
⑦	Poppet valve	Stainless steel
⑧	Shaft	Aluminum alloy
⑨	Valve guide	NBR

Pilot Operated Regulator

AR425 to 935

Standard Specifications

Model	AR425	AR435	AR625	AR635	AR825	AR835	AR925	AR935
Port size	1/4, 3/8, 1/2		3/4, 1		1¼, 1½		2	
Fluid	Air							
Proof pressure	1.5MPa							
Max. operating pressure	1.0MPa							
Set pressure range MPa(1)	0.05 to 0.83	0.02 to 0.2	0.05 to 0.83	0.02 to 0.2	0.05 to 0.83	0.02 to 0.2	0.05 to 0.83	0.02 to 0.2
Air comsumption (2)	5ℓ/min (ANR) (At maximum pressure)							
Pressure gauge port size	1/4							
Ambient and fluid temperature	–5 to 60°C (Non-freezing)							
Construction	Internal pilot relieving style (Pilot air is always bleeding.)							
Weight (kg)	0.7		1.1		2.5		4.5	

Note 1) Outlet pressure range: P_2 is 90% of P_1 or less. Note 2) Air consumption differs depending on the set pressure.

Accessories (Options) Part No.

Description \ Model	Part No. AR4□5	AR6□5	AR8□5	AR9□5
Bracket	B24P	B25P	—	—
Pressure gauge with limit indicator(1)	G46-10-□02(Max. 1.0MPa), G46-2-□02(Max. 0.2MPa)			

Note 1) · In the gauge part no. (e.g. G46-10-□02)□ indicate kind of the connecting thread.
· Put nothing for Rc(PT) and "N" for NPT thread. Consult SMC for NPT pressure gauge.

Internal pilot operated relieving style regulator

AR8□5

AR6□5

AR6□5-□□BG

AR425-□□BG

How to Order

AR | 4 | 25 | — | | 02 | BG | — | R

Regulator

Body size

4	1/2
6	1
8	1½
9	2

Set pressure range

25	0.05 to 0.83MPa
35*	0.02 to 0.2MPa

*Only the adjusting spring is different from "AR*25".

Thread

–	Rc(PT)
N	NPT
F	G(PF)

Port size

02	1/4
03	3/8
04	1/2
06	3/4
10	1
12	1¼
14	1½
20	2

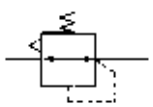
Accessories (Options)

Symbol		Description	Applicable model
Blank		—	—
B		Bracket	AR4□5–6□5
G	Gauge	G46-10-02	AR□25
		G46-2-02	AR□35

Option

Blank	None
R	Reverse flow

JIS symbol

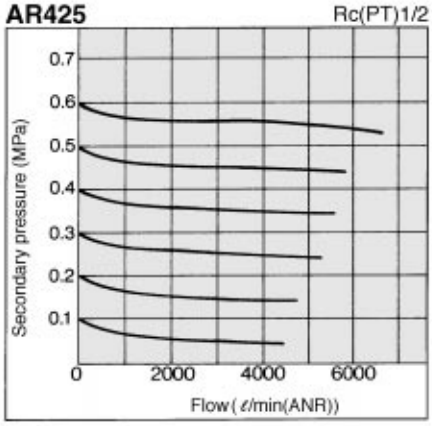


AR425 to 935

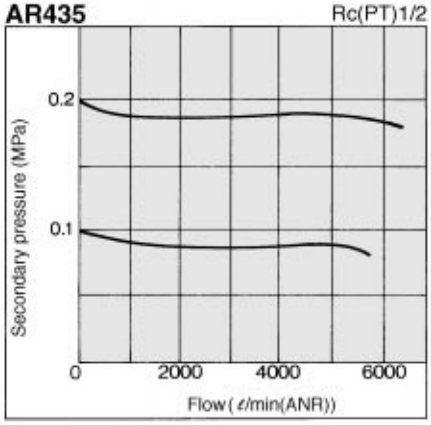
Flow Characteristics

Supply pressure: 0.7MPa

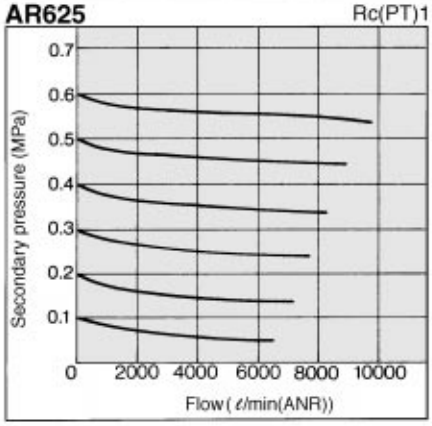
AR425 Rc(PT)1/2



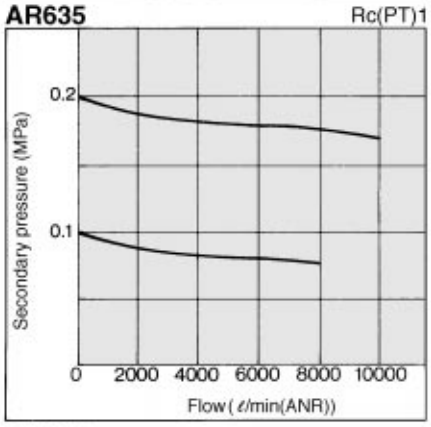
AR435 Rc(PT)1/2



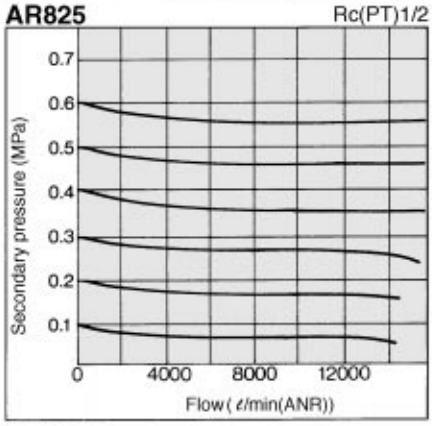
AR625 Rc(PT)1



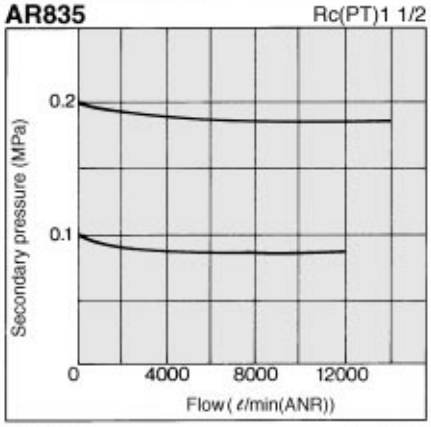
AR635 Rc(PT)1



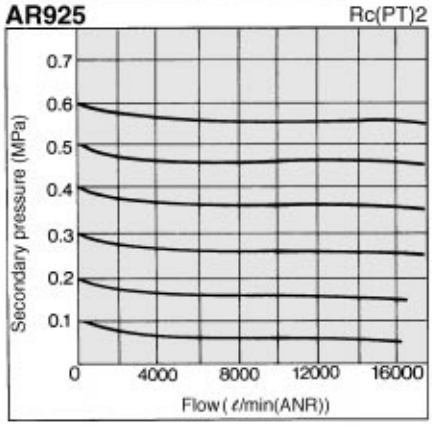
AR825 Rc(PT)1/2



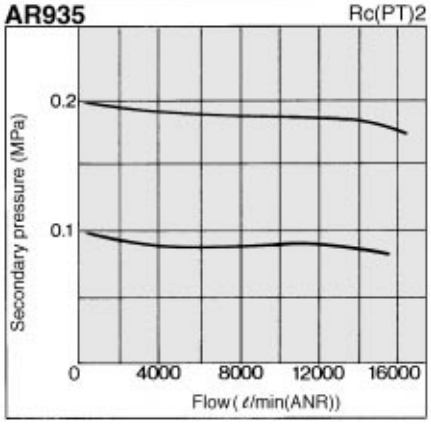
AR835 Rc(PT)1 1/2



AR925 Rc(PT)2



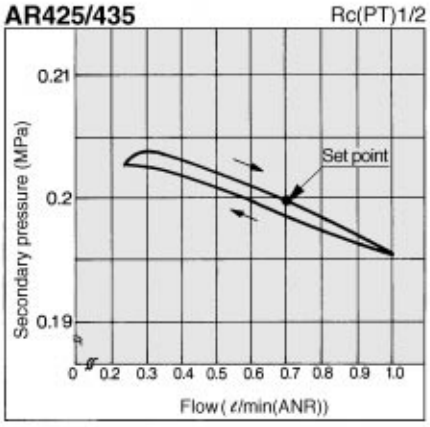
AR935 Rc(PT)2



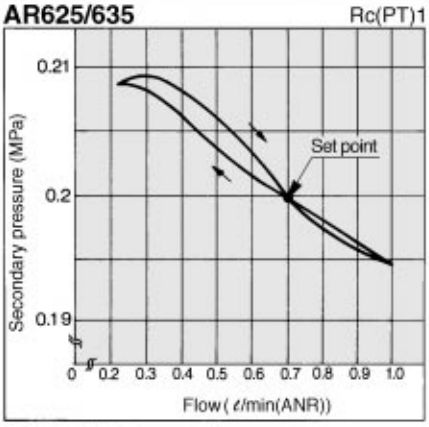
Pressure Characteristics

Supply pressure: 0.7MPa
Secondary pressure: 0.2MPa
Flow: 20 ℓ/min (ANR)

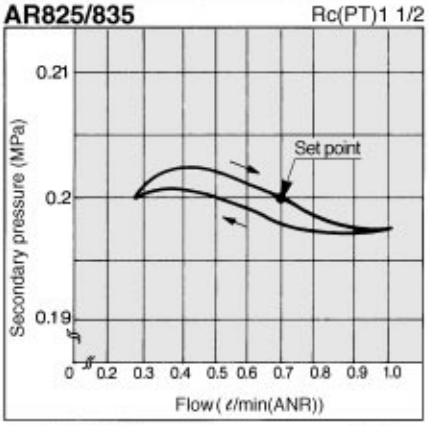
AR425/435 Rc(PT)1/2



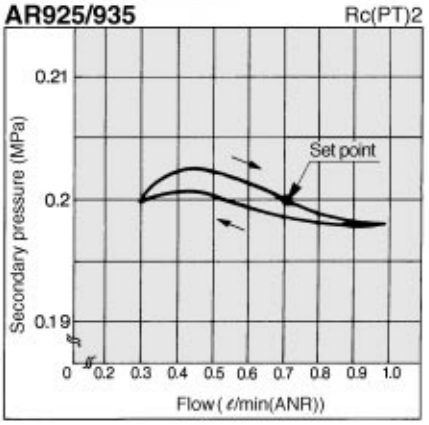
AR625/635 Rc(PT)1



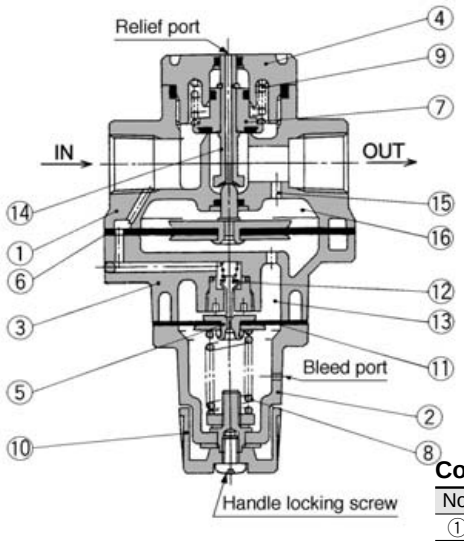
AR825/835 Rc(PT)1 1/2



AR925/935 Rc(PT)2



Construction



When handle ⑩ is turned clockwise to compress pressure adjustment spring ⑧, the pressure from the IN side passes through diaphragm ⑪, opens pilot valve ⑫, and enters upper pilot chamber ⑬. This pressure and the force generated by pressure adjustment spring ⑧ act as resistance, resulting in equilibrium. Then, this pressure passes through diaphragm ⑥ of the main valve and stem ⑭, and pushes valve (main valve) ⑦ open, thus guiding the pressure to the OUT side. At the same time, the pressure passes through feedback hole ⑮, and enters diaphragm chamber ⑯, thus establishing the OUT side pressure (secondary pressure).

Component Parts

No.	Description	Material	Note
①	Body	ADC*	Painted silver
②	Bonnet	ADC	Painted silver
③	Chamber	ADC	Painted silver
④	Valve guide	ZDC*	Painted silver

*In case of AR825/835/925/935, the material is AC2A-F.

Replacement Parts

No.	Description	Material	Part No.			
			AR425/435	AR625/635	AR825/835	AR925/935
⑤	Exhaust valve ass'y	—	132586A	132586A	132586A	132586A
⑥	Main valve side diaphragm ass'y	—	132581A	132659A	13275A	13285A
⑦	Valve ass'y	—	132572A	132653A	132752A	132829A
⑧	Adjusting spring	SWPB	135053(AR425) 135025(AR435)	135053(AR625) 135025(AR635)	135053(AR825) 135025(AR835)	135053(AR925) 135025(AR935)
⑨	Valve spring	SUS304	135211	132656	132713	13289

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Mounting/Adjustment

⚠Warning

①Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

②The pressure gauge that is provided with AR*35 for setting a pressure between 0.02 to 0.2MPa is the 0.2MPa style. To prevent damage to the pressure gauge, make sure that a pressure that exceeds 0.2MPa is not applied.

③Install the valve guide (on the opposite side of the handle) 60mm away from the ground surface to facilitate maintenance inspection.

④Do not use the regulator with flow exceeding the Max. flow indicated in "Flow Characteristics" as this can cause failure in pressure adjustment.

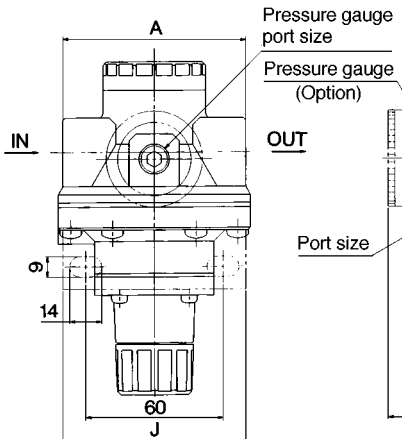
⚠Caution

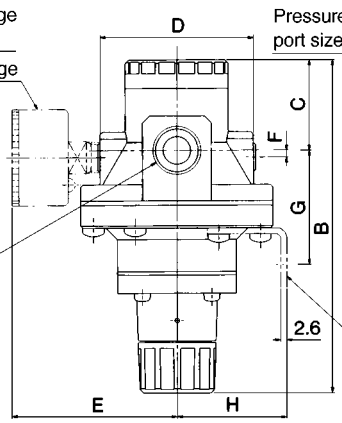
①Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.
〈Lock operating method〉
Loosen the handle locking screw to release the lock, and tighten it to lock it.

②To use this product between the solenoid valve and the actuator, contact SMC.

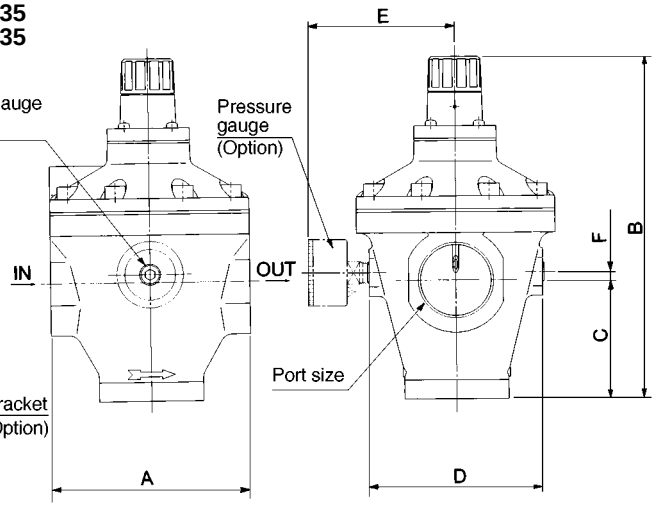
Dimensions

AR425/435
AR625/635





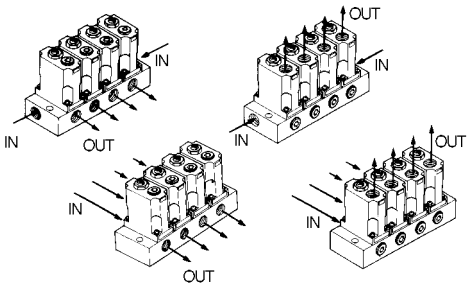
AR825/835
AR925/935



Model	Port size	Pressure gauge port size	A	B	C	D	E	F	Bracket dimensions			Bracket part No.
									G	H	J	
AR425/435	1/4, 3/8, 1/2	1/4	80	145.5	39.5	67	73	3	46.5	48	80	B24P
AR625/635	3/4, 1	1/4	98	155	43	78	78.5	7	85	52	90	B25P
AR825/835	1 1/4, 1 1/2	1/4	126	216	75	110	94.5	5	—	—	—	—
AR925/935	2	1/4	160	241	90	140	109.5	10	—	—	—	—

Regulator Manifold
ARM1000/2000

4 connection methods



Small size pressure gauge ø15

Backflow function available on the standard model

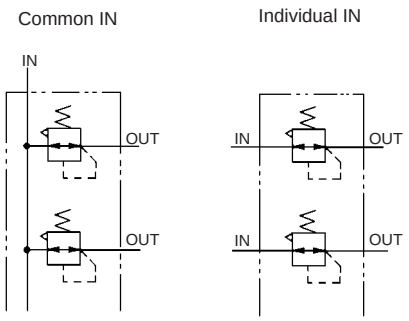
Space saving

ARM1000-6A1-01G

ARM2000-4B2

ARM2000-4A2-01G

Symbol



Standard Specifications

Fluid	Air
Proof pressure	1.2MPa
Max. operating pressure	0.8MPa
Set pressure range	0.05 to 0.7MPa
Ambient and fluid temperature	–5 to 60°C
Cracking pressure (Valve)	0.02MPa
Construction	Relieving style

Port Size/Weight

Model	Piping	Port size		Weight (g)	
		IN	OUT	Total weight (n: stations)	Regulator (Except manifold)
ARM1000	Common IN	1/8	1/8	(80 X n) + 23	57
	Individual IN	1/8	1/8	(79 X n) + 25	
ARM2000	Common IN	1/4	1/8	(188 X n) + 43	136
	Individual IN	1/8	1/8	(187 X n) + 45	

How to Order

ARM 1000 — 5 A1 □ 01 G — 1

Regulator for manifold

Body size

1000	
2000	

Number of stations

1	1 station
⋮	⋮
10	10 stations

Piping

Symbol	IN	OUT
A1	Common	Manifold side
A2		Body side
B1	Individual	Manifold side
B2		Body side

∗ In case of A1 and B1, a pressure gauge or a plug is mounted on the body side, while in case of A2 and B2, on the manifold side.
∗∗ When mounting a pressure gauge on the body side, its front faces to the adjusting screw.

Port size (OUT side)

01	1/8

Thread

—	Rc(PT)
N	NPT

∗ In case of a single regulator without a manifold base, indicate "ARM1000A or ARM2000A."
∗∗ When a regulator is not mounted on the manifold, use the following blank plate ass'y (with mounting screws and O ring)
For ARM1000: Part no. 136214A
For ARM2000: Part no. 136214A

Accessory

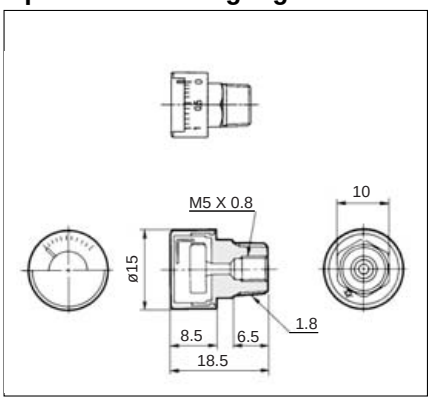
—	None (with plug)
G	Pressure gauge

Option

1	Set at 0.2MPa

∗ Pressure gauge for 1MPa is used.
∗∗ Only the adjusting spring is different from the standard model.

Option: Pressure gauge G15-10-01



•Precautions: When drain or oil gets into the gauge, an error is shown on the display.

How to Order

G15 — 10 — □ 01

Max. pressure indication

10	1.0MPa

∗Pressure gauge for 0.2MPa

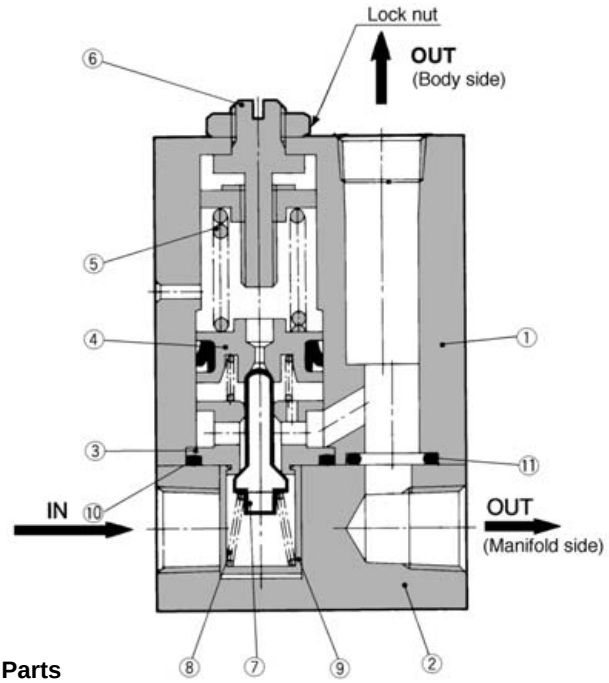
Connecting thread

01	1/8 male thread, M5 female thread

Thread

—	Rc(PT)
N	NPT

Construction (Individual IN)



Component Parts

No.	Description	Material	Note
①	Body	ADC	Chromate
②	Manifold	Aluminum alloy	Chromate
③	Valve guide	Brass	
④	Piston	Brass	
⑤	Adjusting spring	Steel wire	Zinc chromate
⑥	Adjusting screw	Steel	Electroless nickel plated

Replacement Parts

No.	Description	Material	Part no.	
			ARM1000	**ARM2000**
⑦	Valve	Brass/NBR	134819	13626
⑧	Valve spring	Stainless steel	13615	13625
⑨	Valve guide	POM	13614	13624
⑩	O ring	NBR	16.5 X 13.5 X 1.5	23 X 20 X 1.5
⑪	O ring	NBR	JIS B 2401P7	JIS B 2401P8

Setting

①Make sure to check the primary pressure before setting the secondary pressure. Turning the pressure adjustment handle clockwise increases the secondary pressure and turning it counterclockwise decreases the pressure. (To set the pressure, do so in the direction of pressure increase.)
②The secondary pressure must be set to 85% or less of the primary pressure.

⚠ Precautions

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Mounting/Adjustment

⚠ Warning

①In the case of the common IN style, supply pressure from the two IN ports from both ends. Failure to observe this procedure could lead to an excessive pressure drop.
②Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

⚠ Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

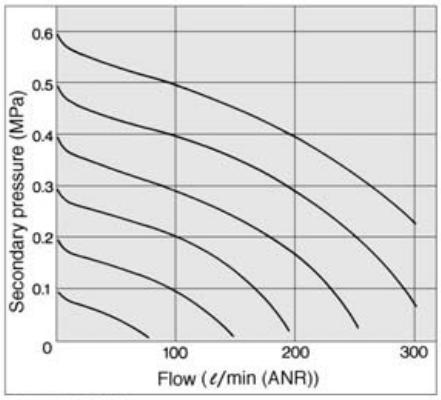
Maintenance

⚠ Warning

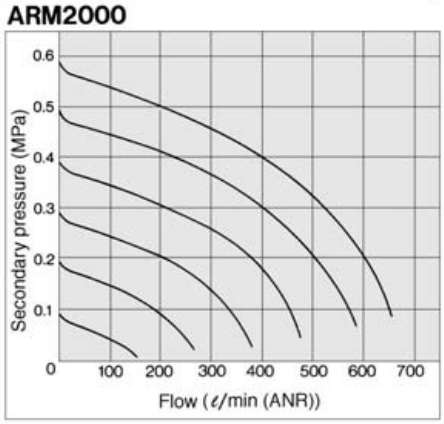
①Make sure to perform a periodic inspection of the pressure gauge when it is used by installing it between a solenoid valve and an actuator, etc.
Because of the possibility of creating sudden pressure fluctuations, the durability of the product could be shortened.
Under certain circumstances, the use of an electronic style pressure gauge is recommended.

Flow Characteristics

ARM1000 Supply pressure: 0.7MPa



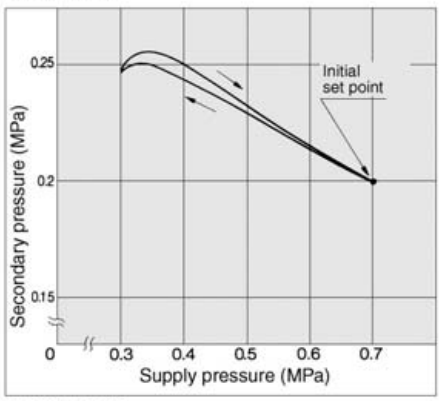
ARM2000



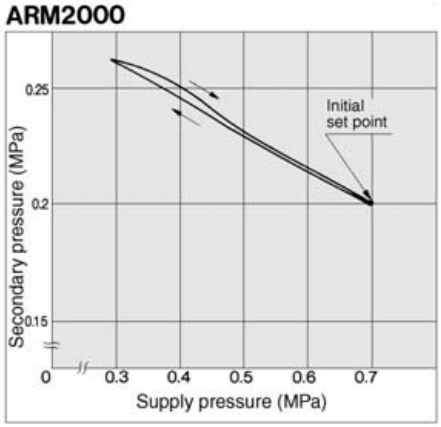
Pressure Characteristics

Initial setting Supply pressure: 0.7MPa
Secondary pressure: 0.2MPa
Flow: 10 ℓ/min (ANR)

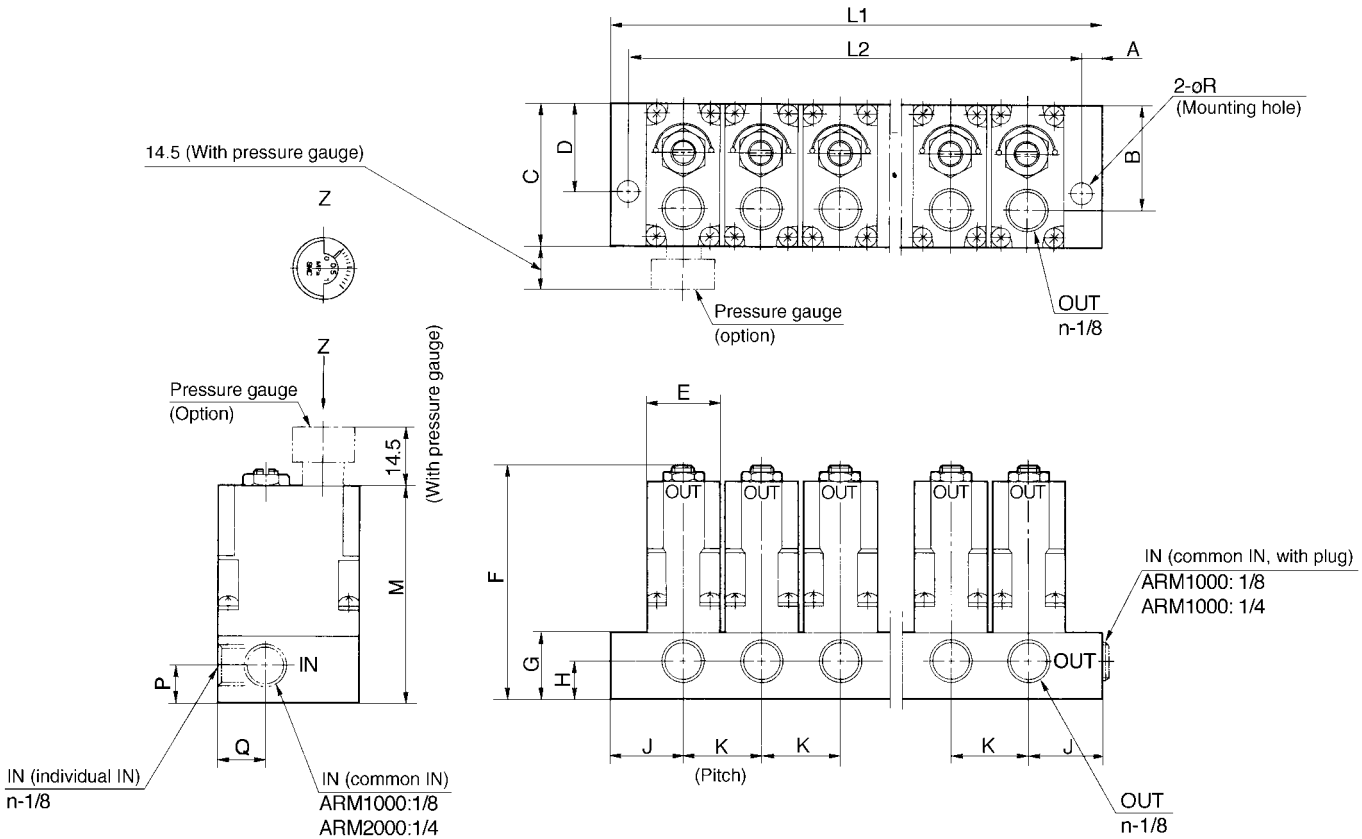
ARM1000



ARM2000



Dimensions



Dimensions

Model \ Symbol	A	B	C	D	E	F	G	H	J	K	M	P	Q	R
ARM1000	4.5	25	34	21	18	56	16	9	18	19	52	9	11.5	4.8
ARM2000	4.5	34.5	43	28	27	70	20	11.5	24	28	66	11.5	16.5	4.8

Dimensions by Number of Stations

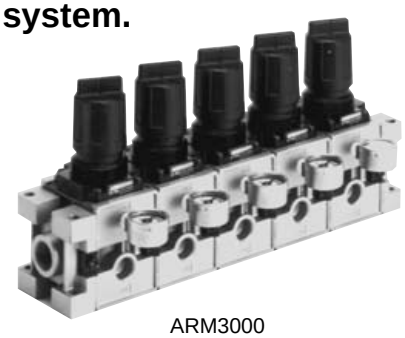
Model	Symbol	Manifold stations (n)									
		1	2	3	4	5	6	7	8	9	10
ARM1000	L1	36	55	74	93	112	131	150	169	188	207
	L2	27	46	65	84	103	122	141	160	179	198
ARM2000	L1	48	76	104	132	160	188	216	244	272	300
	L2	39	67	95	123	151	179	207	235	263	291

Regulator Manifold
Modular Style
ARM2500/3000

A modular style that can be freely mounted on a manifold station.

Optimal for central pressure control.

Easily set up using the new handle.
Also has a One-touch lock system.

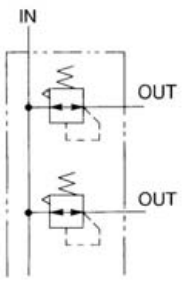


ARM3000

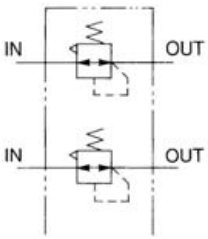
ARM2500

Symbol

Common IN



Individual IN



How to Order

ARM **2500** — **05** **A** — **02** **G1**

Regulator manifold

Body size

2500
3000

Number of stations

02	2 stations
⋮	⋮
10	10 stations

Piping

Symbol	Style	IN
A	Common IN	From end plate
B	Individual IN	From OUT port or G port

Port size (OUT side)

Symbol	Port size	Applicable model
02	Rc (PT) 1/4	ARM2500
03	Rc (PT) 3/8	ARM3000

Accessories (Options)

—	None (with plug)
G1	G33-10-01
G2	GA33-10-01

∗Pressure gauge is attached, not mounted.

Standard Specifications

Proof pressure	1.5MPa
Max. operating pressure	1.0MPa
Set pressure range	0.05 to 0.85MPa
Ambient and fluid temperature	–5 to 60°C(Non-freezing)
Fluid	Air
Construction	Relieving style

Port Size/Weight

Model	Piping	Port size Rc(PT)			Pressure gauge port size Rc(PT)	Weight (kg)	
		IN		OUT		Regulator	End plate
		Body	End plate				
ARM2500	Common IN	—	3/8	1/4	1/8	0.26	0.06
	Individual IN	1/4	—	1/4	1/8		
ARM3000	Common IN	—	1/2	3/8	1/8	0.47	0.11
	Individual IN	3/8	—	3/8	1/8		

Weight by Number of Stations

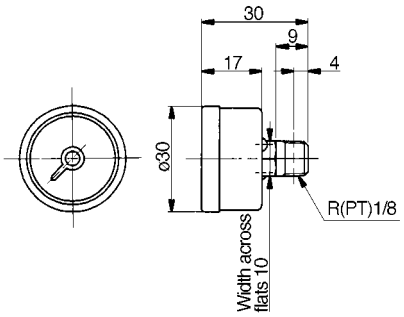
(kg)

Model \ Stations	2	3	4	5	6	7	8	9	10
ARM2500	0.68	0.96	1.23	1.51	1.78	2.06	2.33	2.61	2.89
ARM3000	1.25	1.75	2.25	2.75	3.26	3.76	4.26	4.76	5.26

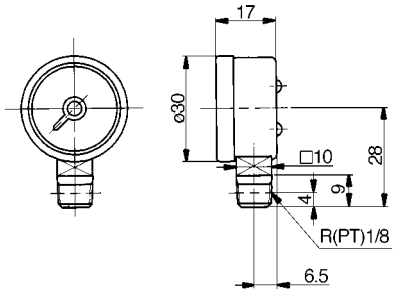
ARM2500/3000

Option: Pressure Gauge (Max. pressure indication 1.0MPa)

G33-10-01



GA33-10-01



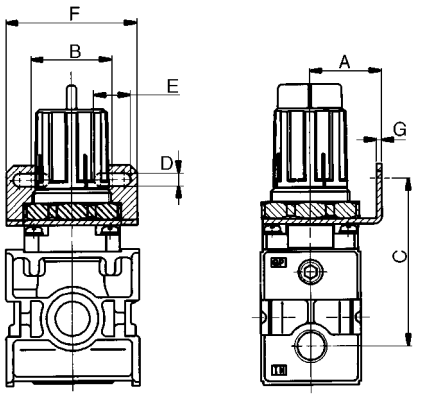
Option: Mounting Bolt Assembly

Model	Part No.	Dimensions	Qty.	Note
ARM2500	136313	Hexagon socket head cap screw (M5 x 70)	4	With flat washer
ARM3000	136413	Hexagon socket head cap screw (M6 x 85)	4	With flat washer

Option: Bracket Assembly

Individual IN style can be used as a single regulator.

Example of mounting



Model	Part No.	A	B	C	D	E	F	G
ARM2500	136314	30	34	70	5.4	15.4	55	2.3
ARM3000	136414	41	40	75.5	6.5	8	53	2.3

⚠Precautions

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Mounting/Adjustment

⚠ Warning

① The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.

② Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

⚠ Caution

① Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

A) On the ARM2500 type, pull the adjustment handle to release the lock and push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.

B) On the ARM3000 type, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

② Turning the pressure adjustment handle clockwise increases the secondary pressure and turning it counterclockwise decreases the pressure.

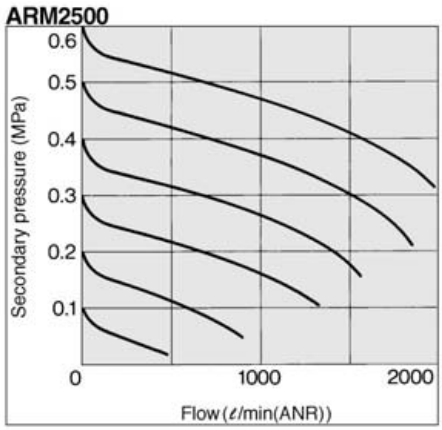
③ Make sure to check the primary pressure before setting the pressure. The secondary pressure must be set to 85% or less of the primary pressure. Failure to observe this procedure could cause the secondary pressure to fluctuate.

④ In the case of the common IN style, supply pressure from the two IN ports from both ends. Failure to observe this procedure could lead to

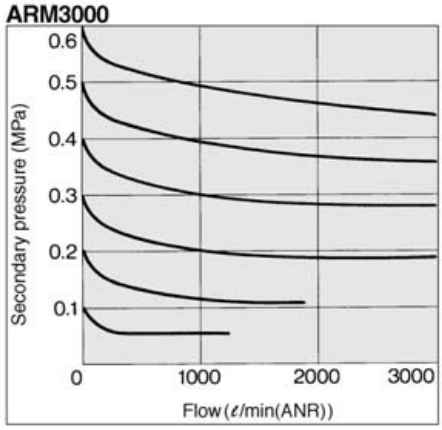
Flow Characteristics

Supply pressure: 0.7MPa

ARM2500



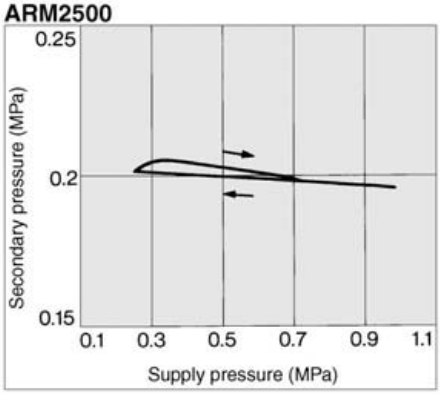
ARM3000



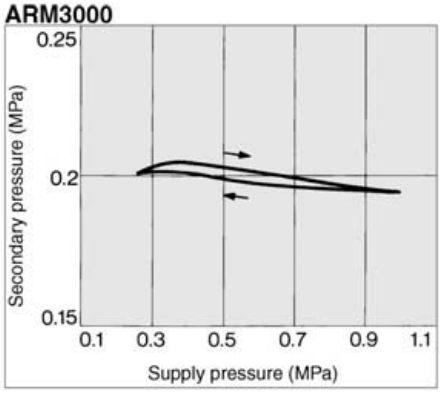
Pressure Characteristics

Initial setting P1: 0.7MPa P2: 0.2MPa
Q: 20 ℓ/min (ANR)

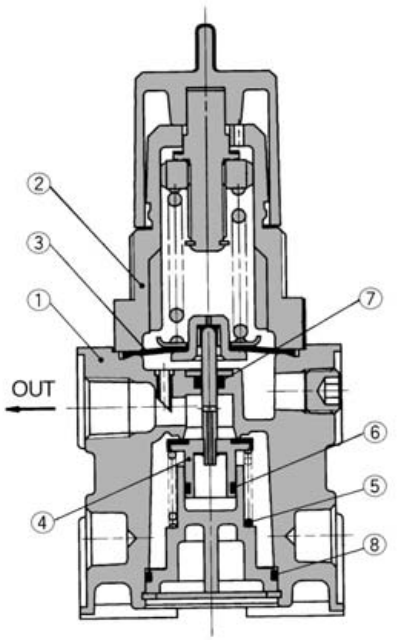
ARM2500



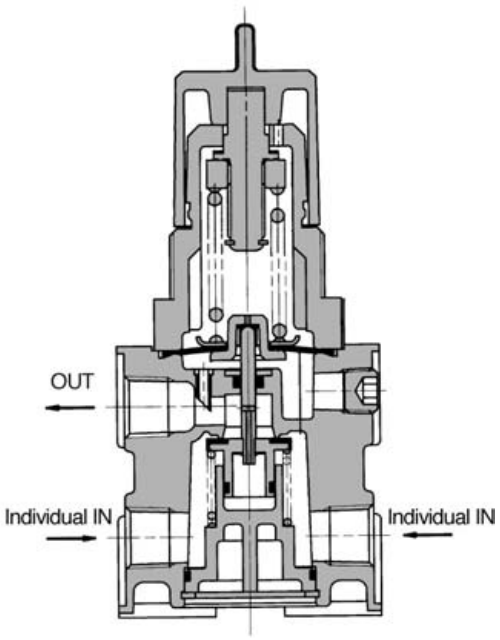
ARM3000



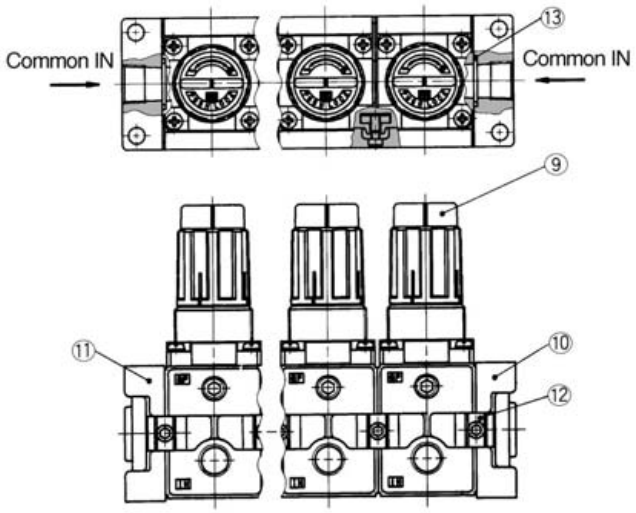
Construction



Common IN



Individual IN



Component Parts

No.	Description	Material	Note
①	Body	Aluminum die cast	Chromate/Painted silver
②	Bonnet	Polyacetal	

Replacement Parts

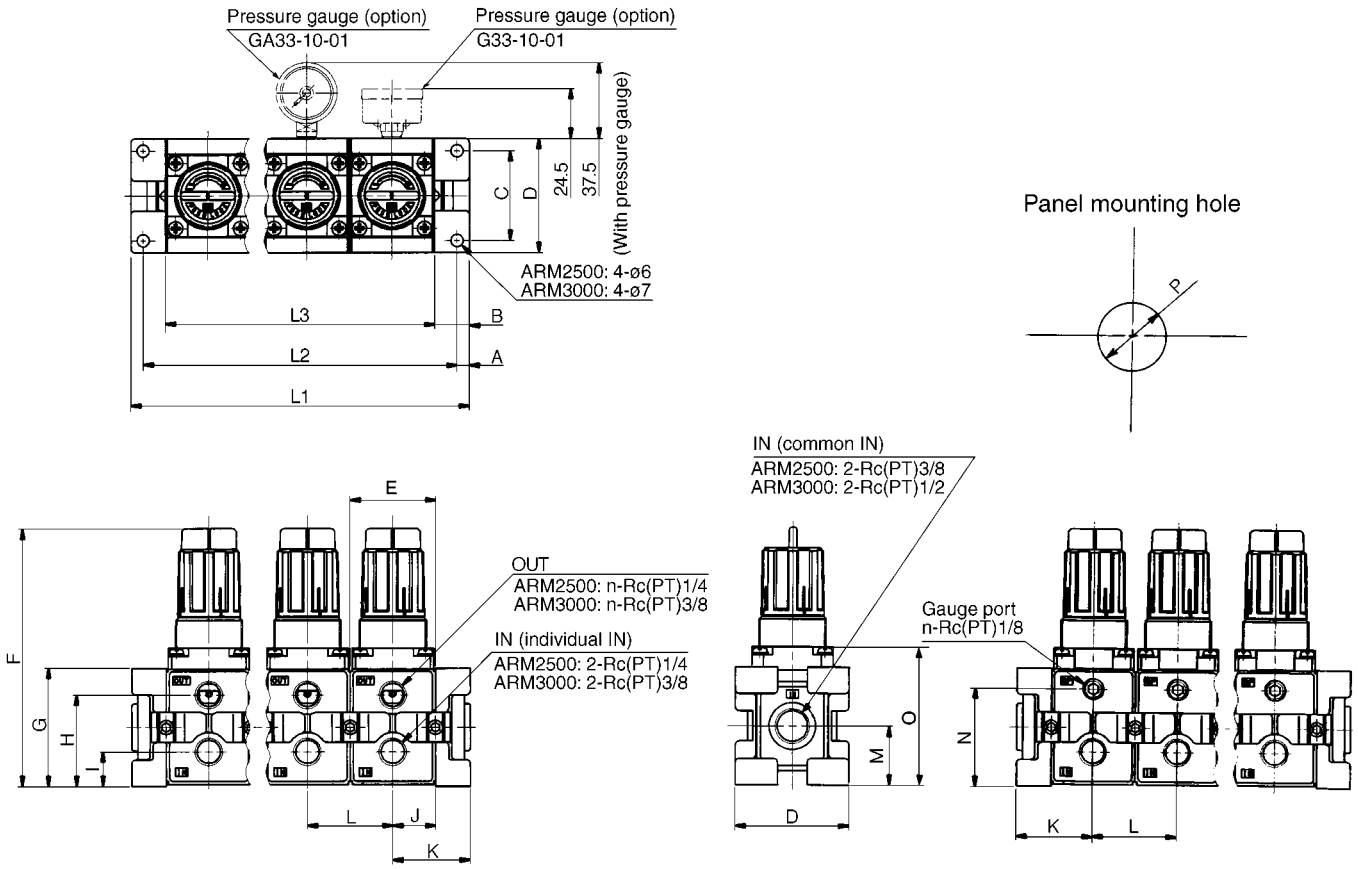
No.	Description	Material	Part No.	
			ARM2500	**ARM3000**
③	Diaphragm ass'y	NBR	1349161A	131515A
④	Valve ass'y	Brass/NBR	13639A	13649A
⑤	Valve spring	Stainless steel	136310	136410
⑥	Valve O ring	NBR	11.5 X 8.5 X 1.5	14.5 X 10.5 X 2
⑦	O ring	NBR	JIS B2401 P3	JIS B2401 P5
⑧	O ring	NBR	28 X 25 X 1.5	35 X 31 X 2

Component Parts

Description	No.	Assembly			Part No.			
		Component		Qty.	**ARM2500**		**ARM3000**	
					Common IN	Individual IN	Common IN	Individual IN
Regulator	⑨	Regulator		1	ARM2500-A-02	ARM2500-A-02	ARM3000-A-02	ARM3000-A-02
End plate ass'y	⑩	End plate R		1	13636A	13636B (Except for O ring)	13646A	13646B (Except for O ring)
	⑪	End plate L		1				
	⑫	O ring		1				
	⑬	Bracket	Bracket A	1 set 2				
			Bracket B	2				
			Hex. socket head cap screw	2				
Bracket ass'y	⑫	O ring		1	136312		136412	
	⑬	Bracket	Bracket A	1 set 2				
			Bracket B	2				
			Hex. socket head cap screw	2				

How to Order
(1) When adding n stations to ARM $\frac{2500}{3000}$-＊＊ $\frac{A}{B}$
·Regulator n pcs.
·Bracket ass'y n pcs.
(2) When regulators, end plate assembly and bracket assembly are assembled to make the manifold of n stations.
·Regulator n pcs.
·Bracket ass'y n pcs.
·End plate ass'y 1 pc.

Dimensions



Dimensions

Model \ Symbol	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
ARM2500	6	17	44	56	42	126.5	58	45	17	21	38	42	29	48	68	33.5
ARM3000	7	21	54	68	55	153.5	70	53	23.5	27.5	48.5	55	35	59	85.5	42.5

Dimensions by Number of Stations

Model	Symbol	Manifold stations								
		2	3	4	5	6	7	8	9	10
ARM2500	L1	118	160	202	244	286	328	370	412	454
	L2	106	148	190	232	274	316	358	400	442
	L3	84	126	168	210	252	294	336	378	420
ARM3000	L1	152	207	262	317	372	427	482	537	592
	L2	138	193	248	303	358	413	468	523	578
	L3	110	165	220	275	330	385	440	495	550

Regulator with Check Valve/Modular Style

AR1000 to 6060

Standard Specifications

Model	AR1000	AR2060	AR2560	AR3060	AR4060	AR4060-06	AR5060	AR6060
Port size	M5 x 0.8	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1
Fluid	Air							
Proof pressure	1.5MPa							
Max. operating pressure	1.0MPa							
Set pressure range	0.05 to 0.7MPa	0.1 to 0.85MPa						
Max. effective area (mm²) (OUT→ IN)	2.8	1/8: 6 1/4: 6.5	1/4: 18 3/8: 20	1/4: 26 3/8: 31	1/4: 34 3/8: 56 1/2: 84	92	3/4: 127 1: 131	203
Pressure gauge port size	1/16	1/8	1/8	1/8	1/4	1/4	1/4	1/4
Ambient and fluid temperature	–5 to 60°C (Non-freezing)							
Construction	Relieving style							
Weight (kg)	0.08	0.26	0.25	0.39	0.84	0.94	1.19	1.55

∗AR1000 standard model is the regulator with check valve.

Accessories (Options) Part No.

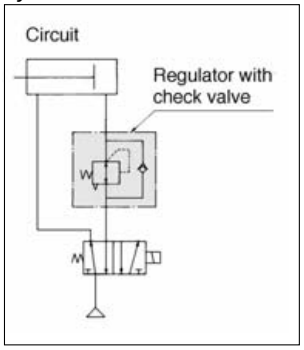
Description \ Model		Part No.							
		AR1000	AR2060	AR2560	AR3060	AR4060	AR4060-06	AR5060	AR6060
Bracket		B120	B220	B220	B320	B420	B420	B640A (1)	B640A (1)
Pressure gauge(2)	1.0MPa	G27-10-R1(3)	G36-10-□01			G46-10-□02			

Note 1) Two mounting screws are provided. Note2) □in the gauge part no. (e.g. G36-10-□01) indicates the threads used for connection. For Rc(PT), leave the symbol blank, and for NPT, enter "N".
• Contact SMC concerning the supply of NPT pressure gauges.
Note 3) Precaution: An erroneous pressure reading could result if drainage or oil enters the pressure gauge.

A regulator with a built-in mechanism to reliably and quickly discharge the secondary air pressure. (Built-in check valve and backflow mechanism)

AR4060 AR3060 AR2560

When the pressure differs at the cylinder rear and the front sides



How to Order

AR | 30 | 60 | — | 03 | BG | R

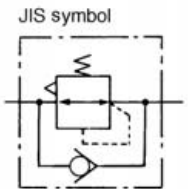
Regulator

Body size

10	M5
20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
60	1

Symbol	Applicable model
00	AR1000
60	AR2060 AR2560 AR3060 AR4060 AR5060 AR6060

JIS symbol



Thread

—	Meter thread (M5)
	Rc(PT)
N	NPT
F	G(PF)

Port size

M5	M5 X 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

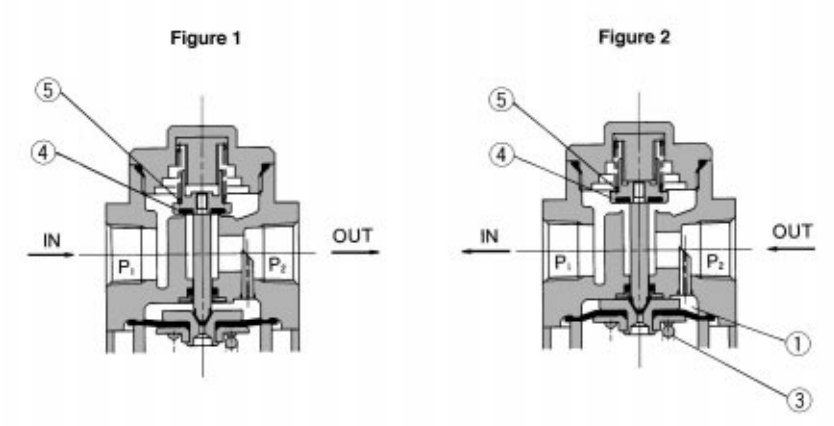
Accessories (Options)

—	None
B	Bracket
G	Pressure gauge

Options

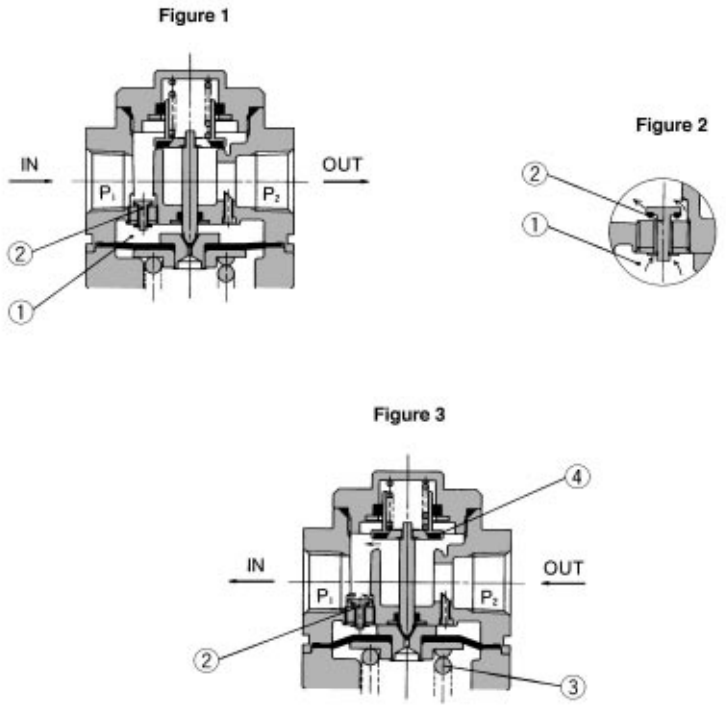
—	From left to right
R	Reverse flow

Operation Principles/AR1000, 2060, 2560, 3060



This operates as a normal regulator when the primary pressure is higher than the set pressure (refer to Fig. 1). When the primary pressure is discharged through the operation of the switching valve, the primary pressure that was applied to the bottom of valve ④ disappears. The only force that causes valve ④ to seat is provided by valve spring ⑤. Then, valve ④ is opened by the secondary pressure that is acting to open valve ④, thus allowing the secondary pressure to be discharged to the primary side.

Operation Principles/AR4060, 5060, 6060



When the primary pressure is higher than the set pressure, check valve ② closes and operates as a normal regulator (refer to Fig. 1). When the primary pressure is discharged through the operation of the switching valve, the pressure in diaphragm chamber ① is discharged from check valve ② to the primary side (refer to Fig. 2). Because the pressure is diaphragm chamber ① is discharged and the pressure decreases, the diaphragm is pushed down by the force of pressure adjustment spring ③, causing valve ④ to open, thus rapidly discharging the secondary pressure to the primary side (refer to Fig. 3).

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Mounting/Adjustment

⚠ Warning

①The adjustment handle must be operated manually. Using a tool to turn the handle could lead to damage.

②Set up the regulator while verifying the pressure that is indicated on the primary and the secondary pressure gauges. Turning the handle excessively could damage the internal parts.

⚠ Caution

①Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the secondary pressure to fluctuate.

A) On the AR1000 to AR2560 types, pull the adjustment handle to release the lock and push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise before pushing it.

B) On the AR3060 to AR5060 types, pull the adjustment handle to release the lock. (An orange colored line is provided at the bottom of the adjustment handle for visual checking.) Push the adjustment handle to engage the lock. If it does not lock easily, turn the handle slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.

C) On the AR6000 type, loosen the lock nut to release the lock, and tighten it to lock it.

②Install the valve guide (on the opposite side of the handle) 60mm away from the ground surface to facilitate maintenance inspection.

Maintenance

⚠ Warning

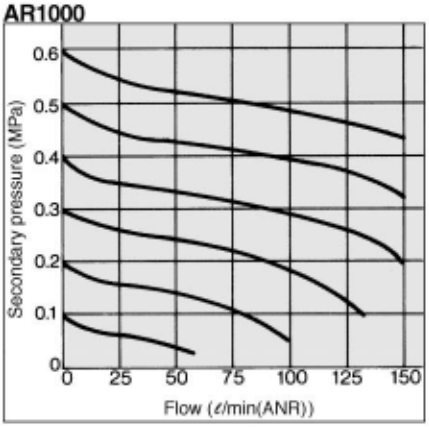
①Make sure to perform a periodic inspection of the pressure gauge when it is used by installing it between a solenoid valve and an actuator, etc.

Because of the possibility of creating sudden pressure fluctuations, the durability of the product could be shortened. Under certain circumstances, the use of an electronic pressure gauge is recommended.

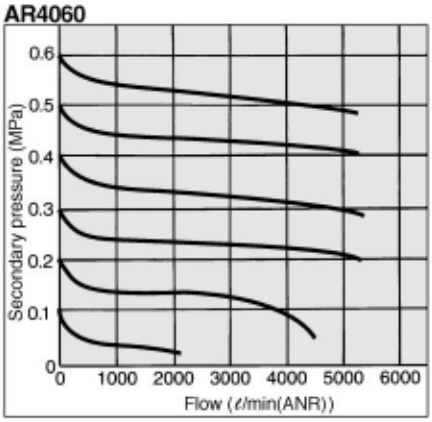
Flow Characteristics

Supply pressure: 0.7MPa

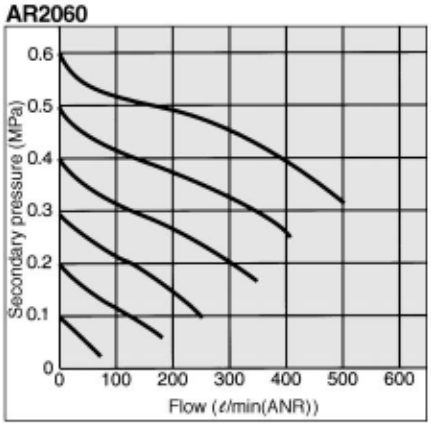
AR1000



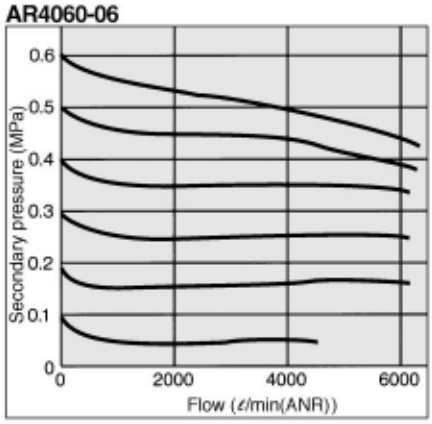
AR4060



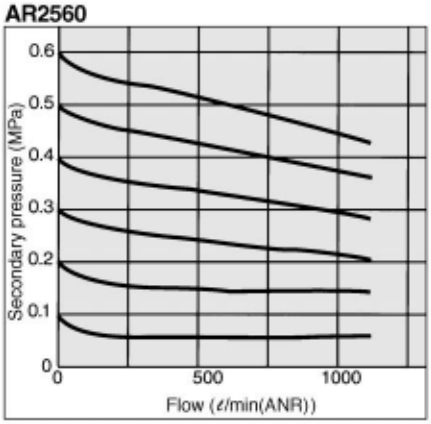
AR2060



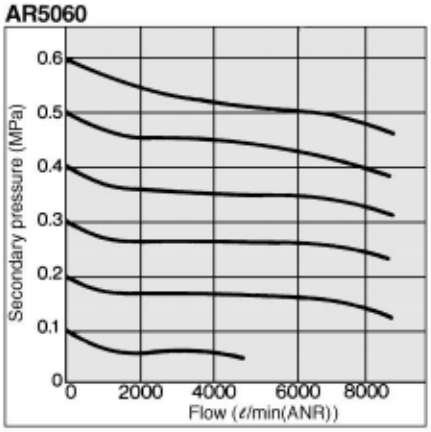
AR4060-06



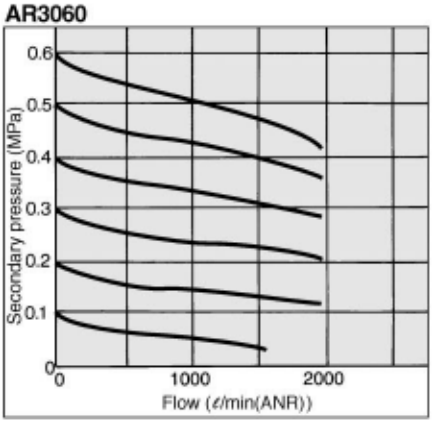
AR2560



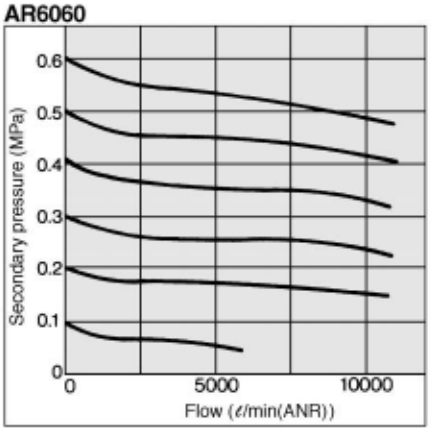
AR5060



AR3060



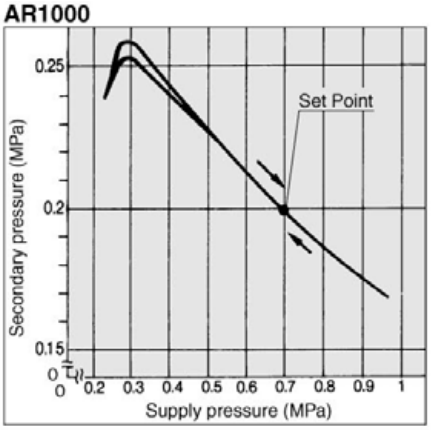
AR6060



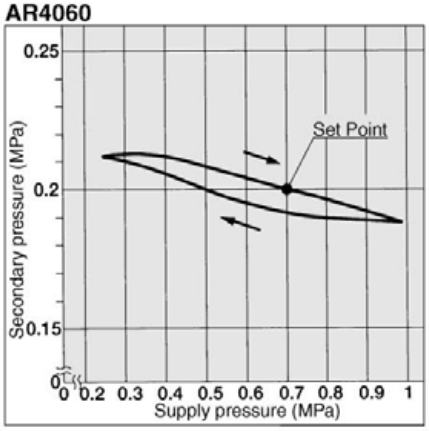
Pressure Characteristics

Supply pressure: 0.7MPa, Secondary pressure: 0.2MPa, Flow: 20 ℓ/min(ANR)

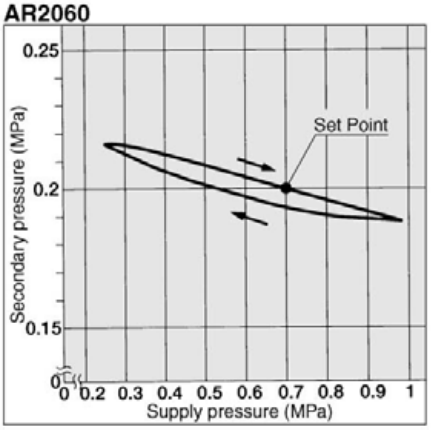
AR1000



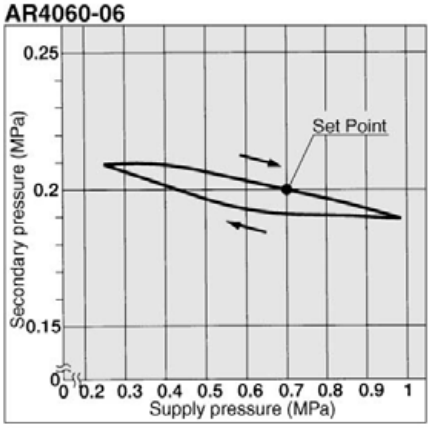
AR4060



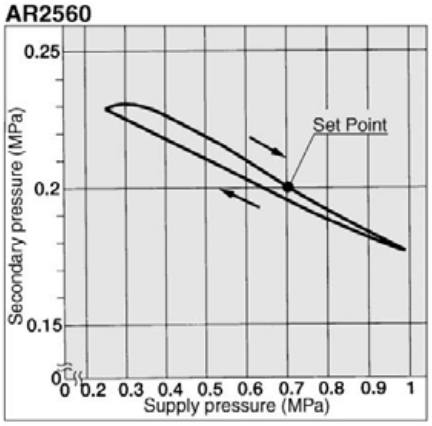
AR2060



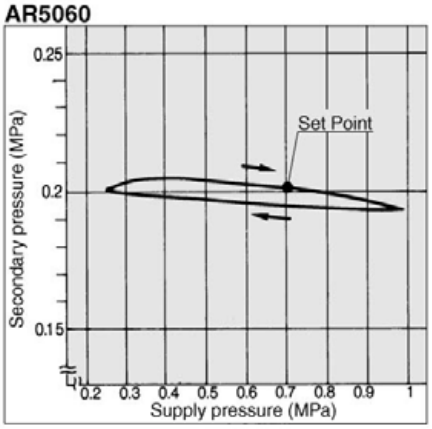
AR4060-06



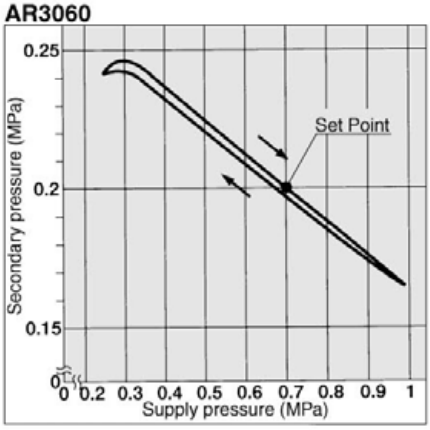
AR2560



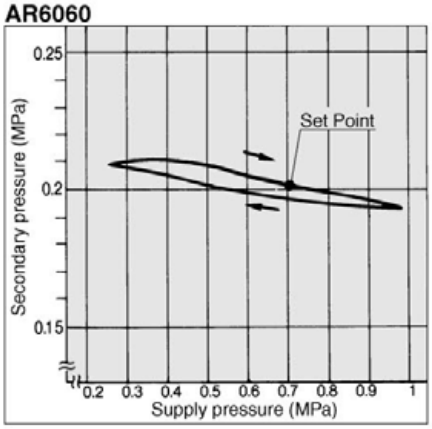
AR5060



AR3060

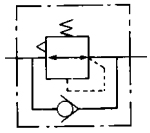


AR6060

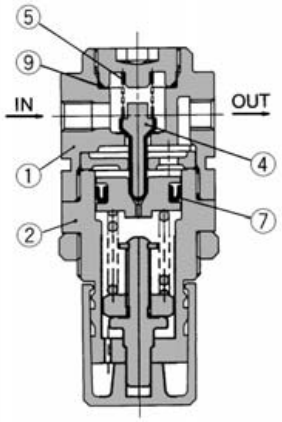


Construction

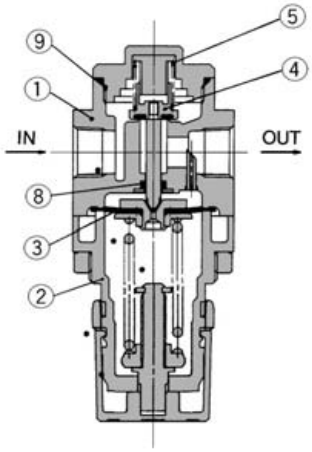
JIS symbol



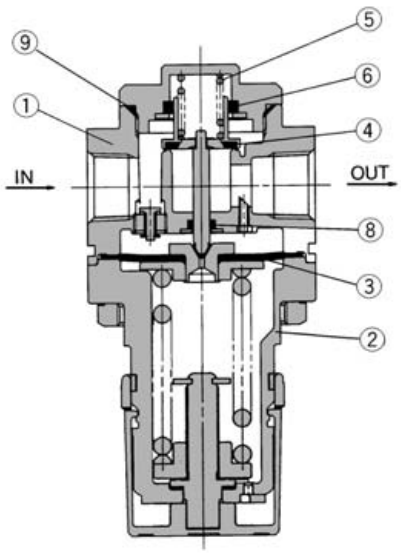
AR1000



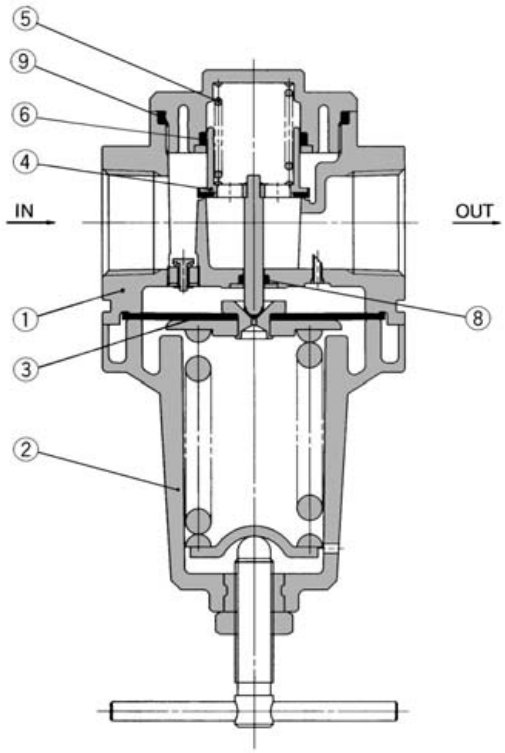
AR2060/2560/3060



AR4060/5060



AR6060



Component Parts

No.	Description	Material			Note
		AR1000/2060	AR2560/3060	AR4060 to AR6060	
①	Body	Zinc die cast	Aluminum die cast		Painted silver
②	Bonnet	Polyacetal		Aluminum die cast	Painted black (AR4060 to AR6060)

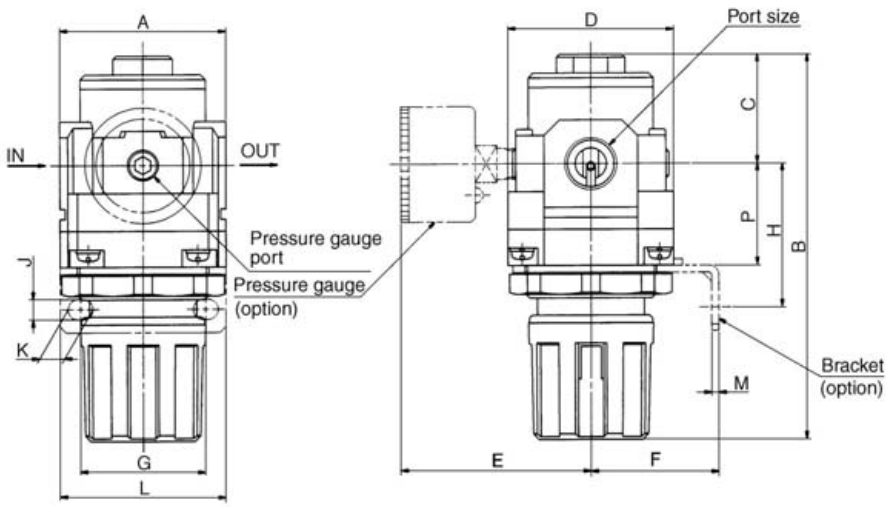
Replacement Parts

No.	Description	Material	Part No.							
			AR1000	AR2060	AR2560	AR3060	AR4060	AR4060-06	AR5060	AR6060
③	Diaphragm ass'y	NBR	—	134926A	131450A	1315528A	1316108A	1316108A	1316108A	131815A
④	Valve ass'y	Brass/NBR	134819	1349304	131449A	1315529A	13165A	131653A	131750A	13184A
⑤	Valve spring	Stainless steel	134824	XTO-3503	131463	1315121	1316172	1316172	13174	131810
⑥	Valve O ring	NBR	—	—	—	—	ø22.53 X ø15.47 X ø3.53		131710	131811
⑦	Piston mini Y packing	NBR	MYN-10A	—	—	—	—	—	—	—
⑧	O ring	NBR	—	—	JIS B 2401 P3	JIS B 2401 P5	JIS B 2401 P5	JIS B 2401 P5	JIS B 2401 P5	JIS B 2401 P6
⑨	O ring	NBR	131336	JIS B 2401 P14	JIS B 2401 P22	131545	131647	131647	JIS B 2401 G50	JIS B 2401 G55

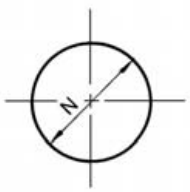
AR1000 to 6060

Dimensions

AR1000 to 5060

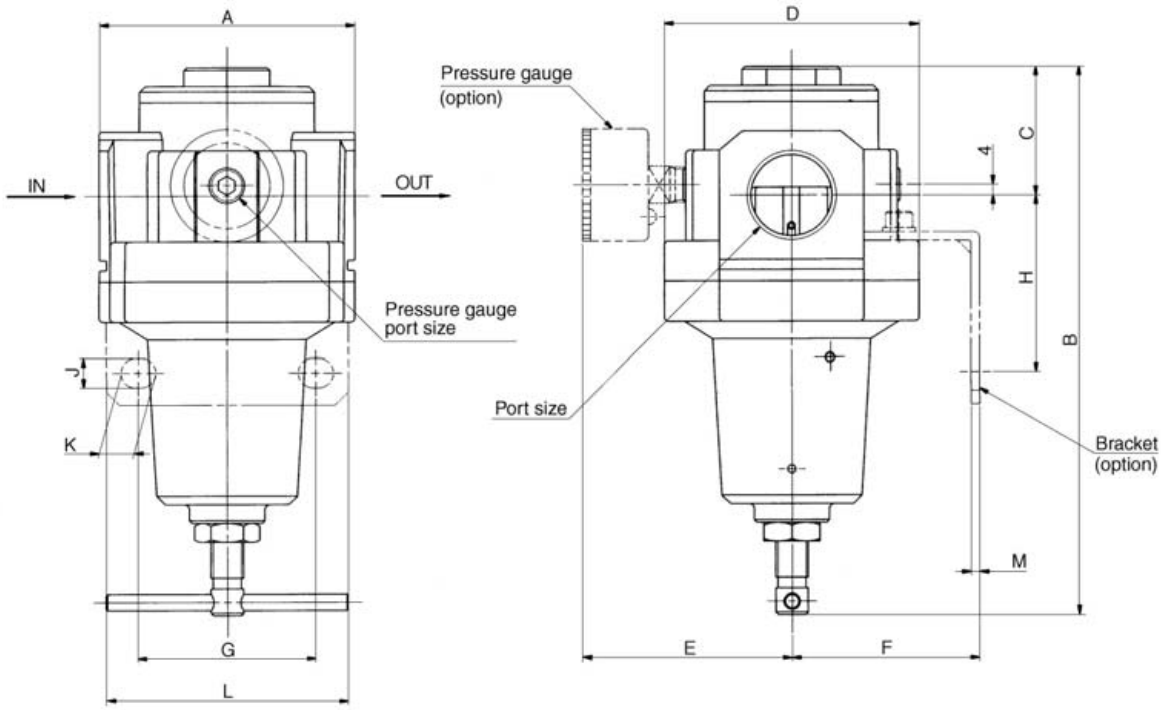


Panel mounting hole



AR1000 to 3060: Max. 3.5t
AR4060/5060: Max. 5t

AR6060



Model	Port size	A	B	C	D	E	Bracket mounting dimensions							N	P
							F	G	H	J	K	L	M		
AR1000	M5 X 0.8	25	61.5	11	25	26	25	28	30	4.5	6.5	40	2	20.5	19
AR2060	1/8, 1/4	40	93	15	40	56.8	30	34	44	5.4	15.4	55	2.3	33.5	25
AR2560	1/4, 3/8	53	102.5	25	48	60.8	30	34	44	5.4	15.4	55	2.3	33.5	25
AR3060	1/4, 3/8	53	127.5	35	53	60.8	41	40	46	6.5	8	53	2.3	42.5	32.5
AR4060	1/4, 3/8, 1/2	70	149.5	37.5	70	65.5	50	54	54	8.5	10.5	70	2.3	52.5	36
AR4060-06	3/4	75	154.5	40.5	70	69.5	50	54	56	8.5	10.5	70	2.3	52.5	38
AR5060	3/4,1	90	168	48	90	75.5	70	66	65.8	11	13	90	3.2	52.5	44
AR6060	1	95	204.5	48	95	78	70	66	65.8	11	13	90	3.2	—	—

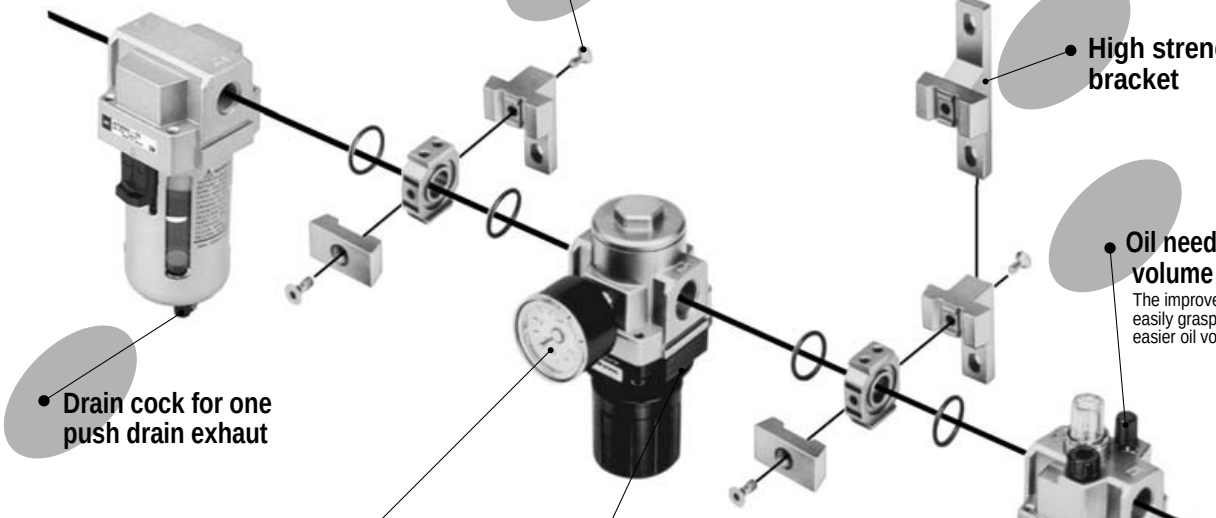
CAD
AR1000 — SAC1000, #2
AR2060 — SAC2000, #2
AR2560 — SAC2503, #2
AR3060 — SAC2503, #2
AR4060 — SAC4000, #2
AR4060-06 — SAC4006, #2
AR5060 — SAC5000, #2
AR6060 — SAC6000, #2

Lubricator/Modular style

AL1000 to 6000

CAD

- **Possible to combine with a modular style air filter or regulator**
- **Individual lubrication**



Assembled by simply tightening the screws

High strength die cast bracket

Oil needle for easy oil volume adjustments
The improved needle and the easily grasped handle make for easier oil volume adjustments.

Drain cock for one push drain exhaut

Pressure gauge
A pressure gauge equipped with a limit indicator on which the prescribed pressure range can be viewed at a glance.
(Applicable to AR20□0 to AR60□0)

One-hand lock with color indicator
The handle can be operated more reliably because the locked state of the pressure regulation handle can be checked at a glance by whether the orange mark is visible.
If the orange mark is visible, the pressure can be regulated.
(AR30□0, 40□0, 50□0 only)

Bowl can be attached and deatached with one hand. (Turn proof structure at pressurized state)

AL1000 to 6000

Standard Specifications

Model		AL1000	AL2000	AL3000	AL4000	AL4000-06	AL5000	AL6000
Port Size		M5 X 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid		Air						
Proof pressure		1.5MPa						
Max. operating pressure		1.0MPa						
Min.operating flow (ℓ/min (ANR))(1)		4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220
Bowl capacity (cm³)		7	25	50	130	130	130	130
Recommended oil		Turbine oil class 1 (ISO VG32)						
Ambient and fluid temperature		–5 to 60°C (No freezing)						
Bowl material		Polycarbonate						
Weight (kg)		0.07	0.22	0.28	0.52	0.58	1.08	1.19
Accessary (Standard)	Bowl guard	—	—	●	●	●	●	●

Note 1) Conditions: Primary pressure = 0.5MPa, Number of drops = 5/min, Turbine oil class 1 (ISO CG32), Needle stud fully open.
•Refer to air consumption for min. operating flow.

Accessary (Options) Part No.

Description \ Model	Part No.						
	AL1000	AL2000	AL3000	AL4000	AL4000-06	AL5000	AL6000
Bracket assembly (1)	—	B240A	B340A	B440A	B540A	B640A	B640A

Note 1) With bracket mounting screw (2 pcs.) ∗B640A for 1000cm³ tank (AL3000 to AL6000)

How to Order

AL3000

AL2000

AL 30 00 – □ 03 □ – 23

Lubricator

Body size

10	M5
20	1/8
30	3/8
40	1/2
50	3/4
60	1

Thread

–	Rc(PT)
N	NPT
F	G(PF)

Port size

M5	M5 X 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessary

Symbol	Description	Model
–	—	—
B	With bracket	AL2000 to AL6000

Options

1	1000cm³ tank (AL3000 to AL6000)
10	1000cm³ tank with switch (Bottom limit ON)
11	1000cm³ tank with switch (Bottom limit OFF)
2	Metal bowl
3	With drain cock
6	Nylon bowl (Including sight glass)
8	Metal bowl with level gauge (AL3000 to AL6000)
C	With bowl guard (Only AL2000)
R	Flow direction: Right to left
3W	With drain cock and barb fitting (ø6, ø4 for nylon) (AL3000 to AL6000)

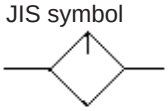
When specifying more than one option, please list alphabetically.
(Example) 23R

Option Combinations

◎ Available ▭ Not available ○ Depends on model

Accessories, options	Symbol	Options										Applicable lubricator model			
		1	10	11	2	3	6	8	C	R	3W	AL1000	AL2000	AL3000	AL4000 to AL6000
1000cm³ tank	–1									◎				◎	◎
1000cm³ tank (With SW) Bottom limit ON	–10									◎				◎	◎
1000cm³ tank (With SW) Bottom limit OFF	–11									◎				◎	◎
Metal bowl	–2					◎				◎		◎	◎	◎	◎
Lubricator with drain cock	–3				◎		◎	◎	◎	◎		◎	◎	◎	◎
Nylon bowl	–6					◎			○	◎	◎	◎	◎	◎	◎
Metal bowl with level gauge	–8					◎				◎				◎	◎
With bowl guard	–C					◎	◎			◎			◎		
Flow direction: Right to left	–R	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎
One-touch drain cock with barb fitting	–3W						◎			◎				◎	◎

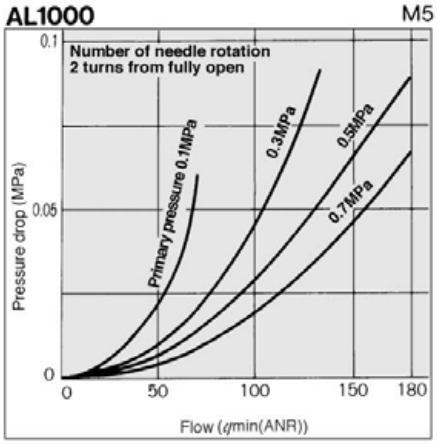
JIS symbol



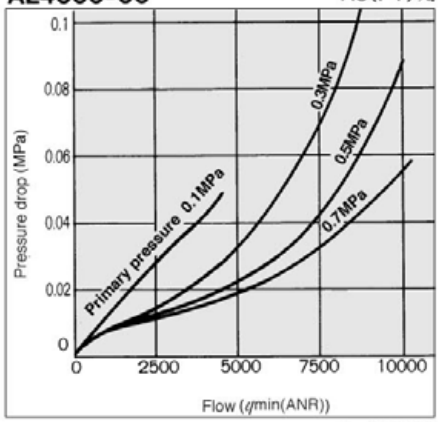
Note) –1, –10 and –11 are with metal bowl with level gauge and with drain cock.

Flow Characteristics

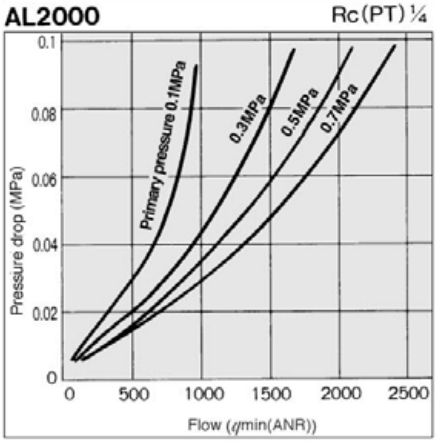
AL1000 M5



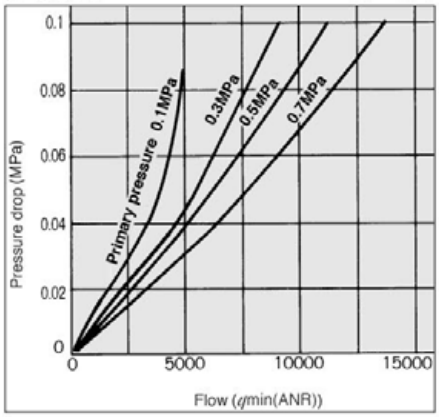
AL4000-06 Rc(PT)3/4



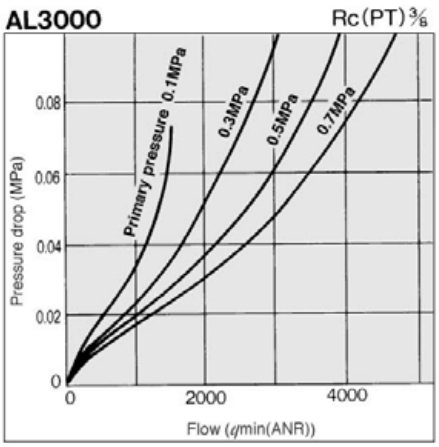
AL2000 Rc(PT)1/4



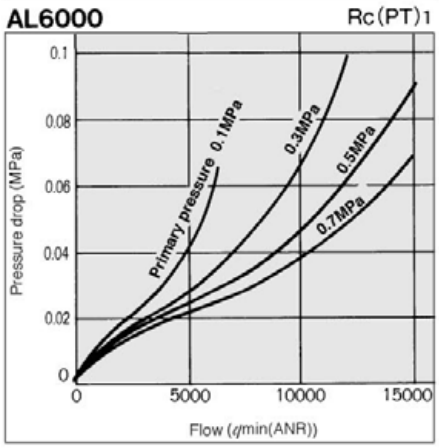
AL5000 Rc(PT)3/4



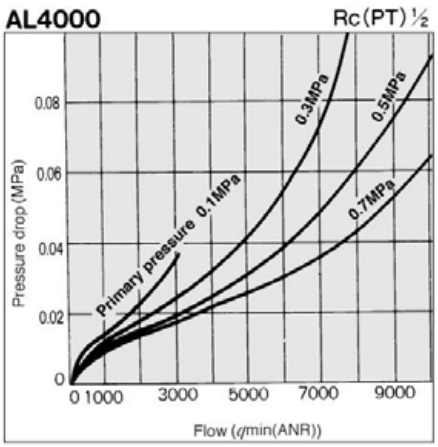
AL3000 Rc(PT)3/8



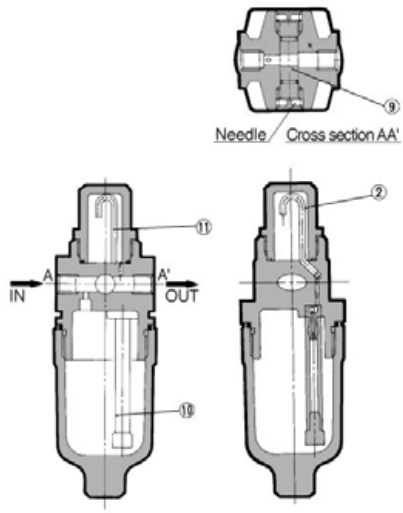
AL6000 Rc(PT)1



AL4000 Rc(PT)1/2



Operation principles of AL1000



A portion of the air that is introduced from the IN side pressurizes the oil surface in the bowl. The remainder of the air passes through needle ⑨ and flows to the OUT side. The pressure difference that occurs at this time between the pressure in the bowl and the pressure in the sight dome ② causes the oil to pass through the oil passage pipe ⑩, to drip through siphon tube ⑪, and to the OUT side. The oil volume is adjusted by opening the needle ⑨ in front. Turning the needle clockwise increases the oil volume and turning it counterclockwise to fully open the needle stops the dripping. The needle for the side that will not be used should be kept fully open.

*Operation principle of AL2000 to 6000 is different from AL1000.

⚠Precautions

Be sure to read before handling.
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions of every series.

Selection

⚠Warning

①Air should not flow from secondary side. It damages the damper.

⚠Caution

①Use check valve (AKM series) to prevent back flow of oil at branch before lubricator.

Maintenance

⚠Warning

①Lubrication of AL1000 and 2000 cannot be done under pressure. Lubricate after primary pressure is removed.

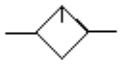
⚠Caution

①Check minimum operating flow once a day. If a malfunction in minimum operating flow occurrs, it causes trouble with the lubrication.

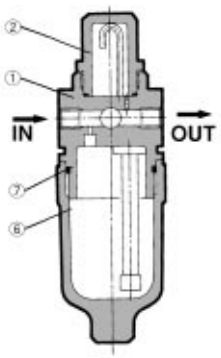
AL1000 to 6000

Construction

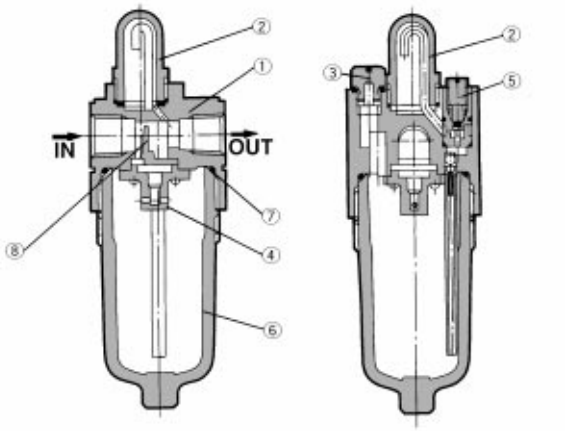
JIS Symbol



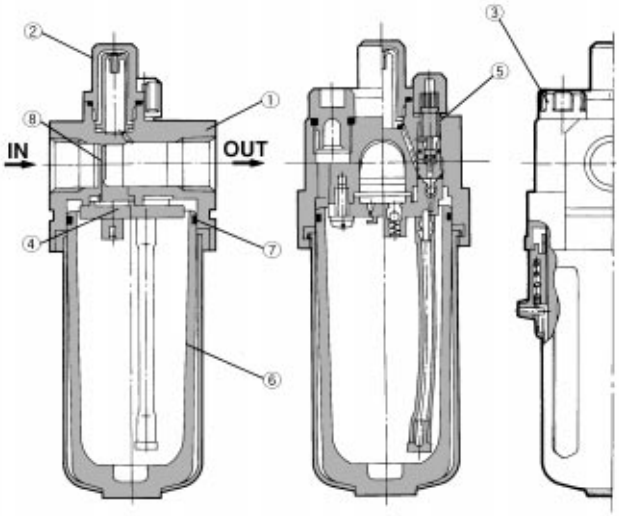
AL1000



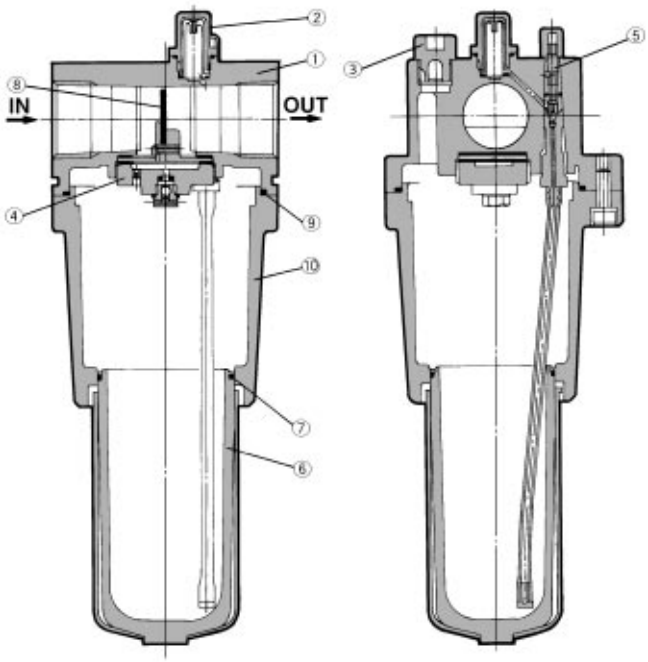
AL2000



AL3000/4000



AL5000/6000



Component parts

No.	Description	Material			Note
		AL1000/2000	AL3000/4000/4000-06	AL5000/6000	
①	Body	Zinc die cast	Aluminum die cast		Painted silver
⑩	Housing	——		Aluminum die cast	Painted silver

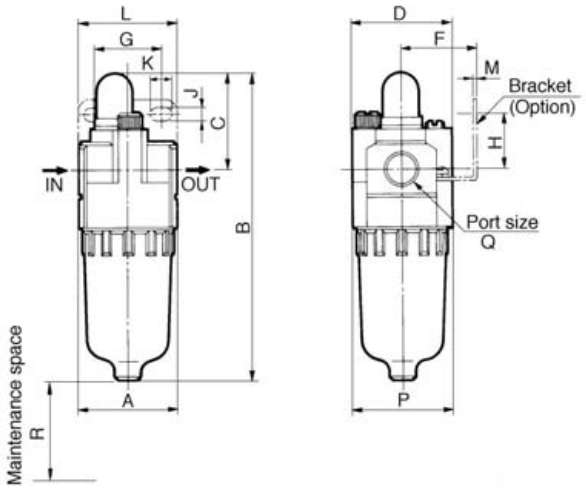
Replacement parts

No.	Description	Material	Part No.						
			AL1000	AL2000	AL3000	AL4000	AL4000-06	AL5000	AL6000
②	Sight dome assembly	Polycarbonate	12132	12316	12155A	12155A	12155A	12155A	12155A
③	Lubrication plug assembly	—	—	122962A	12159A	12164A	12164A	12164A	12164A
④	Damper retainer assembly	—	—	122953	121521A	121611A	121611A	12325A	12335A
⑤	Needle stud assembly	—	—	12297PA	121522A	121522A	121616A	121616A	121616A
⑥	Bowl assembly (1)	—	C100L	C200L	C300L	C400L	C400L	C400L	C400L
⑦	Bowl O ring	NBR	111325	11297	111512	111636	111636	111636	111636
⑧	Damper assembly	Synthetic resin	—	122933 -2(1/4) -1(1/8)	12158 -2 (3/8) -1 (1/4)	12165 -2(1/2) -1(3/8) 121623(1/4)	12165-2	123210A	123310A
⑨	Housing O ring	NBR	—	—	—	—	—	111710	11189

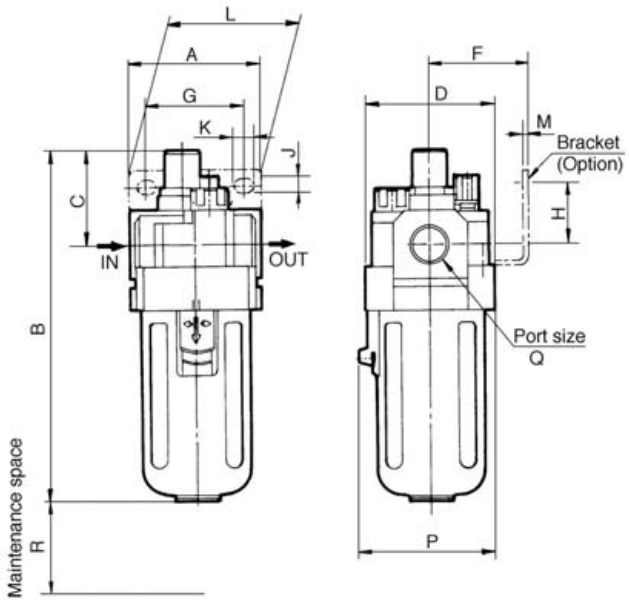
Note 1) Bowl assembly of AL3000 to AL6000 includes bowl guard (material: SPCE).

Dimensions CAD

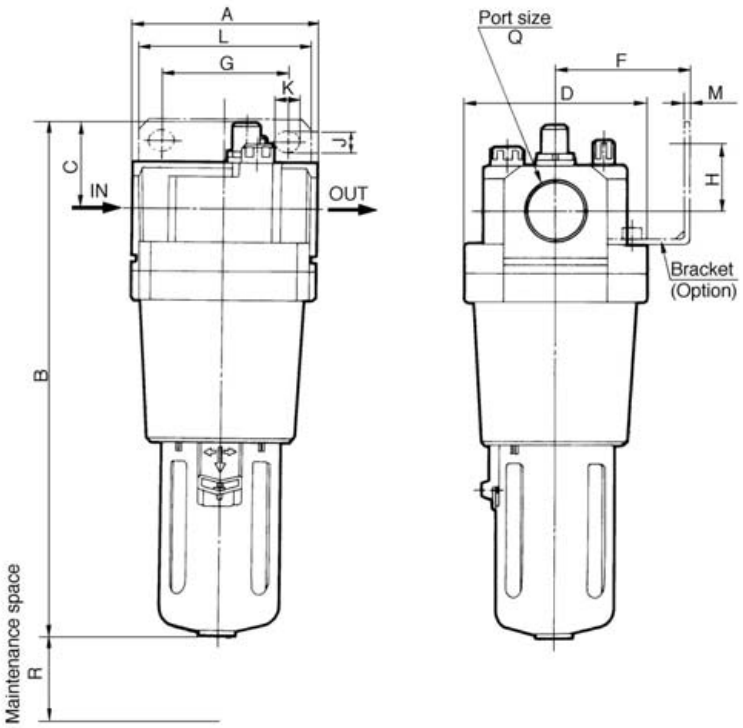
AL1000/2000



AL3000/4000



AL5000/6000



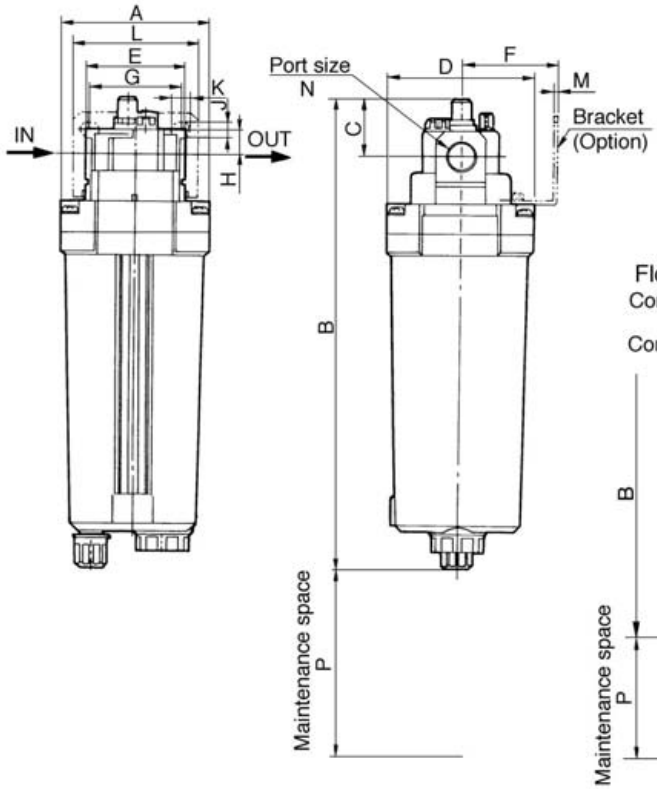
Model	Port size Q	A	B	C	D	Bracket mounting dimensions							P	R
						F	G	H	J	K	L	M		
AL1000	M5 X 0.8	25	81.5	25.5	25	—	—	—	—	—	—	—	27	50
AL2000	1/8, 1/4	40	122	38	40	30	27	22	5.4	8.4	40	2.3	40	80
AL3000	1/4, 3/8	53	142	38	53	41	40	23	6.5	8	53	2.3	56	95
AL4000	1/4, 3/8, 1/2,	70	177	41	70	50	54	26	8.5	10.5	70	2.3	73	120
AL4000-06	3/4	75	177	39	70	50	54	25	8.5	10.5	70	2.3	73	120
AL5000	3/4, 1	90	254	45	90	70	66	35	11	13	90	3.2	—	120
AL6000	1	95	268	45	95	70	66	35	11	13	90	3.2	—	120

CAD
AL1000 ——— SAC1000, #3
AL2000 ——— SAC2000, #3
AL3000 ——— SAC2503, #3
AL4000 ——— SAC4000, #3
AL4000-06 ——— SAC4006, #3
AL5000 ——— SAC5000, #3
AL6000 ——— SAC6000, #3

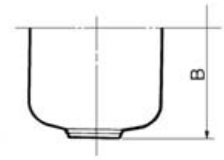
AL1000 to 6000

Dimensions

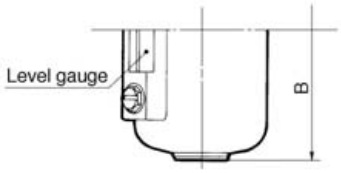
Option specifications/1000cm³ tank



Metal bowl



Metal bowl with level gauge



Model	Metal bowl	Metal bowl with level gauge
	B	B
AL1000	81.5	—
AL2000	122	—
AL3000	142	162
AL4000	177	197
AL4000-06	177	197
AL5000	254	274
AL6000	268	288

Model	Port size N	A	B*	C	D	E	Bracket mounting dimensions							P
							F	G	H	J	K	LL	M	
AL3000-□02 to 03-1	1/4, 3/8	106	324(374)	38	106	53	70	66	25	11	13	90	3.2	210
AL4000-□02 to 04-1	1/4, 3/8, 1/2,	106	334(384)	41	106	70	70	66	18	11	13	90	3.2	210
AL4000-□06-1	3/4	106	334(384)	39	106	75	70	66	16	11	13	90	3.2	210
AL5000-□06 to 10-1	3/4, 1	106	336(386)	45	106	90	70	66	35	11	13	90	3.2	210
AL6000-□10-1	1	106	336(386)	45	106	95	70	66	35	11	13	90	3.2	210

*( ): With float switch

Large Flow Lubricator

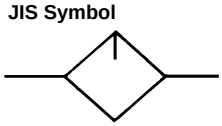
Series AL800/900

Individual lubrication
Large flow style

AL800

AL900

JIS Symbol



Standard Specifications

Model		AL800	AL900
Port size		1¼ 1½	2
Fluid		Air	
Proof pressure		1.5MPa	
Max. operating pressure		1.0MPa	
Min. operating flow (ℓ/min (ANR))(1)		1¼: 460 1½: 650	1800
Bowl capacity (cm³)		440	
Recommended oil		Turbine oil class 1 (ISO VG32)	
Ambient and fluid temperature		–5 to 60°C (No freezing)	
Bowl material		Polycarbonate	
Weight (kg)		1.62	1.67
Accessory (Standard)	Bowl guard	●	●

Note 1) •Conditions: Primary pressure = 0.5Mpa, Number of drop = 5 drops/min, Turbine oil class 1 (ISO VG32), Temperature=20°C, Needle fully open
•Use consumption air flow for operating minimum flow.

How to Order

AL 80 0 □ 12 23 R

Lubricator

Body size

80	1½
90	2

Thread

–	Rc(PT)
N	NPT
F	G(PF)

Port size

12	1¼
14	1½
20	2

Options

1	1000cm³ tank
1S-1	1000cm³ tank with switch (Bottom limit ON)
1S-2	1000cm³ tank with switch (Bottom limit OFF)
2	Metal bowl
3	With drain cock
6	Nylon bowl (Including sight glass)
8	Metal bowl with level gauge

・When specifying more than one option, please list alphabetically.
(Example) 23-R

Optional specification

R	Flow direction: Right to left

Option Combinations

◎Available □Not available

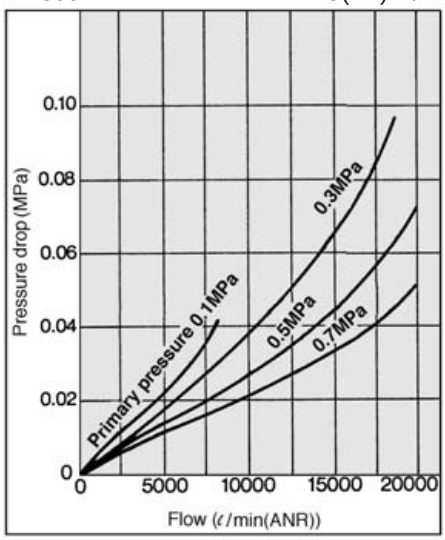
Accessary, options	Symbol	Options							
		1	1S-1	1S-2	2	3	6	8	R
1000cm³ tank	**–1**								◎
1000cm³ (With switch) Bottom limit ON	**–1S-1**								◎
1000cm³ (With switch) Bottom limit OFF	**–1S-2**								◎
Metal bowl	**–2**					◎			◎
Lubricator with drain cock	**–3**				◎		◎	◎	◎
Nylon bowl	**–6**					◎			◎
Metal bowl with level gauge	**–8**					◎			◎
Flow direction: Right to left	**–R**	◎	◎	◎	◎	◎	◎	◎	

Note) –1, –1S-1 and –1S-2 are with metal bowl with level gauge and with drain cock.

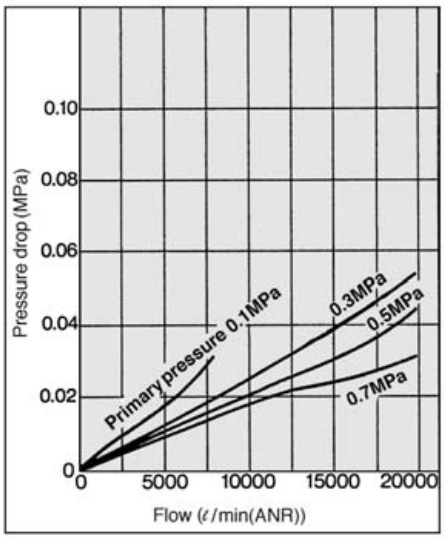
AL800/900

Flow Characteristics

AL800 RC(PT)$1\frac{1}{4}$



AL900 RC(PT)2



⚠Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.1.0-1 and 1.0-2 for precautions on every series.

Selection

⚠Warning

①Air should not flow from secondary side. It damages the damper.

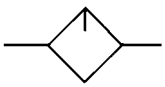
Maintenance

⚠Caution

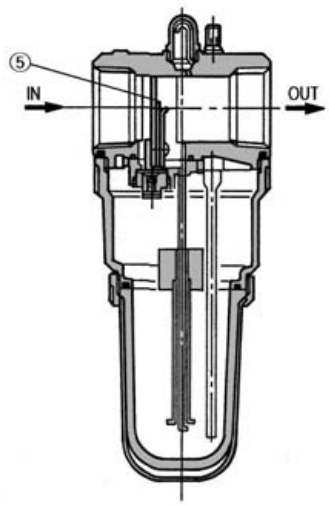
①Check minimum operating flow once in a day. If malfunction in minimum operating flow occurrs, it causes trouble with lubrication.

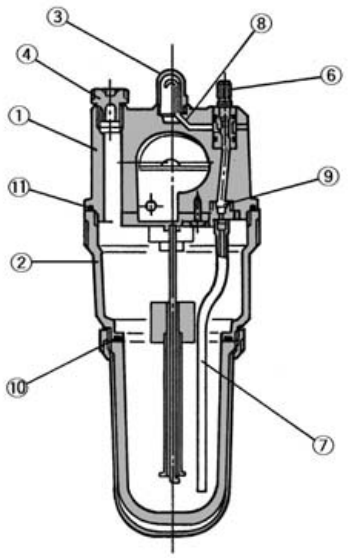
Construction

JIS Symbol



AL800/900





Component parts

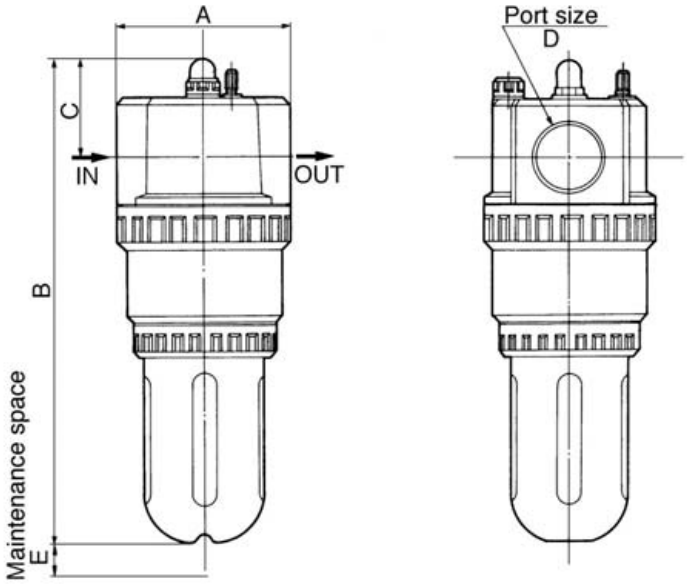
No.	Description	Material		Note
		AL800	AL900	
①	Body	Aluminum die cast	Aluminum cast	Painted silver
②	Housing	Aluminum die cast		Painted silver

Replacement parts

No.	Description	Material	Part No.	
			AL800	AL900
③	Sight dome		12316	12316
④	Lubrication plug assembly	—	12314AP	12314AP
⑤	Damper assembly	—	123417A ($1\frac{1}{4}$) 123416A ($1\frac{1}{2}$)	12356A
⑥	Needle stud assembly	—	123128PA	123128PA
⑦	Siphon tube assembly	—	123321A	123321A
⑧	Sight dome assembly	Urethane resin	12318	12318
⑨	Siphon tube nut seal	Urethane resin	123111	123111
⑩	Bowl O ring	NBR	113136	113136
⑪	Housing O ring	NBR	JIS B2401G90	JIS B2401G90

Dimensions

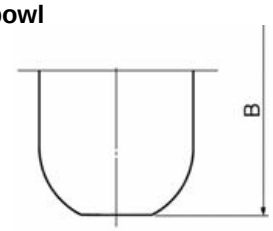
AL800/900



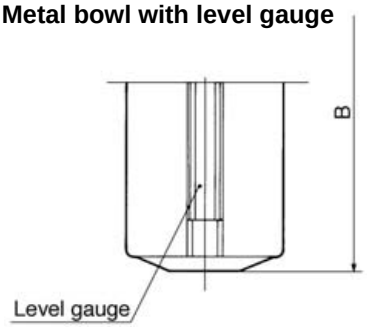
Model	Port size D	A	B	C	E
AL800	$1^1/_4$ / $1^1/_2$	100	283	59	125
AL900	2	100	288	63	125

Option Specifications

Metal bowl

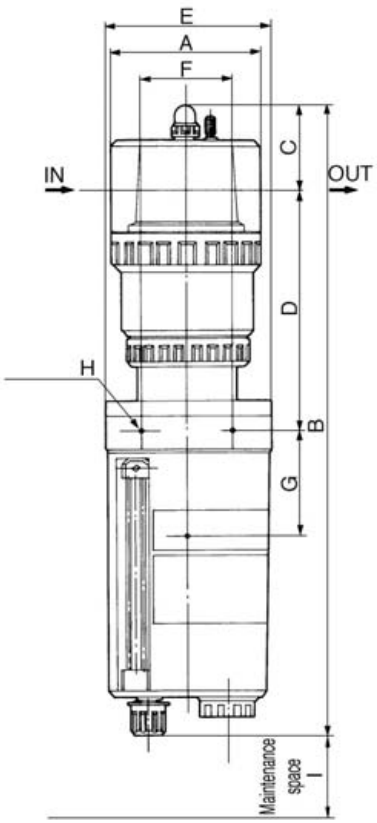


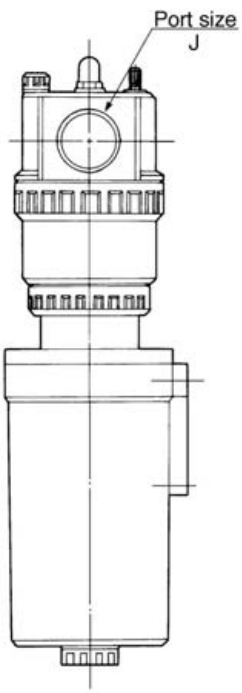
Metal bowl with level gauge



Model	Metal bowl	Metal bowl with level gauge
	B	B
AL800	275	307
AL900	280	312

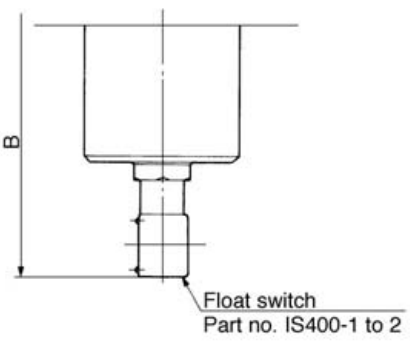
Option Specifications/1000cm³ Tank





Float switch

Contact point capacity: AC: 15VA, DC: 15W
Contact point construction: 1a,1b



Model	Port size J	A	B*	C	D	E	F	G	H	I
AL800-12 to 14-1	$1^1/_4$ / $1^1/_2$	100	431(481)	59	166	ø117	60	73	3-M5 X 0.8 X 6	230
AL900-20-1	2	100	437(487)	63	162	ø117	60	73	3-M5 X 0.8 X 6	230

*( ) With float switch