# Modular F.R.L. Units



6 6 3 3 3

# Modular Design with Uniform Body Style

# Better visibility & environmental resistance



The bowl is covered with a transparent bowl guard!

\* Body sizes 30 and larger

- The inside is visible from 360°.
- The bowl is completely protected from the environment, allowing for improved safety.

#### Inner bowl

Material: Polycarbonate

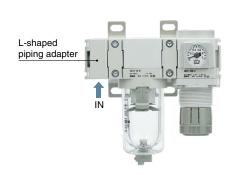
#### Transparent bowl guard

Material: Polycarbonate

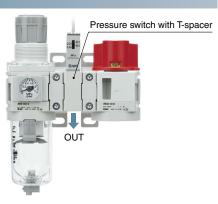


- Sizes 40-06, 50, and 60 have been added to the AC series.
- Sizes 40-06, 50, and 60 have been added to the AF, AR(K), and AL
- The VHS40-06 and 50 have been added.
- Size 40-06 has been added to the AFM/AFD.
- Sizes 40-06 and 60 have been added to the AW(K).
- Made to order options have been added.

# **Attachment combination examples**







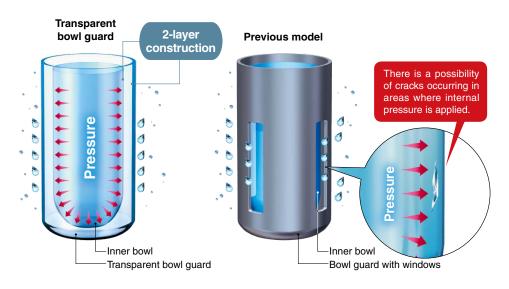
**AC** Series



### **Transparent bowl guard**

# Better environmental resistance: The transparent bowl guard protects the inner bowl!

The bowl guard with windows has been replaced with a polycarbonate transparent bowl guard. Now, even if the environment changes and the bowl is exposed to corrosive chemical or oil splash, the foreign matter will not come into direct contact with the pressurized bowl. This can reduce the risk of bowl breakage.

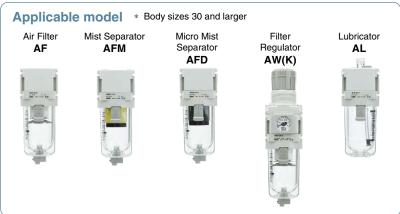




#### ■ Better visibility: 360°

The transparent bowl guard allows for easy checking of the condensate level inside the filter bowl and the remaining oil amount in the lubricator from any direction.





## No tools are required.

Easier replacement of the element \* AF20-D to AF40-D only





## Selection of pressure gauges



Square embedded type pressure gauge



Round type pressure gauge



Digital pressure switch

#### Open/close type gauge cover

- Open the gauge cover.
- AR30-03E-D

  SE 19858 M. M. Pa

  O SMC

  MPa

  O SMC

  MPa

  O SMC

  MP TO COMM

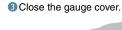
  ME T

Open the gauge cover in the direction of the arrow with your fingertips.

2 Adjust the indicator to a specified position.



Adjust the indicator using a flat blade screwdriver.

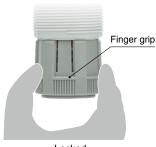




Close the gauge cover in the direction of the arrow and push it in until it clicks in place.

## Easy to handle

Easy to hold when unlocked



Locked



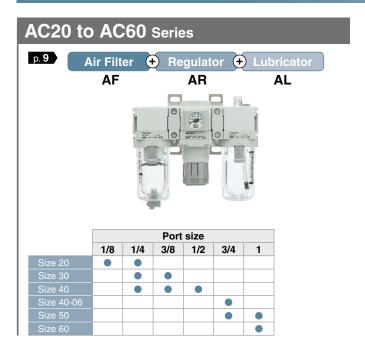
Pressure regulation while unlocked

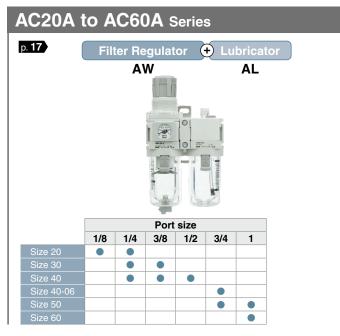
## **Mounting (Single unit)**

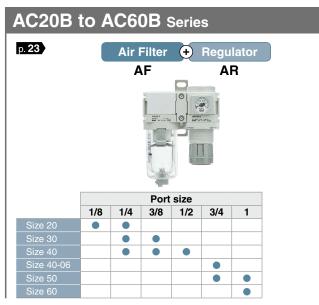
• The mounting pitch for panel mounting is interchangeable between the AR20(K)-D to AR40(K)-06-D and the AR(K)-B series and between the AW20(K)-D to AW40(K)-06-D and the AW(K)-B series. The brackets and set nuts are the same for both existing and new products.

Series			Body size			Details
Selles	20	30	40	50	60	Details
AF						p. 61
AFM AFD						p. 71
AR(K)			<b>V</b>			p. 79
AW(K)			6			p. 98
AL						p. 89

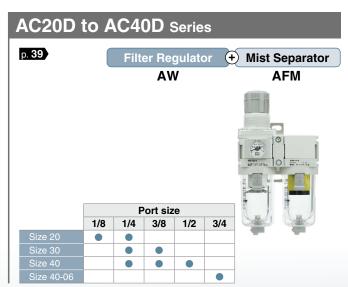
# **Series Configuration**



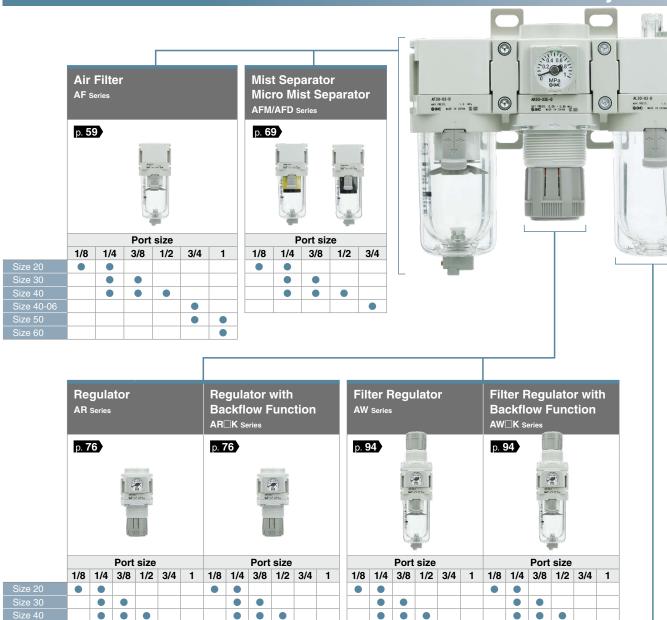




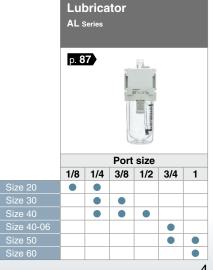




## Table of Modular F.R.L. Unit Combinations for AC Assembly

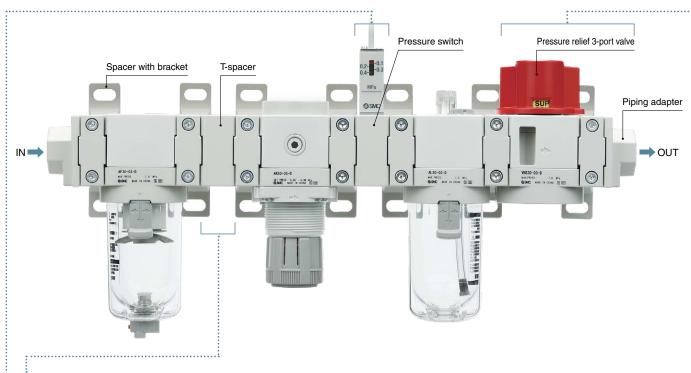








# Attachment List



#### **Spacers**

T-Spacer Y□10 Series		Cross Space Y□4 Series	er	Spacer Y□□ Series	Spacer with Bracket Y□□T Series
Piping in 2 direction (upward or downwa p. 52		Piping in all 4 dire	ections is possible.	p. 48	p. 48
10	10	0 1	<b>a</b> 10	<b>3</b>	
	Slim type*1		Front and back port selectable type*1		

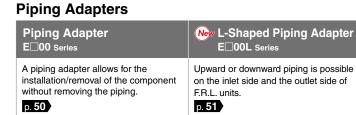
\*1 The mounting pitch is interchangeable with the existing attachment.

#### **Pressure Switches**

A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.







# Pressure Relief 3-Port Valve



# Space-saving design and reduced piping labor

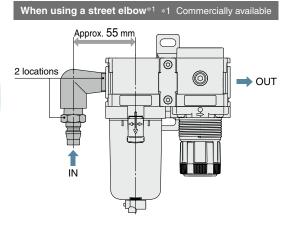


# New When using an L-shaped piping adapter Approx. 46 mm 1 location OUT

# Reduced piping labor

Number of screw-in connections

1 location ← 2 locations



# **Simple Specials System**

A system designed to respond quickly and easily to your special ordering needs



#### **Short lead times**

This system enables us to respond to your special needs (additional machining, accessory assembly, or the designing of a modular unit) and deliver your personalized products as quickly as standard products.

#### **Repeat orders**

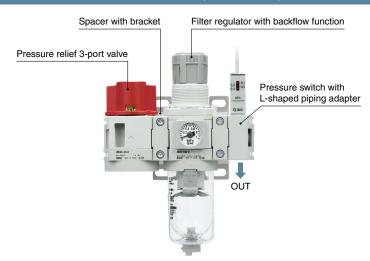
Once we receive a simple special part number from one of your previous orders, we will process the order, manufacture the product, and deliver it to you as quickly as possible.

Please contact your local sales representative for more details.

## **Examples of Simple Specials**

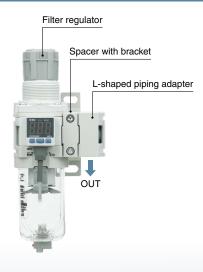
#### Combination example 1

\* Please contact your local sales representative for ordering procedures.



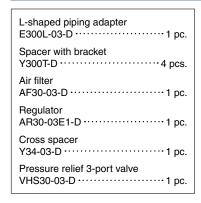
#### Combination example 2

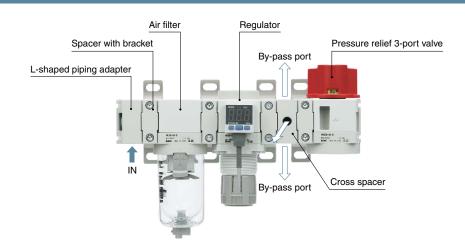
\* Please contact your local sales representative for ordering procedures.



#### Combination example 3

#### \* Please contact your local sales representative for ordering procedures.

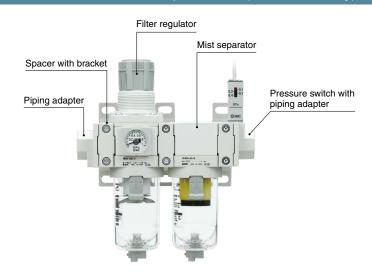




#### Combination example 4

Piping adapter E300-03-D .....1 pc. Spacer with bracket Y300T-D ..... 3 pcs. Filter regulator AW30-03E-D .....1 pc. Mist separator AFM30-03-D .....1 pc. Pressure switch with piping adapter IS10E-30-03-D .....1 pc.

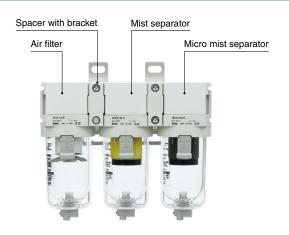
#### \* Please contact your local sales representative for ordering procedures.



#### Combination example 5

Air filter AF30-03-D · · · · · 1 pc.
Spacer with bracket Y300T-D ······2 pcs.
Mist separator AFM30-03-D · · · · · 1 pc.
Micro mist separator AFD30-03-D · · · · · · 1 pc.

#### \* Please contact your local sales representative for ordering procedures.

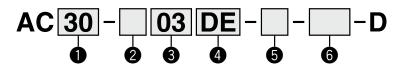


# Air Filter + Regulator + Lubricator

# AC20-D to AC60-D



#### **How to Order**



- $\cdot$  Option/Semi-standard: Select one each for  $\boldsymbol{a}$  to  $\boldsymbol{j}.$
- · Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AC30-F03DE1-16NR-D

	_	_						0		
				Symbol	Description		1	Body siz		
						20	30	40	50	60
				Nil	Rc	•	•	•	•	•
2		Pi	pe thread type	N*1	NPT	•	•	•	•	•
				F*2	G		•	•	•	•
				+						
				01	1/8	•	<u> </u>	_		
				02	1/4	•	•	•		
3	,		Port size	03	3/8		•	•	_	_
				04	1/2	_	_	•	_	
				06	3/4			•	•	
				10	1	_	_	_	•	
				+	Mithout outo drain					
			Float type	Nil C*4	Without auto drain	•				
		а	auto drain	D*5	N.C. (Normally closed) Drain port is closed when pressure is not applied.  N.O. (Normally open) Drain port is open when pressure is not applied.					
				+	N.O. (Normally open) Drain port is open when pressure is not applied.					
				Nil	Without pressure gauge			•	•	
_	n*3			E	Square embedded type pressure gauge (with limit indicator)		•	•	•	•
4	Option*3		Pressure gauge*6	G	Round type pressure gauge (with limit indicator)		•	•	•	
	O			M	Round type pressure gauge (with color zone)		•	•	•	•
		b		E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•	•	•
			Digital pressure	E2	Output: NPN output, Electrical entry: Wiring top entry	•	•	•	•	•
			switch	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•	•	•
				E4	Output: PNP output, Electrical entry: Wiring top entry	•	•	•	•	•
			,	+						
A	Attachment		Pressure relief	Nil	Without attachment	•	•	•	•	•
6	Attack	С	3-port valve	V	Mounting position: AF + AR + AL + <b>V</b>	•	•	•	•	_
				+			,			,
		d	Set pressure*7	Nil	0.05 to 0.85 MPa setting	•	•	•	•	•
			Cot procedio	1	0.02 to 0.2 MPa setting		•	•	•	
				+			1 -	_		
				Nil	Polycarbonate bowl	•	•	•	•	•
				2	Metal bowl	•	•	•	•	•
		е	Bowl*8	6	Nylon bowl	•	•	•	•	•
	darc			8	Metal bowl with level gauge	_	*9	*9	*9	*9
A	auc			C 6C	With bowl guard With bowl guard (Nylon bowl)	•	*10	*10	*10	*10
6	Semi-standard			+	with bowl guala (ryylon bowl)					
	Sen			Nil	With drain cock				•	
			Air filter		Drain guide 1/8			_	_	
		f	drain port*11	J*12	Drain guide 1/4		•	•	•	•
			a.a port	<b>W</b> *13	Drain cock with barb fitting (for ø6 x ø4 nylon tube)		•	•	•	
				+	the state of the s					
			Lubricator lubricant	Nil	Without drain cock	•	•	•	•	•
		g	exhaust port	<b>3</b> *14	Lubricator with drain cock	•	•	•	•	•

A B

## Air Combination AC20-D to AC60-D Series



	\	_						0		
				Symbol	Description		E	Body size	е	
						20	30	40	50	60
		h	Exhaust mechanism	Nil	Relieving type	•	•	•	•	•
		11	Exhaust mechanism	N	Non-relieving type	•	•	•	•	•
	힏			+						
	standard		Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•
6	sta	'	Flow direction	R	Flow direction: Right to left	•	•	•	•	•
	Semi-			+						
	Se			Nil	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	•	•	•	•	•
		j	Unit	<b>Z</b> *15	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	O*17	O*17	O*17	O*17	O*17
				<b>ZA</b> *16	Digital pressure switch: With unit selection function	△*18	△*18	△*18	△*18	△*18

- \*1 Drain guide is NPT1/8 (applicable to the AC20-D) and NPT1/4 (applicable to the AC30-D to AC60-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30-D to AC60-D).
- Drain guide is G1/8 (applicable to the AC20-D) and G1/4 (applicable to the AC30-D to AC60-D).
  Options G and M are not assembled and supplied
- loose at the time of shipment.
- When pressure is not applied, condensate which does not start the auto drain mechanism will be left in
- the bowl. Releasing the residual condensate before ending operations for the day is recommended.

  \*5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
- \*6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa)
- type. 0.4 MPa pressure gauge for 0.2 MPa type. Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

  \*8 Refer to chemical data on pages 68 and 93 for
- chemical resistance of the bowl.
- \*9 A bowl guard is provided as standard equipment (polycarbonate).
- \*10 A bowl guard is provided as standard equipment (nylon).
  \*11 The combination of float type auto drain C and D is
- not available.
- \*12 Without a valve function
- \*13 The combination of metal bowl 2 and 8 is not available. \*14 When choosing with W: Air filter drain port, the drain
- cock of a lubricator will be with barb fittings. For the pipe thread type: NPT
- This product is for overseas use only according to the New Measurement Act. (The SI unit type is

provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.

- For options: E1, E2, E3, E4
  - This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
- \*17 O: For the pipe thread type: NPT only \*18 \(\triangle:\) Select with options: E1, E2, E3, E4.

#### Standard Specifications

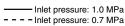
<del>Otarraara</del>	ороо	<u> </u>												
	Model		AC20-D	AC30-D	AC40-D	AC40-06-D	AC50-D	AC60-D						
	Air Filter	[AF]	AF20-D	AF30-D	AF40-D	AF40-06-D	AF50-D	AF60-D						
Component	Regulator	[AR]	AR20-D	AR30-D	AR40-D	AR40-06-D	AR50-D	AR60-D						
-	Lubricator	[AL]	AL20-D	AL30-D	AL40-D	AL40-06-D	AL50-D	AL60-D						
Port size			1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1						
Pressure gaug	ge port size*1	[AR]			1,	/8								
Fluid					А	ir								
Ambient and	fluid tempera	atures*2			−5 to 60°C (	No freezing)								
Proof pressu	ıre				1.5	MPa								
Max. operati	ng pressure				1.0	MPa								
Auto drain minii	mum N.C.	[AF]	0.1 MPa			0.15 MPa								
operating press	ure N.O.	[AF]	_			0.1 MPa								
Set pressure		[AR]			0.05 to 0	).85 MPa								
Nominal filtra	tion rating*3	[AF]				um								
Compressed	l air purity cl	ass*4	ISO 8573-1:2010 [ 6 : 4 : – ]*5											
Drain capaci	ty	[AF]	8 cm <sup>3</sup> 25 cm <sup>3</sup> 45 cm <sup>3</sup>											
Min. dripping rate*6	g flow	[AL]	15 L/min (ANR)	Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR)	Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) Port size 1/2: 50 L/min (ANR)	50 L/min (ANR)	190 L/min (ANR)	220 L/min (ANR)						
Oil capacity		[AL]	25 cm <sup>3</sup> 55 cm <sup>3</sup> 135 cm <sup>3</sup>											
Recommend	ed lubricant	[AL]	Class 1 turbine oil (ISO VG32)											
Bowl materia	al	[AF/AL]	L] Polycarbonate											
Bowl guard		[AF/AL]	Semi-standard (Steel)			ndard (Polycarbon	ate)							
Construction	1	[AR]	0 71											
Weight			0.38 kg	0.75 kg	1.42 kg	1.55 kg	3.34 kg	3.60 kg						
1 Dunnarius maire			t available for ED L ur	. 0 00	data di troca conservacione									

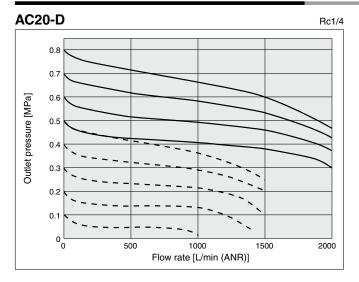
- \*1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
- \*2 -5 to 50°C for the products with the digital pressure switch
- For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant] Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
- \*4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.
- \*5 The compressed air quality class on the inlet side is [7:4:4].
- \*6 The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open. · For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

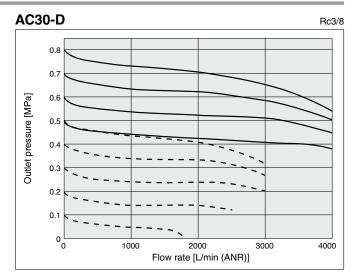


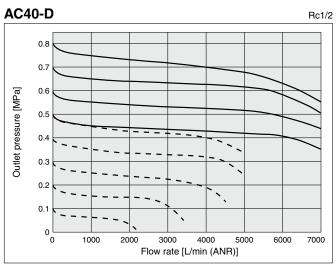
# AC20-D to AC60-D Series

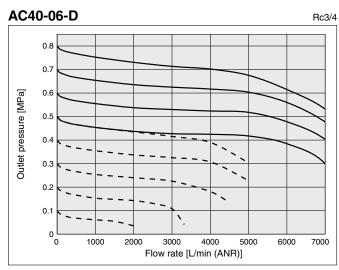
#### Flow Rate Characteristics (Representative values)

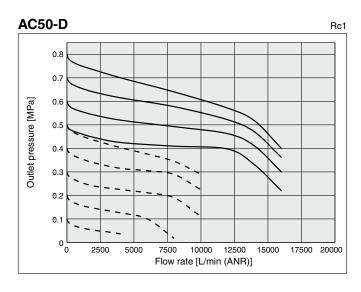


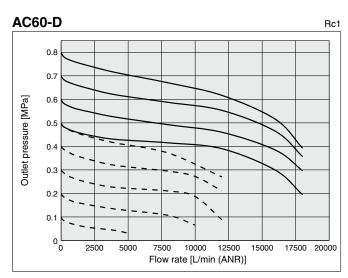






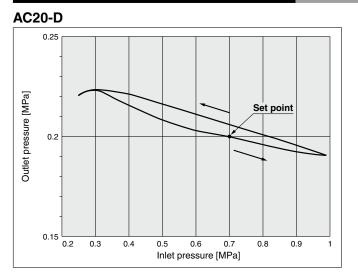


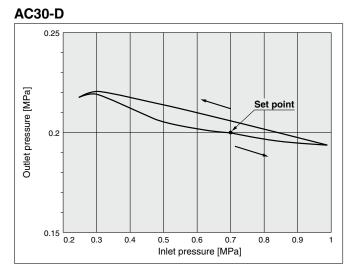


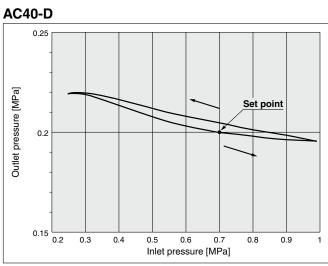


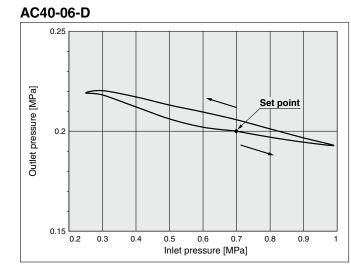
#### Pressure Characteristics (Representative values)

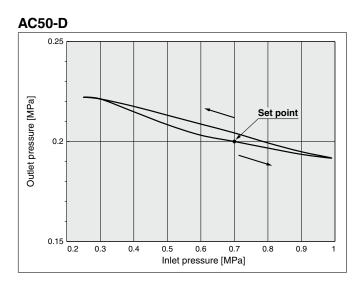
Conditions: Inlet pressure of 0.7 MPa, Outlet pressure of 0.2 MPa, Flow rate 20 L/min (ANR)

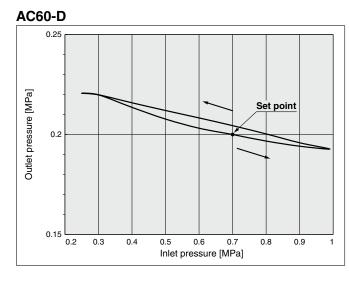






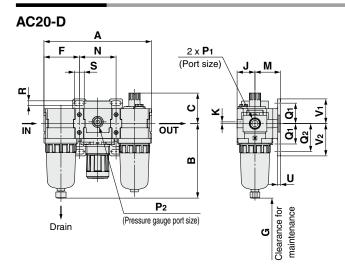


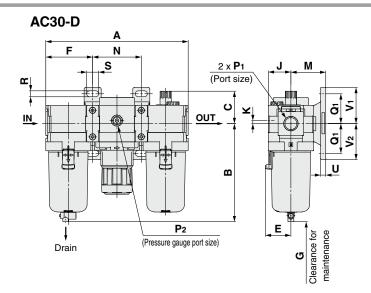




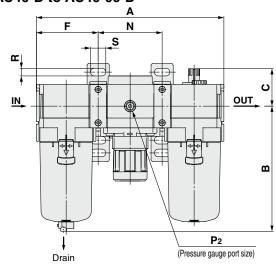
# AC20-D to AC60-D Series

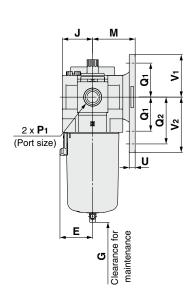
#### **Dimensions**



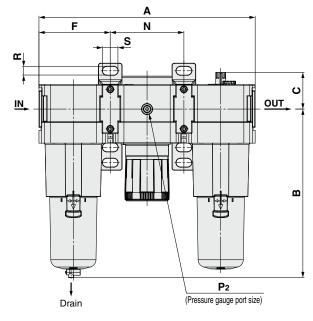


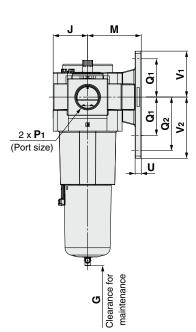
#### AC40-D to AC40-06-D



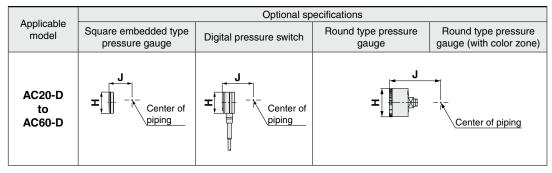


#### AC50-D to AC60-D





ΑF



	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14		
AC30-D to AC60-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	a a	1/4 Width across flats 17

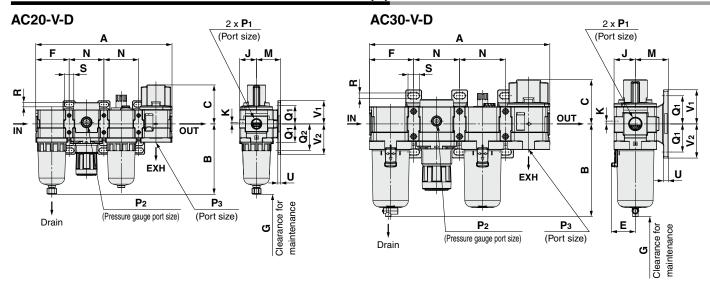
Air Combination AC20-D to AC60-D Series

							Star	ndard s	specific	ations									
Model														Bra	acket r	nount			
	P1	P <sub>2</sub>	Α	В	С	Е	F	G	J	K	М	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20-D	1/8, 1/4	1/8	126.4	87.6	35.9	_	41.6	60	21	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30-D	1/4, 3/8	1/8	167.4	115.4	38.1	30	55.1	80	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40-D	1/4, 3/8, 1/2	1/8	220.4	147.1	44	38.4	72.6	110	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40-06-D	3/4	1/8	235.4	149.1	44	38.4	77.6	110	35.5	_	50	80.2	40	55	9	18	7	50	65
AC50-D	3/4, 1	1/8	282.4	220.1	48	_	93.1	110	45	_	70	96.2	50	70	11	20	8	60	80
AC60-D	1	1/8	297.4	234.1	48	_	98.1	110	45	_	70	101.2	50	70	11	20	8	60	80

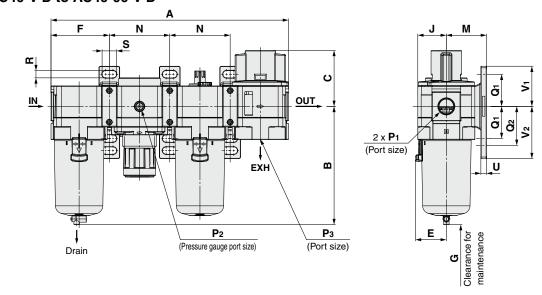
					Optiona	al speci	fications						Semi-	standard	specific	ations	
Model	Squ		Digital pr	essure	Round	,,		pressure gauge (Semi-standard: Z) gauge (with color zone)    H		With	PC/PA	A bowl	Meta	l bowl		owl with gauge	
Model	type pr gau		swite	ch	press gau					auto drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide	
	Н	J	Н	J	Н	J	Н			J	В	В	В	В	В	В	В
AC20-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5			58.5	104.9	_	91.4	87.4	93.9	_	_
AC30-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5			64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40-06-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	259.9	228.6	226.9	222.5	227	242.5	247
AC60-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5 82.5		ø42.5	82.5	273.9	242.6	240.9	236.5	241	256.5	261

# AC20-D to AC60-D Series

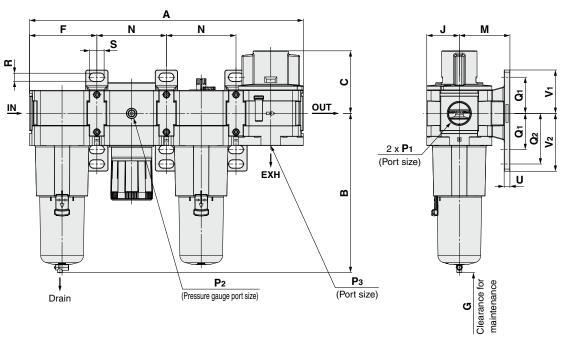
#### **Dimensions: With Pressure Relief 3-Port Valve (V)**



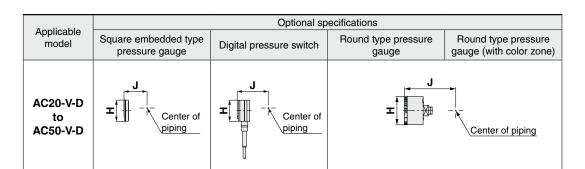
#### AC40-V-D to AC40-06-V-D



#### AC50-V-D



A



	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20-V-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14		
AC30-V-D to AC50-V-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	1/4 Width across flats 17	B	Width across flats 17	B	width across flats 17

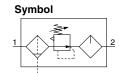
Air Combination AC20-D to AC60-D Series

								Standa	ard spe	ecificati	ions									
Model															Bra	cket n	nount			
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	М	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20-V-D	1/8, 1/4	1/8	1/8	169.6	87.6	48.5	_	41.6	60	21	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30-V-D	1/4, 3/8	1/8	1/4	224.6	115.4	55	30	55.1	80	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40-V-D	1/4, 3/8, 1/2	1/8	3/8	295.6	147.1	69.7	38.4	72.6	110	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40-06-V-D	3/4	1/8	1/2	315.6	149.1	71.7	38.4	77.6	110	35.5	_	50	80.2	40	55	9	18	7	50	65
AC50-V-D	3/4, 1	1/8	1/2	378.6	220.1	86.5	_	93.1	110	45	_	70	96.2	50	70	11	20	8	60	80

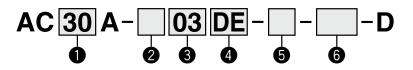
					Optiona	al speci	fications						Semi-	standard	specific	ations	
Model	Squ		Digital pressure   pressure   pressure   gauge (Semi- gauge (with		With	PC/PA	A bowl	Meta	l bowl	Metal believel	owl with gauge						
ty ty	,,,	gauge		switch		gauge (Semi- standard: Z)					With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide	
	Н	J	Н	J	Н	J H J		Н	J	В	В	В	В	В	В	В	
AC20-V-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	<u> </u>	91.4	87.4	93.9	_	_
AC30-V-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40-06-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50-V-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	259.9	228.6	226.9	222.5	227	242.5	247

# Filter Regulator + Lubricator

# AC20A-D to AC60A-D



#### **How to Order**



- $\cdot$  Option/Semi-standard: Select one each for  $\boldsymbol{a}$  to  $\boldsymbol{j}.$
- · Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AC30A-F03DE1-16NR-D

	_							0		
				Symbol	Description			Body siz	e	
					· ·	20	30	40	50	60
				Nil	Rc	•	•	•	•	•
2		Piı	pe thread type	N*1	NPT		•	•	•	•
			,	F*2	G	•	•	•	•	•
				+						
				01	1/8	•	_	I —	I —	_
				02	1/4	•	•	•	_	_
_			5	03	3/8	_	•	•	_	_
8			Port size	04	1/2	_	_	•	_	_
				06	3/4	_	_	•	•	_
				10	1		_	l —	•	•
				+				'		
			Flack towns	Nil	Without auto drain	•	•	•	•	•
		а	Float type auto drain	C*4	N.C. (Normally closed) Drain port is closed when pressure is not applied.	•	•	•	•	•
			auto urairi	<b>D</b> *5	N.O. (Normally open) Drain port is open when pressure is not applied.		•	•	•	•
				+						
	ဗ္ဗ			Nil	Without pressure gauge	•	•	•	•	•
	Option*3		Pressure gauge*6	E	Square embedded type pressure gauge (with limit indicator)	•	•	•	•	•
4	pti		Fressure gauge	G	Round type pressure gauge (with limit indicator)		•	•	•	•
		b		M	Round type pressure gauge (with color zone)	•	•	•	•	•
		0		E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•	•	•
			Digital pressure	E2	Output: NPN output, Electrical entry: Wiring top entry	•	•	•	•	•
			switch	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•	•	•
				E4	Output: PNP output, Electrical entry: Wiring top entry		•	•	•	•
				+						
6	Attachment	С	Pressure relief	Nil	Without attachment	•	•	•	•	•
Ð	Attacl	C	3-port valve	V	Mounting position: AW + AL + <b>V</b>	•	•	•	•	_
				+						
		d	Cot proceure*7	Nil	0.05 to 0.85 MPa setting		•	•	•	•
		a	Set pressure*7	1	0.02 to 0.2 MPa setting	•	•	•	•	•
				+						
				Nil	Polycarbonate bowl	•	•	•	•	•
				2	Metal bowl	•	•	•	•	•
		е	Bowl*8	6	Nylon bowl	•	•	•	•	•
			DOW	8	Metal bowl with level gauge		•	•	•	•
	٦			С	With bowl guard	•	*9	_*9	_*9	_*9
	Idar			6C	With bowl guard (Nylon bowl)		—* <sup>10</sup>	*10	*10	*10
6	tan			+						
9	Semi-standard			Nil	With drain cock	•	•	•	•	•
	Ser	f	Filter regulator	J*12	Drain guide 1/8	•	<del>  -</del>	-	-	_
			drain port*11		Drain guide 1/4		•	•	•	•
				<b>W</b> *13	Drain cock with barb fitting (for ø6 x ø4 nylon tube)		•	•	•	•
				+				1		
		g	Lubricator lubricant	Nil	Without drain cock	•	•	•	•	•
			exhaust port	<b>3</b> *14	Lubricator with drain cock			•	•	•
				+			T -	-	T =	-
		h	Exhaust	Nil	Relieving type		•	•	•	•
			mechanism	N	Non-relieving type					

₹

## Air Combination AC20A-D to AC60A-D Series



AC30A-D

	\	_						0		
				Symbol	Description		E	Body size	Э	
						20	30	40	50	60
			Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•
	standard		Flow direction	R	Flow direction: Right to left	•	•	•	•	•
A	gu			+						
6	1 1			Nil	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	•	•	•	•	•
	Semi	j	Unit	<b>Z</b> *15	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	O*17	O*17	O*17	O*17	O*17
	0)			<b>ZA</b> *16	Digital pressure switch: With unit selection function	△*18	△*18	△*18	△*18	△*18
			is NPT1/8 (applicable /4 (applicable to the				sing with \			

- AC60A-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30A-D to AC60A-D).
- \*2 Drain guide is G1/8 (applicable to the AC20A-D) and G1/4 (applicable to the AC30A-D to AC60A-D).
- \*3 Options G and M are not assembled and supplied loose at the time of shipment.
- \*4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
- \*5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
- type. 0.4 MPa pressure gauge for 0.2 MPa type.
- \*7 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
- \*8 Refer to chemical data on pages 93 and 109 for chemical resistance of the bowl.
- \*9 A bowl guard is provided as standard equipment (polycarbonate).
- \*10 A bowl guard is provided as standard equipment (nylon).
- The combination of float type auto drain C and D is not available
- \*12 Without a valve function
- \*13 The combination of metal bowl 2 and 8 is not

- fittings.
- For the pipe thread type: NPT This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
  - Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
- For options: E1, E2, E3, E4 This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
- O: For the pipe thread type: NPT only \*18 A: Select with options: E1, E2, E3, E4.

#### Standard Specifications

Standard	Specific	alions						
	Model		AC20A-D	AC30A-D	AC40A-D	AC40A-06-D	AC50A-D	AC60A-D
Component	Filter Regulator	[AW]	AW20-D	AW30-D	AW40-D	AW40-06-D	AW60-D	AW60-D
Component	Lubricator	[AL]	AL20-D	AL30-D	AL40-D	AL40-06-D	AL50-D	AL60-D
Port size			1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Pressure gaug	e port size*1	[AW]			1	/8		
Fluid					Δ	ir		
Ambient and	fluid temper	atures*2			−5 to 60°C (	(No freezing)		
Proof pressu	re				1.5	MPa		
Max. operatir	ng pressure				1.0	MPa		
Auto drain minin		[AW]	0.1 MPa			0.15 MPa		
operating press		[AW]	_			0.1 MPa		
Set pressure		[AW]			0.05 to 0	).85 MPa		
Nominal filtrat		[AW]				um		
Compressed	air purity cla	ass*4			ISO 8573-1:20	10 [ 6 : 4 : – ]*5		
Drain capacit	ty	[AW]	8 cm <sup>3</sup>	25 cm <sup>3</sup>		45	cm <sup>3</sup>	
Min. dripping rate*6	flow	[AL]	15 L/min (ANR)	Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR)	Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) Port size 1/2: 50 L/min (ANR)	50 L/min (ANR)	190 L/min (ANR)	220 L/min (ANR)
Oil capacity		[AL]	25 cm <sup>3</sup>	55 cm <sup>3</sup>		135	cm <sup>3</sup>	
Recommende	ed lubricant	[AL]			Class 1 turbine	oil (ISO VG32)		
Bowl materia	ı	[AW/AL]			Polyca	rbonate		
Bowl guard	Bowl guard [AW/AL]				Sta	ndard (Polycarbon	ate)	
Construction	Construction [AW]				Relievi	ng type		
Weight			0.31 kg	0.58 kg	1.12 kg	1.22 kg	2.90 kg	2.97 kg

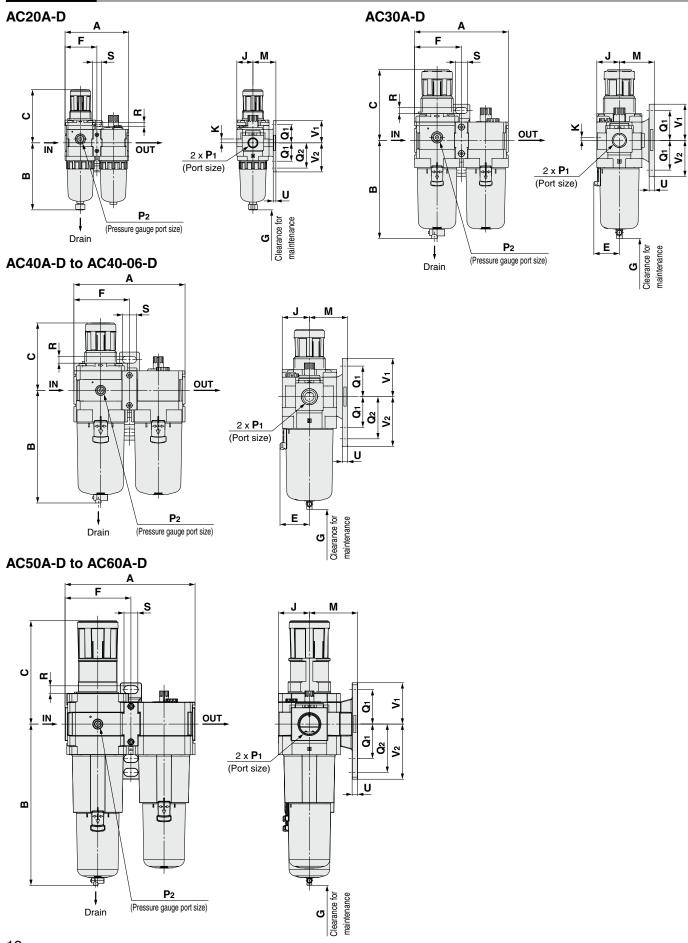
- \*1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
- -5 to 50°C for the products with the digital pressure switch
- \*3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant] Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
- \*4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.
- \*5 The compressed air quality class on the inlet side is [7:4:4].
- The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open.

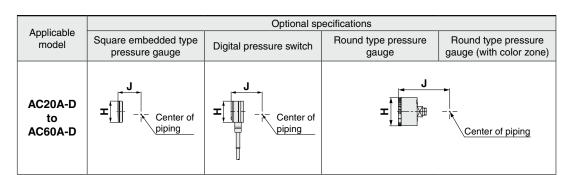
  For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.



# AC20A-D to AC60A-D Series

#### **Dimensions**





	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	al bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20A-D	M5 x 0.8		Midth across flats 14	B	1/8 Width across flats 14		
AC30A-D to AC60A-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

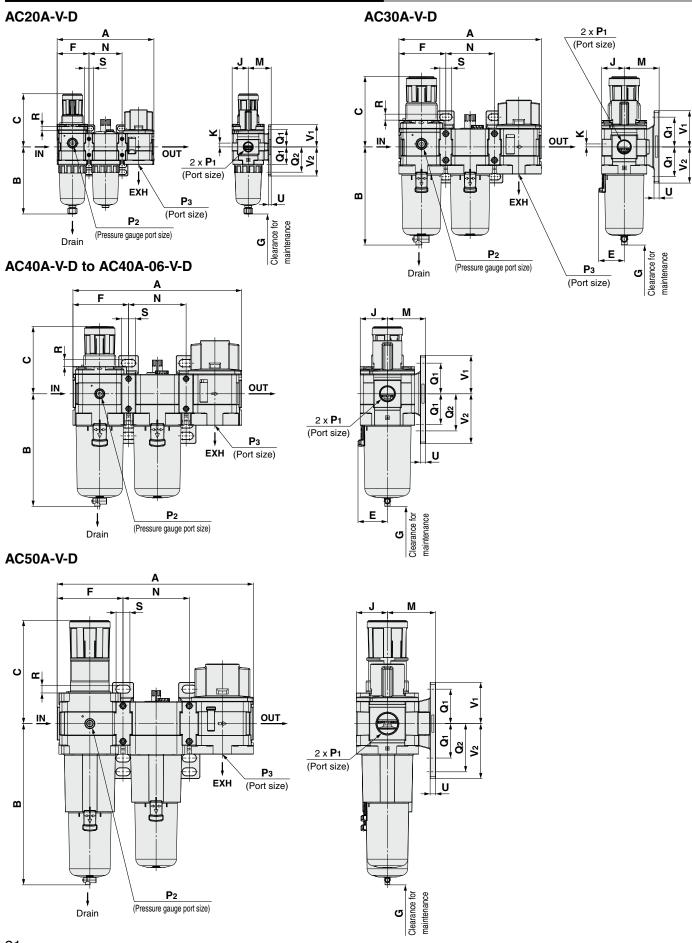
Air Combination AC20A-D to AC60A-D Series

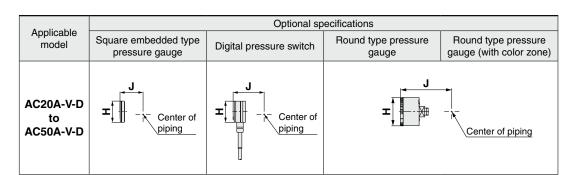
							Standa	ırd spec	cification	ns								
Model														Brack	et mour	nt		
	P1	P <sub>2</sub>	Α	В	С	Е	F	G	J	K	М	Q1	Q2	R	S	U	<b>V</b> 1	V <sub>2</sub>
AC20A-D	1/8, 1/4	1/8	83.2	87.6	71.8	_	41.6	60	21	5	30	24	33	5.5	11.5	3.5	29	38
AC30A-D	1/4, 3/8	1/8	110.2	115.3	86.5	30	55.1	80	26.5	3.5	41	35	_	7	14	6	42.5	42.5
AC40A-D	1/4, 3/8, 1/2	1/8	145.2	147.1	91.5	38.4	72.6	110	35.5	_	50	40	55	9	18	7	50	65
AC40A-06-D	3/4	1/8	155.2	149.1	93	38.4	77.6	110	35.5	_	50	40	55	9	18	7	50	65
AC50A-D	3/4, 1	1/8	191.2	234.1	155	_	98.1	110	45	_	70	50	70	11	20	8	60	80
AC60A-D	1	1/8	196.2	234.1	155	_	98.1	110	45	_	70	50	70	11	20	8	60	80

Model t					Optiona	al speci	fications						Semi-	standarc	specific	ations	
Model		are edded	Digital pr	essure	Round	,,	Round		Round	,,	With	PC/PA	A bowl	Meta	l bowl		owl with gauge
ty	type pr gau	essure uge	swite	ch	press gau		gauge ( standa		gauge color z	•	drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20A-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	_	91.4	87.4	93.9	_	_
AC30A-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40A-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40A-06-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50A-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	273.9	242.6	240.9	236.5	241	256.5	261
AC60A-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	273.9	242.6	240.9	236.5	241	256.5	261

# AC20A-D to AC60A-D Series

#### **Dimensions: With Pressure Relief 3-Port Valve (V)**





	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	al bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20A-V-D	M5 x 0.8		Midth across flats 14	B	1/8 Width across flats 14		
AC30A-V-D to AC50A-V-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

Air Combination AC20A-D to AC60A-D Series

								Standa	rd spe	cificati	ons									
Model															Bra	cket n	nount			
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	М	N	Q1	Q <sub>2</sub>	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20A-V-D	1/8, 1/4	1/8	1/8	126.4	87.6	71.8	_	41.6	60	21	5	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30A-V-D	1/4, 3/8	1/8	1/4	167.4	115.3	86.5	30	55.1	80	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40A-V-D	1/4, 3/8, 1/2	1/8	3/8	220.4	147.1	91.5	38.4	72.6	110	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40A-06-V-D	3/4	1/8	1/2	235.4	149.1	93	38.4	77.6	110	35.5	_	50	80.2	40	55	9	18	7	50	65
AC50A-V-D	3/4, 1	1/8	1/2	287.4	234.1	155	_	98.1	110	45	_	70	96.2	50	70	11	20	8	60	80

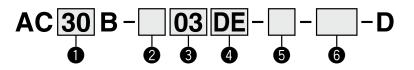
					Optiona	al speci	fications						Semi-	standard	l specific	ations	
Model	Squ embe		Digital pr	essure	Round		Round	, ·	Round		With	PC/PA	A bowl	Meta	l bowl		owl with gauge
	type pr gau		swite	ch	gau		gauge ( standa		gauge color z		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20A-V-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	<u> </u>	91.4	87.4	93.9	_	
AC30A-V-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40A-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50A-V-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	273.9	242.6	240.9	236.5	241	256.5	261

# Air Filter + Regulator

# AC20B-D to AC60B-D



#### **How to Order**



- · Option/Semi-standard: Select one each for a to i.
- · Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AC30B-F03DE1-16NR-D

		_						0		
				Symbol	Description			Body siz	е	
						20	30	40	50	60
				Nil	Rc	•	•	•	•	•
2		Pip	oe thread type	N*1	NPT	•	•	•	•	•
				F*2	G	•	•	•	•	•
				+				,		,
				01	1/8	•	<u> </u>	_		_
				02	1/4		•	•		_
3			Port size	03	3/8		•	•		_
				04	1/2			•		_
				06	3/4		<del>  -</del>	•	•	_
				10 +	1				•	
				Nil	Without auto drain					
		а	Float type	C*4	N.C. (Normally closed) Drain port is closed when pressure is not applied.					
		a	auto drain	<b>D</b> *5	N.O. (Normally open) Drain port is closed when pressure is not applied.					
				+	The transaction open brain port to open when pressure is not applied.				_	
	_			Nil	Without pressure gauge		•	•		•
	Option*3		_	E	Square embedded type pressure gauge (with limit indicator)	•	•	•	•	•
4	biti		Pressure gauge*6	G	Round type pressure gauge (with limit indicator)	•	•	•	•	•
				М	Round type pressure gauge (with color zone)	•	•	•	•	•
		b		E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•	•	•
			Digital pressure	E2	Output: NPN output, Electrical entry: Wiring top entry	•	•	•	•	•
			switch	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•	•	•
				E4	Output: PNP output, Electrical entry: Wiring top entry	•	•	•	•	•
_		_		+						
	ent			Nil	Without attachment	•	•	•	•	•
6	Attachment	С	Pressure relief 3-port valve	V	Mounting position: AF + AR + V	•	•	•	•	
	Atte		•	V1*7	Mounting position: <b>V</b> + AF + AR□K	•	•	•	•	_
_		_		+						
		d	Set pressure*8	Nil	0.05 to 0.85 MPa setting	•	•	•	•	•
		ŭ	Jot proddure	1	0.02 to 0.2 MPa setting		•	•	•	
				+						
				Nil	Polycarbonate bowl	•	•	•	•	•
				2	Metal bowl	•	•	•	•	•
		е	Bowl*9	6	Nylon bowl		•	•		
	larc			8	Metal bowl with level gauge	_	*10	*10	*10	*10
_	and			C	With bowl guard		*10	*11	*11	*11
6	Semi-standard			6C +	With bowl guard (Nylon bowl)		1 —	I —		
	) Jer			Nil	With drain cock					
	0)		Air filter drain		Drain guide 1/8		<u> </u>	_	_	_
		f	port*12	J*13	Drain guide 1/4		•	•	•	•
			port	<b>W</b> *14	Drain guide 1/4  Drain cock with barb fitting (for ø6 x ø4 nylon tube)			•		
				+	Diam cook with barb litting (for bo x by hylon tabe)				_	
			Exhaust	Nil	Relieving type			•		•
		g	mechanism	N	Non-relieving type			•	•	•
			moonamom		Sucting type		_	_	_	

## Air Combination AC20B-D to AC60B-D Series



AC30B-D

		_		Symbol	Description		E	Ody size	9	
						20	30	40	50	60
		<b>L</b>	Flann dina ation	Nil	Flow direction: Left to right	•	•	•	•	•
	standard	h	Flow direction	R	Flow direction: Right to left	•	•	•	•	•
6	gu			+						
U	1 . 1			Nil	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	•	•	•	•	•
	Semi	i	Unit	<b>Z</b> *15	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	O*17	O*17	O*17	O*17	O*17
	0)			<b>ZA</b> *16	Digital pressure switch: With unit selection function	△*18	△*18	△*18	△*18	△*18
			is NPT1/8 (applicable		=== = / // // // // // // // // // // //	e combina			nd 8 is not	available.

- The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30B-D to AC60B-D).
- \*2 Drain guide is G1/8 (applicable to the AC20B-D) and
- G1/4 (applicable to the AC30B-D to AC60B-D).

  \*3 Options G and M are not assembled and supplied loose at the time of shipment.
- \*4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
- \*5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
- \*6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa)
- this configuration. Additionally, when performing maintenance work, make sure that the outlet pressure is released to atmospheric pressure using a pressure gauge.
- \*8 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
- \*9 Refer to chemical data on page 68 for chemical resistance of the bowl.
- \*10 A bowl guard is provided as standard equipment (polycarbonate).
- A bowl guard is provided as standard equipment (nvlon).
- The combination of float type auto drain C and D is not available
- \*13 Without a valve function

- This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.

- \*16 For options: E1, E2, E3, E4 This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for
- \*17  $\bigcirc$ : For the pipe thread type: NPT only
- \*18  $\triangle$ : Select with options: E1, E2, E3, E4.

#### Standard Specifications

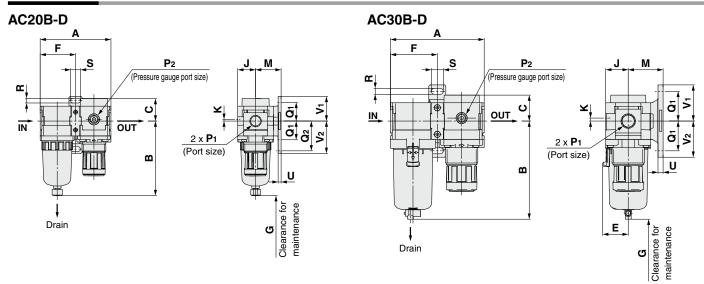
<u> </u>	Opoo	ilications							
	Mo	odel		AC20B-D	AC30B-D	AC40B-D	AC40B-06-D	AC50B-D	AC60B-D
Component	Air Filt	er	[AF]	AF20-D	AF30-D	AF40-D	AF40-06-D	AF50-D	AF60-D
Component	Regula	itor	[AR]	AR20-D	AR30-D	AR40-D	AR40-06-D	AR50-D	AR60-D
Port size				1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Pressure gau	ge port	size*1	[AR]			1	/8		
Fluid							Air		
Ambient and	fluid ten	nperatures*2				–5 to 60°C	(No freezing)		
Proof pressu	re					1.5	MPa		
Max. operatin	g press	ure				1.0	MPa		
Auto drain mi	uto drain minimum N.C.			0.1 MPa			0.15 MPa		
operating pre	essure	N.O.	[AF]	_			0.1 MPa		
Set pressure	range		[AR]			0.05 to (	0.85 MPa		
Nominal filtra	tion rati	ng*³	[AF]			5	μm		
Compressed	air purit	y class*4				ISO 8573-1:20	)10 [ 6 : 4 : 4 ]* <sup>5</sup>		
Drain capacit	y		[AF]	8 cm <sup>3</sup>	25 cm <sup>3</sup>		45 c	m³	
Bowl materia	I		[AF]			Polyca	rbonate		
Bowl guard			[AF]	Semi-standard (Steel)		Star	dard (Polycarbon	ate)	
Construction			[AR]			Relievi	ng type		
Weight				0.25 kg	0.51 kg	0.95 kg	1.02 kg	2.20 kg	2.39 kg

- \*1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
- \*2 -5 to 50°C for the products with the digital pressure switch
- \*3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant] Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
- \*4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.
- \*5 The compressed air quality class on the inlet side is [7:4:4].

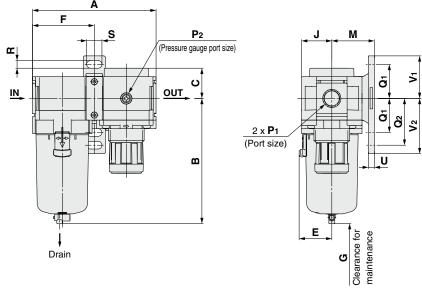


# AC20B-D to AC60B-D Series

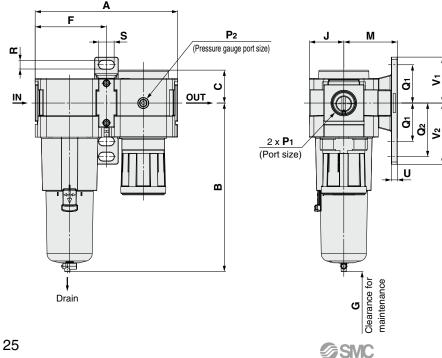
#### **Dimensions**

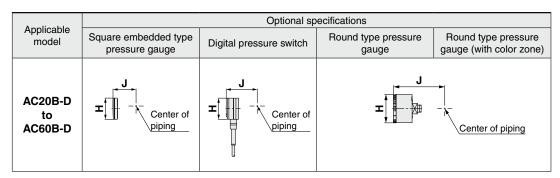


#### AC40B-D to AC40B-06-D



#### AC50B-D to AC60B-D





	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	al bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20B-D	M5 x 0.8		M 1/8 Width across flats 14	B	1/8 Width across flats 14		
AC30B-D to AC60B-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

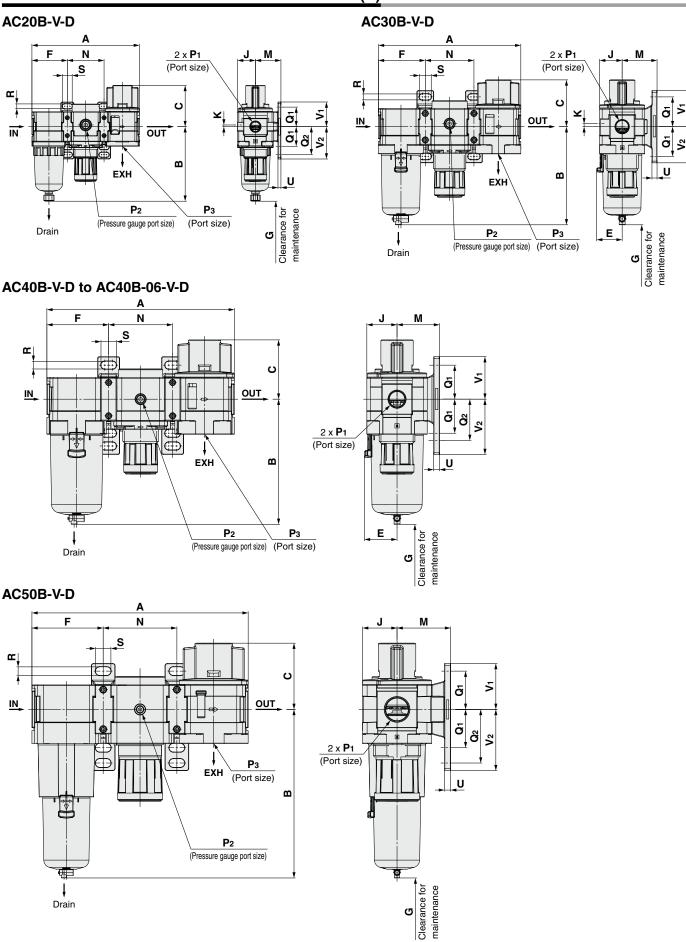
Air Combination AC20B-D to AC60B-D Series

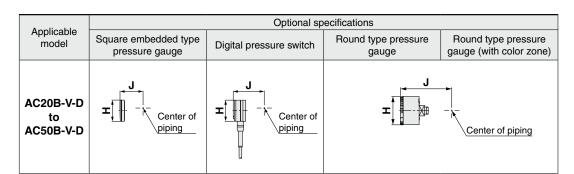
							Standa	rd spe	cification	ns								
Model														Brack	et mou	nt		
	P1	P <sub>2</sub>	Α	В	С	Е	F	G	J	K	M	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20B-D	1/8, 1/4	1/8	83.2	87.6	26.5	_	41.6	25	21	2	30	24	33	5.5	11.5	3.5	29	38
AC30B-D	1/4, 3/8	1/8	110.2	115.4	30.5	30	55.1	35	26.5	3.5	41	35	_	7	14	6	42.5	42.5
AC40B-D	1/4, 3/8, 1/2	1/8	145.2	147.1	35.5	38.4	72.6	40	35.5	-	50	40	55	9	18	7	50	65
AC40B-06-D	3/4	1/8	155.2	149.1	35.5	38.4	77.6	40	35.5	_	50	40	55	9	18	7	50	65
AC50B-D	3/4, 1	1/8	186.2	220.1	43	_	93.1	30	45	_	70	50	70	11	20	8	60	80
AC60B-D	1	1/8	196.2	234.1	45	_	98.1	30	45	_	70	50	70	11	20	8	60	80

					Optiona	al speci	fications						Semi-	standard	specific	ations	
Model	Squ		Digital pr	essure	Round	,,	Round	, ·	Round	,,	With	PC/PA	A bowl	Meta	l bowl		owl with gauge
Wodei	type pr gau		swite	ch	press gau		gauge ( standa		gauge color z		auto drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20B-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	_	91.4	87.4	93.9	_	_
AC30B-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40B-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40B-06-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50B-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	259.9	228.6	226.9	222.5	227	242.5	247
AC60B-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	273.9	242.6	240.9	236.5	241	256.5	261

# AC20B-D to AC60B-D Series

#### **Dimensions: With Pressure Relief 3-Port Valve (V)**





	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	al bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20B-V-D	M5 x 0.8		Midth across flats 14	B	1/8 Width across flats 14		
AC30B-V-D to AC50B-V-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	Width across flats 17

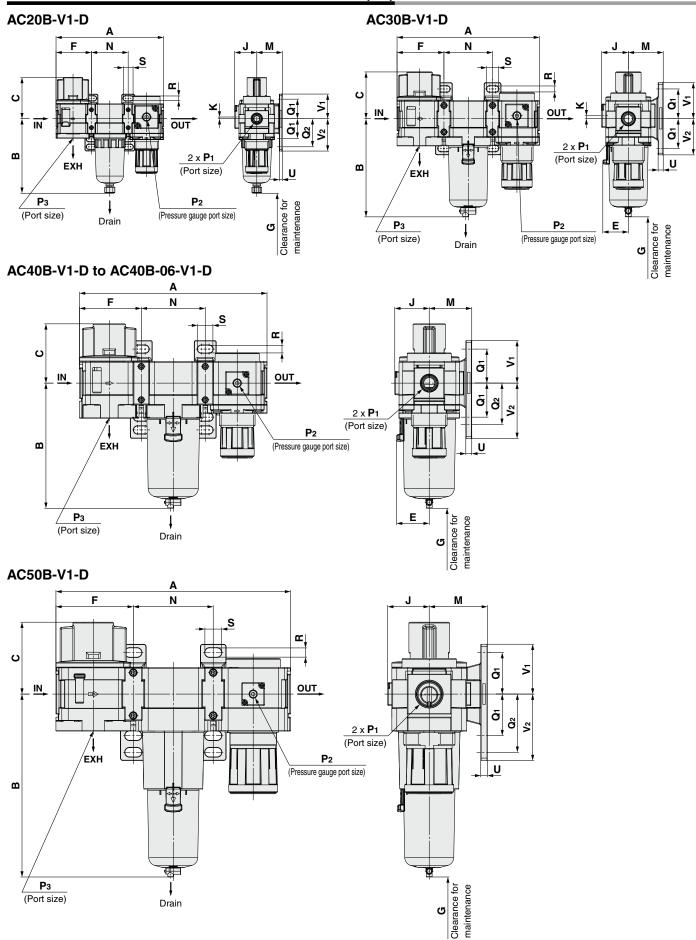
Air Combination AC20B-D to AC60B-D Series

								Standa	rd sp	ecificat	ons									
Model															Bra	cket n	nount			
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	М	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20B-V-D	1/8, 1/4	1/8	1/8	126.4	87.6	48.5	_	41.6	25	21	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30B-V-D	1/4, 3/8	1/8	1/4	167.4	115.4	55	30	55.1	35	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40B-V-D	1/4, 3/8, 1/2	1/8	3/8	220.4	147.1	69.7	38.4	72.6	40	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40B-06-V-D	3/4	1/8	1/2	235.4	149.1	71.7	38.4	77.6	40	35.5	_	50	80.2	40	55	9	18	7	50	65
AC50B-V-D	3/4, 1	1/8	1/2	282.4	220.1	86.5	_	93.1	30	45	_	70	96.2	50	70	11	20	8	60	80

					Optiona	al speci	fications						Semi-	standard	specific	ations	
Model	Squ		Digital pr	essure	Round	,,	Round	, ·	Round	,,	With	PC/PA	A bowl	Meta	l bowl	11110101111	owl with gauge
Wodel	type pr gau		swite	ch	gau		gauge ( standa		gauge color z		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20B-V-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	<u> </u>	91.4	87.4	93.9	_	_
AC30B-V-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40B-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40B-06-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50B-V-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	259.9	228.6	226.9	222.5	227	242.5	247

# AC20B-D to AC60B-D Series

#### **Dimensions: With Pressure Relief 3-Port Valve (V1)**



A

AB

	T			
		Optional sp	ecifications	
Applicable model	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with color zone)
AC20B-V1-D to AC50B-V1-D	Center of	Center of piping	± J	Center of piping

	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20B-V1-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14		
AC30B-V1-D to AC50B-V1-D		Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

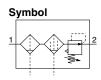
Air Combination AC20B-D to AC60B-D Series

								Standa	rd sp	ecificati	ons									
Model															Bra	cket n	nount			
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	М	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20B-V1-D	1/8, 1/4	1/8	1/8	126.4	87.6	48.5	_	41.6	25	26	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30B-V1-D	1/4, 3/8	1/8	1/4	167.4	115.4	55	30	55.1	35	31.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40B-V1-D	1/4, 3/8, 1/2	1/8	3/8	220.4	147.1	69.7	38.4	72.6	40	40.5	_	50	75.2	40	55	9	18	7	50	65
AC40B-06-V1-D	3/4	1/8	1/2	235.4	149.1	71.7	38.4	77.6	40	40.5	_	50	80.2	40	55	9	18	7	50	65
AC50B-V1-D	3/4, 1	1/8	1/2	282.4	220.1	86.5	_	93.1	30	50	_	70	96.2	50	70	11	20	8	60	80

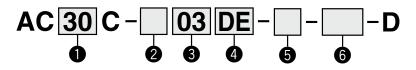
					Optiona	al speci	fications						Semi-	standard	specific	ations	
Model	Squ		Digital pr	essure	Round		Round		Round	,,	With	PC/PA	A bowl	Meta	l bowl	Metal b	owl with gauge
Wodel	type pr gau		swite	ch	gau		gauge ( standa		gauge color z		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20B-V1-D	□28	27	□27.8	37.5	ø37.5	62.5	ø37.5	63.5	ø37.5	63.5	104.9	_	91.4	87.4	93.9	_	_
AC30B-V1-D	□28	32.5	□27.8	43	ø37.5	68	ø37.5	69	ø37.5	69	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40B-V1-D	□28	41.5	□27.8	52	ø42.5	78	ø42.5	78	ø42.5	78	186.9	155.6	153.9	149.5	154	169.5	174
AC40B-06-V1-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176
AC50B-V1-D	□28	51	□27.8	61.5	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5	259.9	228.6	226.9	222.5	227	242.5	247

# Air Filter + Mist Separator + Regulator

# AC20C-D to AC40C-D



#### **How to Order**



- · Option/Semi-standard: Select one each for a to i.
- · Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AC30C-F03DE1-16NR-D

		_			<b>5</b>		0	
				Symbol	Description		Body size	
						20	30	40
				Nil	Rc	•	•	•
2		Р	ipe thread type	N*1	NPT	•	•	•
				<b>F</b> *2	G	•	•	•
				+			1	
				01	1/8	•	_	_
				02	1/4	•	•	•
3			Port size	03	3/8		•	•
				04	1/2		_	•
				06	3/4		<u> </u>	•
				+	Med			
			Float type	Nil C*4	Without auto drain	•	•	
		а	auto drain	C*4 D*5	N.C. (Normally closed) Drain port is closed when pressure is not applied.	•		•
				<b>D</b> *°	N.O. (Normally open) Drain port is open when pressure is not applied.		•	
				+ Nil	Without proceure gauge	•	•	
	J*3			E	Without pressure gauge Square embedded type pressure gauge (with limit indicator)	•		•
4	Option*3		Pressure gauge*6	G	Round type pressure gauge (with limit indicator)			
	ŏ			M	Round type pressure gauge (with minit indicator)  Round type pressure gauge (with color zone)			
		b		E1	Output: NPN output, Electrical entry: Wiring bottom entry			
			Digital pressure	E2	Output: NPN output, Electrical entry: Writing bottom entry  Output: NPN output, Electrical entry: Wiring top entry			
			switch	E3	Output: PNP output, Electrical entry: Writing top entry	-		
			O WILLOW	E4	Output: PNP output, Electrical entry: Wring bottom entry			
				+	Calput 1111 Calput, Licotrical Only. Thing top Only			
	ent			Nil	Without attachment	•	•	•
6	Attachment	С	Pressure relief 3-port valve	V	Mounting position: AF + AFM + AR + V	•	•	•
	Atte		, poss sum o	V1*7	Mounting position: <b>V</b> + AF + AFM + AR□K	•	•	•
				+				
		d	Set pressure*8	Nil	0.05 to 0.85 MPa setting	•	•	•
		u	Oct prossure	1	0.02 to 0.2 MPa setting	•	•	•
				+				
				Nil	Polycarbonate bowl	•	•	•
				2	Metal bowl	•	•	•
		е	Bowl*9	6	Nylon bowl	•	•	•
	laro			8	Metal bowl with level gauge		*10	*10
6	ano			С	With bowl guard	•	*10 *11	*10 *11
6	Semi-standard			6C	With bowl guard (Nylon bowl)	•	*··	_*'''
	em			+ Nil	With drain cock			
	(O)		Air filter		Drain guide 1/8	•	•	•
		f	Mist separator	<b>J</b> *13	Drain guide 1/4		_	_
			drain port*12	<b>W</b> *14	Drain guide 1/4  Drain cock with barb fitting (for ø6 x ø4 nylon tube)		•	•
				+ +	Drain cock with barb litting (for \$6 x \$4 hylon tube)		•	•
				Nil	Relieving type	_	•	_
		g	Exhaust mechanism	N	Non-relieving type	•		•
				IN	Non-relieving type			•

# Air Combination AC20C-D to AC40C-D Series



	_	_					0	
				Symbol	Description		Body size	
						20	30	40
		<b>L</b>	Flow direction	Nil	Flow direction: Left to right	•	•	•
	standard	h	Flow direction	R	Flow direction: Right to left	•	•	•
6	lanc			+				
U				Nil	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	•	•	•
	Semi	i	Unit	<b>Z</b> *15	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	O*17	O*17	O*17
	\sigma			<b>ZA</b> *16	Digital pressure switch: With unit selection function	△*18	△*18	△*18

- \*1 Drain guide is NPT1/8 (applicable to the AC20C-D) and NPT1/4 (applicable to the AC30C-D to AC40C-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30C-D to AC40C-D).
- \*2 Drain guide is G1/8 (applicable to the AC20C-D) and G1/4 (applicable to the AC30C-D to AC40C-D).
- \*3 Options G and M are not assembled and supplied loose at the time of shipment.
- \*4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
- \*5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
- \*6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
- \*7 The regulator is equipped with a backflow function in this configuration. Additionally, when performing maintenance work, make sure that the outlet pressure is released to atmospheric pressure using a pressure gauge.
- \*8 Pressure can be set higher than the specification pressure in some cases, but use pressure within the . specification range.
- \*9 Refer to chemical data on pages 68 and 75 for chemical resistance of the bowl.
- \*10 A bowl guard is provided as standard equipment (polycarbonate).
- A bowl guard is provided as standard equipment (nylon). \*12 The combination of float type auto drain C and D is not available.

- \*13 Without a valve function
- \*14 The combination of metal bowl 2 and 8 is not available.
- \*15 For the pipe thread type: NPT This product is for overseas use only according to

the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge

(with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially. \*16 For options: E1, E2, E3, E4

- This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
- O: For the pipe thread type: NPT only
- \*18 A: Select with options: E1, E2, E3, E4.

#### Standard Specifications

	Мо	del		AC20C-D	AC30C-D	AC40C-D	AC40C-06-D							
	Air Filte	er	[AF]	AF20-D	AF30-D	AF40-D	AF40-06-D							
Component	Mist Se	parator	[AFM]	AFM20-D	AFM30-D	AFM40-D	AFM40-06-D							
	Regula	tor	[AR]	AR20-D	AR30-D	AR40-D	AR40-06-D							
Port size				1/8, 1/4	/4 1/4, 3/8 1/4, 3/8, 1/2 3/4									
Pressure gau	ure gauge port size*1 [AR] 1/8													
Fluid				Air										
Ambient and f	luid temp	peratures*2			−5 to 60°C (No freezing)									
Proof pressur	re				1.5 [	МРа								
Max. operatin	g pressu	ıre		1.0 MPa										
Auto drain minimum N.C.			[AF/AFM]	0.1 MPa 0.15 MPa										
operating pressure N.O.		N.O.	[AF/AFM]	— 0.1 MPa										
Set pressure	range		[AR]	0.05 to 0.85 MPa										
Max. flow cap	acity*3		[AFM]	200 L/min (ANR)	450 L/min (ANR) 1100 L/min (ANR)									
Nominal filtra	tion ratir	*4	[AF]	5 μm										
NOIIIIIai IIIIIa	uon raui	ıy	[AFM]		0.3 μm (99.9% filt	ered particle size)								
Outlet side oil m	ist concer	ntration*5, *6	[AFM]		Max. 1.0 mg/n	n³ (≈ 0.8 ppm)								
Compressed	air purity	/ class*7			ISO 8573-1:20	10 [ 3 : 4 : 3 ]*8								
Drain capacit	у		[AF/AFM]	8 cm <sup>3</sup> 25 cm <sup>3</sup> 45 cm <sup>3</sup>										
Bowl materia			[AF/AFM]	Polycarbonate										
Bowl guard			[AF/AFM]	Semi-standard (Steel) Standard (Polycarbonate)										
Construction			[AR]		Relieving type									
Weight				0.38 kg	0.75 kg	1.42 kg	1.54 kg							

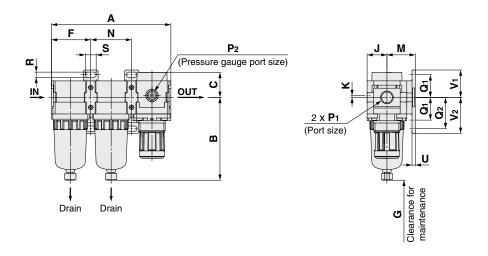
- \*1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
- \*2 -5 to 50°C for the products with the digital pressure switch
- Mist separator inlet pressure: 0.7 MPa. Flow at 20°C, atmospheric pressure, and 65% of the relative humidity The maximum flow capacity varies depending on the inlet pressure
- Keep the air flow within the maximum flow capacity to prevent an outflow of lubricant to the outlet side. \*4 For the following conditions in accordance with [Test condition: ISO 8573-4:2001, Test method ISO 12500-3:2009 compliant] in addition to the conditions above Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
- The outlet side oil mist concentration for the following conditions in accordance with [Test condition: ISO 8573-2:2007, Test method ISO 12500-1:2007 compliant] in addition to the conditions above Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/m³, and the flow capacity, inlet pressure, and the oil mist concentration on the filter inlet side are stable
- \*6 The bowl seal and other O-rings are slightly lubricated.
   \*7 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.
- \*8 The compressed air quality class on the inlet side is [7:4:4].



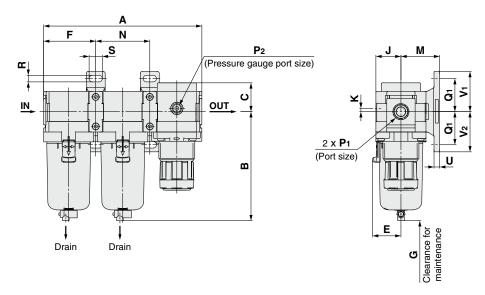
# AC20C-D to AC40C-D Series

#### **Dimensions**

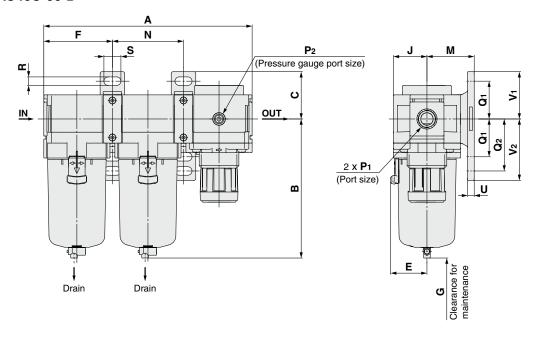
#### AC20C-D

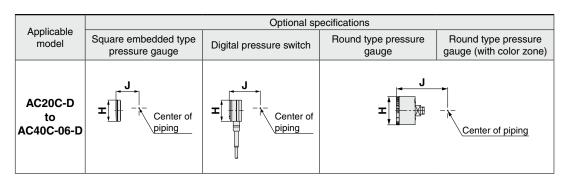


#### AC30C-D



#### AC40C-D to AC40C-06-D





	Optional specifications	Semi-standard Semi-standard													
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl with level gauge									
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide								
AC20C-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14										
AC30C-D to AC40C-06-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17								

Air Combination AC20C-D to AC40C-D Series

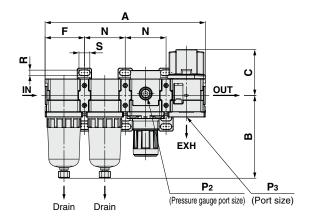
		Standard specifications																	
Model		Bracket mount																	
	P1	P <sub>2</sub>	Α	В	С	Е	F	G	J	K	М	N	Q <sub>1</sub>	Q <sub>2</sub>	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20C-D	1/8, 1/4	1/8	126.4	87.6	26.5	_	41.6	40	21	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30C-D	1/4, 3/8	1/8	167.4	115.4	30.5	30	55.1	50	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40C-D	1/4, 3/8, 1/2	1/8	220.4	147.1	35.5	38.4	72.6	75	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40C-06-D	3/4	1/8	235.4	149.1	35.5	38.4	77.6	75	35.5	_	50	80.2	40	55	9	18	7	50	65

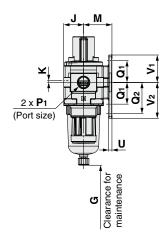
					Optiona	Semi-standard specifications											
Model	Square embedded type pressure gauge		edded Digital pressure ressure switch		Round type pressure gauge (Semi-standard: Z)		Round	,,	With	PC/PA	A bowl	Metal bowl		Metal bowl with level gauge			
											With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide	
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20C-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	_	91.4	87.4	93.9	_	_
AC30C-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40C-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40C-06-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176

# AC20C-D to AC40C-D Series

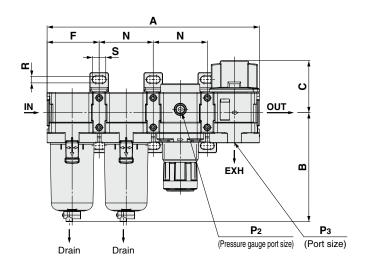
#### **Dimensions: With Pressure Relief 3-Port Valve (V)**

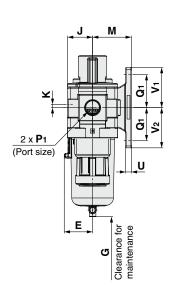
#### AC20C-V-D



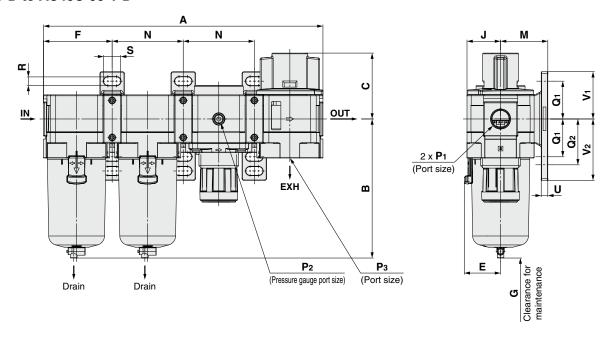


#### AC30C-V-D

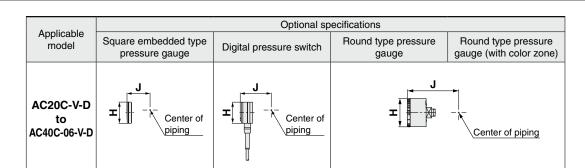




#### AC40C-V-D to AC40C-06-V-D



AB



	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	al bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20C-V-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14		
AC30C-V-D to AC40C-06-V-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

Air Combination AC20C-D to AC40C-D Series

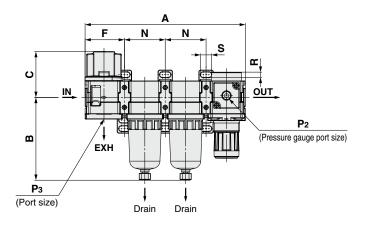
								Standa	rd spe	ecificati	ons									
Model															Bra	cket r	nount			
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	M	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20C-V-D	1/8, 1/4	1/8	1/8	169.6	87.6	48.5	_	41.6	40	21	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30C-V-D	1/4, 3/8	1/8	1/4	224.6	115.4	55	30	55.1	50	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40C-V-D	1/4, 3/8, 1/2	1/8	3/8	295.6	147.1	69.7	38.4	72.6	75	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40C-06-V-D	3/4	1/8	1/2	315.6	149.1	71.7	38.4	77.6	75	35.5	_	50	80.2	40	55	9	18	7	50	65

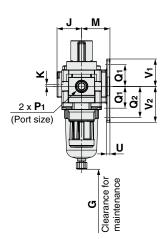
					Optiona	al speci	fications						Semi-	standard	Specific	ations	
Model	Squ		Digital pr	essure	Round		Round	, ·	Round	,,	With	PC/PA	A bowl	Metal	l bowl		owl with gauge
Model typ	type pr gau		swite	ch	press gau		gauge ( standa		gauge color z		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20C-V-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	_	91.4	87.4	93.9	_	_
AC30C-V-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40C-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174
AC40C-06-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176

# AC20C-D to AC40C-D Series

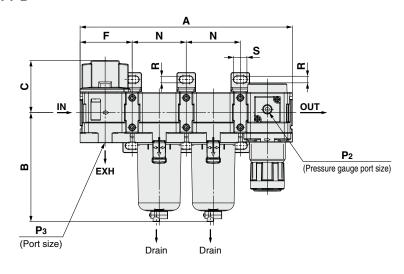
#### **Dimensions: With Pressure Relief 3-Port Valve (V1)**

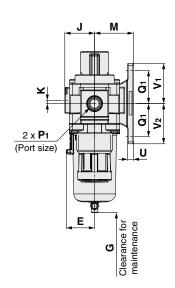
#### AC20C-V1-D



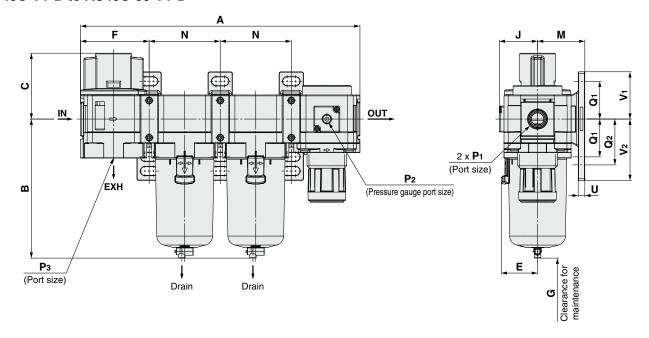


#### AC30C-V1-D





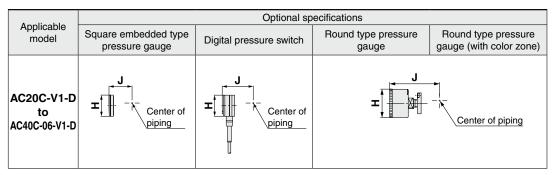
#### AC40C-V1-D to AC40C-06-V1-D



A

AB

# Air Combination AC20C-D to AC40C-D Series



	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20C-V1-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14		
AC30C-V1-D to AC40C-06-V1-D		Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

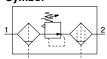
								Standa	rd spe	ecificati	ons									
Model															Bra	cket r	nount			
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	М	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20C-V1-D	1/8, 1/4	1/8	1/8	169.6	87.6	48.5	_	41.6	40	26	2	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30C-V1-D	1/4, 3/8	1/8	1/4	224.6	115.4	55	30	55.1	50	31.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40C-V1-D	1/4, 3/8, 1/2	1/8	3/8	295.6	147.1	69.7	38.4	72.6	75	40.5	_	50	75.2	40	55	9	18	7	50	65
AC40C-06-V1-D	3/4	1/8	1/2	315.6	149.1	71.7	38.4	77.6	75	40.5	_	50	80.2	40	55	9	18	7	50	65

					Optiona	al speci	fications						Semi-	-standarc	specific	ations	
Model	Squ embe		Digital pr	essure	Round		Round	, ·	Round		With	PC/PA	A bowl	Meta	bowl		owl with gauge
Wodel	type pr gau		swite	ch	gau		gauge ( standa		gauge color z		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20C-V1-D	□28	27	□27.8	37.5	ø37.5	62.5	ø37.5	63.5	ø37.5	63.5	104.9	_	91.4	87.4	93.9	_	_
AC30C-V1-D	□28	32.5	□27.8	43	ø37.5	68	ø37.5	69	ø37.5	69	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40C-V1-D	□28	41.5	□27.8	52	ø42.5	78	ø42.5	78	ø42.5	78	186.9	155.6	153.9	149.5	154	169.5	174
AC40C-06-V1-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176

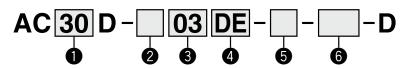
# Filter Regulator + Mist Separator

# AC20D-D to AC40D-D

#### Symbol



#### **How to Order**



- · Option/Semi-standard: Select one each for a to i.
- · Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AC30D-F03DE1-16NR-D

	_	_					0	
				Symbol	Description		Body size	
						20	30	40
				Nil	Rc	•	•	•
2		Р	ipe thread type	N*1	NPT	•	•	•
				F*2	G	•	•	•
				+				
				01	1/8	•	_	_
				02	1/4	•	•	•
8			Port size	03	3/8	_	•	•
				04	1/2		_	•
				06	3/4	_	_	•
				+				
			Float type	Nil	Without auto drain	•	•	•
		а	auto drain	C*4	N.C. (Normally closed) Drain port is closed when pressure is not applied.	•	•	•
				<b>D</b> *5	N.O. (Normally open) Drain port is open when pressure is not applied.	_	•	•
				+	New .			
	*3			Nil	Without pressure gauge	•	•	•
4	Option*3		Pressure gauge*6	E	Square embedded type pressure gauge (with limit indicator)	•	•	•
	o			G	Round type pressure gauge (with limit indicator)	•	•	•
		b		M	Round type pressure gauge (with color zone)			
			District and a second	E1	Output: NPN output, Electrical entry: Wiring bottom entry			
			Digital pressure switch	E2 E3	Output: NPN output, Electrical entry: Wiring top entry Output: PNP output, Electrical entry: Wiring bottom entry	•		
			SWILCH	E4	Output: PNP output, Electrical entry: Writing bottom entry  Output: PNP output, Electrical entry: Wiring top entry	-		
				+	Output. 1 Wi Output, Electrical entry. Willing top entry			
	Ħ			Nil	Without attachment		•	
_	ner		Pressure relief			•		
6	Attachment	С	3-port valve	V	Mounting position: AW + AFM + <b>V</b>	•	•	•
	¥			V1*7	Mounting position: <b>V</b> + AW□K + AFM	•	•	•
				+			'	
		d	Set pressure*8	Nil	0.05 to 0.85 MPa setting	•	•	•
		u	Set pressure	1	0.02 to 0.2 MPa setting	•	•	•
				+				
				Nil	Polycarbonate bowl	•	•	•
				2	Metal bowl	•	•	•
		е	Bowl*9	6	Nylon bowl	•	•	•
				8	Metal bowl with level gauge		•	•
	5			С	With bowl guard	•	_*10	*10
	Jda			6C	With bowl guard (Nylon bowl)	•	*11	<u></u> *11
6	Semi-standard			+	Mills due in a cal			
	Ë		Filter regulator	Nil	With drain cock	•	•	•
	Se	f	Mist separator	<b>J</b> *13	Drain guide 1/8 Drain guide 1/4	•		_
			drain port*12	<b>W</b> *14	Drain guide 1/4  Drain cock with barb fitting (for ø6 x ø4 nylon tube)		•	•
				+	Drain cook with barb litting (for \$0 \$ \$4 hylon tube)			•
				Nil	Relieving type	•	•	•
		g	Exhaust mechanism	N	Non-relieving type	<u> </u>		
				+	Ten tenering type			_
				Nil	Flow direction: Left to right	•	•	•
		h	Flow direction	R	Flow direction: Right to left	<u> </u>	•	•

39

#### Air Combination AC20D-D to AC40D-D Series



AC30D-D

40

O\*17 \_\_\_\_×18

0 Body size

30

O\*17

\_\_\_\*18

		Symbol	Description	
dard		Nil	Unit on product label: MPa, °C, Pressure gauge in SI units	: MPa
Semi-standard	Unit	<b>Z</b> *15	Unit on product label: psi, °F, Pressure gauge: MPa/psi dua	l scale
Sem		<b>ZA</b> *16	Digital pressure switch: With unit selection function	
	de is NPT1/8 (applicable to T1/4 (applicable to the			3 Without a va 4 The combi

- pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
- \*7 The filter regulator is equipped with a backflow function in this configuration. Additionally, when performing maintenance work, make sure that the outlet pressure is released to atmospheric pressure using a pressure gauge.
- \*8 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
- \*9 Refer to chemical data on pages 75 and 109 for chemical resistance of the bowl.
- \*10 A bowl guard is provided as standard equipment (polycarbonate).
- A bowl guard is provided as standard equipment (nylon).
- \*12 The combination of float type auto drain C and D is not available.

valve function

20

O\*17

△\*18

- \*14 The combination of metal bowl 2 and 8 is not available \*15 For the pipe thread type: NPT
  - the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.

This product is for overseas use only according to

- For options: E1, E2, E3, E4 This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
- \*17  $\bigcirc$ : For the pipe thread type: NPT only
- \*18 A: Select with options: E1, E2, E3, E4.

#### Standard Specifications

AC40D-D). The auto drain port comes with a ø3/8"

One-touch fitting (applicable to the AC30D-D to

\*2 Drain guide is G1/8 (applicable to the AC20D-D) and

\*3 Options G and M are not assembled and supplied

\*4 When pressure is not applied, condensate which

ending operations for the day is recommended.

\*5 If the compressor is small (0.75 kW, discharge flow is

does not start the auto drain mechanism will be left in

the bowl. Releasing the residual condensate before

less than 100 L/min (ANR)), air leakage from the

drain cock may occur during the start of operations.

G1/4 (applicable to the AC30D-D to AC40D-D).

loose at the time of shipment.

N.C. type is recommended.

AC40D-D).

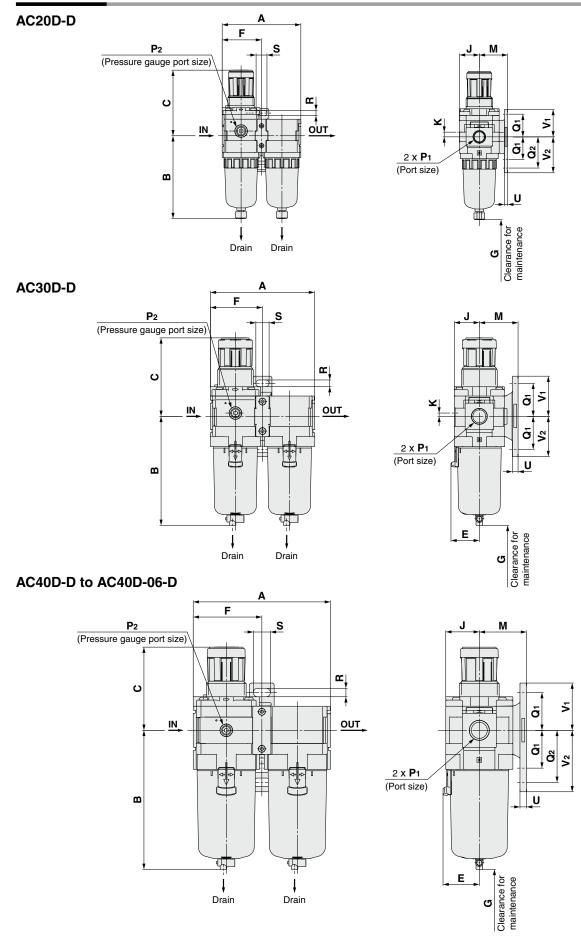
	Mo	odel		AC20D-D	AC30D-D	AC40D-D	AC40D-06-D
	Filter F	Regulator	[AW]	AW20-D	AW30-D	AW40-D	AW40-06-D
Component	Mist Se	parator	[AFM]	AFM20-D	AFM30-D	AFM40-D	AFM40-06-D
Port size				1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Pressure gau	ge port	size*1	[AW]		1/	8	
Fluid					A	ir	
Ambient and	fluid tem	peratures*2			−5 to 60°C (I	No freezing)	
Proof pressu	re				1.5 N	лРa	
Max. operatir	ıg pressi	ıre			1.0 M	/IPa	
Auto drain m	inimum	N.C.	[AW/AFM]	0.1 MPa		0.15 MPa	
operating pre	essure	N.O.	[AW/AFM]	_		0.1 MPa	
Set pressure	range		[AW]		0.05 to 0	.85 MPa	
Max. flow cap	acity*3		[AFM]	200 L/min (ANR)	450 L/min (ANR)	1100 L/r	min (ANR)
Nominal filtra	tion ratio	na*4	[AW]		5 μ	m	
Nominal milia	ilion ratii	ilg	[AFM]		0.3 μm (99.9% filte	ered particle size)	
Outlet side oil n	nist conce	ntration*5, *6	[AFM]		Max. 1.0 mg/m	1 <sup>3</sup> (≈ 0.8 ppm)	
Compressed	air purit	y class*7			ISO 8573-1:20	10 [ 3 : 4 : 3 ]*8	
Drain capacit	y		[AW/AFM]	8 cm <sup>3</sup>	25 cm <sup>3</sup>	45	cm <sup>3</sup>
Bowl materia	I		[AW/AFM]		Polycar	bonate	
Bowl guard			[AW/AFM]	Semi-standard (Steel)	S	tandard (Polycarbonate	e)
Construction			[AW]		Relievir	ng type	
Weight				0.30 kg	0.58 kg	1.12 kg	1.21 kg

- \*1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
- \*2 -5 to 50°C for the products with the digital pressure switch
- \*3 Mist separator inlet pressure: 0.7 MPa. Flow at 20°C, atmospheric pressure, and 65% of the relative humidity The maximum flow capacity varies depending on the inlet pressure.
- Keep the air flow within the maximum flow capacity to prevent an outflow of lubricant to the outlet side.
- For the following conditions in accordance with [Test condition: ISO 8573-4:2001, Test method ISO 12500-3:2009 compliant] in addition to the conditions above Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
- \*5 The outlet side oil mist concentration for the following conditions in accordance with [Test condition: ISO 8573-2:2007, Test method ISO 12500-1:2007 compliant] in addition to the conditions above
  - Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/m3, and the flow capacity, inlet pressure, and the oil mist concentration on the filter inlet side are stable
- \*6 The bowl seal and other O-rings are slightly lubricated.
- \*7 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.
- \*8 The compressed air quality class on the inlet side is [7:4:4].

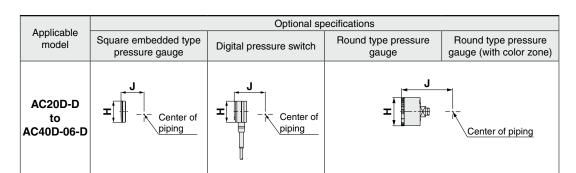


# AC20D-D to AC40D-D Series

#### **Dimensions**



AB



	Optional specifications			Semi-stand	dard		
Applicab	le	PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20D-	M5 x 0.8		Midth across flats 14	B	1/8 Width across flats 14		
AC30D- to AC40D-0		Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	Midth across flats 17

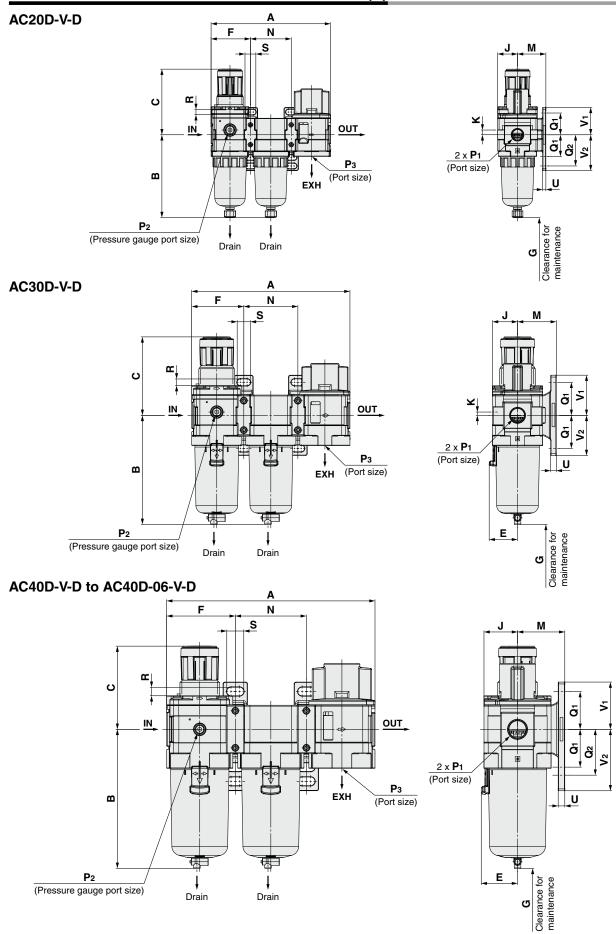
Air Combination AC20D-D to AC40D-D Series

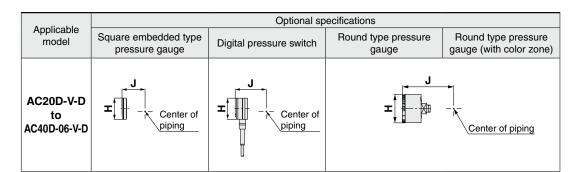
							Standar	d spe	cificatio	าร								
Model														Brack	et mour	nt		
	P1	P <sub>2</sub>	Α	В	С	Е	F	G	J	K	М	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20D-D	1/8, 1/4	1/8	83.2	87.6	71.8	_	41.6	40	21	5	30	24	33	5.5	11.5	3.5	29	38
AC30D-D	1/4, 3/8	1/8	110.2	115.3	86.5	30	55.1	55	26.5	3.5	41	35	_	7	14	6	42.5	42.5
AC40D-D	1/4, 3/8, 1/2	1/8	145.2	147.1	91.5	38.4	72.6	80	35.5	_	50	40	55	9	18	7	50	65
AC40D-06-D	3/4	1/8	155.2	149.1	93	38.4	77.6	80	35.5	_	50	40	55	9	18	7	50	65

typ					Optiona	al speci	fications						Semi-	-standarc	specific	ations	
Model	Squ embe		Digital pr	essure	Round		Round	, ·	Round		With	PC/PA	A bowl	Meta	bowl		owl with gauge
Wodel	type pr gau		swite	ch	gau		gauge ( standa		gauge color z		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	Н	J	Н	J	Н	J	Н	J	В	В	В	В	В	В	В
AC20D-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	_	91.4	87.4	93.9	_	_
AC30D-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3
AC40D-D		73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174						
AC40D-06-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176

# AC20D-D to AC40D-D Series

#### **Dimensions: With Pressure Relief 3-Port Valve (V)**





	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20D-V-D	M5 x 0.8		Midth across flats 14	B	1/8 Width across flats 14		
AC30D-V-D to AC40D-06-V-D		Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	m Width across flats 17

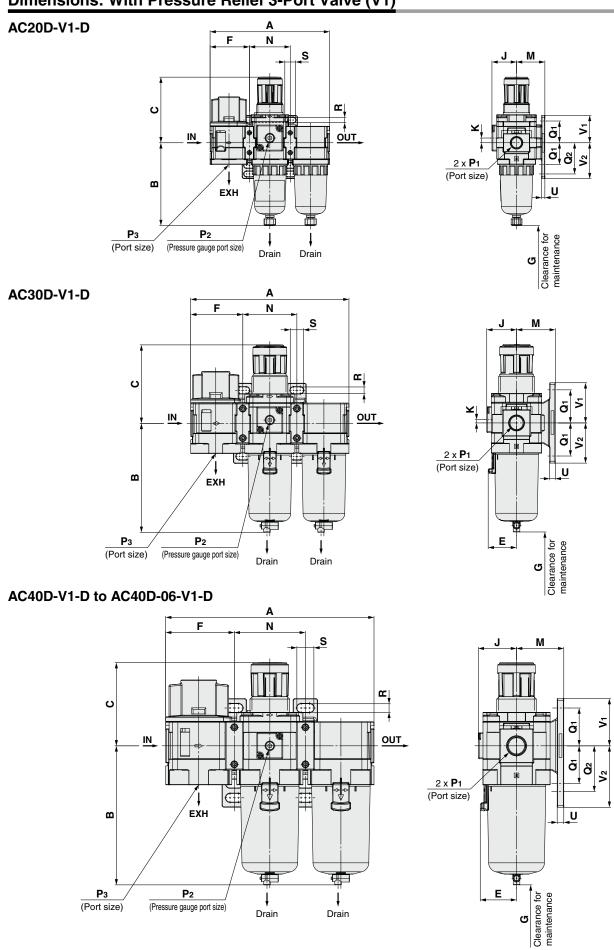
Air Combination AC20D-D to AC40D-D Series

	Standard specifications																			
Model		Bracket mount																		
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	M	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20D-V-D	1/8, 1/4	1/8	1/8	126.4	87.6	71.8	_	41.6	40	21	5	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30D-V-D	1/4, 3/8	1/8	1/4	167.4	115.3	86.5	30	55.1	55	26.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40D-V-D	1/4, 3/8, 1/2	1/8	3/8	220.4	147.1	91.5	38.4	72.6	80	35.5	_	50	75.2	40	55	9	18	7	50	65
AC40D-06-V-D	3/4	1/8	1/2	235.4	149.1	93	38.4	77.6	80	35.5	_	50	80.2	40	55	9	18	7	50	65

					Optiona	al speci	fications					Semi-standard specifications						
Model	Squ embe		Digital pr	essure	Round		Round	, ·	Round		With	PC/PA bowl		Meta	bowl	Metal bowl with level gauge		
Wodel	type pr gau		swite	ch		gauge (Semi- standard: Z) gauge (with color zone)		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide				
	Н	J	Н	J	Н	J	Н	J H J		В	В	В	В	В	В	В		
AC20D-V-D	□28	27	□27.8	37.5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5	104.9	_	91.4	87.4	93.9	_	_	
AC30D-V-D	□28	32.5	□27.8	43	ø37.5	63	ø37.5	64	ø37.5	64	157.1	123.9	122.2	117.8	122.3	137.8	142.3	
AC40D-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	186.9	155.6	153.9	149.5	154	169.5	174	
AC40D-06-V-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176	

# AC20D-D to AC40D-D Series

#### **Dimensions: With Pressure Relief 3-Port Valve (V1)**



A

A		Optional sp	ecifications	
Applicable model	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with color zone)
AC20D-V1-D to AC40D-06-V1-D	Center of	Center of piping	<b>∓</b>	Center of piping

	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AC20D-V1-D	M5 x 0.8		Midth across flats 14	B	1/8 Width across flats 14		
AC30D-V1-D to AC40D-06-V1-D		Barb fitting applicable tubing: T0604	Width across flats 17	B	Width across flats 17	B	1/4 Width across flats 17

	Standard specifications																			
Model		Bracket mount																		
	P1	P <sub>2</sub>	Рз	Α	В	С	Е	F	G	J	K	М	N	Q1	Q2	R	S	U	V <sub>1</sub>	V <sub>2</sub>
AC20D-V1-D	1/8, 1/4	1/8	1/8	126.4	87.6	71.8	_	41.6	40	26	5	30	43.2	24	33	5.5	11.5	3.5	29	38
AC30D-V1-D	1/4, 3/8	1/8	1/4	167.4	115.3	86.5	30	55.1	55	31.5	3.5	41	57.2	35	_	7	14	6	42.5	42.5
AC40D-V1-D	1/4, 3/8, 1/2	1/8	3/8	220.4	147.1	91.5	38.4	72.6	80	40.5	_	50	75.2	40	55	9	18	7	50	65
AC40D-06-V1-D	3/4	1/8	1/2	235.4	149.1	93	38.4	77.6	80	40.5	_	50	80.2	40	55	9	18	7	50	65

		Optional specifications										Semi-standard specifications						
Model	Squ	are dded	Digital pr	essure		nressure pressure		Round type pressure auto		PC/PA bowl		Metal bowl		Metal bowl with level gauge				
Model	type pressure gauge		switch		gauge		gauge (Semi- standard: Z)		gauge (with color zone)			With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide	
	Н	J H J H J H J H		J	В	В	В	В	В	В	В							
AC20D-V1-D	□28	27	□27.8	37.5	ø37.5	62.5	ø37.5	63.5	ø37.5	63.5	104.9	_	91.4	87.4	93.9	_	_	
AC30D-V1-D	□28	32.5	□27.8	43	ø37.5	68	ø37.5	69	ø37.5	69	157.1	123.9	122.2	117.8	122.3	137.8	142.3	
AC40D-V1-D	□28	41.5	□27.8	52	ø42.5	78	ø42.5	78	ø42.5	78	186.9	155.6	153.9	149.5	154	169.5	174	
AC40D-06-V1-D	□28	41.5	□27.8	52	ø42.5	73	ø42.5	73	ø42.5	73	188.9	157.6	155.9	151.5	156	171.5	176	

# AC-D Series Option / Accessory / Attachment Part No. List

							Par	t no.			
					For AC20-D	For AC30-D	For AC40-D	For AC40-06-D	For AC50-D	For AC60-D	
				Model	For AC20A-D	For AC30A-D	For AC40A-D	For AC40A-06-D	For AC50A-D	For AC60A-D	
Section					For AC20B-D	For AC30B-D	For AC40B-D	For AC40B-06-D	For AC50B-D	For AC60B-D	
	D				For AC20C-D	For AC30C-D	For AC40C-D	For AC40C-06-D	_	_	
	Desc	ription			For AC20D-D	For AC30D-D	For AC40D-D	For AC40D-06-D	_	_	
			Star	ndard	G36-1			G46-10	0-□01		
		Round type		MPa setting		<del>1</del> -□01		G46-4			
	*1	Round type		ndard		)-□01-L		G46-10			
	Pressure	(with color zone)		MPa setting		-□01-L		G46-4-			
	gauge	Square		ndard	400 4		L ΔS-D [136150Δ (P	ressure gauge cov			
		embedded type*2		MPa setting				ressure gauge cove			
Option		omboudou typo	-	ring bottom entry			<u>`</u>	5-N-25-M (Switch b			
	Digital	processes	<u> </u>	Viring top entry				5-R-25-M (Switch b			
	switch	pressure		ring bottom entry				5-N-65-M (Switch b	, ,,,		
	SWILCII			· · · · ·							
	Elect :	····		Viring top entry	AD27-D	AD37-D	-wilh-7020 [IOE30	5-R-65-M (Switch b			
	Float t			.C. .O.	AUZI-U	AD37-D AD38-D		AD4 AD4			
			l N		V200 D		V400 D			10 D	
Accessory	Space			p. 48	Y200-D	Y300-D	Y400-D	Y500-D		00-D	
	Space	r with bracke	·L	p. 48	Y200T-D	Y300T-D	Y400T-D	Y500T-D	Y60	0T-D	
	Pressu	re relief 3-port	valve*5, *6	p. 49	VHS20-□01-D VHS20-□02-D	VHS30-□02-D VHS30-□03-D	VHS40-□02-D VHS40-□03-D VHS40-□04-D	VHS40-□06-D	VHS50-□06-D VHS50-□10-D	_	
	Piping adapter*5, *6 p. 5		p. <b>50</b>	E200-□01-D E200-□02-D E200-□03-D	E300-□02-D E300-□03-D E300-□04-D	E400-□02-D E400-□03-D E400-□04-D E400-□06-D	_	-	_		
	L-shap	L-shaped piping adapter*5, *6 p. 51			E200L-□01-D E200L-□02-D	E300L-□01-D E300L-□02-D E300L-□03-D	E400L-□02-D E400L-□03-D E400L-□04-D	_	_		
	<b>-</b>	*5 *6	Standard		Y210-□01-D Y210-□02-D	Y310-□01-D Y310-□02-D Y310-□03-D	Y410-□02-D Y410-□03-D Y410-□04-D	_	_	_	
	i-spac	er* <sup>5, *6</sup>	0. 52	Slim type	Y210-□01-1-D Y210-□02-1-D	Y310-□01-1-D Y310-□02-1-D	Y410-□02-1-D Y410-□03-1-D	_	-	_	
Attachment	Cross	spacer* <sup>5, *6</sup>	p. <b>53</b>	Standard	Y24-□01-D Y24-□02-D	Y34-□01-D Y34-□02-D Y34-□03-D	Y44-□02-D Y44-□03-D Y44-□04-D	_	-	_	
attaciiiieit	Cioss	эрассі —	<b>19.55</b>	Front and back port selectable type	Y24-□01-1-D Y24-□02-1-D	Y34-□01-1-D Y34-□02-1-D Y34-□03-1-D	Y44-□02-1-D Y44-□03-1-D Y44-□04-1-D	_	-	_	
	Pressu	ure switch*6	p. <b>54</b>	Standard	IS10M-20-D	IS10M-30-D	IS10M-40-D	_	_	_	
			132.25	Slim type	IS10M-20-1-D	IS10M-30-1-D	IS10M-40-1-D	_	-	_	
		ure switch spacer*5, *6		p. <b>55</b>	IS10T-20-□01-D IS10T-20-□02-D		IS10T-40-□02-D IS10T-40-□03-D IS10T-40-□04-D	_	-	_	
	with L-			IS10L-20-□01-D IS10L-20-□02-D		IS10L-40-□02-D IS10L-40-□03-D IS10L-40-□04-D	_	_	_		
		ure switch iping adapter	*5, *6	p. <b>57</b>	IS10E-20-□01-D IS10E-20-□02-D IS10E-20-□03-D		IS10E-40-□02-D IS10E-40-□03-D IS10E-40-□04-D IS10E-40-□06-D		_		

<sup>\*1 ☐</sup> in part numbers for a round type pressure gauge indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the connection thread NPT and pressure gauge supply for psi unit specifications.

<sup>\*6</sup> Separate spacers are required for modular units.



<sup>\*2</sup> Including one O-ring and 2 mounting screws

<sup>\*3</sup> Lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screws (2 pcs.) are attached. []: Switch body only

Regarding how to order the digital pressure switch, refer to the **Web Catalog**.

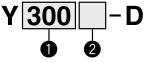
<sup>\*4</sup> Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.1 MPa (AD27-D) and 0.15 MPa (AD37-D/AD47-D). Please contact SMC separately for psi and °F unit display specifications.

<sup>\*5 ☐</sup> in attachment part numbers indicates a pipe thread type. No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread

# **AC-D** Series

# **Accessories** (Spacer / Spacer with Bracket)

#### Spacer / Spacer with Bracket



Symbol	Description	
Nil	Spacer	

Spacer

with bracket

		U										
Body size [Applicable AC size]												
<b>200</b> [AC20]	<b>300</b> [AC30]	<b>400</b> [AC40]	<b>500</b> [AC40-06]	<b>600</b> [AC50/AC60]								
•	•	•	•	•								
•	•	•	•	•								

Spacer (Y□-D)

Spacer with bracket (Y□T-D)





#### **Standard Specifications**

Bracket

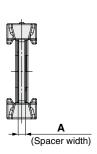
Fluid	Air
Ambient and fluid temperatures	−5 to 60°C (No freezing)
Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa

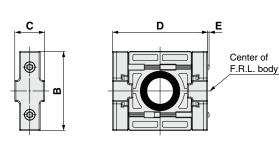
#### **Replacement Parts**

•				Part no.		
Description	Material	Y200-D Y200T-D	Y300-D Y300T-D	Y400-D Y400T-D	Y500-D Y500T-D	Y600-D Y600T-D
Seal	HNBR	Y220P-050S	Y320P-050S	Y420P-050S	Y520P-050S	Y620P-050S

#### **Dimensions**

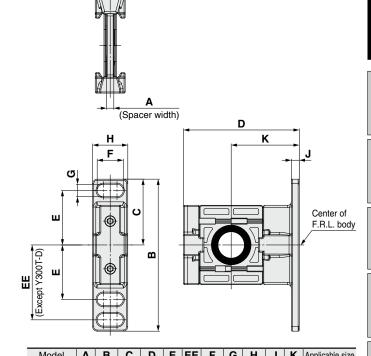
#### Spacer





Model	Α	В	С	D	Е	Applicable size	
Y200-D	3.2	35	13.2	42	0.6	AC20-D	
Y300-D	4.2	43	16.2	53	_	AC30-D	
Y400-D	5.2	51	19.2	71	_	AC40-D	
Y500-D	5.2	54	21.2	71	_	AC40-06-D	
Y600-D	6.0	64	27.2	00		AC50-D	
ע-טטסז	6.2	64	21.2	90	90	-	AC60-D

#### Spacer with bracket

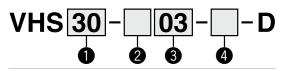


Model	A	D	C	ט			Г	5	п	5	r	Applicable Size
Y200T-D	3.2	67	29	51	24	33	11.5	5.5	15.5	3.5	30	AC20-D
Y300T-D	4.2	85	42.5	67.5	35	_	14	7	20	6	41	AC30-D
Y400T-D	5.2	115	50	85.5	40	55	18	9	26	7	50	AC40-D
Y500T-D	5.2	115	50	85.5	40	55	18	9	26	7	50	AC40-06-D
Y600T-D	6.2	140	60	115	50	70	20	11	31.2	8	70	AC50-D AC60-D

# **AC-D** Series **Attachments**

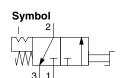
#### Pressure Relief 3-Port Valve: (V, V1)

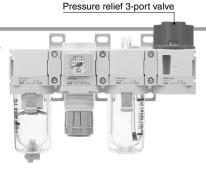
· By using a pressure relief 3-port valve, pressure left in the line can be easily exhausted.



Semi-standard: Select one each for **a** and **b**. Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

Example) VHS30-N03-RZ-D







						01 11							
	_	_						0					
		Symbol   Description		Description	Body size [Applicable AC size]								
						<b>20</b> [AC20]	<b>30</b> [AC30]	<b>40</b> [AC40]	<b>40</b> [AC40-06]	<b>50</b> [AC50/AC60]*4			
				Nil	Rc*1	•	•	•	•	•			
2		Pipe	thread type	N	NPT	•	•	•	•	•			
				F	G	•	•	•	•	•			
				+									
				01	1/8	•	_	_	_	_			
				02	1/4	•	•	•	_	_			
3			Port size	03	3/8	_	•	•	_	_			
v		,	OIT SIZE	04	1/2	_	_	•	_	_			
				06	3/4	_	_	_	•	•			
				10	1	_	_	_	_	•			
				+									
	rd	а	Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•			
_	l g	a	I low direction	R	Flow direction: Right to left	•	•	•	•	•			
4	sta			+									
	Semi-standard	ь	Unit	Nil	Unit on product label: MPa	•	•	•	•	•			
	Se	Б	Oill	<b>Z</b> *2	Unit on product label: psi	○*3	○*3	○*3	○*3	○*3			

- \*1 The pipe thread type for the EXH port is G.
- \*2 For the pipe thread type: NPT only. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*3 O: For the pipe thread type: NPT only
- \*4 The VHS50 can be connected to the AC60.

#### **Standard Specifications**

Fluid	Air				
Ambient and fluid temperatures	-5 to 60°C (No freezing)				
Proof pressure	1.5 MPa				
Max. operating pressure	1.0 MPa				

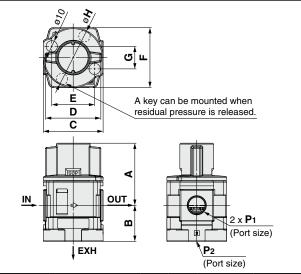
#### **Flow Rate Characteristics**

	Port s	size	Flow rate characteristics							
Model			IN -	→ OUT		$OUT \rightarrow EXH$				
Model	IN, OUT	EXH	C (dm <sup>3</sup> /s·bar)	b	Cv	C (dm <sup>3</sup> /s·bar)	b	Cv		
VHS20	1/8	1/8	4.0	0.41	1.1	3.7	0.42	1.1		
VH520	1/4	1/6	5.8	0.31	1.4	3.8	0.42	1.1		
VHS30	1/4	1/4	8.8	0.44	2.4	8.0	0.46	2.3		
VII 330	3/8		14.1	0.28	3.5	7.8	0.46	2.2		
	1/4		9.5	0.49	2.8	13.3	0.47	3.6		
VHS40	3/8	3/8	17.2	0.47	4.8	13.6	0.47	3.7		
	1/2		26.7	0.29	6.3	13.4	0.43	3.7		
VHS40-06	3/4	1/2	34.0	0.22	7.6	16.1	0.41	4.4		
VHS50	3/4	1/2	45.0	0.26	10.6	23.0	0.49	6.4		
V11330	1	1/2	53.3	0.36	13.5	22.8	0.49	6.3		

#### **Caution on Mounting**

- · Use an air filter on the inlet side for operating protection.
- · When mounting a silencer, etc., on the EXH port, refer to the operation manual.

#### **Dimensions**



Model	P <sub>1</sub>	P <sub>2</sub>	Α	В	С	D	Applicable size
VHS20-D	1/8, 1/4	1/8	48.5	23	40	37	AC20-D
VHS30-D	1/4, 3/8	1/4	55	32	53	49	AC30-D
VHS40-D	1/4, 3/8, 1/2	3/8	69.7	41.3	70	63	AC40-D
VHS40-06-D	3/4	1/2	71.7	43.3	75	63	AC40-06-D
VHS50-D	3/4, 1	1/2	86.5	44.5	90	80	AC50-D/AC60-D

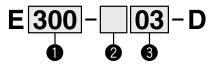
wodei	=	-	G	п	Applicable size
VHS20-D	28	42	17.5	40	AC20-D
VHS30-D	38	53	20	53	AC30-D
VHS40-D	52	71	29	70	AC40-D
VHS40-06-D	52	71	29	70	AC40-06-D
VHS50-D	72	90	33	90	AC50-D/AC60-D



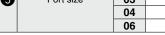
#### Piping Adapter: 1/8, 1/4, 3/8, 1/2, 3/4

· Using on the inlet side or the outlet side of F.R.L. units makes it easier to perform maintenance, as the component can be installed/ removed without removing the piping.

Piping adapter



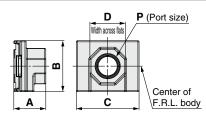
					0		
		Symbol	Description	Body size [Applicable AC size]			
				<b>200</b> [AC20]	<b>300</b> [AC30]	<b>400</b> [AC40]	
		Nil	Rc	•	•	•	
2	2 Pipe thread type	N	NPT	•	•	•	
		F	G	•	•	•	
		+					
		01	1/8	•	_	_	
		02	1/4	•	•	•	
8	Port size	03	3/8	•	•	•	
		04	1/2	_	•	•	
		06	3/4		_	•	



#### **Standard Specifications**

Fluid	Air
Ambient and fluid temperatures	−5 to 60°C (No freezing)
Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa

#### **Dimensions**



Mo	odel	Р	Α	В	С	D	Applicable AC size
E20	00-D	1/8, 1/4, 3/8	24	35	42	24	AC20-D
E30	00-D	1/4, 3/8, 1/2	27	43	53	30	AC30-D
E40	00-D	1/4, 3/8, 1/2, 3/4	30	51	71	36	AC40-D

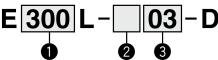


#### **Caution on Mounting**

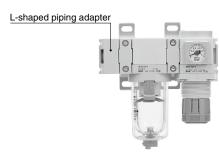
Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

#### L-Shaped Piping Adapter: 1/8, 1/4, 3/8, 1/2

- · Upward/downward piping is possible on the inlet side and the outlet side of F.R.L. units.
- · Ideal for space-saving and reducing piping labor
- · Using on the inlet side or the outlet side of F.R.L. units makes it easier to perform maintenance, as the component can be installed/removed without removing the piping.



	U	<b>2</b>	Ø					
				0				
			Description	Body size [Applicable AC size]				
				<b>200</b> [AC20]	<b>300</b> [AC30]	<b>400</b> [AC40]		
		Nil	Rc	•	•	•		
2	Pipe thread type	N	NPT	•	•	•		
		F	G	•	•	•		
		+						
		01	1/8	•	•	_		
A	<b>a</b>	02	1/4	•	•	•		
3	Port size	03	3/8	_	•	•		
		04	1/2	_	_	•		

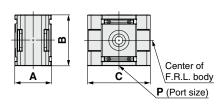




#### **Standard Specifications**

Fluid	Air				
Ambient and fluid temperatures	-5 to 60°C (No freezing)				
Proof pressure	1.5 MPa				
Max. operating pressure	1.0 MPa				

#### **Dimensions**



Model	P	Α	В	С	Applicable AC size
E200L-D	1/8, 1/4	28	35	42	AC20-D
E300L-D	1/8, 1/4, 3/8	31	43	53	AC30-D
E400L-D	1/4, 3/8, 1/2	39	51	71	AC40-D

#### **Caution on Mounting**

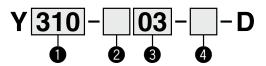
Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

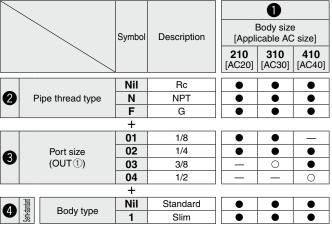
₹

AB

#### T-Spacer: 1/8, 1/4, 3/8, 1/2

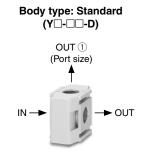
· Using a T-spacer facilitates the branching of air flow.

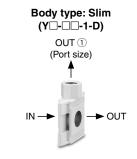




 $<sup>\</sup>ast$   $\bigcirc$ : Only applicable to the standard type body

# T-spacer





	Port size
IN	_
OUT	_
OUT ①	•

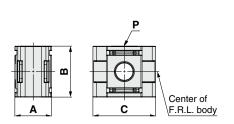
	Port size
IN	_
OUT	_
OUT ①	8

#### Standard Specifications

Fluid	Air					
Ambient and fluid temperatures	-5 to 60°C (No freezing)					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					

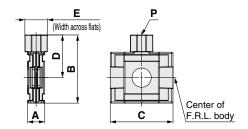
#### **Dimensions**

#### **Body type: Standard**



Model	Р	Α	В	С	Applicable AC size
Y210-D	1/8, 1/4	28	35	42	AC20-D
Y310-D	1/8, 1/4, 3/8	31	43	53	AC30-D
Y410-D	1/4, 3/8, 1/2	39	51	71	AC40-D

#### Body type: Slim



Model	P	Α	В	С	D	E	Applicable AC size
Y210-1-D	1/8, 1/4	14.6	48.5	42	31	19	AC20-D
Y310-1-D	1/8, 1/4	14.6	57.5	53	36	19	AC30-D
Y410-1-D	1/4, 3/8	18.6	67	71	41.5	24	AC40-D

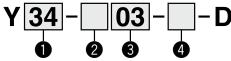
#### **Caution on Mounting**

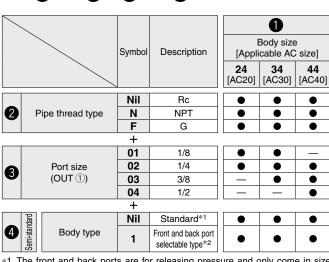
- · Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
- · The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.

#### AC-D Series

#### Cross Spacer: 1/8, 1/4, 3/8, 1/2

· The piping can be branched upward/downward (OUT ①) or forward/backward (OUT ②).



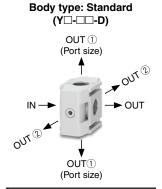


- 1 The front and back ports are for releasing pressure and only come in size 1/8, irrespective of the 3 port size. The minimum port size is 1.4 mm.
- \*2 The front and back ports come in the same size as the 3 port size.

#### Standard Specifications

<b>_</b>						
Fluid	Air					
Ambient and fluid temperatures	-5 to 60°C (No freezing)					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					





IN → OUT®	→ OUT ®
OUT (Port s	
	Port size

Body type: Front and back port selectable

(Y□-□□-1-D)

OUT (1)

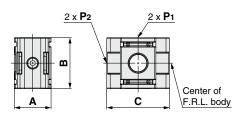
(Port size)

Port size				
_				
_				
•				
1/8				

	Port size					
IN	_					
OUT	_					
OUT ①	8					
OUT ②	8					

#### **Dimensions**

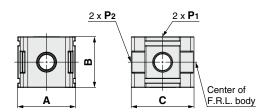
#### **Body type: Standard**



Model	P <sub>1</sub>	P2*1	Α	В	С	Applicable AC size
Y24-D	1/8, 1/4	1/8	28	35	42	AC20-D
Y34-D	1/8, 1/4, 3/8	1/8	31	43	53	AC30-D
Y44-D	1/4, 3/8, 1/2	1/8	39	51	71	AC40-D

<sup>\*1</sup> A resin plug is attached to the P<sub>2</sub> port and shipped together with the product.

#### Body type: Front and back port selectable



Model	P1, P2*1	Α	В	С	Applicable AC size
Y24-1-D	1/8, 1/4	40	35	42	AC20-D
Y34-1-D	1/8, 1/4, 3/8	49	43	53	AC30-D
Y44-1-D	1/4, 3/8, 1/2	60	51	71	AC40-D

<sup>\*1</sup> Two hexagon socket head plugs the same size as the P<sub>1</sub> and P<sub>2</sub> ports are shipped together with the product.

#### Caution on Mounting

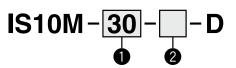
- · Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
- · The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.

Pressure switch

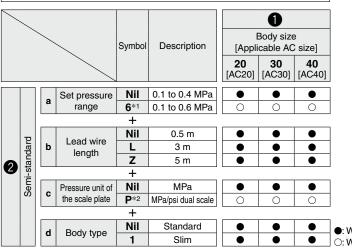
AB

#### **Pressure Switch**

· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.



- Semi-standard: Select one each for a to d.
- · Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order. Example) IS10M-30-6LP-D



**Body type: Standard** 

(IS10M-□□-D)

Body type: Slim (IS10M-□□-1-D)



: Without restrictions

Symbol

- O: With restrictions (Refer to \*1 and \*2.)
- \*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
- \*2 This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

#### Standard Specifications

otanuara opocinicationic				
Fluid	Air			
Ambient and fluid temperatures	–5 to 60°C (No freezing)			
Proof pressure	1.0 MPa			
Max. operating pressure	0.7 MPa			
Set pressure range (when OFF)	0.1 to 0.4 MPa			
Hysteresis	0.08 MPa or less			

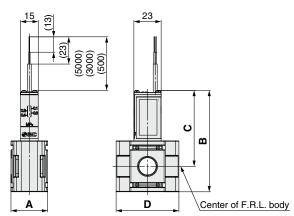
#### **Switch Characteristics**

Contact point configuration	1a
Max. contact point capacity	2 VA (AC), 2 W (DC)
Operating voltage: AC, DC	100 V or less
Max. operating current	12 V to 24 VAC, DC: 50 mA 48 VAC, DC: 40 mA 100 VAC, DC: 20 mA

For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

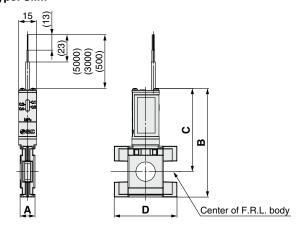
#### **Dimensions**

#### **Body type: Standard**



Model	Α	В	С	D	Applicable AC size
IS10M-20-D	28	77.6	60.1	42	AC20-D
IS10M-30-D	31	85.6	64.1	53	AC30-D
IS10M-40-D	39	93.6	68.1	71	AC40-D
	•				

#### Body type: Slim



Model	Α	В	С	D	Applicable AC size
IS10M-20-1-D	10.6	83.8	66.3	42	AC20-D
IS10M-30-1-D	12.6	91.8	70.3	53	AC30-D
IS10M-40-1-D	14.6	97.8	72.3	58.6	AC40-D

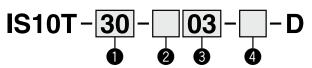
#### **Caution on Mounting**

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

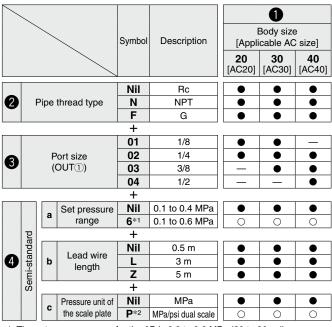


#### **Pressure Switch with T-Spacer**

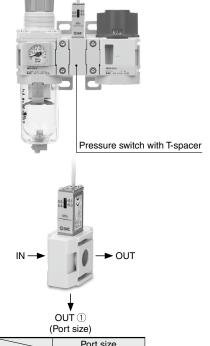
· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.



- Semi-standard: Select one each for a to c.
- $\cdot$  Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order. Example) IS10T-30-N03-<u>6LP-D</u>







	Port size
IN	_
OUT	_
OUT ①	•

- \*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
- \*2 For the pipe thread type: NPT only

This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

#### **Standard Specifications**

otariaara opoomoationo					
Fluid	Air				
Ambient and fluid temperatures	−5 to 60°C (No freezing)				
Proof pressure	1.0 MPa				
Max. operating pressure	0.7 MPa				
Set pressure range (when OFF)	0.1 to 0.4 MPa				
Hysteresis	0.08 MPa or less				

#### **Switch Characteristics**

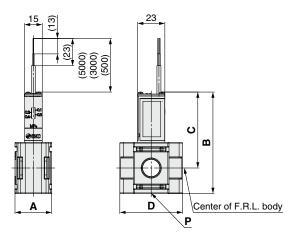
Contact point configuration	1a				
Max. contact point capacity	2 VA (AC), 2 W (DC)				
Operating voltage: AC, DC	100 V or less				
Max. operating current	12 V to 24 VAC, DC: 50 mA 48 VAC, DC: 40 mA 100 VAC, DC: 20 mA				

 For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

#### **Dimensions**

O: With restrictions (Refer to \*1 and \*2.)

●: Without restrictions



Model	Р	Α	В	С	D	Applicable AC size
IS10T-20-D	1/8, 1/4	28	77.6	60.1	42	AC20-D
IS10T-30-D	1/8, 1/4, 3/8	31	85.6	64.1	53	AC30-D
IS10T-40-D	1/4, 3/8, 1/2	39	93.6	68.1	71	AC40-D

#### **Caution on Mounting**

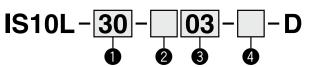
- · Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
- · The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.



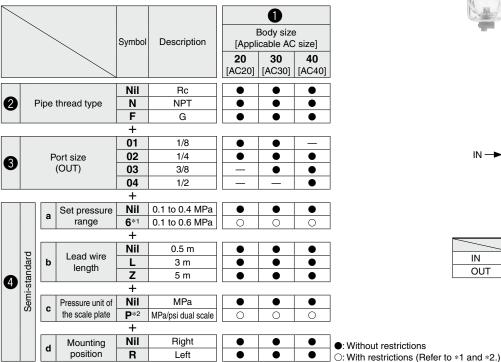
AF

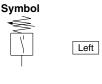
#### Pressure Switch with L-Shaped Piping Adapter

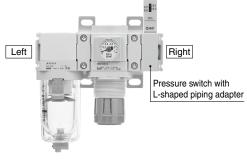
- · A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.
- · Using on the inlet side or the outlet side of F.R.L. units allows the component to be installed/removed without removing the piping.



- · Semi-standard: Select one each for a to d.
- Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
   Example) IS10L-30-N03-6LP-D









	Port size				
IN	_				
OUT	6				

- \*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
- \*2 For the pipe thread type: NPT only

This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

#### Standard Specifications

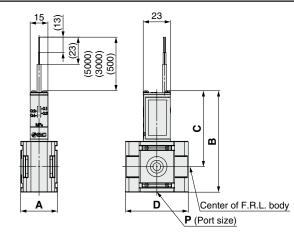
Fluid	Air				
Ambient and fluid temperatures	−5 to 60°C (No freezing)				
Proof pressure	1.0 MPa				
Max. operating pressure	0.7 MPa				
Set pressure range (when OFF)	0.1 to 0.4 MPa				
Hysteresis	0.08 MPa or less				

#### **Switch Characteristics**

Contact point configuration	1a				
Max. contact point capacity	2 VA (AC), 2 W (DC)				
Operating voltage: AC, DC	100 V or less				
Max. operating current	12 V to 24 VAC, DC: 50 mA 48 VAC, DC: 40 mA 100 VAC, DC: 20 mA				

 For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

#### **Dimensions**



Model	Р	Α	В	С	D	Applicable AC size
IS10L-20-D	1/8, 1/4	28	77.6	60.1	42	AC20-D
IS10L-30-D	1/8, 1/4, 3/8	31	85.6	64.1	53	AC30-D
IS10L-40-D	1/4, 3/8, 1/2	39	93.6	68.1	71	AC40-D

#### **Caution on Mounting**

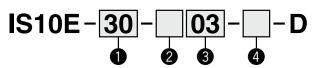
Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.



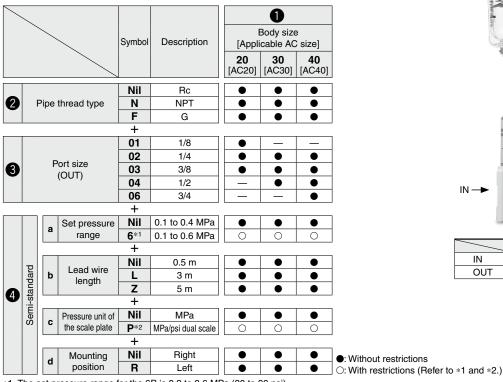
# **AC-D** Series

#### **Pressure Switch with Piping Adapter**

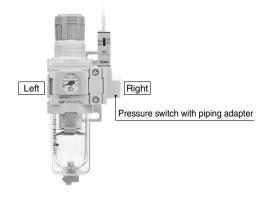
· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.



- · Semi-standard: Select one each for a to d.
- Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order. Example) IS10E-30-N03-6LP-D









	Port size
IN	_
OUT	•

- The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
- \*2 For the pipe thread type: NPT only

This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

#### Standard Specifications

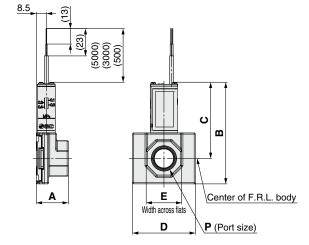
Fluid	Air		
Ambient and fluid temperatures	–5 to 60°C (No freezing)		
Proof pressure	1.0 MPa		
Max. operating pressure	0.7 MPa		
Set pressure range (when OFF)	0.1 to 0.4 MPa		
Hysteresis	0.08 MPa or less		

#### **Switch Characteristics**

Contact point configuration	1a				
Max. contact point capacity	2 VA (AC), 2 W (DC)				
Operating voltage: AC, DC	100 V or less				
Max. operating current	12 V to 24 VAC, DC: 50 mA 48 VAC, DC: 40 mA 100 VAC, DC: 20 mA				

\* For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

#### **Dimensions**



Model	Р	Α	В	С	D	E	Applicable AC size
IS10E-20-D	1/8, 1/4, 3/8	24	77.8	60.3	42	24	AC20-D
IS10E-30-D	1/4, 3/8, 1/2	27	85.8	64.3	53	30	AC30-D
IS10E-40-D	1/4, 3/8, 1/2, 3/4	30	93.8	68.3	71	36	AC40-D

#### **Caution on Mounting**

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required. 57 **SMC** 



# AC-D Series Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

#### **Air Supply**

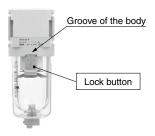
#### **⚠** Caution

1. Use an air filter with 5 µm or less filtration rating on the inlet side of the valve to avoid any damage to the seat caused by dust when mounting a pressure relief 3-port valve on the inlet side.

#### **Mounting / Adjustment**

#### **⚠** Caution

1. When the bowl is installed on the air filter, filter regulator, lubricator, mist separator, or micro mist separator (AC30-D to AC60-D), install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.



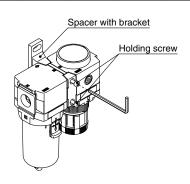
Tighten the 2 holding screws on the spacer with bracket or spacer evenly.

Tighten them to the recommended tightening torque. Insufficient tightening torque may result in loosening or sealing failure. Excessive tightening torque may damage the thread, etc.

#### Recommended Torque

Unit: N.m

Troopininonada Forque										
Applicable model	AC20□	AC30□	AC40□	AC40□-06	AC50□ AC60□					
Spacer with bracket part no.	Y200T-D	Y300T-D	Y400T-D	Y500T-D	Y600T-D					
Spacer part no.	Y200-D	Y300-D	Y400-D	Y500-D	Y600-D					
Torque	0.36 ±0.036	1.2 ±0.05	1.2 ±0.05	1.4 ±0.05	2.0 ±0.1					



#### Selection

# **⚠** Warning

1. Piping load and moment

Avoid any torsional or bending moments other than those caused by the equipment's own weight as failure to do so may result in damage.

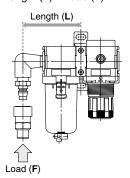
Support external piping separately. If moment application is unavoidable during operation, the moment should be lower than the max. moment shown below.

Piping materials without flexibility, such as steel tube piping, are prone to being affected by excess moment loads or vibrations from the piping side. Use flexible tubing in between to avoid such effects.

Unit: N⋅m

Applicable model	AC20□	AC30□	AC40□	AC40□-06	AC50□ AC60□
Max. moment (M)	14.5	16	19.5	35	45

Max. moment (M) = Length (L) x Load (F)



2. Float type auto drain

Operate under the following conditions to avoid a malfunction. <N.O. type>

Operating compressor: 0.75 kW (100 L/min (ANR)) or more
When using 2 or more auto drains, multiply the value above by
the number of auto drains to find the capacity of the compressors
you will need.

For example, when using 2 auto drains, 1.5 kW (200 L/min (ANR)) of the compressor capacity is required.

- Operating pressure: 0.1 MPa or more
- <N.C. type>
- Operating pressure for AD27-D: 0.1 MPa or more
   Operating pressure for AD37-D/AD47-D: 0.15 MPa or more
- 3. Use a regulator or filter regulator with backflow function when mounting a pressure relief 3-port valve on the inlet side to ensure the release of the residual pressure. Otherwise, residual pressure will not be fully released.

#### **⚠** Caution

- 1. When releasing air at the intermediate position using a T-spacer on the inlet side of the lubricator, lubricant may backflow. Therefore, releasing air that does not contain traces of lubricant is not possible. To release air that does not contain traces of lubricant, use a check valve (AKM series) on the inlet side of the lubricator to prevent a backflow of the lubricant.
- 2. If a pressure relief 3-port valve is mounted on the inlet side of the lubricator, causing a backflow of air, it can result in a backflow of oil or damage to internal parts. Do not use it in this manner.
- **3.** An F.R.L. unit shipped from the plant has its model number labeled. However, components that are combined together during the distribution process do not have a label on them.

# Modular Type Air Filter AF Series

Air Filter AF Series	Model	Port size	Filtration [µm]	Options
	AF20-D	1/8, 1/4		
White	AF30-D	1/4, 3/8		
	AF40-D	1/4, 3/8, 1/2	E	Bracket
1	AF40-06-D	3/4	5	Float type auto drain
	AF50-D	3/4, 1		
p. 60 to 68	AF60-D	1		

# Air Filter AF20-D to AF60-D

#### **Symbol**

Air Filter

Air Filter with Auto Drain

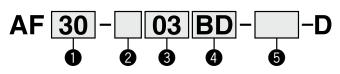






#### **How to Order**

AF30-D



- Option/Semi-standard: Select one each for a to f.
- Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AF30-03BD-R-D

								0		
				Symbol	Description					
				Symbol	Description	Body size 20 30 40 5				60
						20			50	00
				Nil	Rc	•	•	•	•	•
2	1	Pip	e thread type	N	NPT	•	•	•	•	•
				F	G	• • •				
				+			1			
				01	1/8	•	_	_	_	
				02	1/4	•	•	•	_	
6	3 Port size			03	3/8	_	•	•	_	
•				04	1/2	_	_	•	_	
				06	3/4	_		•	•	
				10	1		<u> </u>		•	•
				+						
		а	Mounting	Nil	Without mounting option	•	•	•	•	•
	_	u	wiodriting	B*1	With bracket	•	•	•	•	•
4	Option			+ Nil Without auto drain						
J	ြင္ပါ		Float type auto	Nil	Without auto drain	•	•	•	•	•
		b	drain*2	<b>C</b> *3	N.C. (Normally closed) Drain port is closed when pressure is not applied.	•	•	•	•	•
			<u> </u>	<b>D</b> *4	N.O. (Normally open) Drain port is open when pressure is not applied.	_	•	•	•	•
				+						
					-	•	•	•	•	•
			Nil Polycarbonate bowl 2 Metal bowl		•	•	•	•	•	
		С	Bowl*5	6	Nylon bowl	•	•	•	•	•
			DOWI	8	Metal bowl with level gauge	_	•	•	•	•
				С	With bowl guard	•	*6	*6	<u></u> *6	<u></u> *6
				6C	With bowl guard (Nylon bowl)	•	<b>—</b> *7	<u></u> *7	—* <sup>7</sup>	<u>_*</u> *7
	밀			+						
	Semi-standard			Nil	With drain cock	•	•	•	•	•
6	sta	d	Drain port*8	<b>J</b> *9	Drain guide 1/8	•	_	_	_	
	🚊	u	Dialii port	_	Drain guide 1/4	_	•	•	•	•
	&			<b>W</b> *10	Drain cock with barb fitting	_	•	•	•	•
				+						
			Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•
		е	riow direction	R	Flow direction: Right to left	•	•	•	•	•
				+						
			Llait	Nil	Unit on product label: MPa, °C	•	•	•	•	•
		f	Unit	<b>Z</b> *11	Unit on product label: psi, °F	O*12	O*12	O*12	O*12	O*12
							-			$\overline{}$

- \*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
  \*2 The auto drain port is ø10 One-touch fitting (② Pipe thread type: Rc, G) or ø3/8" One-touch fitting (② Pipe thread type: NPT)
- \*3 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
- \*4 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
- \*5 Refer to chemical data on page 68 for chemical resistance of the bowl.
- \*6 A bowl guard is provided as standard equipment (polycarbonate).
- \*7 A bowl guard is provided as standard equipment (nylon).
- \*8 The combination of float type auto drain C and D is not available.
- \*9 Without a valve function. The mounting screws are the same as the thread of **②** \*10 The combination of metal bowl 2 and 8 is not available.
- \*11 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*12 O: For the pipe thread type: NPT only



#### AF20-D to AF60-D Series

#### **Standard Specifications**

Model	AF20-D	AF30-D	AF40-D	AF40-06-D	AF50-D	AF60-D			
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1			
Fluid			Α	ir					
Ambient and fluid temperatures			−5 to 60°C (	No freezing)					
Proof pressure			1.5	MPa					
Max. operating pressure			1.0	MPa					
Auto drain minimum N.C.	0.1 MPa			0.15 MPa					
operating pressure N.O.	_			0.1 MPa					
Nominal filtration rating*1	5 μm								
Compressed air purity class*2			ISO 8573-1:20	10 [ 6 : 8 : 4 ]*3					
Drain capacity	8 cm <sup>3</sup>	25 cm <sup>3</sup> 45 cm <sup>3</sup>							
Bowl material		Polycarbonate							
Bowl guard	Semi-standard (Steel)		Star	ndard (Polycarbon	ate)	·			
Weight	0.09 kg	0.17 kg	0.35 kg	0.39 kg	0.85 kg	0.92 kg			

<sup>\*1</sup> For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable

#### **Bowl Assembly/Part Nos.**

Bowl	Drain discharge	Ducin nout	Other			Model	
material	mechanism	Drain port	Other	AF20-D	AF30-D	AF40-D AF40-06-D AF50-D AF60-D	
		With drain cock	_	C2SF-D	_	_	
			With bowl guard	C2SF-C-D	C3SF-D	C4SF-D	
	Manual	Drain cock with barb fitting	With bowl guard	_	C3SF-W-D	C4SF-W-D	
Dalvaarhanata		With drain guide	o o			_	
Polycarbonate		(without valve function)	With bowl guard	C2SF□-CJ-D	C3SF□-J-D	C4SF□-J-D	
	Automatic*1	Normally along d (N.C.)	_	AD27-D	_	_	
		Normally closed (N.C.)	With bowl guard	AD27-C-D	AD37□-D	AD47□-D	
	(Auto drain)	Normally open (N.O.)	With bowl guard	_	AD38□-D	AD48□-D	
	Manual	With drain cock	_	C2SF-6-A	_	<del>-</del>	
		With drain cock	With bowl guard	C2SF-6C-A	C3SF-6-A	C4SF-6-A	
		Drain cock with barb fitting	With bowl guard	_	C3SF-6W-A	C4SF-6W-A	
Nylon		With drain guide		_	C2SF□-6J-A	_	_
INVIOL		(without valve function)	With bowl guard	C2SF□-6CJ-A	C3SF□-6J-A	C4SF□-6J-A	
	Automatic*1	, , ,	_	AD27-6-A	_		
	(Auto drain)		With bowl guard	AD27-6C-A	AD37□-6-A	AD47□-6-A	
	(Auto diairi)	Normally open (N.O.)	With bowl guard	_	AD38□-6-A	AD48□-6-A	
		With drain cock	_	C2SF-2-A	C3SF-2-A	C4SF-2-A	
	Manual	Willi draili Cock	With level gauge		C3LF-8-A	C4LF-8-A	
	Iviariuai	With drain guide		C2SF□-2J-A	C3SF□-2J-A	C4SF□-2J-A	
Metal		(without valve function)	With level gauge	_	C3LF□-8J-A	C4LF□-8J-A	
ivietai		Normally closed (N.C.)	_	AD27-2-A	AD37□-2-A	AD47□-2-A	
	Automatic*1	Normally closed (N.C.)	With level gauge	-	AD37□-8-A	AD47□-8-A	
	(Auto drain)	Normally open (N.O.)	_	_	AD38□-2-A	AD48□-2-A	
	` /	Normally open (N.O.)	With level gauge	_	AD38□-8-A	AD48□-8-A	

Bracket B

Air filter

Bracket A

Mounting screw

Bracket assembly

#### Option/Part Nos.

Optional		Model								
specifications	AF20-D	AF30-D	AF40-D	AF40-06-D	AF50-D	AF60-D				
Bracket	AF24P-	AF34P-	AF44P-	AF49P-	AFE4D 070AC					
assembly*1	070AS	070AS	070AS	070AS	AF54P-070AS					
Auto drain		Refer to "Bowl Assembly/Part Nos."								

<sup>\*1</sup> The assembly consists of a bracket A/B and 2 mounting screws.

#### **Replacement Parts**

. topiacomo.									
Description	Part no.								
Description	AF20-D	AF30-D	AF40-D	AF40-06-D	AF50-D	AF60-D			
Filter element	AF20P-	AF30P-	A E 4 O E	AE 10D 0000		AF60P-			
riiter element	1 <b>ent</b> 060S	060S	AF40P-060S		060S	060S			
D-40-	AF24P-	AF34P-	AF44P-040S		AF54P-	AF64P-			
Baffle	040S	040S			040S	040S			
Bowl seal	C2SFP-	C32FP-	C42FP-260S						
DOWI Seai	260S	260S	S   C42FP-2		-2003				
Bowl		Pofor	to "Bowl Ac	sembly/Part	Noc"				
assembly*1, *2		neiei	to bowl As	sembly/Fart	1105.				

<sup>\*1</sup> The bowl assembly comes with a bowl seal.

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<sup>\*2</sup> Please contact SMC separately for psi and °F unit display specifications.



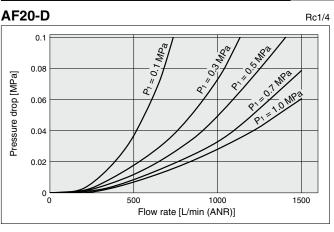
<sup>\*2</sup> The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.

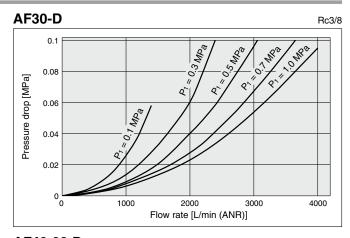
<sup>\*3</sup> The compressed air quality class on the inlet side is [ 7:9:4 ].

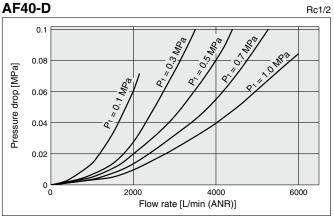
<sup>\*1</sup> The bowl assembly comes with a bowl seal.

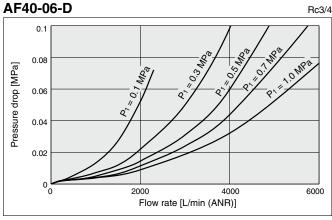
<sup>☐</sup> in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain).

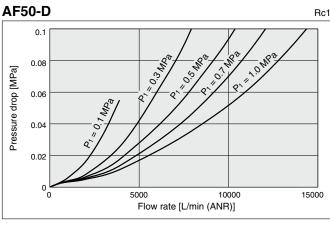
No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8") Please contact SMC separately for psi and °F unit display specifications.

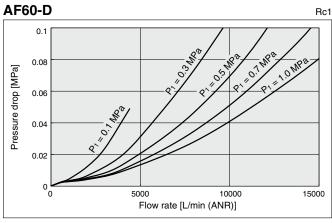












AC

AW + AL AF + AR + AL

AF + AR

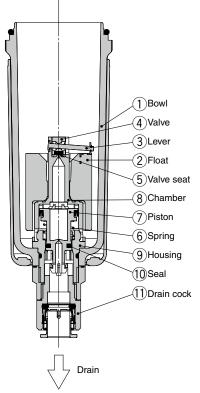
#### AF20-D to AF60-D Series

#### **Working Principle: Float Type Auto Drain**

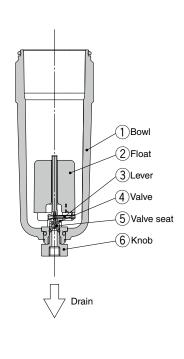
N.O. type: AD38-D, AD48-D

# 1 Bowl 4 Valve 3 Lever 2 Float 5 Valve seat 8 Chamber 6 Spring 7 Piston 9 Housing 10 Seal 11 Drain cock

#### N.C. type: AD37-D, AD47-D



# Compact auto drain N.C. type: AD27-D



#### When pressure inside the bowl is released:

When pressure is released from the bowl 1, the piston 7 is lowered by the spring 6.

The sealing action of the seal 0 is interrupted, and the outside air flows inside the bowl 1 through the housing hole 9 and the drain cock 1

Therefore, if there is an accumulation of condensate in the bowl 1, it will drain out through the drain cock.

#### When pressure is applied inside the bowl:

When pressure is 0.1 MPa or more, the force of the piston ? surpasses the force of the spring ?0, and the piston goes up.

This pushes seal  $\widehat{\underline{w}}$  up so that it creates a seal, and the inside of the bowl  $\widehat{\underline{\ \ }}$ , is shut off from the outside air.

If there is no accumulation of condensate in the bowl 1 at this time, the float 2 will be pulled down by its own weight, causing the valve 4, which is connected to the lever 3, to seal the valve seat 5.

#### When there is an accumulation of condensate in the bowl:

The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.

This allows the pressure inside the bowl ① to enter the chamber ⑧. The result is that the combined pressure inside the chamber ⑧ and the force of the spring ⑥ lowers the piston ⑦.

This causes the sealing action of the seal 1 to be interrupted, and the accumulated condensate in the bowl 1 drains out through the drain cock 1.

Turning the drain cock ① manually counterclockwise lowers the piston ⑦, and causes the seal created by the seal ⑩ to be interrupted, thus allowing the condensate to drain out.

# • When pressure inside the bowl is released:

Even when pressure inside the bowl 1 is released, spring 6 keeps the piston 7 in its upward position.

This keeps the seal created by the seal 1 in place; thus, the inside of the bowl 1 is shut off from the outside air.

Therefore, even if there is an accumulation of condensate in the bowl 1, it will not drain out.

#### When pressure is applied inside the bowl:

Even when pressure is applied inside the bowl 1, the combined force of the spring 6 and the pressure inside the bowl 1 keeps the piston 2 in its upward position.

This maintains the seal created by the seal 1 in place; thus, the inside of the bowl 1 is shut off from the outside air.

If there is no accumulation of condensate in the bowl 1 at this time, the float 2 will be pulled down by its own weight, causing the valve 4, which is connected to the lever 3, to seal the valve seat 5.

#### When there is an accumulation of condensate in the bowl:

The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted. This allows the pressure inside the bowl ① to enter the chamber ⑧.

The result is that the pressure inside the chamber  $\circledR$  surpasses the force of the spring  $\circledR$  and pushes the piston  $\triangledown$  downward.

This causes the sealing action of the seal 0 to be interrupted and the accumulated condensate in the bowl 1 drains out through the drain cock 1. Turning the drain cock 1 manually counterclockwise lowers the piston 2, and causes the seal created by the seal 1 to be interrupted, thus allowing the condensate to drain out.

#### When pressure inside the bowl is released:

Even when pressure inside the bowl 1 is released, the weight of the float 2 causes the valve 4, which is connected to the lever 3, to seal the valve seat 5. As a result, the inside of the bowl 1 is shut off from the outside air.

Therefore, even if there is an accumulation of condensate in the bowl ①, it will not drain out.

#### When pressure is applied inside the howl:

Even when pressure is applied inside the bowl  $\bigcirc$ , the weight of the float  $\bigcirc$  and the differential pressure that is applied to the valve  $\bigcirc$  cause the valve  $\bigcirc$  to seal the valve seat  $\bigcirc$ , and the outside air is shut off from the inside of the bowl  $\bigcirc$ 

#### When there is an accumulation of condensate in the bowl:

The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.

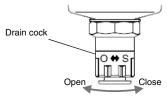
The condensate inside the bowl ① drains out through the knob ⑥.

Turning the knob <sup>®</sup> manually counterclockwise lowers it and causes the sealing action of the valve seat <sup>®</sup> to be interrupted, which allows the condensate to drain out.



Auto drain	When pressure is not applied	When pressu	ure is applied	Minimum operating
Auto drain	(After exhausting residual pressure)	Before condensate accumulates	When condensate accumulates	pressure
	Condensate discharged (Open)	Condensate not discharged (Close)	Condensate discharged (Open)	
N.O. Normally open	Float Piston Orifice			<b>0.1 MPa or more</b> AF30-D to AF60-D
N.C. Normally closed	Condensate not discharged (Close)  Float  Piston  Orifice			<b>0.1 MPa or more</b> AF20-D <b>0.15 MPa or more</b> AF30-D to AF60-D

◆ For both N.O. and N.C., the condensate can be discharged manually by turning the drain cock to the "O" position.



			_	
	Proper Use			Recommended
Compressor	When pressure is not applied (After exhausting residual pressure)	Cold climates		auto drain
0.75 kW or more	Condensate not accumulated			
	Do not want to accumulate condensate generated at the inlet side when pressure is not applied.	Want to prevent troubles caused by freezing.		N.O.*1 Normally open
Less than 0.75 kW	Condensate accumulated			N.C. Normally closed

<sup>\*1</sup> For N.O. (Normally open) type, the condensate discharge passage is open when pressure is not applied. For this reason, the drain port is not closed completely in a compressor with a small supply amount (less than 0.75 kW) and the air will ceaselessly blow out.

AC

AW + AL AF + AR + AL

AF + AR

Attachments AW + AFM AF + AFM + AR

AB

A

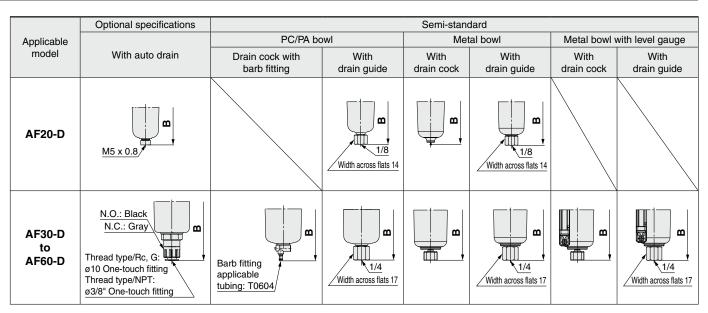
# AF20-D to AF60-D Series

#### **Dimensions**

AF20-D N Bracket S D (Option) OUT <u>IN</u> 2 x **P** (Port size) œ Clearance for maintenance Drain Α AF30-D to AF40-06-D T Ν D U Bracket s (Option) ح|ح OUT 0 IN. 2 x **P** (Port size) B 4 Clearance for maintenance Drain Ε Т AF50-D to AF60-D Ν D Bracket (Option) Ø OUT <u>IN</u> • 2 x **P** (Port size) B 4 Clearance for maintenance Drain

A

# Air Filter AF20-D to AF60-D Series



			,									Option	nal spec	ification	าร		
Model	Model Standard specifications Bracket mount					With auto drain											
	Р	Α	В	С	D	Е	G	J	М	N	Q	R	S	Т	U	V	В
AF20-D	1/8, 1/4	40	87.6	17.5	21	_	25	21	30	27	22	5.4	8.4	60	2.3	28	104.9
AF30-D	1/4, 3/8	53	115.4	21.5	26.5	30	35	26.5	41	35	25	6.5	13	71	2.3	32	157.1
AF40-D	1/4, 3/8, 1/2	70	147.1	25.5	35.5	38.4	40	35.5	50	52	30	8.5	12.5	88	2.3	39	186.9
AF40-06-D	3/4	75	149.1	27	35.5	38.4	40	35.5	50	52	34	8.5	12.5	88	2.3	43	188.9
AF50-D	3/4, 1	90	220.1	32	45	_	30	45	70	66	40.5	11	13	113	3.2	52.5	259.9
AF60-D	1	95	234.1	32	45	_	30	45	70	66	40.5	11	13	113	3.2	52.5	273.9

	Semi-standard specifications								
Model	PC/PA	A bowl	Metal	bowl	Metal bowl with level gauge				
Model	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide			
	В	В	В	В	В	В			
AF20-D	_	91.4	87.4	93.9	_	_			
AF30-D	123.9	122.2	117.8	122.3	137.8	142.3			
AF40-D	155.6	153.9	149.5	154	169.5	174			
AF40-06-D	157.6	155.9	151.5	156	171.5	176			
AF50-D	228.6	226.9	222.5	227	242.5	247			
AF60-D	242.6	240.9	236.5	241	256.5	261			

# Air Filter/AF20-D to AF40-D **Made to Order**

Please contact SMC for detailed dimensions, specifications, and lead times.



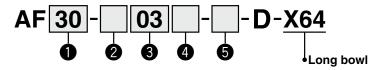
#### 1 Long Bowl

Drain capacity is greater than that of standard models.

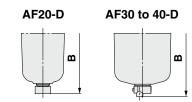
#### **Applicable Models/Drain Capacity**

Model	AF20-D	AF30-D	AF40-D
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Drain capacity [cm <sup>3</sup> ]	19	43	88
B dimension [mm]*1	108.1	137.4	167.2

\*1 For polycarbonate bowls. Please contact SMC for other bowl materials.



- · Semi-standard: Select one each for a to d
- · Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order. Example) AF30-03B-2R-D-X64



						0		
				Symbol	Description		Body size	
						20	30	40
	2 Pipe thread type			Nil	Rc	•	•	•
2			e thread type	N	NPT	•	•	•
			F	G	•	•	•	
				+				
				01	1/8	•	_	_
A	3 Port size		02	1/4	•	•	•	
9			FUIT SIZE	03	3/8	_	•	•
				04	1/2	_	_	•
				+				
	4 Option (Mounting)			Nil	Without mounting option	•	•	•
4	Option (Mounting)		B*1	With bracket	•	•	•	
				+				
				Nil	Polycarbonate bowl	•	•	•
			a Bowl*2	2	Metal bowl	•	•	•
		а		6	Nylon bowl	•	•	•
				С	With bowl guard	•	—* <sup>3</sup>	—* <sup>3</sup>
				6C	With bowl guard (Nylon bowl)	•	*4	*4
	اح			+				
	dar			Nil	With drain cock	•	•	•
6	tan	b	Drain port	J*5	Drain guide 1/8	•	_	_
9	Semi-standard		Drain port		Drain guide 1/4	_	•	•
	Sen			<b>W</b> *6	Drain cock with barb fitting	_	•	•
	0,			+				
		С	Flow direction	Nil	Flow direction: Left to right	•	•	•
			1 15W GITCOMOTT	R	Flow direction: Right to left	•	•	•
				+				
		d	Unit	Nil	Unit on product label: MPa, °C	•	•	•
	_   d		Offic	<b>Z</b> *7	Unit on product label: psi, °F	O*8	O*8	○*8

- \*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
- \*2 Refer to chemical data on page 68 for chemical resistance of the bowl.
- \*3 A bowl guard is provided as standard equipment (polycarbonate).
- \*4 A bowl guard is provided as standard equipment (nylon).
- \*5 Without a valve function. The mounting screws are the same as the thread of 2
- \*6 The combination of metal bowl 2 is not available.

  \*7 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*8 O: For the pipe thread type: NPT only





# AF-D Series Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

#### **Design / Selection**

# **⚠** Warning

 The bowl material of the standard air filter is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

#### Chemical resistance of polycarbonate or nylon bowl

			Material			
Туре	Chemical name	Application examples	Polycar- bonate	Nylon		
Acid	Hydrochloric acid Sulfuric acid Phosphoric acid Chromic acid	Acid washing liquid for metals	Δ	×		
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Sodium carbonate	Degreasing of metals Industrial salts Water-soluble cutting oil	×	0		
Inorganic salts	Sodium sulfide Potassium nitrate Sodium sulfate	_	×	Δ		
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×	Δ		
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×	Δ		
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×	×		
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	Δ	×		
Oil	Gasoline Kerosene	_	×	0		
Ester	Phthalic acid dimethyl Phthalic acid diethyl Acetic acid	Synthetic oil Anti-rust additives	×	0		
Ether	Methyl ether Ethyl ether	Brake oil additives	×	0		
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×	×		
Others	Thread-lock fluid Seawater Leak tester	_	×	Δ		
<ul><li>: Essentia</li></ul>	ally safe $\triangle$ : Some effective	cts may occur. X: Effe	ects will o	ccur.		

When the above factors are present, or there is some doubt, use a metal bowl for safety.

#### Maintenance

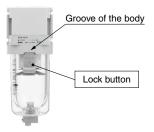
#### **⚠** Warning

 Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.

#### **Mounting / Adjustment**

#### **⚠** Caution

1. When the bowl is installed on the air filter (AF30-D to AF60-D), install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.



# Modular Type Mist Separator/Micro Mist Separator AFM/AFD Series

Mist Separator AFM Series	Model	Port size	Filtration [μm]	Options
i i	AFM20-D	1/8, 1/4		
And the state of t	AFM30-D	1/4, 3/8	0.3	Bracket
	AFM40-D	1/4, 3/8, 1/2	0.3	Float type auto drain
p. 70 to 75	AFM40-06-D	M40-06-D 3/4		
Micro Mist Separator AFD Series	AFD20-D	1/8, 1/4		
170-017 170-017 180-01-10-23	AFD30-D	1/4, 3/8	0.01	Bracket
	AFD40-D	1/4, 3/8, 1/2	0.01	Float type auto drain
p. 70 to 75	AFD40-06-D	3/4		

# **Mist Separator**

# AFM20-D to AFM40-D **Micro Mist Separator** AFD20-D to AFD40-D

#### Symbol

Mist Separator







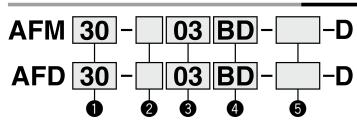
#### **How to Order**





AFM30-D

AFD30-D



- Option/Semi-standard: Select one each for a to f.
- Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AFM30-03BD-R-D

		pe thread type  Port size	Nil   N   F   +     01   02   03   04   06	Description  Rc NPT G  1/8 1/4 3/8 1/2	20	80dy size 30	40 • • • • • • • • • • • • • • • • • • •
			N F + 01 02 03 04	NPT G 1/8 1/4 3/8	•	• • •	• • •
			N F + 01 02 03 04	NPT G 1/8 1/4 3/8	•	• •	
			F + 01 02 03 04	1/8 1/4 3/8	•	_	
)		Port size	+ 01 02 03 04	1/8 1/4 3/8	•	_	
		Port size	01 02 03 04	1/4 3/8		_	
<b>)</b>		Port size	02 03 04	1/4 3/8		_	
		Port size	03 04	3/8	• —	_	
		Port size	04		_	•	
			_	1/2			. •
			06			_	•
				3/4	_	_	•
			+				
			Nil	Without mounting option	•	•	•
	a Mounting		B*1	With bracket	•	•	•
Option			+				
) ig [			Nil	Without auto drain	•	•	•
	b	Float type auto	C*3	N.C. (Normally closed) Drain port is closed when pressure is not applied.	•	•	•
		drain*2	<b>D</b> *4	N.O. (Normally open) Drain port is open when pressure is not applied.	_	•	•
			+	- ( · · · · · · · · · · · · · · · · · ·			
			Nil	Polycarbonate bowl	•	•	•
			2	Metal bowl	•	•	•
			6	Nylon bowl	•	•	•
	С	Bowl*5	8	Metal bowl with level gauge	_	•	•
			C	With bowl guard	•	*6	*6
			6C	With bowl guard (Nylon bowl)	•	*7	*7
ا ق ا			+				
da			Nil	With drain cock	•	•	•
star				Drain guide 1/8	•	_	
ا <del>با</del>	d	Drain port*8	J*9	Drain guide 1/4		•	•
Ser	d Drain port*8		<b>W</b> *10	Drain cock with barb fitting		•	•
			+				
			Nil	Flow direction: Left to right	•	•	•
	е	Flow direction	R	Flow direction: Right to left	•	•	
			+				
			Nil	Unit on product label: MPa, °C	•	•	•
	f	Unit	<b>Z</b> *11	Unit on product label: Nii a, °F	O*12	O*12	O*12

- \*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
- \*2 The auto drain port is ø10 One-touch fitting ( Pipe thread type: Rc, G) or ø3/8" One-touch fitting ( Pipe thread type: NPT)
- \*3 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended. \*4 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended. \*5 Refer to chemical data on page 75 for chemical resistance of the bowl.
- \*6 A bowl guard is provided as standard equipment (polycarbonate).
- \*7 A bowl guard is provided as standard equipment (nylon).
- \*8 The combination of float type auto drain C and D is not available
- \*9 Without a valve function. The mounting screws are the same as the thread of **②** \*10 The combination of metal bowl 2 and 8 is not available.
- \*11 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*12 O: For the pipe thread type: NPT only



# AFM20-D to AFM40-D Series AFD20-D to AFD40-D Series

**Standard Specifications** 

Model		AFM20-D/AFD20-D	AFM30-D/AFD30-D	AFM40-D/AFD40-D	AFM40-06-D/AFD40-06-D			
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4			
Fluid		Air						
Ambient and fluid tempera	tures		−5 to 60°C (No freezing)					
Proof pressure		1.5 MPa						
Max. operating pressure		1.0 MPa						
Min. operating pressure			0.05	MPa				
Auto drain minimum N.C.		0.1 MPa 0.15 MPa						
operating pressure N.O.		— 0.1 MPa						
Max. flow capacity*1		200 L/min (ANR)	450 L/min (ANR)	1100 L/r	min (ANR)			
wax. now capacity	[AFD]	120 L/min (ANR) 240 L/min (ANR) 600 L/min (ANR)						
Nominal filtration rating*2	[AFM]	0.3 µm (99.9% filtered particle size)						
Nominal intration rating	[AFD]	0.01 μm (99.9% filtered particle size)						
Outlet side oil mist	[AFM]							
concentration*3, *4	[AFD]	Max. 0.1 mg/m³ (Before saturated with oil 0.01 mg/m³ or less ≈ 0.008 ppm)						
Compressed air purity	[AFM]	ISO 8573-1:2010 [ 3 : 7 : 3 ]*6						
class*5	[AFD]		ISO 8573-1:20	10 [ 1 : 7 : 2 ]* <sup>7</sup>				
Drain capacity		8 cm <sup>3</sup>	25 cm <sup>3</sup>	45	cm <sup>3</sup>			
Bowl material			Polycai	rbonate				
Bowl guard		Semi-standard (Steel) Standard (Polycarbonate)						
Weight		0.10 kg	0.18 kg	0.37 kg	0.40 kg			

- \*1 Inlet pressure: 0.7 MPa. Flow at 20°C, atmospheric pressure, and 65% of the relative humidity The maximum flow capacity varies depending on the inlet pressure. Keep the air flow within the maximum flow capacity to prevent an outflow of lubricant to the
- For the following conditions in accordance with [Test condition: ISO 8573-4:2001, Test method ISO 12500-3:2009 compliant] in addition to the conditions above Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
- \*3 The outlet side oil mist concentration for the following conditions in accordance with [Test condition:

ISO 8573-2:2007, Test method ISO 12500-1:2007 compliant] in addition to the conditions above Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/m³,

Bracket B

Mist separator Micro mist separator

> Bracket A Mounting

screw

**Bracket** 

- Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/r and the flow capacity, inlet pressure, and the oil mist concentration on the filter inlet side are stable \*4 The bowl seal and other O-rings are slightly lubricated.

  \*5 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air Part 1: Contaminants and purity classes. For details on this standard, refer to page 110.

  \*6 The compressed air quality class on the inlet side is [ 6 : 8 : 4 ].

  \*7 The compressed air quality class on the inlet side is [ 3 : 7 : 3 ].

**Bowl Assembly/Part Nos.** 

Bowl	Drain discharge	Б	0"		Mo	del
material	mechanism	Drain port	Other	AFM20-D/AFD20-D	AFM30-D/AFD30-D	AFM40-D/AFD40-D   AFM40-06-D/AFD40-06-D
		With drain cock	_	C2SF-D	_	_
	Manual	With drain cock	With bowl guard	C2SF-C-D	C3SF-D	C4SF-D
		Drain cock with barb fitting	With bowl guard	_	C3SF-W-D	C4SF-W-D
Polycarbonate		With drain guide	_	C2SF□-J-D	_	_
Polycarbonate		(without valve function)	With bowl guard	C2SF□-CJ-D	C3SF□-J-D	C4SF□-J-D
	Automatic*1 (Auto drain)	Name all calend (N.C.)	_	AD27-D	_	_
		Normally closed (N.C.)	With bowl guard	AD27-C-D	AD37□-D	AD47□-D
		Normally open (N.O.)	With bowl guard	_	AD38□-D	AD48□-D
		With drain cock	_	C2SF-6-A	_	_
		With drain cock	With bowl guard	C2SF-6C-A	C3SF-6-A	C4SF-6-A
	Manual	Drain cock with barb fitting	With bowl guard	_	C3SF-6W-A	C4SF-6W-A
Nylon		With drain guide	_	C2SF□-6J-A	_	_
INVIOL		(without valve function)	With bowl guard	C2SF□-6CJ-A	C3SF□-6J-A	C4SF□-6J-A
	Automatic*1	Normally closed (N.C.)	_	AD27-6-A	_	_
	(Auto drain)	Normally closed (N.C.)	With bowl guard		AD37□-6-A	AD47□-6-A
	(Auto diairi)	Normally open (N.O.)	With bowl guard	_	AD38□-6-A	AD48□-6-A
		With drain cock	_	C2SF-2-A	C3SF-2-A	C4SF-2-A
	Manual	Willi diaili cock	With level gauge	_	C3LF-8-A	C4LF-8-A
	Ivialiuai	With drain guide	_	C2SF□-2J-A	C3SF□-2J-A	C4SF□-2J-A
Metal		(without valve function)	With level gauge	_	C3LF□-8J-A	C4LF□-8J-A
ivicial		Normally closed (N.C.)	_	AD27-2-A	AD37□-2-A	AD47□-2-A
	Automatic*1	Normany Gosed (N.C.)	With level gauge	_	AD37□-8-A	AD47□-8-A
	(Auto drain)	Normally open (N.O.)	_	_	AD38□-2-A	AD48□-2-A
		Normany open (N.O.)	With level gauge	_	AD38□-8-A	AD48□-8-A

<sup>\*1</sup> The bowl assembly comes with a bowl seal. □ in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain). No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8")
Please contact SMC separately for psi and °F unit display specifications.

#### Option/Part Nos.

-		Model						
Optional specifications	AFM20-D AFD20-D	AFM30-D AFD30-D	AFM40-D AFD40-D	AFM40-06-D AFD40-06-D				
Bracket assembly*1	AF24P-070AS	AF34P-070AS	AF44P-070AS	AF49P-070AS				
Auto drain	Refer to "Bowl Assembly/Part Nos."							

<sup>\*1</sup> The assembly consists of a bracket A/B and 2 mounting screws.

#### Replacement Parts

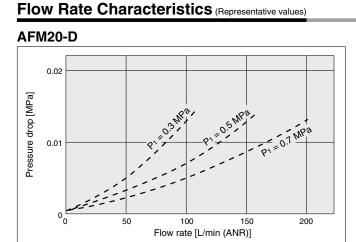
Description		Part no.			
		AFM20-D AFD20-D	AFM30-D AFD30-D	AFM40-D AFD40-D	AFM40-06-D AFD40-06-D
Element	AFM20 to 40-D	AFM20P-060AS	AFM30P-060AS	AFM40P-060AS	
assembly	AFD20 to 40-D	AFD20P-060AS	AFD30P-060AS	AFD40F	P-060AS
Bowl seal		C2SFP-260S	C32FP-260S	C42FP-260S	
Bowl assembly*1, *2		Refer to "Bowl Assembly/Part Nos."			

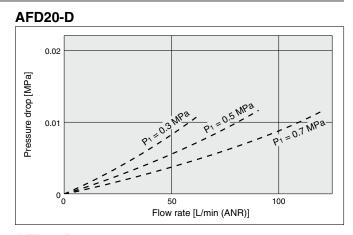
71

<sup>\*1</sup> The bowl assembly comes with a bowl seal. \*2 Please contact SMC separately for psi and °F unit display specifications.



# Micro Mist Separator AFD20-D to AFD40-D Series





- - - - Initial state

AC

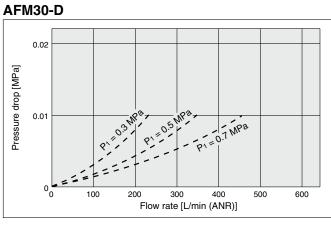
AW + AL AF + AR + AL

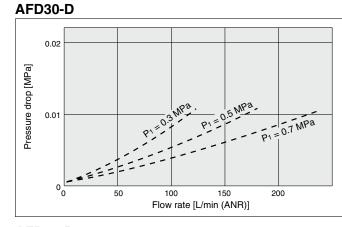
AF + AR

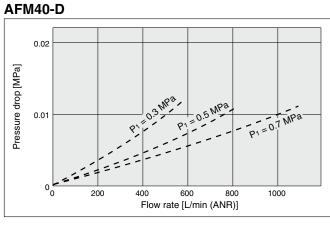
Attachments AW + AFM AF + AFM + AR

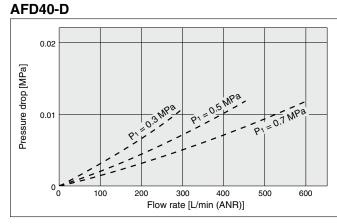
ΑF

A



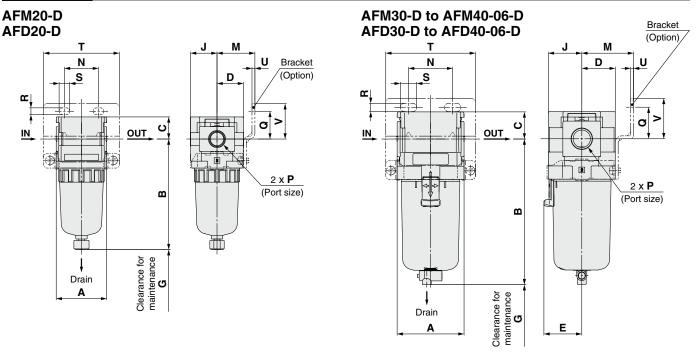






# AFM20-D to AFM40-D Series AFD20-D to AFD40-D Series

#### **Dimensions**

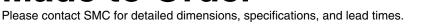


	Optional specifications			Semi-stand	dard		
Applicable		PC/PA bo	owl	Met	tal bowl	Metal bowl	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AFM20-D AFD20-D	M5 x 0.8	Width across flats 14		Width across flats 14			
AFM30-D to AFM40-06-D AFD30-D to AFD40-06-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	Width across flats 17		1/4 Width across flats 17	a a	width across flats 17

												Option	al spec	ificatio	ns		
Model	Standard specifications						Bracket mount						With auto drain				
	Р	Α	В	С	D	E	G	J	М	N	Q	R	S	Т	U	٧	В
AFM20-D/AFD20-D	1/8, 1/4	40	87.6	17.5	21	_	40	21	30	27	22	5.4	8.4	60	2.3	28	104.9
AFM30-D/AFD30-D	1/4, 3/8	53	115.4	21.5	26.5	30	50	26.5	41	35	25	6.5	13	71	2.3	32	157.1
AFM40-D/AFD40-D	1/4, 3/8, 1/2	70	147.1	25.5	35.5	38.4	75	35.5	50	52	30	8.5	12.5	88	2.3	39	186.9
AFM40-06-D/AFD40-06-D	3/4	75	149.1	27	35.5	38.4	75	35.5	50	52	34	8.5	12.5	88	2.3	43	188.9

		Sem	ni-standard	l specificat	tions		
Model	PC/PA bowl		Meta	bowl	Metal bowl with level gauge		
Model	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide	
	В	В	В	В	В	В	
AFM20-D/AFD20-D	_	91.4	87.4	93.9	_	_	
AFM30-D/AFD30-D	123.9	122.2	117.8	122.3	137.8	142.3	
AFM40-D/AFD40-D	155.6	153.9	149.5	154	169.5	174	
AFM40-06-D/AFD40-06-D	157.6	155.9	151.5	156	171.5	176	

### Mist Separator/AFM20-D to AFM40-D Micro Mist Separator/AFD20-D to AFD40-D Made to Order





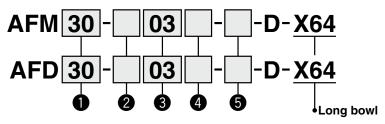
#### **1** Long Bowl

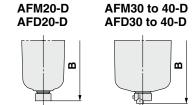
Drain capacity is greater than that of standard models.

#### **Applicable Models/Drain Capacity**

Model	AFM20-D/AFD20-D	AFM30-D/AFD30-D	AFM40-D/AFD40-D
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Drain capacity [cm <sup>3</sup> ]	19	43	88
B dimension [mm]*1	108.1	137.4	167.2

<sup>\*1</sup> For polycarbonate bowls. Please contact SMC for other bowl materials.





- · Semi-standard: Select one each for a to d.
- $\cdot$  Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order. Example) AFM30-03B-2R-D-X64

	\	_					0	
				Symbol	Description		Body size	
						20	30	40
				Nil	Rc	•	•	•
2		Pipe	thread type	N	NPT	•	•	•
				F	G	•	•	•
				+				
				01	1/8	•	_	_
A			Port size	02	1/4	•	•	•
8	']		FUIT SIZE	03	3/8	_	•	•
				04	1/2	_	_	•
				+				
A		Ontic	on (Mounting)	Nil	Without mounting option	•	•	•
U		Optile	or (wourting)	B*1	With bracket	•	•	•
				+				
				Nil	Polycarbonate bowl	•	•	•
				2	Metal bowl	•	•	•
		а	Bowl*2	6	Nylon bowl	•	•	•
				С	With bowl guard	•	*3	*3
				6C	With bowl guard (Nylon bowl)	•	*4	*4
	احا			+				
	dar			Nil	With drain cock	•	•	•
6	lal l	b	Drain port	J*5	Drain guide 1/8	•	_	_
9	J-S		Diam port		Drain guide 1/4	_	•	•
	Semi-standard			<b>W</b> *6	Drain cock with barb fitting	_	•	•
	"			+			_	
	c		Flow direction	Nil	Flow direction: Left to right	•	•	•
		Ŭ	1 15W GITCOMOTT	R	Flow direction: Right to left	•	•	•
				+				
		d	Unit	Nil	Unit on product label: MPa, °C	•	•	•
		ŭ	Offic	<b>Z</b> *7	Unit on product label: psi, °F	O*8	0*8	O*8

- \*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
- \*2 Refer to chemical data on page 75 for chemical resistance of the bowl.
- \*3 A bowl guard is provided as standard equipment (polycarbonate).
- \*4 A bowl guard is provided as standard equipment (nylon).

- \*5 Without a valve function. The mounting screws are the same as the thread of 2.
- \*6 The combination of metal bowl 2 is not available.
- \*7 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*8 O: For the pipe thread type: NPT only





# AFM-D/AFD-D Series Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

#### **Design / Selection**

### **⚠** Warning

 The bowl material of the standard mist separator and micro mist separator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

#### Chemical resistance of polycarbonate or nylon bowl

			Mat	erial
Туре	Chemical name	Application examples	Polycar- bonate	Nylon
Acid	Hydrochloric acid Sulfuric acid Phosphoric acid Chromic acid	Acid washing liquid for metals	Δ	×
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Sodium carbonate	Degreasing of metals Industrial salts Water-soluble cutting oil	×	0
Inorganic salts	Sodium sulfide Potassium nitrate Sodium sulfate	_	×	Δ
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×	Δ
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×	Δ
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×	×
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	Δ	×
Oil	Gasoline Kerosene	_	×	0
Ester	Phthalic acid dimethyl Phthalic acid diethyl Acetic acid	Synthetic oil Anti-rust additives	×	0
Ether	Methyl ether Ethyl ether	Brake oil additives	×	0
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×	×
Others	Thread-lock fluid Seawater Leak tester	_	×	Δ
O: Essential	ly safe $\triangle$ : Some effect	cts may occur. X: Effe	cts will o	ccur.

When the above factors are present, or there is some doubt, use a metal bowl for safety.

#### Air Supply

#### **⚠** Caution

- **1.** Install an air filter (AF series) as a pre-filter on the inlet side of the mist separator to prevent premature clogging.
- Install a mist separator (AFM series) as a pre-filter on the inlet side of the micro mist separator to prevent premature clogging.
- Do not install on the inlet side of the dryer as this can cause premature clogging of the element.

#### Maintenance

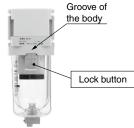
### Warning

 Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.

#### **Mounting / Adjustment**

#### **⚠** Caution

 When the bowl is installed on the mist separator (AFM30-D/AFM40-D), or micro mist separator (AFD30-D/AFD40-D), install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.



#### Design

#### **⚠** Caution

1. Design the system so that the mist separator or micro mist separator is installed in a pulsation-free location. The difference between internal and external pressure inside the element should be kept within 0.1 MPa, as exceeding this value could cause damage.

#### Selection

#### **⚠** Caution

- 1. Do not allow air flow that exceeds the rated flow. If the air flow is allowed outside the range of the rated flow even momentarily, drainage and lubricant may splash at the outlet side or cause damage to the component.
- 2. Do not use in a low pressure application (such as a blower). An F.R.L. unit has its own minimum operating pressure depending on the equipment and is designed specifically to function with compressed air. If used below the minimum operating pressure, a loss of performance and malfunction can occur. Please contact SMC if an application under such conditions cannot be avoided.



ΑF

## **Modular Type** Regulator AR Series

Regulator AR Series	Model	Port size	Set pressure	Options
	AR20(K)-D	1/8, 1/4		Bracket
	AR30(K)-D	1/4, 3/8		Set nut (for panel mount) Square embedded type
ACCEPTANCE OF THE SECOND	AR40(K)-D	1/4, 3/8, 1/2	0.05 to 0.85 MPa	pressure gauge Digital pressure switch
	AR40(K)-06-D	3/4	0.02 to 0.2 MPa	Round type pressure gauge
	AR50(K)-D	3/4, 1		Bracket Square embedded type pressure gauge
p. 77 to 86	AR60(K)-D	1		Digital pressure switch Round type pressure gauge

### Regulator

# AR20-D to AR60-D Regulator with Backflow Function AR20K-D to AR60K-D

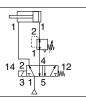


Regulator with Backflow Function



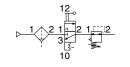
• Models with the backflow function include a mechanism which allows for the air pressure in the outlet side to be released to the inlet side.

Example 1) When the pressure in the rear and the front of the cylinder differs:

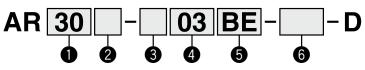


Example 2)

When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.



#### **How to Order**



- · Option/Semi-standard: Select one each for a to g.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
   Example) AR30K-03BE-1NR-D

	_	_					0		
			Symbol	Description		E	Body size	е	
			20	30	40	50	60		
<u> </u>	\A/:+	th backflow function	Nil	Without backflow function	•	•	•	•	•
2	VVII	in backnow function	<b>K</b> *1	With backflow function	•	•	•	•	•
			+						
			Nil	Rc	•	•	•	•	•
3	1	Pipe thread type	N	NPT	•	•	•	•	•
			F	G	•	•	•	•	•
		+							
			01	1/8	•	_	_	_	_
			02	1/4	•	•	•	_	_
4	Port size		03	3/8	_	•	•	_	_
		FUIT SIZE	04	1/2	_	_	•		_
			06	3/4	_	_	•	•	_
			10	1	_	—	_	•	•
			+						
			Nil	Without mounting option	•	•	•	•	•
	;	a Mounting	<b>B</b> *3	With bracket	•	•	•	•	•
			Н	With set nut (for panel mount)	•	•	•	_	_
			+						
0	ų II		Nil	Without pressure gauge	•	•	•	•	•
<b>5</b>	o	Pressure gauge*4	E	Square embedded type pressure gauge (with limit indicator)	•	•	•	•	•
زاح	Cption	i lessure gauge	G	Round type pressure gauge (with limit indicator)	•	•	•	•	•
		b	M	Round type pressure gauge (with color zone)	•	•	•	•	•
			E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•	•	•
		Digital pressure	E2	Output: NPN output, Electrical entry: Wiring top entry	•	•	•	•	•
		switch*5	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•	•	•
			E4	Output: PNP output, Electrical entry: Wiring top entry	•	•	•	•	•

# Regulator AR20-D to AR60-D Series Regulator with Backflow Function AR20K-D to AR60K-D Series



AR30-D

		_		Symbol	Description		1 Body size							
						20	30	40	50	60				
			Cot proceure*6	Nil	0.05 to 0.85 MPa setting	•	•	•	•	•				
		С	Set pressure*6	1	0.02 to 0.2 MPa setting	•	•	•	•	•				
				+										
		d	Exhaust	Nil	Relieving type	•	•	•	•	•				
		u	mechanism	N	Non-relieving type	•	•	•	•	•				
	밀			+										
	Semi-standard	е	Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•				
6	sta	E	riow direction	R	Flow direction: Right to left	•	•	•	•	•				
	<u>Ë</u>			+										
	လ	f	Knob	Nil	Downward	•	•	•	•	•				
		•	KIIOD	Υ	Upward	•	•	•	•	•				
				+										
				Nil	Unit on product label: MPa, Pressure gauge in SI units: MPa	•	•	•	•	•				
		g	Unit	<b>Z</b> *7	Unit on product label: psi, Pressure gauge: MPa/psi dual scale	○*9	O*9	○*9	○*9	○*9				
				<b>ZA</b> *8	Digital pressure switch: With unit selection function	△*10	△*10	△*10	△*10	△*10				

- \*1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
- \*2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
- \*3 The assembly consists of a bracket and set nuts (applicable to the AR20(K)-D to AR40(K)-D). For the AR50(K)-D and AR60(K)-D, the assembly consists of 2 types of the bracket and 2 mounting screws.
- \*4 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
- \*5 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. (Select "wiring bottom entry" when the semi-standard Y is chosen simultaneously.)
- \*6 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
- \*7 For the pipe thread type: NPT
  - This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
- \*8 For options: E1, E2, E3, E4
  - This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*9 O: For the pipe thread type: NPT only
- \*10 \(\triangle:\) Select with options: E1, E2, E3, E4.



### AR20-D to AR60-D Series AR20K-D to AR60K-D Series

#### **Standard Specifications**

Model	AR20(K)-D	AR30(K)-D	AR40(K)-D	AR40(K)-06-D	AR50(K)-D	AR60(K)-D						
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1						
Pressure gauge port size*1			1,	/8								
Fluid		Air										
Ambient and fluid temperatures*2		-5 to 60°C (No freezing)										
Proof pressure			1.5	MPa								
Max. operating pressure			1.0	MPa								
Set pressure range			0.05 to 0	).85 MPa								
Construction		Relieving type										
Weight	0.14 kg	0.27 kg	0.48 kg	0.51 kg	1.13 kg	1.25 kg						

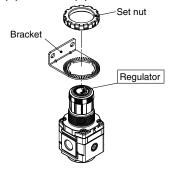
<sup>\*1</sup> Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.

#### Option/Part Nos.

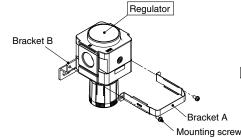
	Intional aposition	ations			Mo	del					
	Optional specification	alions	AR20(K)-D	AR30(K)-D	AR40(K)-D	AR40(K)-06-D	AR50(K)-D	AR60(K)-D			
Bracket as	sembly*1		AR23P-270AS	AR33P-270AS	AR43P	-270AS					
Set nut			AR23P-260S	AR33P-260S	AR43F	P-260S	_	*2			
		Standard	G36-10-□01 G46-10-□01								
	Round type		G36-4	4-□01	G46-4-□01						
D	Round type	Standard	G36-10	)-□01-L		G46-10	-□01-L				
gauge*3	Pressure (with color 0.00 to 0.0 MDs		G36-4	-□01-L	G46-4-□01-L						
	Square	Standard	GC3-10AS-D [136150A (Pressure gauge cover only)]								
	embedded type*4	0.02 to 0.2 MPa setting	GC3-4AS-D [136150A (Pressure gauge cover only)]								
		NPN output, Wiring bottom entry		ISE35-N-25-N	/ILA-X523 [ISE3	5-N-25-M (Switch	body only)]*5				
Digital pro	aarina arritah	NPN output, Wiring top entry		ISE35-R-25-N	/ILA-X523 [ISE3	5-R-25-M (Switch	body only)]*5				
Digital pre	PNP output, Wiring bottom entry  PNP output, Wiring top entry			ISE35-N-65-N	/ILA-X523 [ISE3	5-N-65-M (Switch	body only)]*5				
			ISE35-R-65-N	/ILA-X523 [ISE3	5-R-65-M (Switch	body only)]*5					

<sup>\*1</sup> The assembly consists of a bracket and set nuts. For the AR50(K)-D and AR60(K)-D, the assembly consists of a bracket A/B and 2 mounting screws.

#### AR20(K)-D to AR40(K)-06-D







AR50(K)-D/AR60(K)-D



#### **Replacement Parts**

Deser	intion			Par	t no.		
Descr	iption	AR20(K)-D	AR30(K)-D	AR40(K)-D	AR40(K)-06-D	AR50(K)-D	AR60(K)-D
Valve assembly		AR24P-060AS	AR34P-060AS	AR44P-060AS AR49P-060AS		AR54P-060AS	AR64P-060AS
Diaphragm	Relieving type	AR24P-150AS	AR34P-150AS	AR44P-150AS		AR54P-150AS	
assembly	Non-relieving type	AR24P-150AS-N	AR34P-150AS-N	AR44P-150AS-N		AR54P-	150AS-N
Valve guide a	ssembly	AR24P-050AS	AR34P-050AS	AR44P	-050AS	AR54P	-050AS
Check valve assembly*1				AR24KF	P-020AS		

<sup>\*1</sup> The check valve assembly is applicable for a regulator with backflow function (AR20K-D to AR60K-D) only. The assembly consists of a check valve cover, check valve body assembly, and 2 mounting screws. 79 

<sup>\*2 -5</sup> to 50°C for the products with the digital pressure switch

<sup>\*2</sup> Please contact SMC regarding the set nuts for the AR50(K)-D and AR60(K)-D.

<sup>\*3 🗆</sup> in part numbers for a round pressure gauge indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the

pressure gauge supply for both MPa and psi unit specifications.

\*4 Including one O-ring and 2 mounting screws. []: Pressure gauge cover only

\*5 In addition to the pressure switch body, lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screws (2 pcs.) are attached. []: Switch body only (For the digital pressure switch specifications, refer to the Web Catalog.)

# Regulator with Backflow Function AR20K-D to AR60K-D Series

Flow Rate Characteristics (Representative values)

Inlet pressure: 1.0 MPa

AC

AW + AL | AF + AR + AL

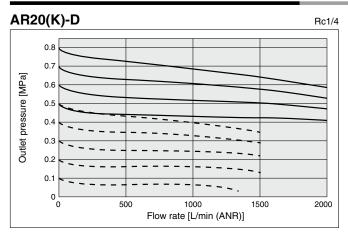
AF + AR

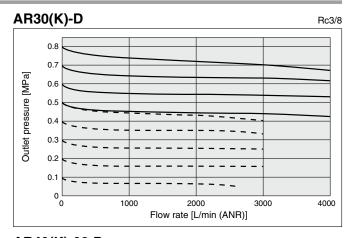
AF + AFM + AR

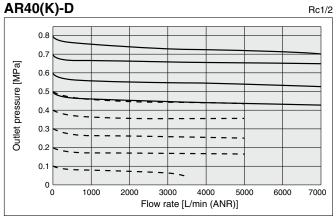
AW + AFM

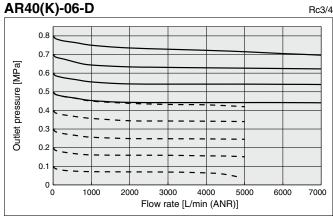
Attachments

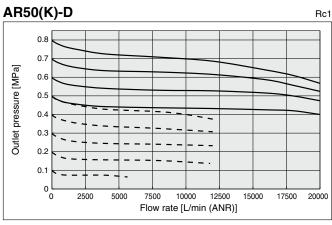
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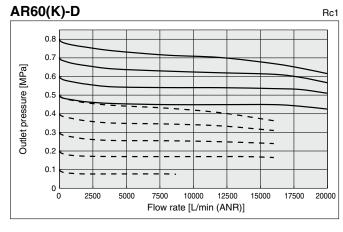










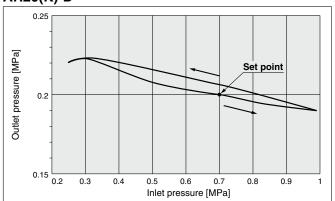


# AR20-D to AR60-D Series AR20K-D to AR60K-D Series

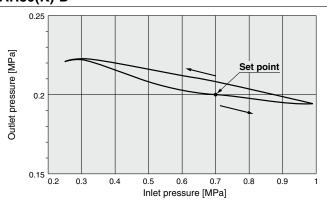
#### Pressure Characteristics (Representative values)

Conditions: Inlet pressure of 0.7 MPa, Outlet pressure of 0.2 MPa, Flow rate 20 L/min (ANR)

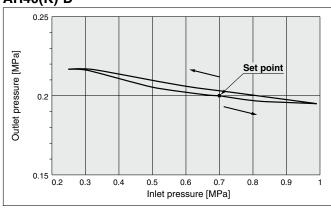
#### AR20(K)-D



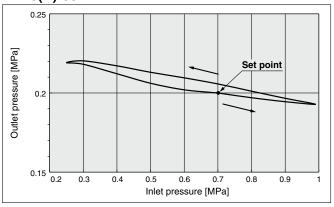
#### AR30(K)-D



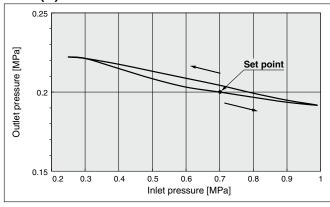
#### AR40(K)-D



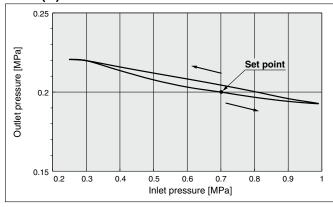
#### AR40(K)-06-D



#### AR50(K)-D



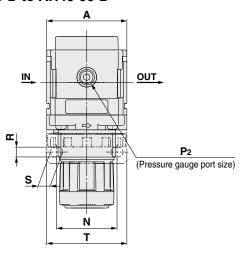
#### AR60(K)-D

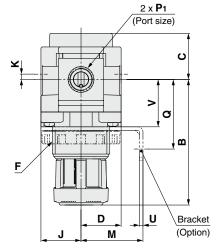


### Regulator AR20-D to AR60-D Series Regulator with Backflow Function AR20K-D to AR60K-D Series

#### **Dimensions**

#### **Standard (Round Type Pressure Gauge)** AR20-D to AR40-06-D





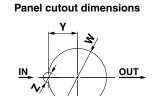
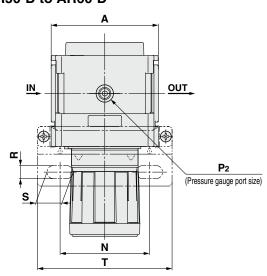
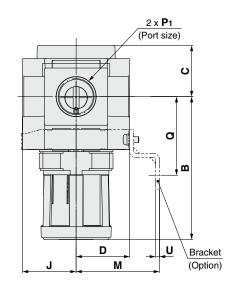
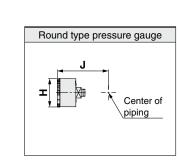


Plate thickness AR20-D to AR30-D : Max. 3.5 AR40-D to AR40-06-D: Max. 5

#### AR50-D to AR60-D







											O	otional sp	ecificatio	ns	
Model			5	Standard	specific	ations				Round		Round pressure (Semi-sta	gauge	Round type pressure gauge (with color zone)	
	P1	P <sub>2</sub>	Α	B*1	С	D	F	J	K	Н	J	Н	J	Н	J
AR20-D	1/8, 1/4	1/8	40	66.8	26.5	21	M28 x 1	21	2	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5
AR30-D	1/4, 3/8	1/8	53	86.5	30.5	26.5	M38 x 1.5	26.5	3.5	ø37.5	63	ø37.5	64	ø37.5	64
AR40-D	1/4, 3/8, 1/2	1/8	70	91.5	35.5	35.5	M42 x 1.5	35.5	_	ø42.5	73	ø42.5	73	ø42.5	73
AR40-06-D	3/4	1/8	75	93	35.5	35.5	M42 x 1.5	35.5	_	ø42.5	73	ø42.5	73	ø42.5	73
AR50-D	3/4, 1	1/8	90	125	43	45	_	45	_	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5
AR60-D	1	1/8	95	155	45	45	_	45	_	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5

Optional specifications												
		Bra	icket mo	unt				Panel	mount			
M	N	Q	R	S	Т	U	٧	W	Υ	Z		
30	34	43.9	5.4	15.4	55	2.3	24.7	28.5	14	6		
41	40	46	6.5	8	53	2.3	31.3	38.5	19	7		
50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7		
50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7		
70	75	66	11	22	113	3.2	_	_	_	_		
70	75	66	11	22	113	3.2	_	_	_	_		
	30 41 50 50 70	30 34 41 40 50 54 50 54 70 75	M         N         Q           30         34         43.9           41         40         46           50         54         54           50         54         55.5           70         75         66	M         N         Q         R           30         34         43.9         5.4           41         40         46         6.5           50         54         54         8.5           50         54         55.5         8.5           70         75         66         11	M         N         Q         R         S           30         34         43.9         5.4         15.4           41         40         46         6.5         8           50         54         54         8.5         10.5           50         54         55.5         8.5         10.5           70         75         66         11         22	Bracket mount           M         N         Q         R         S         T           30         34         43.9         5.4         15.4         55           41         40         46         6.5         8         53           50         54         54         8.5         10.5         70           50         54         55.5         8.5         10.5         70           70         75         66         11         22         113	M         N         Q         R         S         T         U           30         34         43.9         5.4         15.4         55         2.3           41         40         46         6.5         8         53         2.3           50         54         54         8.5         10.5         70         2.3           50         54         55.5         8.5         10.5         70         2.3           70         75         66         11         22         113         3.2	Bracket mount           M         N         Q         R         S         T         U         V           30         34         43.9         5.4         15.4         55         2.3         24.7           41         40         46         6.5         8         53         2.3         31.3           50         54         54         8.5         10.5         70         2.3         35.5           50         54         55.5         8.5         10.5         70         2.3         37           70         75         66         11         22         113         3.2         —	Bracket mount         Panel           M         N         Q         R         S         T         U         V         W           30         34         43.9         5.4         15.4         55         2.3         24.7         28.5           41         40         46         6.5         8         53         2.3         31.3         38.5           50         54         54         8.5         10.5         70         2.3         35.5         42.5           50         54         55.5         8.5         10.5         70         2.3         37         42.5           70         75         66         11         22         113         3.2         —         —	Bracket mount         Panel mount           M         N         Q         R         S         T         U         V         W         Y           30         34         43.9         5.4         15.4         55         2.3         24.7         28.5         14           41         40         46         6.5         8         53         2.3         31.3         38.5         19           50         54         54         8.5         10.5         70         2.3         35.5         42.5         21           50         54         55.5         8.5         10.5         70         2.3         37         42.5         21           70         75         66         11         22         113         3.2         —         —         —		

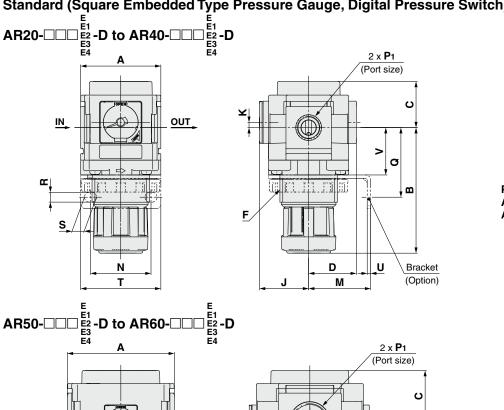
<sup>\*1</sup> The dimension of B is the length when the regulator knob is unlocked.

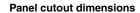


### AR20-D to AR60-D Series AR20K-D to AR60K-D Series

#### **Dimensions**







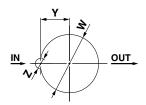
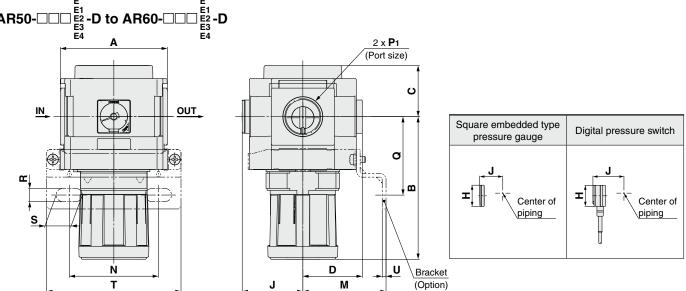


Plate thickness AR20-D to AR30-D AR40-D to AR40-06-D: Max. 5



								Op	tional s	pecificatio	ns
Model		8	Standard	specific	ations			Square e type press	mbedded ure gauge	Digital pressure switch	
	P1	Α	<b>B</b> *1	С	D	F	K	Н	J	Н	J
AR20-D	1/8, 1/4	40	66.8	26.5	26	M28 x 1	2	□28	27	□27.8	37.5
AR30-D	1/4, 3/8	53	86.5	30.5	31.5	M38 x 1.5	3.5	□28	32.5	□27.8	43
AR40-D	1/4, 3/8, 1/2	70	91.5	35.5	40.5	M42 x 1.5	_	□28	41.5	□27.8	52
AR40-06-D	3/4	75	93	35.5	40.5	M42 x 1.5	_	□28	41.5	□27.8	52
AR50-D	3/4, 1	90	125	43	50	_	_	□28	51	□27.8	61.5
AR60-D	1	95	155	45	50	_	_	□28	51	□27.8	61.5

	Optional specifications												
Model			Bra	acket mo	unt				Panel	Panel mount			
	М	N	Q	R	S	Т	U	V	W	Υ	Z		
AR20-D	30	34	43.9	5.4	15.4	55	2.3	24.7	28.5	14	6		
AR30-D	41	40	46	6.5	8	53	2.3	31.3	38.5	19	7		
AR40-D	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7		
AR40-06-D	50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7		
AR50-D	70	75	66	11	22	113	3.2	_	_	_	_		
AR60-D	70	75	66	11	22	113	3.2	_	_	_	_		

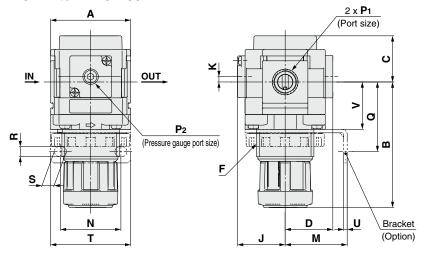
<sup>\*1</sup> The dimension of B is the length when the regulator knob is unlocked.



### Regulator AR20-D to AR60-D Series Regulator with Backflow Function AR20K-D to AR60K-D Series

#### **Dimensions**

With Backflow Function (Round Type Pressure Gauge, Square Embedded Type Pressure Gauge, Digital Pressure Switch) AR20K-D to AR40K-06-D



Panel cutout dimensions

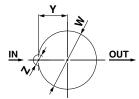
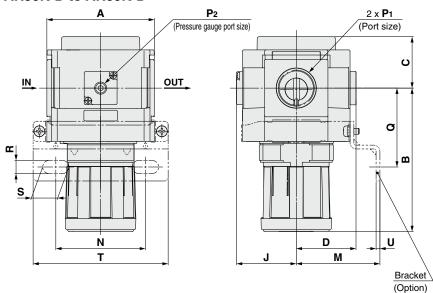
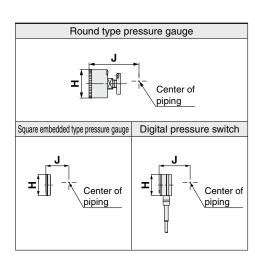


Plate thickness AR20K-D to AR30K-D : Max. 3.5 AR40K-D to AR40K-06-D: Max. 5

#### AR50K-D to AR60K-D





											O <sub>l</sub>	otional spe	ecificatio	ns	
Model			5	Standard	specific	ations				Round type pressure gauge		Round type pre (Semi-star		Round type pressure gauge (with color zone)	
	P1	P <sub>2</sub>	Α	B*1	С	D	K	Н	J	Н	J	Н	J		
AR20K-D	1/8, 1/4	1/8	40	66.8	26.5	26	M28 x 1	26	2	ø37.5	62.5	ø37.5	63.5	ø37.5	63.5
AR30K-D	1/4, 3/8	1/8	53	86.5	30.5	31.5	M38 x 1.5	31.5	3.5	ø37.5	68	ø37.5	69	ø37.5	69
AR40K-D	1/4, 3/8, 1/2	1/8	70	91.5	35.5	40.5	M42 x 1.5	40.5	_	ø42.5	78	ø42.5	78	ø42.5	78
AR40K-06-D	3/4	1/8	75	93	35.5	40.5	M42 x 1.5	40.5	_	ø42.5	78	ø42.5	78	ø42.5	78
AR50K-D	3/4, 1	3/4, 1 1/8 90 125 43 50 — 50 —									87.5	ø42.5	87.5	ø42.5	87.5
AR60K-D	1	1/8	95	155	45	50	_	50	_	ø42.5	87.5	ø42.5	87.5	ø42.5	87.5

							Optiona	l specific	cations						
Model	Square e type press	mbedded ure gauge	Digital p				Bra		Panel mount						
	H J 0K-D □28 27		Н	J	M	N	Q	R	S	Т	J	V	W	Υ	Z
AR20K-D	□28	27	□27.8	37.5	30	34	43.9	5.4	15.4	55	2.3	24.7	28.5	14	6
AR30K-D	□28	32.5	□27.8	43	41	40	46	6.5	8	53	2.3	31.3	38.5	19	7
AR40K-D	□28	41.5	□27.8	52	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7
AR40K-06-D	□28	41.5	□27.8	52	50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7
AR50K-D	□28	51	□27.8	61.5	70	75	66	11	22	113	3.2		_	_	_
AR60K-D	□28	51	□27.8	61.5	70	75	66	11	22	113	3.2	_	_	_	_

<sup>\*1</sup> The dimension of B is the length when the regulator knob is unlocked.



### Regulator/AR20-D to AR40-D Regulator with Backflow Function/AR20K-D to AR40K-D

### **Made to Order**

Please contact SMC for detailed dimensions, specifications, and lead times.



#### 10.4 MPa Setting

The setting specification is 0.4 MPa. When a pressure gauge is included, the display will show a range from 0 to 0.7 MPa.

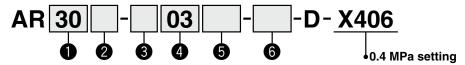
#### **Specifications**

Made-to-order part no.	-X406
Proof pressure [MPa]	1.5
Max. operating pressure [MPa]	1.0
Set pressure range [MPa]*1	0.05 to 0.4

<sup>\*1</sup> Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range

#### **Applicable Models**

Model	AR20(K)-D	AR30(K)-D	AR40(K)-D
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2



- · Option/Semi-standard: Select one each for a to f.
- $\cdot \ \, \text{Option/Semi-standard symbol: When more than one specification is required, indicate in alphabetic order.}$ Example) AR30K-03BE-NR-D-X406

						-		
	_	_		Symbol	Description		Body size	
						20	30	40
				Nil	Without backflow function			
2	١	Nith b	ackflow function	K*1	With backflow function			-
				+	With backnow function			
				Nil	Rc			
8		Pir	e thread type	N	NPT			
v		, ,,	oc uncaa type	F	G			
				+	ŭ .			
				01	1/8			_
				02	1/4			•
4			Port size	03	3/8	1 <u> </u>		
				04	1/2	11		•
				+	·· <del>·</del>			
				Nil	Without mounting option	<b>■</b>	•	•
		а	Mounting	<b>B</b> *3	With bracket	•	•	•
				Н	With set nut (for panel mount)	•	•	•
			•	+	,			
	C.			Nil	Without pressure gauge	•	•	•
A	*		D*4	E	Square embedded type pressure gauge (with limit indicator)	•	•	•
6	Option*2		Pressure gauge*4	G	Round type pressure gauge (with limit indicator)	•	•	•
	0	b		M	Round type pressure gauge (with color zone)	•	•	•
		6		E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•
			Digital pressure	E2	Output: NPN output, Electrical entry: Wiring top entry		•	•
			switch*5	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•
				E4	Output: PNP output, Electrical entry: Wiring top entry			•
		_		+				
		С	Exhaust mechanism	Nil	Relieving type	•	•	•
				N	Non-relieving type			•
			ı	+				
	힏	d	Flow direction	Nil	Flow direction: Left to right		•	•
	g			R	Flow direction: Right to left			•
6	star		I	+		1		
9	Semi-standard	е	Knob	Nil	Downward		•	•
	Ser			Y	Upward			•
				+	Heit on word out label, MDs. December 1990 in Charles AAD			
			Unit	Nil Z*6	Unit on product label: MPa, Pressure gauge in SI units: MPa	O*8	O*8	O*8
		f	Unit	ZA*7	Unit on product label: psi, Pressure gauge: MPa/psi dual scale Digital pressure switch: With unit selection function	\\*9	∆*9	△*9
					bightar pressure switch: with unit selection function		Δ	△

- \*1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
- \*2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
- \*3 The assembly consists of a bracket and set nuts (applicable to the AR20(K)-D to AR40(K)-D). \*4 A 0.7 MPa pressure gauge will be fitted.
- \*5 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. (Select "wiring bottom entry" when the semi-standard Y is chosen simultaneously.)
- \*6 For the pipe thread type: NPT This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.

  \*7 For options: E1, E2, E3, E4. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
- \*8 O: For the pipe thread type: NPT only
- \*9 A: Select with options: E1, E2, E3, E4.







### AR(K)-D Series **Specific Product Precautions**

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

#### **Design / Selection**

### **⚠** Warning

1. Residual pressure disposal (outlet pressure removal) is not possible for the AR20-D to AR60-D even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the regulator with a backflow function (AR20K-D to AR60K-D).

#### Maintenance

### **⚠** Warning

1. When using the regulator with backflow function between a solenoid valve and an actuator, check the pressure gauge periodically. Sudden pressure fluctuations may shorten the durability of the pressure gauge. A digital pressure gauge is recommended for such situation or as deemed necessary.

#### **Mounting / Adjustment**

### **⚠** Warning

- 1. Set the regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator knob excessively can cause damage to the internal parts.
- 2. Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

#### ∖ Caution

- 1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
  - Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
  - Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).



#### **Piping**

### **∕** Marning

1. To screw the pressure gauge and piping materials into the pressure gauge port on the product, tighten to the recommended torque (3 to 5 N·m) while securely holding the AR(K)-D in place. Additionally, when mounting a One-touch fitting to the pressure gauge port, refer to the Fittings and Tubing Precautions.



# Modular Type Lubricator AL Series

Lubricator AL Series	Model	Port size	Options
1 000	AL20-D	1/8, 1/4	
ALDEGO OF THE STATE OF THE STAT	AL30-D	1/4, 3/8	
	AL40-D	1/4, 3/8, 1/2	Bracket
	AL40-06-D	3/4	DidCRet
	AL50-D	3/4, 1	
p. 88 to 93	AL60-D	1	

### Lubricator

# AL20-D to AL60-D

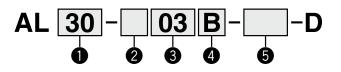
#### **Symbol**





#### **How to Order**

AL30-D



- $\cdot$  Option/Semi-standard: Select one each for  $\boldsymbol{a}$  to  $\boldsymbol{d}.$
- · Option/Semi-standard symbol:

When more than one specification is required, indicate in alphanumeric order.

Example) AL30-03B-3RW-D

\	_	_						0		
				Symbol	Description		E	Body siz	е	
						20	30	40	50	60
				Nil	Rc	•	•	•	•	•
2		Pi	pe thread type	N	NPT	•	•	•	•	•
				F	G	•	•	•	•	•
				+						
				01	1/8	•	_	_	_	_
				02	1/4	•	•	•	_	_
3			Port size	03	3/8	_	•	•	_	_
Ð			FULL SIZE	04	1/2	_	_	•	_	_
				06	3/4	_	_	•	•	_
				10	1	_	_	_	•	•
				+						
A		On	tion (Mounting)	Nil	Without mounting option	•	•	•	•	•
U		Οþ	lion (wourting)	B*1	With bracket	•	•	•	•	•
				+						
				Nil	Polycarbonate bowl	•	•	•	•	•
				2	Metal bowl	•	•	•	•	•
		а	Bowl*2	6	Nylon bowl	•	•	•	•	•
		a	DOWI	8	Metal bowl with level gauge		•	•	•	•
				С	With bowl guard	•	*3	—* <sup>3</sup>	—* <sup>3</sup>	*3
	احا			6C	With bowl guard (Nylon bowl)	•	_*4	*4	*4	*4
	dar			+						
A	lan		Lulania ant autaunt	Nil	Without drain cock	•	•	•	•	•
6	i-si	b	Lubricant exhaust port	3	With drain cock	•	•	•	•	•
	Semi-standard		port	<b>3W</b> *5	Drain cock with barb fitting	_	•	•	•	•
	0)			+						
		С	Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•
			I low direction	R	Flow direction: Right to left	•	•	•	•	•
				+						
		d	Unit	Nil	Unit on product label: MPa, °C	•	•	•	•	•
		u	Ullit	<b>Z</b> *6	Unit on product label: psi, °F	O*7	O*7	O*7	O*7	O*7

- \*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
- \*2 Refer to chemical data on page 93 for chemical resistance of the bowl.
- \*3 A bowl guard is provided as standard equipment (polycarbonate).
   \*4 A bowl guard is provided as standard equipment (nylon).
- \*5 The combination of metal bowl 2 and 8 is not available.
- \*6 For the pipe thread type: NPT

This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

\*7 O: For the pipe thread type: NPT only

### AL20-D to AL60-D Series

#### **Standard Specifications**

Model	AL20-D	AL30-D	AL40-D	AL40-06-D	AL50-D	AL60-D						
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1						
Fluid			Д	\ir								
Ambient and fluid temperatures			−5 to 60°C (	(No freezing)								
Proof pressure			1.5	MPa								
Max. operating pressure		1.0 MPa										
Min. dripping flow rate*1	15 L/min (ANR)	Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR)	Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) Port size 1/2: 50 L/min (ANR)	50 L/min (ANR)	190 L/min (ANR)	220 L/min (ANR)						
Oil capacity	25 cm <sup>3</sup>	55 cm <sup>3</sup>		135	cm <sup>3</sup>							
Recommended lubricant			Class 1 turbine	oil (ISO VG32)								
Bowl material			Polyca	rbonate								
Bowl guard	Semi-standard (Steel)	ate)	e)									
Weight	0.10 kg	0.18 kg	0.37 kg	0.41 kg	0.92 kg	0.99 kg						

<sup>\*1</sup> The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open. For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

#### **Bowl Assembly/Part Nos.**

Bowl	Lubricant exhaust	Other			Mo	odel			
material	port	Other	AL20-D	AL30-D	AL40-D	AL40-06-D	AL50-D	AL60-D	
	Without drain cock	_	C2SL-D	_	-				
	Williout drain cock	With bowl guard	C2SL-C-D	C3SL-D	C4SL-D				
Dolyaarhanata	With drain cock	_	C2SL-3-D	_	_				
Polycarbonate	Willi diaili cock	With bowl guard	C2SL-3C-D	C3SL-3-D		C4SL-3-D C4SL-3W-D			
	Drain cock with barb fitting	With bowl guard	_	C3SL-3W-D					
	Without drain cock	_	C2SL-6-A	_	_				
	without drain cock	With bowl guard	C2SL-6C-A	C3SL-6-A		C4SL	6-A		
Nylon	With drain cock	_	C2SL-36-A	_		_	_		
INVIOIT	Willi dialii cock	With bowl guard	C2SL-36C-A	C3SL-36-A		C4SL	-36-A		
	Drain cock with barb fitting	With bowl guard	_	C3SL-36W-A		C4SL-	36W-A		
	Without drain cock	_	C2SL-2-A	C3SL-2-A		C4SL	2-A		
Metal	Williout drain Cock	With level gauge	_	C3LL-8-A		C4LL	8-A		
ivietai	With drain cock	_	C2SL-23-A	C3SL-23-A		C4SL	-23-A		
	vviiii uraifi COCK	With level gauge	_	C3LL-38-A		C4LL-	-38-A		

Bracket B

Lubricator

Mounting screw

Bracket assembly

#### **Option/Part Nos.**

Optional	Model									
specifications	AL20-D	AL30-D	AL40-D	AL40-06-D	AL50-D	AL60-D				
Bracket assembly*1	AF24P-070AS	AF34P-070AS	AF44P-070AS	AF49P-070AS	AF54P	-070AS				

<sup>\*1</sup> The assembly consists of a bracket A/B and 2 mounting screws.

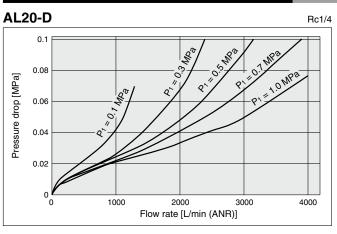
#### **Replacement Parts**

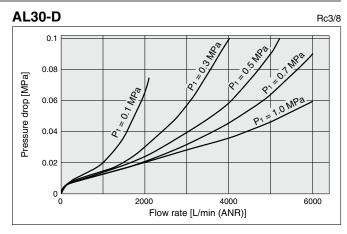
nepiacei	HEIIL Pai	ເວ										
Description		Part no.										
Description	AL20-D	AL30-D	AL40-D	AL40-06-D	AL50-D	AL60-D						
Sight dome assembly		AL20P-080AS										
Lubrication plug assembly	AL24P-060AS	AL24P-060AS AL34P-060AS AL44P-060AS										
Bumper retainer assembly	AL20P-030AS	AL30P-030AS	AL40P	-030AS	AL54P-030AS	AL60P-030AS						
Bumper	AL20P-040S	AL30P-040S	AL44F	9-040S	AL60P	-040AS						
Bowl seal	C2SFP-260S	C32FP-260S		C42FF	P-260S							
Bowl assembly*1, *2		Refe	er to "Bowl As	sembly/Part	Nos."							

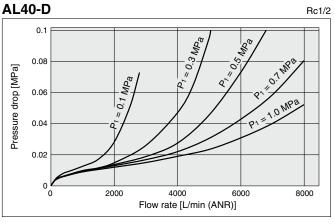
<sup>\*1</sup> The bowl assembly comes with a bowl seal.
\*2 Please contact SMC separately for psi and °F unit display specifications. 89

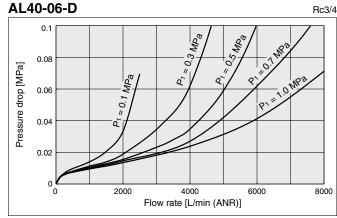


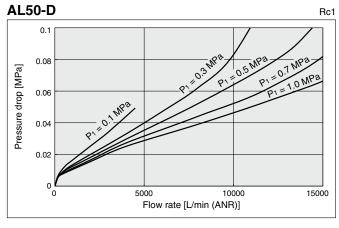
<sup>\*1</sup> The bowl assembly comes with a bowl seal. Please contact SMC separately for psi and °F unit display specifications.

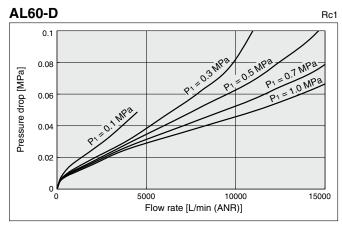








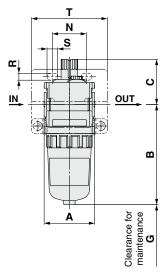


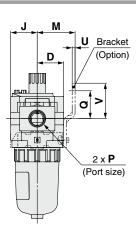


### AL20-D to AL60-D Series

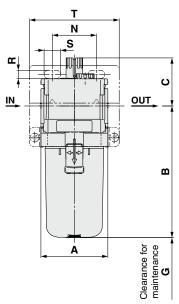
#### **Dimensions**

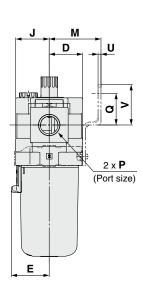
AL20-D



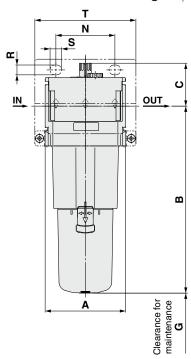


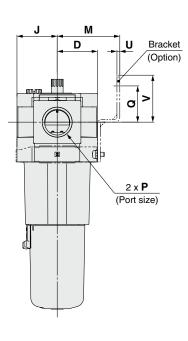
AL30-D to AL40-06-D





AL50-D to AL60-D





AB

			Semi-stan	dard			
Applicable	PC	C/PA bowl	Metal	bowl	Metal bowl with level gauge		
model	With drain cock	Drain cock with barb fitting	Without drain cock	With drain cock	Without drain cock	With drain cock	
AL20-D	<b>B</b>		a a	<b>B</b>			
AL30-D to AL60-D	<b>a</b>	Barb fitting applicable tubing: T0604	<b>a</b>	B	<b>a</b>		

Lubricator AL20-D to AL60-D Series

			Ctandard	nnosifias	tiono						Opt	ional sp	ecificati	ons		
Model	Standard specifications							Bracket mount								
	P	Α	В	С	D	E	G	J	М	N	Q	R	S	Т	U	V
AL20-D	1/8, 1/4	40	79.3	35.9	21	_	60	21	30	27	22	5.4	8.4	60	2.3	28
AL30-D	1/4, 3/8	53	104.3	38.1	26.5	30	80	26.5	41	35	25	6.5	13	71	2.3	32
AL40-D	1/4, 3/8, 1/2	70	136.1	44	35.5	38.4	110	35.5	50	52	30	8.5	12.5	88	2.3	39
AL40-06-D	3/4	75	138.1	44	35.5	38.4	110	35.5	50	52	34	8.5	12.5	88	2.3	43
AL50-D	3/4, 1	90	209.1	48	45	_	110	45	70	66	40.5	11	13	113	3.2	52.5
AL60-D	1	95	223.1	48	45	_	110	45	70	66	40.5	11	13	113	3.2	52.5

		Com	i otondoro	Longoificat	iono		
		Seri	ni-standard	specifical	.10118		
Model	PC/PA	A bowl	Metal	bowl	Metal bowl with level gauge		
Model	With drain	With barb	Without	With drain	Without	With drain	
	cock	fitting	drain cock	cock	drain cock	cock	
	В	В	В	В	В	В	
AL20-D	87.6	_	84.5	87.4	_	_	
AL30-D	115.4	123.9	104.3	117.8	124.3	137.8	
AL40-D	147.1	155.6	136	149.5	156.1	169.5	
AL40-06-D	149.1	157.6	138	151.5	158.1	171.5	
AL50-D	220.1	228.6	209	222.5	229	242.5	
AL60-D	234.1	242.6	223	236.5	243	256.5	



# AL-D Series Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

#### **Design / Selection**

### **Marning**

- **1.** Do not introduce air from the outlet side as this can damage the bumper.
- The standard bowl and sight dome of the lubricator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

### Chemical resistance of polycarbonate bowl with sight dome and nylon bowl with sight dome

Type	Chemical name	Application examples	Mate	erial
туре	Chemical name	Application examples	Polycarbonate	Nylon
Acid	Hydrochloric acid Sulfuric acid Phosphoric acid Chromic acid	Acid washing liquid for metals	Δ	×
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Sodium carbonate	Degreasing of metals Industrial salts Water-soluble cutting oil	×	0
Inorganic salts	Sodium sulfide Potassium nitrate Sodium sulfate	_	×	Δ
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×	Δ
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×	Δ
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×	×
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	Δ	×
Oil	Gasoline Kerosene	_	×	0
Ester	Phthalic acid dimethyl Phthalic acid diethyl Acetic acid	Synthetic oil Anti-rust additives	×	0
Ether	Methyl ether Ethyl ether	Brake oil additives	×	0
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×	×
Others	Thread-lock fluid Seawater Leak tester	_	×	Δ
O: Essential	ly safe △: Some effect	cts may occur. X: Effe	cts will o	ccur.

When the above factors are present, or there is some doubt, use a metal bowl for safety.

#### **Design / Selection**

#### **⚠** Caution

**1.** When the piping is branched on the inlet side, install a check valve to prevent the lubricant from back flowing.

#### **Maintenance**

### **⚠** Warning

- For the AL20-D, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.
- Tighten the lubrication plug to the recommended tightening torque. Insufficient tightening torque may cause loosening or defective sealing. Excessive tightening torque may damage the thread, etc.

#### **Recommended Torque**

Unit: N·m

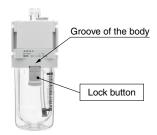
Model	AL20-D	AL30-D	AL40-D AL40-06-D AL50-D AL60-D
Torque	0.25 to 0.35	0.35 to 0.45	0.5 to 0.6

3. Adjustment of the oil regulating valve (sight dome assembly) for models from the AL20-D to AL60-D should be carried out manually. Turning it counterclockwise increases the dripping amount, and turning it clockwise reduces the dripping amount. The use of tools can result in damage to the unit. From the fully closed position, three rotations will bring it to the fully open position. Do not rotate it any further than this. Note that the numbered scale markings are guidelines for adjusting the position, and not indicators of the dripping amount.

#### **Mounting / Adjustment**

#### **⚠** Caution

 When the lubricator bowl is installed on the AL30-D to AL60-D, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.



## **Modular Type** Filter Regulator AW Series

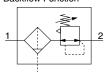
Filter Regulator AW Series	Model	Port size	Set pressure	Options
	AW20(K)-D	1/8, 1/4		
	AW30(K)-D	1/4, 3/8		Bracket Set nut (for panel mount) Float type auto drain
	AW40(K)-D	1/4, 3/8, 1/2	0.05 to 0.85 MPa 0.02 to 0.2 MPa	Square embedded type pressure gauge Digital pressure switch Round type pressure gauge
	AW40(K)-06-D	3/4		
p. 95 to 109	AW60(K)-D	3/4, 1		Bracket Float type auto drain Square embedded type pressure gauge Digital pressure switch Round type pressure gauge

### **Filter Regulator**

# AW20-D to AW60-D Filter Regulator with Backflow Function

# AW20K-D to AW60K-D

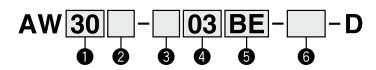
Filter Regulator with Backflow Function



- · Integrated filter and regulator units save space and require less piping.
- Models with the backflow function include a mechanism which allows for the air pressure in the outlet side to be released to the inlet side.

Example) When the air supply is cut off and releasing the inlet pressure to the atmosphere, pressure release of the outlet side can be ensured for a safety purpose.

#### **How to Order**



Option/Semi-standard: Select one each for  $\boldsymbol{a}$  to  $\boldsymbol{i}$ .

Symbol

Filter Regulator

Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order. Example) AW30K-03BE-1NR-D

	_	_						)	
				Symbol	Description		Body	size	
						20	30	40	60
				Nil	Without backflow function	•	•	•	•
2	١ ٧	Vith	backflow function	K*1	With backflow function		•	•	•
				+					
				Nil	Rc	•	•	•	•
3		Pi	pe thread type	N	NPT	•	•	•	•
			•	F	G	•	•	•	•
				+					
				01	1/8	•	_	_	_
				02	1/4	•	•	•	_
4			Port size	03	3/8	_	•	•	_
U			FULL SIZE	04	1/2	_	_	•	_
				06	3/4	_	_	•	•
				10	1			_	•
				+					
				Nil	Without mounting option	•	•	•	•
		а	Mounting	<b>B</b> *3	With bracket	•	•	•	•
				Н	With set nut (for panel mount)	•	•	•	_
				+				1	
			Float type auto	Nil	Without auto drain	•	•	•	•
		b	drain*4	<b>C</b> *5	N.C. (Normally closed) Drain port is closed when pressure is not applied.	•	•	•	•
	2 %		urani	<b>D</b> *6	N.O. (Normally open) Drain port is open when pressure is not applied.	_	•	•	•
6	Option*2			+					
•	힏			Nil	Without pressure gauge	•	•	•	•
			Pressure gauge*7	E	Square embedded type pressure gauge (with limit indicator)	•	•	•	•
			r resoure gaage	G	Round type pressure gauge (with limit indicator)	•	•	•	•
		С		M	Round type pressure gauge (with color zone)	•	•	•	•
		Ŭ		E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•	•
			Digital pressure	E2	Output: NPN output, Electrical entry: Wiring top entry	•	•	•	•
			switch*8	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•	•
				E4	Output: PNP output, Electrical entry: Wiring top entry		•	•	
				+			1 .		
		d	Set pressure*9	Nil	0.05 to 0.85 MPa setting	•	•	•	•
			211   11   12   13   14   15   15   15   15   15   15   15	1	0.02 to 0.2 MPa setting			•	
				+				_	
				Nil	Polycarbonate bowl	•	•	•	•
	힏			2	Metal bowl	•	•	•	•
	tandard	е	Bowl*10	6	Nylon bowl		•	•	•
6	star			8	Metal bowl with level gauge			•	•
9	ni-s			С	With bowl guard	•	*11	*11	*11
	Semi-st			6C	With bowl guard (Nylon bowl)		—*12	*12	<u></u> *12
	0,			+				_	
				Nil	With drain cock	•	•	•	•
		f	Drain port*13	J*14	Drain guide 1/8	•	<del>  -</del>	_	
			p v		Drain guide 1/4	_	•	•	•
				<b>W</b> *15	Drain cock with barb fitting			•	

₹

### Filter Regulator AW20-D to AW60-D Series Filter Regulator with Backflow Function AW20K-D to AW60K-D Series



AW30-D

	_	_						)	
				Symbol	Description		Body	size	
						20	30	40	60
		_	Exhaust mechanism	Nil	Relieving type	•	•	•	•
		g	Exhaust mechanism	N	Non-relieving type	•	•	•	•
	달			+					
	-standard	h	Flow direction	Nil	Flow direction: Left to right	•	•	•	•
6	sta	n	Flow direction	R	Flow direction: Right to left	•	•	•	•
	Semi-			+					
	Se			Nil	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	•	•	•	•
		i	Unit	<b>Z</b> *16	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	O*18	O*18	○*18	O*18
				<b>ZA</b> *17	Digital pressure switch: With unit selection function	△*19	△*19	△*19	△*19

- \*1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
  \*2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
- \*3 The assembly consists of a bracket and set nuts (applicable to the AW20(K)-D to For the AW60(K)-D, the assembly consists of 2 types of the bracket and 2
- mounting screws
- \*4 The auto drain port is ø10 One-touch fitting (② Pipe thread type: Rc, G) or ø3/8" One-touch fitting (② Pipe thread type: NPT)
  \*5 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before
- ending operations for the day is recommended. \*6 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type
- \*7 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
  \*8 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.

- \*9 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

  \*10 Refer to chemical data on page 109 for chemical resistance of the bowl.

  \*11 A bowl guard is provided as standard equipment (polycarbonate).

  \*12 A bowl guard is provided as standard equipment (nylon).

  \*13 The combination of float type auto drain C and D is not available.

  \*14 Without a valve function. The mounting screws are the same as the thread of ●.

  \*15 The combination of metal bowl 2 and 8 is not available.

  \*16 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressures witch will be equipped with the unit selection function, setting to psi initially.

  \*17 For options: E1, E2, E3, E4

  This product is for overseas use only according to the New Measurement Act.
- This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

  \*18 O: For the pipe thread type: NPT only

  \*19 \( \triangle \): Select with options: E1, E2, E3, E4.

### AW20-D to AW60-D Series AW20K-D to AW60K-D Series

**Standard Specifications** 

Mo	odel	AW20-D	AW30-D	AW40-D	AW40-06-D	AW60-D			
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1			
Pressure gauge port	size*1	1/8							
Fluid				Air					
Ambient and fluid ten	nperatures*2		-5	to 60°C (No freezing	ng)				
Proof pressure				1.5 MPa					
Max. operating press	ure			1.0 MPa					
Auto drain minimum	N.C.	0.1 MPa	0.1 MPa 0.15 MPa						
operating pressure	N.O.	— 0.1 MPa							
Set pressure range				0.05 to 0.85 MPa					
Nominal filtration rati	ng* <sup>3</sup>			5 μm					
Compressed air purit	y class*4		ISO	8573-1:2010 [ 6 : 4	: 4 ]* <sup>5</sup>				
Drain capacity		8 cm <sup>3</sup>	25 cm <sup>3</sup>		45 cm <sup>3</sup>				
Bowl material				Polycarbonate					
Bowl guard		Semi-standard (Steel) Standard (Polycarbonate)							
Construction		Relieving type							
Weight		0.18 kg	0.34 kg	0.64 kg	0.69 kg	1.76 kg			

**Bowl Assembly/Part Nos.** 

Bowl	Drain discharge	Dunin mant	Other			Model		
material	mechanism	Drain port	Other	AW20-D	AW30-D	AW40-D	AW40-06-D	AW60-D
		Mile dusing and	_	C2SF-D	_		_	
		With drain cock	With bowl guard	C2SF-C-D	C3SF-D		C4SF-D	
	Manual	Drain cock with barb fitting	With bowl guard	1	C3SF-W-D		C4SF-W-D	
laluaarhanata		With drain guide	_	C2SF□-J-D	_		_	
olycarbonate		(without valve function)	With bowl guard	C2SF□-CJ-D	C3SF□-J-D		C4SF□-J-D	
		Normally closed	_	AD27-D	_		_	
	Automatic*1	(N.C.)	With bowl guard	AD27-C-D	AD37□-D		AD47□-D	
	(Auto drain)	Normally open (N.O.)	With bowl guard		AD38□-D		AD48□-D	
		Mith drain and	_	C2SF-6-A	_		_	
		With drain cock	With bowl guard	C2SF-6C-A	C3SF-6-A		C4SF-6-A	
		Drain cock with barb fitting	With bowl guard		C3SF-6W-A		C4SF-6W-A	
Nulon		With drain guide	_	C2SF□-6J-A	_		_	
Nylon		(without valve function)	With bowl guard	C2SF□-6CJ-A	C3SF□-6J-A		C4SF□-6J-A	
		Normally closed	_	AD27-6-A	_		_	
	Automatic*1	(N.C.)	With bowl guard	AD27-6C-A	AD37□-6-A		AD47□-6-A	
	(Auto drain)	Normally open (N.O.)	With bowl guard	_	AD38□-6-A		AD48□-6-A	
		Mile ducin code	_	C2SF-2-A	C3SF-2-A		C4SF-2-A	
	Manual	With drain cock	With level gauge	_	C3LF-8-A		C4LF-8-A	
	Manual	With drain guide	_	C2SF□-2J-A	C3SF□-2J-A		C4SF□-2J-A	
Metal		(without valve function)	With level gauge	_	C3LF□-8J-A		C4LF□-8J-A	
ivietai		Normally closed	_	AD27-2-A	AD37□-2-A		AD47□-2-A	
	Automatic*1	(N.C.)	With level gauge	_	AD37□-8-A		AD47□-8-A	
	(Auto drain)	Normally open	_	_	AD38□-2-A		AD48□-2-A	
		(N.O.)	With level gauge	_	AD38□-8-A		AD48□-8-A	

<sup>\*1</sup> The bowl assembly comes with a bowl seal.



<sup>\*1</sup> Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.

\*2 -5 to 50°C for the products with the digital pressure switch

\*3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]

Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable

\*4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.

For details on this standard, refer to page 110.

\*5 The compressed air quality class on the inlet side is [7:4:4].

<sup>□</sup> in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain).

No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8")

Please contact SMC separately for psi and °F unit display specifications.

### Filter Regulator AW20-D to AW60-D Series Filter Regulator with Backflow Function AW20K-D to AW60K-D Series

Option/Part Nos.

-	Outional and sitingtic				Model		
	Optional specification	ons	AW20(K)-D	AW30(K)-D	AW40(K)-D	AW40(K)-06-D	AW60(K)-D
Bracket as	sembly*1		AW23P-270AS	AR33P-270AS	AR43P	-270AS	AR54P-270AS
Set nut			AR23P-260S	AR33P-260S	AR43F	P-260S	*2
		Standard	G36-1	0-□01		G46-10-□01	
	Round type	0.02 to 0.2 MPa setting	G36-4	I-□01		G46-4-□01	
D	Davind true	Standard	G36-10	-□01-L		G46-10-□01-L	
Pressure gauge*3	Round type (with color zone)	0.02 to 0.2 MPa setting	G36-4-	.□01-L		G46-4-□01-L	
	Saucro	Standard		GC3-10AS-D [13	6150A (Pressure g	auge cover only)]	
	Square embedded type*4	0.02 to 0.2 MPa setting		GC3-4AS-D [136	6150A (Pressure ga	auge cover only)]	
		NPN output, Wiring bottom entry	IS	SE35-N-25-MLA-X5	23 [ISE35-N-25-M	(Switch body only)]	*5
Digital pro	oouro owitob	NPN output, Wiring top entry	IS	SE35-R-25-MLA-X5	23 [ISE35-R-25-M	(Switch body only)]	*5
Digital pre	Digital pressure switch		IS	SE35-N-65-MLA-X5	23 [ISE35-N-65-M	(Switch body only)]	*5
		PNP output, Wiring top entry	IS	SE35-R-65-MLA-X5	23 [ISE35-R-65-M	(Switch body only)]	*5

- \*1 The assembly consists of a bracket and set nuts.
- \*2 For the AW60(K)-D, the assembly consists of a bracket A/B and 2 mounting screws. Please contact SMC regarding the set nuts for the AW60(K)-D.

  \*3 □ in part numbers for a round type pressure gauge indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the pressure gauge supply for both MPa and psi unit specifications.

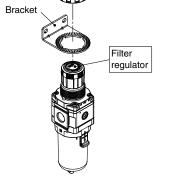
AW60(K)-D

- \*4 Including one O-ring and 2 mounting screws. []: Pressure gauge cover only
- \*5 In addition to the pressure switch body, lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screws (2 pcs.) are attached.

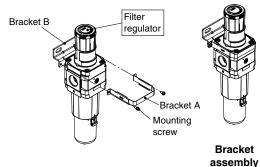
  []: Switch body only (Regarding how to order the digital pressure switch, refer to the **Web Catalog**.)

#### AW20(K)-D to AW40(K)-06-D









#### Replacement Parts

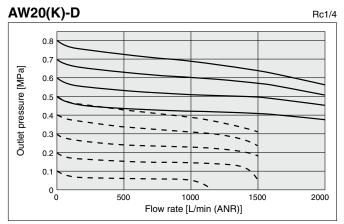
ricpiacen	ient i arts					
Doo	orintion			Part no.		
Des	cription	AW20(K)-D	AW30(K)-D	AW40(K)-D	AW40(K)-06-D	AW60(K)-D
Valve assemb	oly	AW24P-060AS	AW34P-060AS	AW44P-060AS	AW49P-060AS	AW64P-060AS
Filter elemen	t	AF20P-060S	AF30P-060S	AF40F	P-060S	AW60P-060S
Baffle		AF24P-040S	AF34P-040S	AF44F	P-040S	AW64P-030S
Diaphragm	Relieving type	AR24P-150AS	AR34P-150AS	AR44P	-150AS	AR54P-150AS
Diaphragm assembly	Non-relieving type	AR24P-150AS-N	AR34P-150AS-N	AR44P-	150AS-N	AR54P-150AS-N
Bowl seal		C2SFP-260S	C32FP-260S		C42FP-260S	
Bowl assemb	oly*1, *2		Refer	o "Bowl Assembly/Par	t Nos."	
Check valve a	assembly*3			AR24KP-020AS		

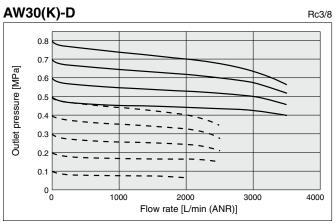
- \*1 The bowl assembly comes with a bowl seal.
  \*2 Please contact SMC separately for psi and °F unit display specifications.
  \*3 The check valve assembly is applicable for a filter regulator with backflow function (AW20K-D to AW60K-D) only. The assembly consists of a check valve cover, check valve body assembly, and 2 mounting screws.

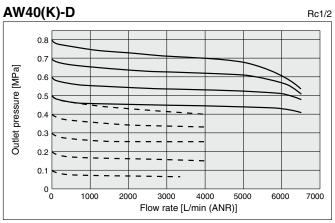
### AW20-D to AW60-D Series AW20K-D to AW60K-D Series

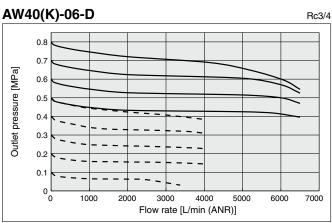
#### Flow Rate Characteristics (Representative values)

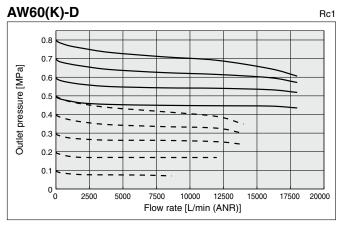
Inlet pressure: 1.0 MPa











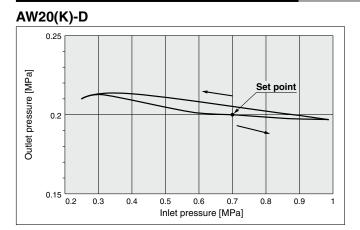
AC

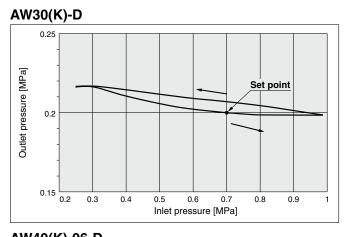
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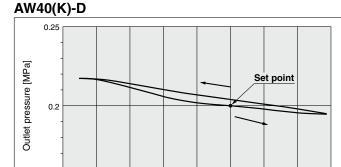
### Filter Regulator AW20-D to AW60-D Series Filter Regulator with Backflow Function AW20K-D to AW60K-D Series

#### Pressure Characteristics (Representative values)

Conditions: Inlet pressure of 0.7 MPa, Outlet pressure of 0.2 MPa, Flow rate 20 L/min (ANR)







0.5

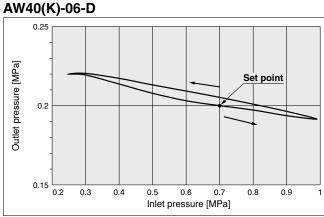
0.6

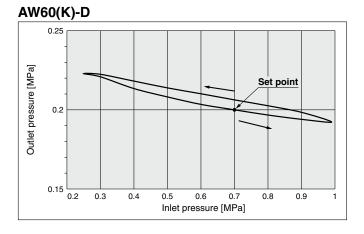
Inlet pressure [MPa]

0.7

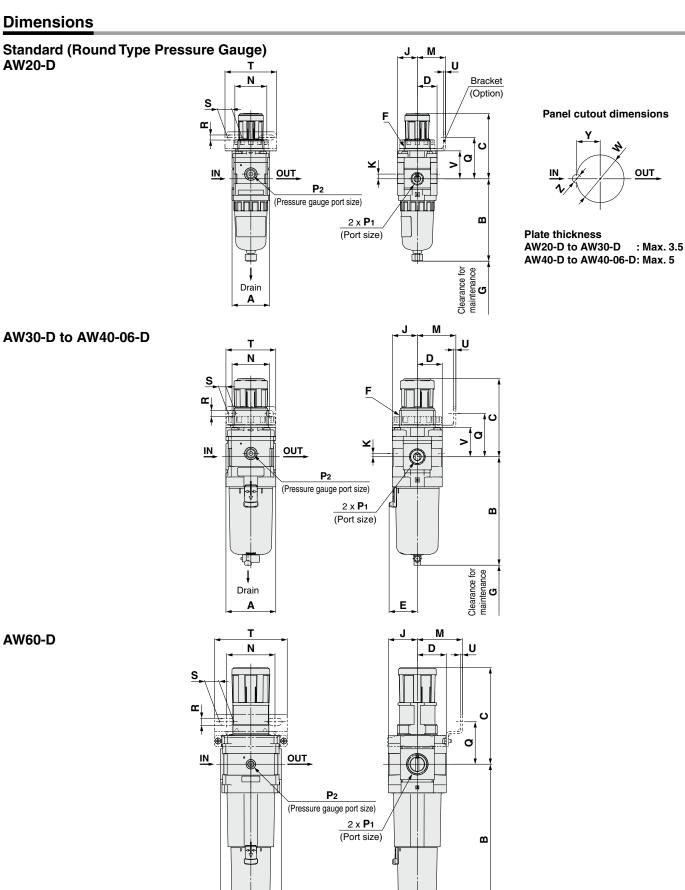
0.4

0.15 0.2





### AW20-D to AW60-D Series AW20K-D to AW60K-D Series



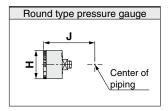
Drain

Clearance for maintenance

A

AB

### Filter Regulator AW20-D to AW60-D Series Filter Regulator with Backflow Function AW20K-D to AW60K-D Series



	Optional specifications			Semi-stand	dard		
Applicable model	With auto drain	PC/PA bo	owl	Met	al bowl	Metal bowl v	vith level gauge
model	vviili auto urain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AW20-D	M5 x 0.8		1/8 Width across flats 14	B	1/8 Width across flats 14		
AW30-D to AW60-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	1/4 Width across flats 17	B	Midth across flats 17	B	1/4 Width across flats 17

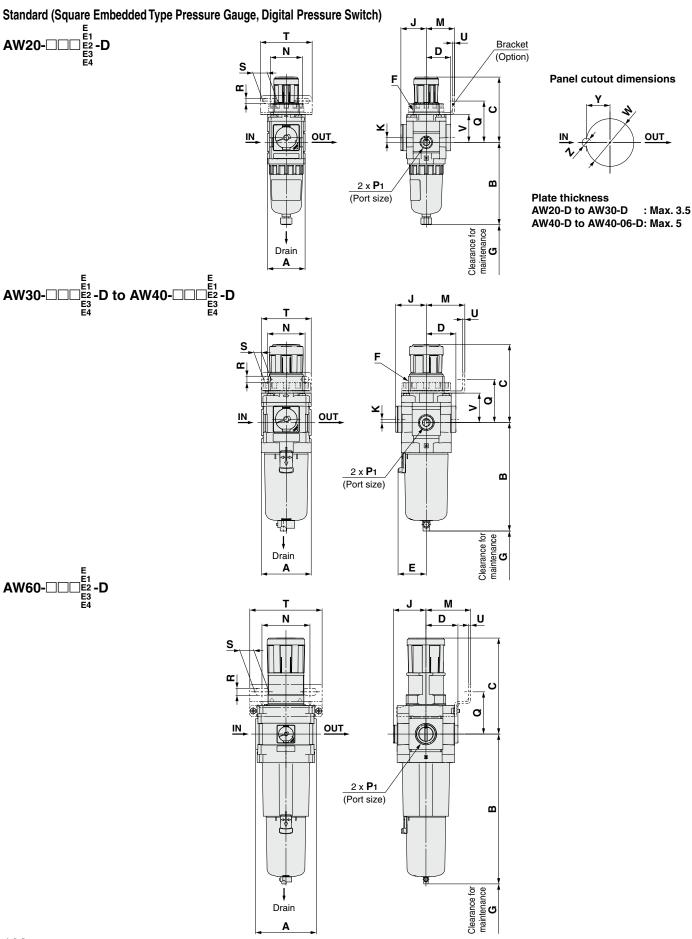
													Opt	ional sp	ecificati	ons	
Model		Standard specifications													pressure standard: Z)	Round type gauge (with	
	P1	P <sub>2</sub>	Α	В	C*1	D	Е	F	G	J	K	Н	J	Н	J	Н	J
AW20-D	1/8, 1/4	1/8	40	87.6	71.8	21	_	M28 x 1	40	21	5	ø37.5	57.5	ø37.5	58.5	ø37.5	58.5
AW30-D	1/4, 3/8	1/8	53	115.3	86.5	26.5	30	M38 x 1.5	55	26.5	3.5	ø37.5	63	ø37.5	64	ø37.5	64
AW40-D	1/4, 3/8, 1/2	1/8	70	147.1	91.5	35.5	38.4	M42 x 1.5	80	35.5	_	ø42.5	73	ø42.5	73	ø42.5	73
AW40-06-D	3/4	1/8	75	149.1	93	35.5	38.4	M42 x 1.5	80	35.5	_	ø42.5	73	ø42.5	73	ø42.5	73
AW60-D	3/4, 1	1/8	95	234.1	155	45	_		30	45	_	ø42.5	82.5	ø42.5	82.5	ø42.5	82.5

					Opt	ional s	pecific	ations							Semi-s	tandard		
Model			Pro	cket mo	ount				Panal m	ount		With	PC/PA	A bowl	Meta	l bowl		owl with gauge
Wiodei			Dia	CKEL III	Juni				Panel mount				With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	M	N	Q	R	S	Т	U	V W Y Z				В	В	В	В	В	В	В
AW20-D	30	34	43.9	5.4	15.4	55	2.3	29.7	28.5	14	6	104.9	_	91.4	87.4	93.9	_	_
AW30-D	41	40	46	6.5	8	53	2.3	31.3	38.5	19	7	157	123.9	122.2	117.8	122.3	137.8	142.3
AW40-D	50	54	54	8.5	10.5	70	2.3	35.5 42.5 21 7				186.9	155.6	153.9	149.5	154	169.5	174
AW40-06-D	50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7	188.9	157.6	155.9	151.5	156	171.5	176
AW60-D	70	75	66	11	22	113	3.2	_	_	_	_	273.9	242.6	240.9	236.5	241	256.5	261

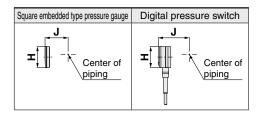
<sup>\*1</sup> The dimension of C is the length when the filter regulator knob is unlocked.

### AW20-D to AW60-D Series AW20K-D to AW60K-D Series

#### **Dimensions**



### Filter Regulator AW20-D to AW60-D Series Filter Regulator with Backflow Function AW20K-D to AW60K-D Series



	Optional specifications			Semi-stand	dard		
Applicable model	With auto drain	PC/PA bo	owl	Met	al bowl	Metal bowl v	with level gauge
model	With auto drain	Drain cock with barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
AW20-D	M5 x 0.8		1/8 Width across flats 14	<b>a</b>	1/8 Width across flats 14		
AW30-D to AW60-D	N.O.: Black N.C.: Gray  Thread type/Rc, G: ø10 One-touch fitting Thread type/NPT: ø3/8" One-touch fitting	Barb fitting applicable tubing: T0604	1/4 Width across flats 17	B	Midth across flats 17	B	Midth across flats 17

										Op	tional sp	ecificatio	ns
Model					mbedded sure gauge	Digital p							
	P1	Α	В	C*1	D	E	F	G	K	Н	J	Н	J
AW20-D	1/8, 1/4	40	□28	27	□27.8	37.5							
AW30-D	1/4, 3/8	53	115.3	86.5	31.5	30	M38 x 1.5	55	3.5	□28	32.5	□27.8	43
AW40-D	1/4, 3/8, 1/2	70	147.1	91.5	40.5	38.4	M42 x 1.5	80	_	□28	41.5	□27.8	52
AW40-06-D	3/4	75	149.1	93	40.5	38.4	M42 x 1.5	80	_	□28	41.5	□27.8	52
AW60-D	3/4, 1	95	234.1	155	50	_	_	30	_	□28	51	□27.8	61.5

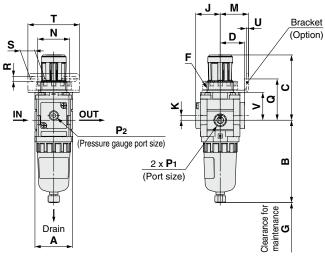
					Opt	ional s	pecific	ations							Semi-s	tandard		
Model			Bra	cket mo	ount				Danol m	ount		With	PC/PA	A bowl	Meta	l bowl	Metal be	owl with gauge
Model			Dia	CKC! III	Juni							drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	М	N	Q	R	S	Т	U	٧	V W Y Z				В	В	В	В	В	В
AW20-D	30	34	43.9	5.4	15.4	55	2.3	29.7	28.5	14	6	104.9	_	91.4	87.4	93.9	_	_
AW30-D	41	40	46	6.5	8	53	2.3	31.3	38.5	19	7	157	123.9	122.2	117.8	122.3	137.8	142.3
AW40-D	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	186.9	155.6	153.9	149.5	154	169.5	174
AW40-06-D	50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7	188.9	157.6	155.9	151.5	156	171.5	176
AW60-D	70	75	66	11	22	113	3.2	_	_	_	_	273.9	242.6	240.9	236.5	241	256.5	261

<sup>\*1</sup> The dimension of C is the length when the filter regulator knob is unlocked.

### AW20-D to AW60-D Series AW20K-D to AW60K-D Series

#### **Dimensions**

With Backflow Function (Round Type Pressure Gauge, Square Embedded Type Pressure Gauge, Digital Pressure Switch)



Panel cutout dimensions

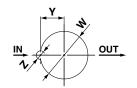
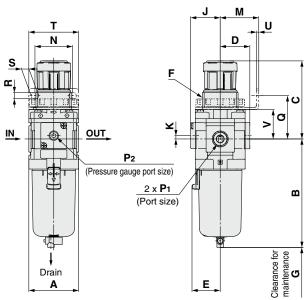
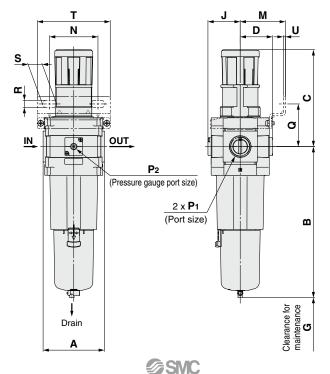


Plate thickness AW20K-D to AW30K-D AW40K-D to AW40K-06-D: Max. 5

#### AW30K-D to AW40K-06-D

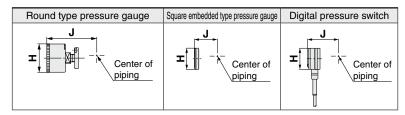


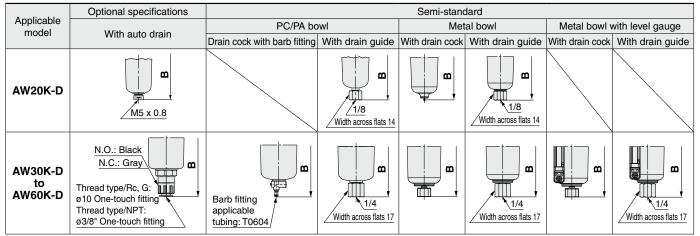
#### AW60K-D



AB

### Filter Regulator AW20-D to AW60-D Series Filter Regulator with Backflow Function AW20K-D to AW60K-D Series





														Opt	ional s	pecificati	ons		
Model				Sta	andard	specifi	cations	5		Square e	mbedded ure gauge	Digital pr		Round pressure		Round type gauge (Semi-s	pressure standard: Z)		
	P1	P <sub>2</sub>	Α	В	C*1	D	Е	F	G	J	K	Н	J	Н	J	Н	J	Н	J
AW20K-D	1/8, 1/4	1/8	40	87.6	71.8	26	_	M28 x 1	40	26	5	□28	27	□27.8	37.5	ø37.5	62.5	ø37.5	63.5
AW30K-D	1/4, 3/8	1/8	53	115.3	86.5	31.5	30	M38 x 1.5	55	31.5	3.5	□28	32.5	□27.8	43	ø37.5	68	ø37.5	69
AW40K-D	1/4, 3/8, 1/2	1/8	70	147.1	91.5	40.5	38.4	M42 x 1.5	80	40.5	_	□28	41.5	□27.8	52	ø42.5	78	ø42.5	78
AW40K-06-D	3/4	1/8	75	149.1	93	40.5	38.4	M42 x 1.5	80	40.5	_	□28	41.5	□27.8	52	ø42.5	78	ø42.5	78
AW60K-D	3/4, 1	1/8	95	234.1	155	50	_	_	30	50	_	□28	51	□27.8	61.5	ø42.5	87.5	ø42.5	87.5

						Optio	nal spe	cifica	tions								Semi-s	tandard		
Model	Round pressure				Brac	ket m	ount			D	anel m	ount		With	PC/PA	A bowl	Meta	l bowl	Metal b	owl with gauge
Wiodei	(with o				Diac	KGI III	ount				anei iii	ount		drain	With barb fitting	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	Н	J	М	N	Q	R	S	Т	U	٧	V W Y Z				В	В	В	В	В	В
AW20K-D	ø37.5	63.5	30	34	43.9	5.4	15.4	55	2.3	29.7	28.5	14	6	104.9	_	91.4	87.4	93.9	_	_
AW30K-D	ø37.5	69	41	40	46	6.5	8	53	2.3	31.3	38.5	19	7	157	123.9	122.2	117.8	122.3	137.8	142.3
AW40K-D	ø42.5	78	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	186.9	155.6	153.9	149.5	154	169.5	174
AW40K-06-D	ø42.5	78	50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7	188.9	157.6	155.9	151.5	156	171.5	176
AW60K-D	ø42.5	87.5	70	75	66	11	22	113	3.2	_	_	_	_	273.9	242.6	240.9	236.5	241	256.5	261

<sup>\*1</sup> The dimension of C is the length when the filter regulator knob is unlocked.

### Filter Regulator/AW20-D to AW40-D Filter Regulator with Backflow Function/AW20K-D to AW40K-D

### **Made to Order**

Please contact SMC for detailed dimensions, specifications, and lead times.



#### 1 0.4 MPa Setting

The setting specification is 0.4 MPa.

When a pressure gauge is included, the display will show a range from 0 to 0.7 MPa.

#### **Specifications**

Made-to-order part no.	-X406
Proof pressure [MPa]	1.5
Max. operating pressure [MPa]	1.0
Set pressure range [MPa]*1	0.05 to 0.4

\*1 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

#### Applicable Models

Model	AW20(K)-D	AW30(K)-D	AW40(K)-D
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2

#### 2 Long Bowl

Drain capacity is greater than that of standard models.

#### **Applicable Models/Drain Capacity**

Model	AW20(K)-D	AW30(K)-D	AW40(K)-D	
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	
Drain capacity [cm³]	19	43	88	
B dimension [mm]*1	108.1	137.3	167.2	

\*1 For polycarbonate bowls. Please contact SMC for other bowl materials.

#### AW20-D

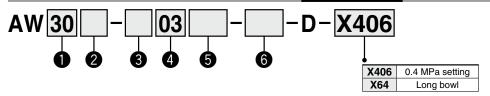






AW30 to 40-D

#### How to Order



- · Option/Semi-standard: Select one each for a to h.
- · Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

#### 0.4 MPa Setting

#### **Long Bowl**

Example) AW30K-03BE-2N-D-X406			J										
Symbol Description			Deceription	0			0						
			Syllibol	Doscription		Body size			Body size				
					20	30	40	20	30	40			
2 Wi	th had	ckflow function	Nil	Without backflow function	•	•	•	•	•	•			
	ın bac	cknow function	<b>K</b> *1	With backflow function	•	•	•	•	•	•			
			+										
			Nil	Rc	•	•	•	•	•	•			
3	Pipe	thread type	N	NPT	•	•	•	•	•	•			
			F	G	•	•	•	•	•	•			
			+										
			01	1/8	•		_	•	_	_			
	ь	ort size	02	1/4	•	•	•	•	•	•			
	Fort size		03	3/8		•	•	_	•	•			
	04			1/2			•	_	_	•			
			+										
	a	Mounting	Nil	Without mounting option	•	•	•	•	•	•			
			<b>B</b> *3	With bracket	•	•	•	•	•	•			
			Н	With set nut (for panel mount)	•	•	•	•	•	•			
	+												
		Float type auto	Nil	Without auto drain	•	•	•		_				
	b	drain*4	C*5	Float type auto drain (N.C.): Drain port is closed when pressure is not applied.	•	•	•		_	_			
N W					diam	<b>D</b> *6	Float type auto drain (N.O.): Drain port is open when pressure is not applied.		•	•			_
Option*2	_		+										
ع ا ق			Nil	Without pressure gauge	•	•	•	•	•	•			
0	l c	Pressure	E	Square embedded type pressure gauge (with limit indicator)	•	•	•	•	•	•			
		gauge*7	G	Round type pressure gauge (with limit indicator)		•	•	•	•	•			
			M	Round type pressure gauge (with color zone)	•	•	•	•	•	•			
		Digital	E1	Output: NPN output, Electrical entry: Wiring bottom entry	•	•	•	•	•	•			
		pressure	E2	Output: NPN output, Electrical entry: Wiring top entry	•	•	•	•	•	•			
		switch*8	E3	Output: PNP output, Electrical entry: Wiring bottom entry	•	•	•	•	•	•			
		SWILOTT	E4	Output: PNP output, Electrical entry: Wiring top entry	•	•	•	•	•	•			

- \*1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
  \*2 Options B, G, H, and M are not assembled and supplied loose at the time of
- \*3 The assembly consists of a bracket and set nuts (applicable to the AW20(K)-D to AW40(K)-D).
- \*4 The auto drain port is ø10 One-touch fitting ( Pipe thread type: Rc, G) or ø3/8" One-touch fitting (3 Pipe thread type: NPT)
- \*5 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
- \*6 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type
- \*7 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type. 0.7 MPa pressure gauge for 0.4 MPa type (-X406).
- \*8 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.



### Filter Regulator AW20-D to AW40-D Series Filter Regulator with Backflow Function AW20K-D to AW40K-D Series

					0.4	MPa Set	tting	L	ong Bo	wl
_	_		Symbol	Description		0			0	
			Symbol	Description	Body size			Body size		
					20	30	40	20	30	40
		Set pressure*9	Nil	0.05 to 0.85 MPa setting	_	_	_	•	•	•
	d	Set pressure	1	0.02 to 0.2 MPa setting	_	_	_	•	•	•
			+							
			Nil	Polycarbonate bowl	•	•	•	•	•	•
			2	Metal bowl	•	•	•	•	•	•
	ll e	Bowl*10	6	Nylon bowl	•	•	•	•	•	•
	-	DOWN	8	Metal bowl with level gauge	_	•	•		_	_
			С	With bowl guard	•	<u></u> *11	*11	•	*11	*11
			6C	With bowl guard (Nylon bowl)	•	*12	*12	•	*12	*12
7	,		+							
3	3	Drain port*13	Nil	With drain cock	•	•	•	•	•	•
) t	f		<b>J</b> *14	Drain guide 1/8	•	_		•	_	_
<u>ان</u> ا	?     <b>'</b>			Drain guide 1/4	_	•	•		•	•
Semi-standard	5		<b>W</b> *15	Drain cock with barb fitting	_	•	•		•	•
0.	'   <u></u>		+							
		Exhaust	Nil	Relieving type	•	•	•	•	•	•
	g	mechanism	N	Non-relieving type	•	•	•		•	•
	1_		+							
	h	Flow direction	Nil	Flow direction: Left to right	•	•	•	•	•	•
		1 low direction	R	Flow direction: Right to left	•	•	•	•	•	•
			+							
			Nil	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	•	•	•	•	•	•
	i	Unit	<b>Z</b> *16	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	○*18	○*18	○*18	○*18	○*18	O*1
			<b>ZA</b> *17	Digital pressure switch: With unit selection function	△*19	△*19	△*19	△*19	△*19	△*19

- \*9 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
  \*10 Refer to chemical data on page 109 for chemical resistance of the bowl.
  \*11 A bowl guard is provided as standard equipment (polycarbonate).

- \*11 A bowl guard is provided as standard equipment (polycarbonate).
  \*12 A bowl guard is provided as standard equipment (nylon).
  \*13 The combination of float type auto drain C and D is not available.
  \*14 Without a valve function. The mounting screws are the same as the thread of 3.
  \*15 The combination of metal bowl 2 and 8 is not available.
  \*16 For the pipe thread type: NPT
  This product is for overseas use only according to the New Measurement Act.
  (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The
  digital procure guite in the provided with the unit selection furtion continued. digital pressure switch will be equipped with the unit selection function, setting to psi initially.
- For options: E1, E2, E3, E4
  This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

  \*18 ○: For the pipe thread type: NPT only

  \*19 △: Select with options: E1, E2, E3, E4.



# AW(K)-D Series Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

#### **Design / Selection**

### <u> Marning</u>

- Residual pressure disposal (outlet pressure removal) is not possible for the AW20-D to AW60-D even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the filter regulator with backflow function (AW20K-D to AW60K-D).
- The bowl material of the standard filter regulator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

#### Chemical resistance of polycarbonate or nylon bowl

			Material		
Type	Chemical name	Application examples	Polycarbonate	Nylon	
Acid	Hydrochloric acid Sulfuric acid Phosphoric acid Chromic acid	Acid washing liquid for metals	Δ	×	
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Sodium carbonate	Degreasing of metals Industrial salts Water-soluble cutting oil	×	0	
Inorganic salts	Sodium sulfide Potassium nitrate Sodium sulfate	_	×	Δ	
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×	Δ	
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×	Δ	
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×	×	
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	Δ	×	
Oil	Gasoline Kerosene	_	×	0	
Ester	Phthalic acid dimethyl Phthalic acid diethyl Acetic acid	Synthetic oil Anti-rust additives	×	0	
Ether	Methyl ether Ethyl ether	Brake oil additives	×	0	
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×	×	
Others	Thread-lock fluid Seawater Leak tester ntially safe △: Some	_	×	Δ	

When the above factors are present, or there is some doubt, use a metal bowl for safety.

#### **Maintenance**

### **⚠** Warning

 Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.

#### **Mounting / Adjustment**

### 

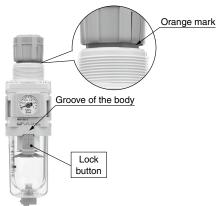
- Set the filter regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator knob excessively can cause damage to the internal parts.
- **2.** Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

#### **⚠** Caution

**1.** Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure.

Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.

- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).



2. When the bowl is installed on the AW30-D to AW60-D, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

#### **Piping**

### 

1. To screw the pressure gauge and piping materials into the pressure gauge port on the product, tighten to the recommended torque (3 to 5 N·m) while securely holding the AW(K)-D in place. Additionally, when mounting a One-touch fitting to the pressure gauge port, refer to the Fittings and Tubing Precautions.



# International Standard ISO 8573-1:2010 Compressed Air Purity Classes

Compressed air is used in a variety of manufacturing processes. In this age, compressed air with a high degree of purity is becoming increasingly necessary.

For this reason, it is necessary to remove contaminants from systems which supply compressed air and to secure the quality. The standard which stipulates the class according to the quantities of contaminants in compressed air is ISO 8573-1.

#### [Outline]

Stipulates the purity class of contaminants (particles, water, oil) mixed in with the compressed air

#### [Scope]

Can be used in various places in compressed air systems

#### [Terms and Definitions]

- Purity class: An index assigned for each classification obtained by dividing the concentration of each contaminant into ranges
- Particle: Small discrete mass of solid or liquid matter
- Humidity and liquid water: Water vapor (gas), Water droplets
- · Oil: Liquid oil, Oil mist, Vapor

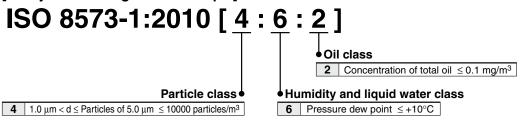
	_ <del></del>										
		Parti	cles	Humidity and	Oil						
Class	Maximum number of particles per cubic meter as a func-		ction of particle size d [µm] Mass concentration Cp		Pressure dew point	Concentration of liquid water Cw	Concentration of total oil				
	0.1 < d ≤ 0.5		$1.0 < d \le 5.0$	[mg/m <sup>3</sup> ]	[°C]	[g/m <sup>3</sup> ]	[mg/m <sup>3</sup> ]				
0		As specified by the equipment user or supplier and more stringent than class 1									
1	≤ 20000	≤ 400	≤ 10	_	≤ –70	_	≤ 0.01				
2	≤ 400000	≤ 6000	≤ 100	_	≤ −40	_	≤ 0.1				
3	_	≤ 90000	≤ 1000	_	≤ –20	_	≤ 1				
4	_	_	≤ 10000	_	≤ +3	_	≤ 5				
5	_	_	≤ 100000	_	≤ +7	_	_				
6	_	_	_	0 < Cp ≤ 5	≤ +10	_	_				
7	_	_	_	5 < Cp ≤ 10	_	Cw ≤ 0.5	_				
8	_	_	_	_	_	0.5 < Cw ≤ 5	_				
9	_	_	_	_	_	5 < Cw ≤ 10	_				
х	_	_	_	Cp > 10		Cw > 10	> 5				

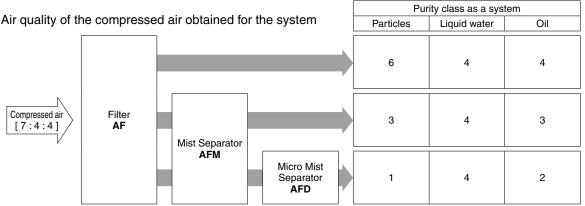
#### [How to Perform a Test to Check the Performance]

ISO 12500, which sets out the test method to be used in order to check the filter performance for each of the three kinds of contaminants, is indicated below.

- Particle: ISO 12500-3:2009
- · Liquid water: ISO 12500-4:2009
- · Oil: ISO 12500-1:2007
- \* Measured using a dedicated evaluation system which has been certified according to ISO 12500-□ and also by a third party (Certified)

#### [Purity Class Designation Example]





The class indicates the compressed air purity according to ISO 8573-1:2010 (JIS B 8392-1:2012) and indicates the maximum purity class which can be obtained using that system. Note, however, that this value will differ according to the inlet air conditions.



### **⚠** Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

Caution: Caution indicates a hazard with a low level of risk which, If not avoided, could result in minor or moderate injury.

Warning: Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger: Danger indicates a mazaru with a might lost a **Danger** indicates a hazard with a high level of risk which, \*1) ISO 4414: Pneumatic fluid power - General rules relating to systems.

ISO 4413: Hydraulic fluid power – General rules relating to systems. IEC 60204-1: Safety of machinery - Electrical equipment of machines.

(Part 1: General requirements)

ISO 10218-1: Manipulating industrial robots - Safety.

#### **⚠Warning**

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

- 3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
  - 1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
  - 2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
  - 3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
  - 1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
  - 2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
  - 3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
  - 4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

#### **⚠** Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary. If anything is unclear, contact your nearest sales branch.

#### Limited warranty and Disclaimer/ **Compliance Requirements**

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".

Read and accept them before using the product.

#### **Limited warranty and Disclaimer**

- 1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2) Also, the product may have specified durability, running distance or
- replacement parts. Please consult your nearest sales branch. 2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any
- other damage incurred due to the failure of the product. 3. Prior to using SMC products, please read and understand the warranty terms
  - and disclaimers noted in the specified catalog for the particular products.
    - 2) Vacuum pads are excluded from this 1 year warranty. A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

      Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

#### Compliance Requirements

- 1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- 2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

#### **⚠** Caution

#### SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

#### **Revision History**

- Edition B \* Attachments have been added.
  - \* Number of pages has been increased from 72 to 104.

- Edition C \* Sizes 40-06, 50, and 60 have been added to the AC series.
  - \* Sizes 40-06, 50, and 60 have been added to the AF, AR(K), and AL.
  - \* The VHS40-06 and 50 have been added.
  - \* Size 40-06 has been added to the AFM/AFD.
  - \* Sizes 40-06 and 60 have been added to the AW(K).
  - \* Made to order options have been added.
  - \* Number of pages has been increased from 104 to 112.

↑ Safety Instructions Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.