


# Modular Type Lubricators Series AL

Lubricator Series AL	Model	Port size	Option
 <p data-bbox="115 639 344 662">Pages 508 through to 513</p>	<b>AL10</b>	M5 x 0.8	Bracket
	<b>AL20</b>	1/8, 1/4	
	<b>AL30</b>	1/4, 3/8	
	<b>AL40</b>	1/4, 3/8, 1/2	
	<b>AL40-06</b>	3/4	
	<b>AL50</b>	3/4, 1	
	<b>AL60</b>	1	

AC-A

AF-A

AF□-A

AR-A

AL-A

AW-A

AC

AF

AF□

AR

**AL**

AW□

A□G

E□

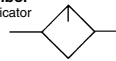
AV

AF

# Lubricator

# AL10 to AL60

Symbol  
Lubricator



AL20



AL40

## How to Order

AL **30** - **03** **B** -

① ② ③ ④ ⑤

• Option/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 AL30-03B-2R

		Symbol	Description	① Body size									
				10	20	30	40	50	60				
②	Thread type	Nil	Metric thread (M5)	●	—	—	—	—	—				
			Rc	—	●	●	●	●	●				
		N	NPT	—	●	●	●	●	●				
		F	G	—	●	●	●	●	●				
		+											
③	Port size	M5	M5	●	—	—	—	—	—				
		01	1/8	—	●	—	—	—	—				
		02	1/4	—	●	●	—	—	—				
		03	3/8	—	—	●	●	—	—				
		04	1/2	—	—	—	●	●	—				
		06	3/4	—	—	—	—	●	●				
		10	1	—	—	—	—	—	●	●			
		+											
④	Option (Mounting)	Nil	Without mounting option	●	Nil	●	●	●	●				
		B <sup>Note 1)</sup>	With bracket	—	●	●	●	●	●				
		+											
⑤	Semi-standard	a	Bowl <sup>Note 2)</sup>	Nil	Polycarbonate bowl	●	●	●	●	●	●		
				1	1000 cm <sup>3</sup> tank	—	—	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>		
				10	1000 cm <sup>3</sup> tank (with switch) Lowest limit ON	—	—	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>		
				11	1000 cm <sup>3</sup> tank (with switch) Lowest limit OFF	—	—	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>	△ <sup>Note 3)</sup>		
				2	Metal bowl	●	●	●	●	●	●		
				6	Nylon bowl	●	●	●	●	●	●		
				8	Metal bowl with level gauge	—	—	●	●	●	●		
				C	With bowl guard	—	●	—	—	—	—		
				6C	Nylon bowl with bowl guard	—	●	—	—	—	—		
						+							
				b	Lubricant exhaust port	Nil	Without drain cock	●	●	●	●	●	●
						3	With drain cock	●	●	●	●	●	●
						3W	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●
						+							
c	Flow direction	Nil	Flow direction: Left to right	●	●	●	●	●	●				
		R	Flow direction: Right to left	●	●	●	●	●	●				
		+											
d	Pressure unit	Nil	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●	●	●				
		Z <sup>Note 4)</sup>	Name plate and caution plate for bowl in imperial units: psi, °F	○ <sup>Note 5)</sup>	○ <sup>Note 5)</sup>	○ <sup>Note 5)</sup>	○ <sup>Note 5)</sup>	○ <sup>Note 5)</sup>	○ <sup>Note 5)</sup>				

Note 1) Option B is not assembled and supplied loose at the time of shipment.

Note 2) Refer to Chemical Data on page 365 when selecting a case material.

Note 3) △: Dedicated lubricant discharge function is equipped, and semi-standard b-3, or 3W are not available.

Note 4) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

Note 5) ○: For thread type: M5 and NPT only

## Standard Specifications

Model	AL10	AL20	AL30	AL40	AL40-06	AL50	AL60
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Ambient and fluid temperature	-5 to 60°C (with no freezing)						
Minimum dripping flow rate <sup>Note)</sup> [L/min (ANR)]	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220
Oil capacity (cm <sup>3</sup> )	7	25	55	135			
Recommended lubricant	Class 1 turbine oil (ISO VG32)						
Bowl material	Polycarbonate						
Bowl guard	—	Semi-standard	Standard				
Weight (kg)	0.07	0.11	0.24	0.47	0.52	1.06	1.13

Note) • The flow rate is 5 drips 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 opened.

- Use air consumption flow rate for minimum dripping flow rate.

## Option/Part No.

Optional specifications	Model						
	AL10	AL20	AL30	AL40	AL40-06	AL50	AL60
Bracket assembly <sup>Note)</sup>	—	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS	AF50P-050AS	AF50P-050AS

Note) Assembly of a bracket and 2 mounting screws. The part number for bracket assembly for 1000 cm<sup>3</sup> is AF50P-050AS (applicable to the AL30 to AL60).

## Semi-standard/Bowl Assembly Part No.

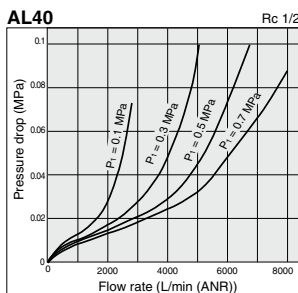
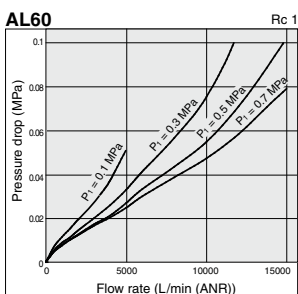
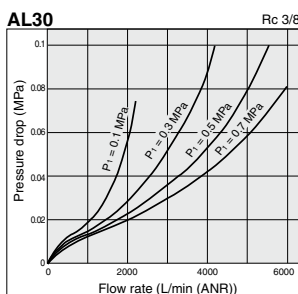
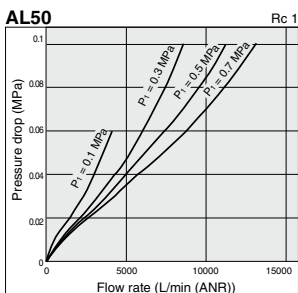
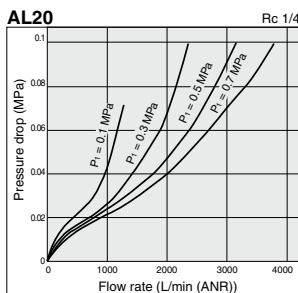
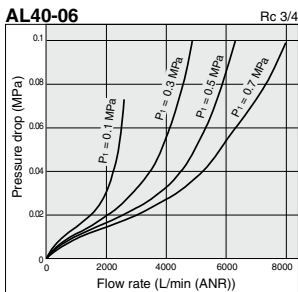
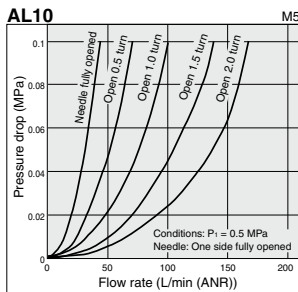
Bowl material	Semi-standard specifications				Model							
	With drain guide	With barb fitting	With bowl guard	With switch		AL10	AL20	AL30	AL40	AL40-06	AL50	AL60
				Lowest limit ON	Lowest limit OFF							
Polycarbonate	●	—	—	—	—	C1SL-3	C2SL-3	C3SL-3	C4SL-3			
	—	—	●	—	—	—	C2SL-C	—	—	—	—	—
	●	—	●	—	—	—	C2SL-3C	—	—	—	—	—
	●	●	—	—	—	—	—	C3SL-3W	C4SL-3W			
Nylon	—	—	—	—	—	C1SL-6	C2SL-6	C3SL-6	C4SL-6			
	●	—	—	—	—	C1SL-36	C2SL-36	C3SL-36	C4SL-36			
	—	—	●	—	—	—	C2SL-6C	—	—	—	—	—
	●	●	●	—	—	—	C2SL-36C	—	—	—	—	—
Metal	—	—	—	—	—	C1SL-2	C2SL-2	C3SL-2	C4SL-2			
	●	—	—	—	—	C1SL-23	C2SL-23	C3SL-23	C4SL-23			
Metal bowl with level gauge	—	—	—	—	—	—	—	C3LL-8	C4LL-8			
	●	—	—	—	—	—	—	C3LL-38	C4LL-38			
1000 cm <sup>3</sup> tank (Metal bowl with level gauge)	—	—	—	—	—	—	—	121538-1A				
	—	—	—	●	●	—	—	121538-1A-S1 [IS400-1 (Float switch only)]				
	—	—	—	—	—	—	—	121538-1A-S2 [IS400-2 (Float switch only)]				

Note) • Bowl O-ring (or seal) is included for the AL20 to AL60.

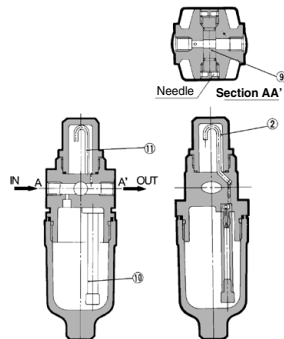
- Bowl assembly for the AL30 to AL60 models comes with a bowl guard (steel band material). (except when the bowl material is metal)
- Please consult SMC for psi and °F unit display specifications.
- When switching bowl materials from a polycarbonate or nylon product to a metal bowl with a level gauge, the oil feed tube assembly must be replaced. (Also, when switching bowl materials from a metal bowl with a level gauge to a polycarbonate or nylon product, the oil feed tube assembly must be replaced.) Please consult SMC separately.
- It is not possible to switch from a polycarbonate, nylon or metal bowl, or from a metal bowl with a level gauge to a 1000 cm<sup>3</sup> tank. Please order the product separately.

# Series AL10 to AL60

## Flow Characteristics (Representative values)



## Working Principle: AL10 Type



A portion of the air introduced from the IN side pressurizes the lubricant inside the bowl. The remainder of the air passes through the needles (9), and flows to the OUT side. The pressure differential between the inside of the bowl and the inside of the sight dome (2), causes the lubricant inside the bowl into the oil passage (10). The lubricant drips from the dripping tube (1), and lubricates the OUT side. The amount of lubricant is adjusted by the needle (9), on the front face. Turning the needle clockwise increases the amount of the lubricant, and turning it counterclockwise until fully opened shuts off the lubricant. The needle on the side that is not used should be left fully opened.

### ⚠ Specific Product Precautions

Be sure to read before handling.  
Refer to front matter 43 for Safety Instructions and pages 365 to 369 for F.R.L. Precautions.

### Selection

### ⚠ Warning

- Do not introduce air from the outlet side as this can damage the damper.

### ⚠ Caution

- Use a check valve (AKM series) to prevent back flow of the lubricant when redirecting the air flow before the lubricator.

### Maintenance

### ⚠ Warning

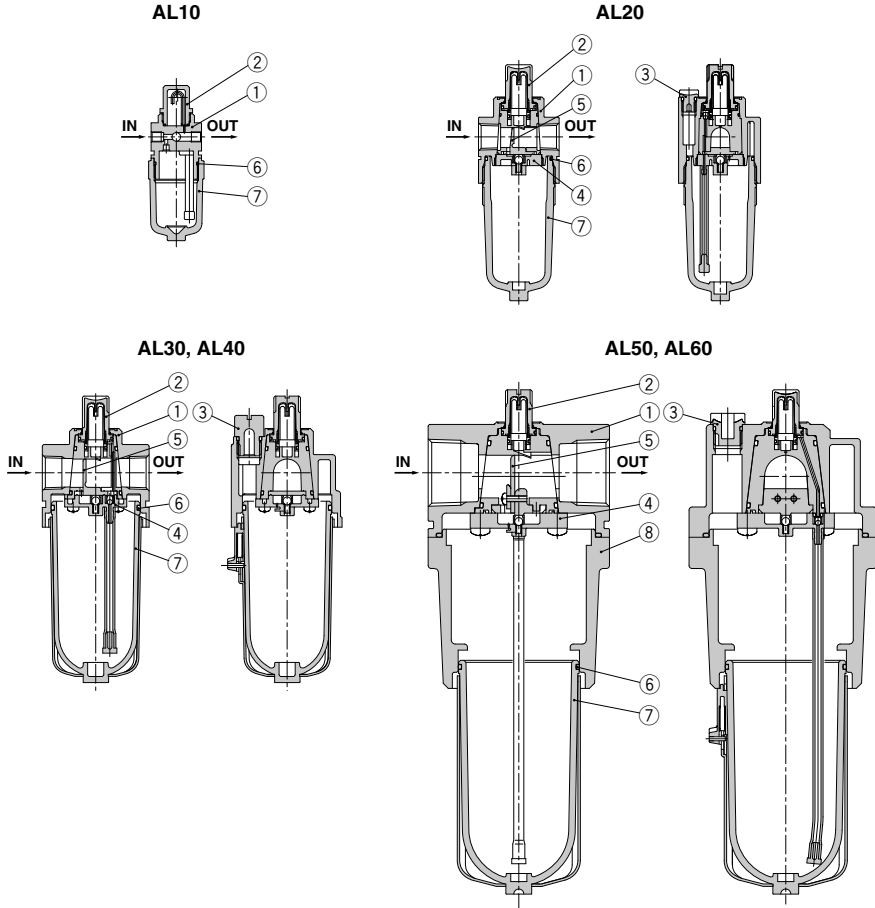
- For the AL10/20 type, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.

- Adjustment of the oil regulating valve (sight dome assembly) for models from the AL20 to AL60 should be carried out manually. Turning it counterclockwise increases the dripping amount, and turning it clockwise reduces the dripping amount. The use of tools, etc. can result in damage to the unit. From the fully closed position, three rotations will bring it to the fully open position. Please 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.

### ⚠ Caution

- Check the dripping amount once a day. Drip failure can cause damage to the components that need lubrication.

## Construction



AC-A
AF-A
AF□-A
AR-A
AL-A
AW-A
AC
AF
AF□
AR
<b>AL</b>
AW□
A□G
E□
AV
AF

### Component Parts

No.	Description	Material	Model	Color
1	Body	Zinc die-cast	AL10	Platinum silver
		Aluminum die-cast	AL20 to AL60	
8	Housing	Aluminum die-cast	AL50, AL60	Platinum silver

### Replacement Parts

No.	Description	Material	Part no.							
			AL10	AL20	AL30	AL40	AL40-06	AL50	AL60	
2	Sight dome assembly	Polycarbonate	AL10P-080AS	AL20P-080AS						
3	Lubrication plug assembly	—	—	AL20P-060AS	AL30P-060AS	AL40P-060AS				
4	Damper retainer assembly <sup>Note 1)</sup>	—	—	AL20P-030AS	AL30P-030AS	AL40P-030AS	AL50P-030AS	AL60P-030AS		
5	Damper (assembly)	Synthetic resin	—	AL20P-040S	AL30P-040S	AL40P-040S	AL50P-040AS	AL60P-040AS		
6	Bowl O-ring	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S				
7	Bowl assembly <sup>Note 2)</sup>	Polycarbonate	C1SL	C2SL	C3SL <sup>Note 3)</sup>	C4SL <sup>Note 3)</sup>				

Note 1) Add "-1" at the end of the part number when ordering a damper retainer assembly for 1000 cm<sup>3</sup>. Example) AL30P-030AS-1

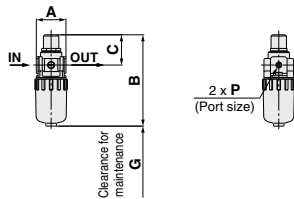
Note 2) Bowl O-ring is included for the AL20 to AL60. Please contact SMC regarding the bowl assembly supply for psi and "F" unit specifications.

Note 3) Bowl assembly for the AL30 to AL60 models comes with a bowl guard (steel band material).

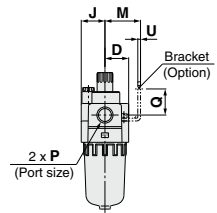
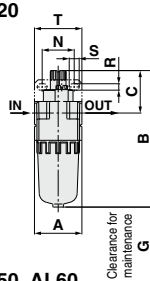
# Series AL10 to AL60

## Dimensions

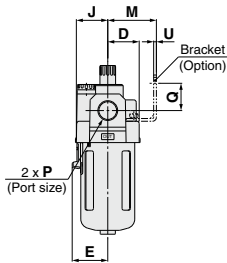
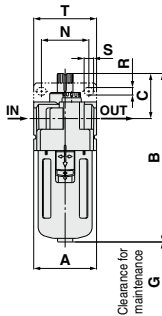
### AL10



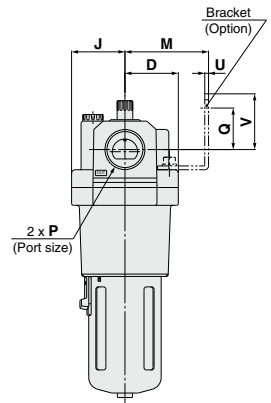
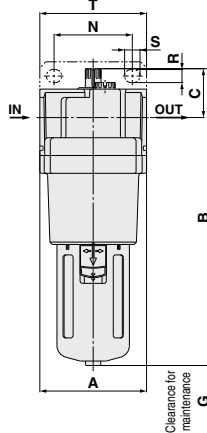
### AL20



### AL30, AL40



### AL50, AL60



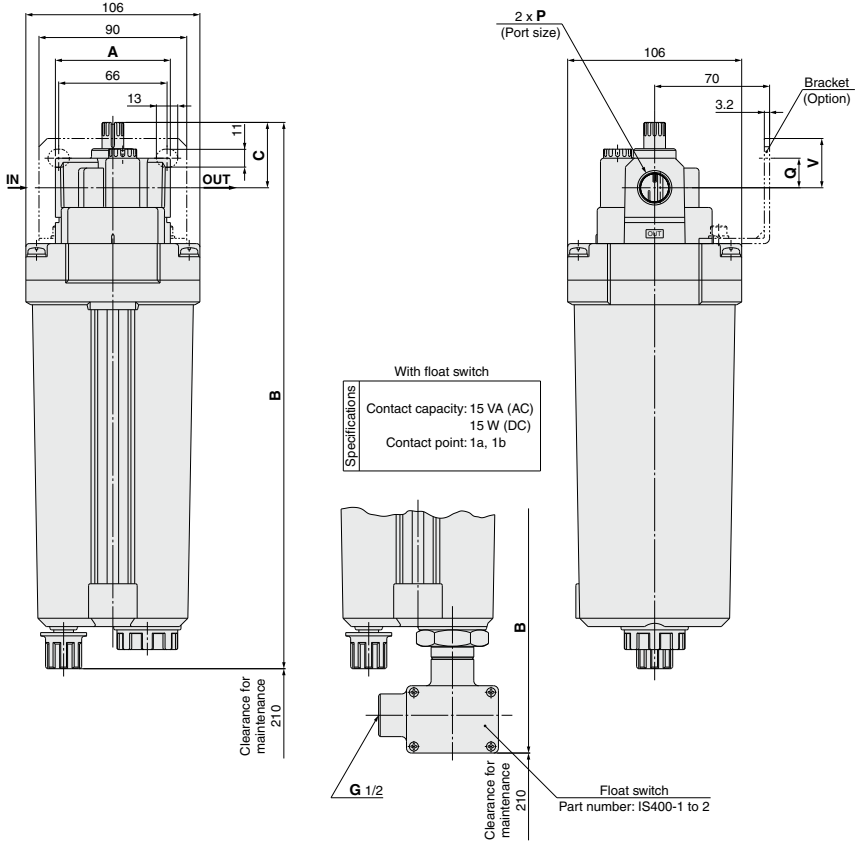
Applicable model Optional/Semi-standard specifications	AL10/20				AL30 to AL60			
	With drain cock	Metal bowl with drain cock	Metal bowl	With drain cock	Metal bowl with level gauge	Metal bowl with drain cock	Metal bowl with drain cock & level gauge	Drain cock with barb fitting
Dimensions								

Model	Standard specifications									Optional specifications						
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	
AL10	M5 x 0.8	25	77	26	12.5	—	35	12.5	—	—	—	—	—	—	—	
AL20	1/8, 1/4	40	115	36	20	—	60	20	30	27	22	5.4	8.4	40	2.3	
AL30	1/4, 3/8	53	142	38	26.5	30	80	26.5	41	40	23	6.5	8	53	2.3	
AL40	1/4, 3/8, 1/2	70	176	40	35	38	110	35	50	54	26	8.5	10.5	70	2.3	
AL40-06	3/4	75	176	38	35	38	110	35	50	54	25	8.5	10.5	70	2.3	
AL50	3/4, 1	90	250	41	45	45	110	45	70	66	35	11	13	90	3.2	
AL60	1	95	268	45	47.5	—	110	47.5	70	66	35	11	13	90	3.2	

Model	Semi-standard specifications					
	With drain cock	With barb fitting	Metal bowl	Metal bowl with drain cock	Metal bowl with level gauge	Metal bowl with drain cock & level gauge
	B	B	B	B	B	B
AL10	85	—	82	85	—	—
AL20	123	—	121	124	—	—
AL30	153	161	142	166	162	186
AL40	187	195	176	200	196	220
AL40-06	187	195	176	200	196	220
AL50	261	269	250	274	270	294
AL60	279	287	268	292	288	312

## Dimensions

Semi-standard specifications: 1000 cm<sup>3</sup> tank



- AC-A
- AF-A
- AF□-A
- AR-A
- AL-A
- AW-A
- AC
- AF
- AF□
- AR
- AL**
- AW□
- A□G
- E□
- AV
- AF

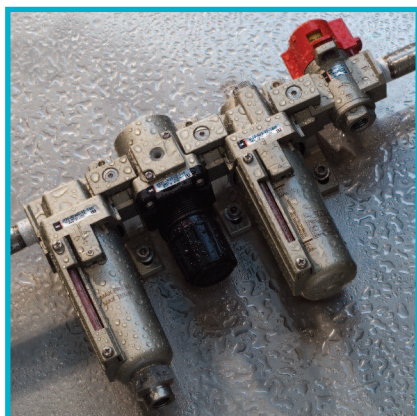
Model	P	A	B	C	Bracket mount		With float switch
					Q	V	B
AL30	1/4, 3/8	53	324	38	25	—	374
AL40	1/4, 3/8, 1/2	70	333	40	18	—	383
AL40-06	3/4	75	333	38	16	—	383
AL50	3/4, 1	90	332	41	35	47	382
AL60	1	95	335	45	35	47	385



**SMC Corporation of America**  
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 Noblesville, IN 46060  
 www.smcusa.com

## *P.G. Information*

# *Epoxy Coated F.R.L. Units*



*AC21/31/41-\*\*\*-\*-X2217*  
*AF20/30/40-\*\*\*-\*-X480*  
*AR20/30/40-\*\*\*-\*-X48*  
*AL20/30/40-\*\*\*-\*-X480*  
*AW20/30/40-\*\*\*-\*-X48*  
*VHS20/30/40-\*\*\*-\*-X513*  
*Y20/30/40\*-T4*

**Application:** Air preparation in an environment that requires enhanced corrosion protection.

Feature 1: Die cast aluminum components are epoxy coated for improved chemical resistance.

Feature 2: Steel external hardware is replaced with stainless steel for improved chemical resistance.

### **Comparison with Standard Product:**

- 1) Functional performance is equivalent to standard product.
- 2) Product withstood salt spray testing per ASTM B117-07A with excellent results (See test results on page 12). Improved performance vs. other chemicals is anticipated but has not been verified.

### **Applications:**

- Marine environments
- Water splash zone in various processes
- Washdown in food plants (non-food or splash zone only)

### **Related Products:**

- KQG Series - 316 SUS One-touch Fittings - Coming Soon: KQG2
- KQB2 Series - Ni plated brass One-touch Fittings (Coming Soon)
- ASG Series - 316 SUS One-touch Speed Controls
- CG5 Series - repairable 304 SUS Cylinder
- NCM Series with X6009 option - crimped body 304 SUS Cylinder, domestic interchange
- CJ5 Series - crimped body 304 SUS Cylinder
- HY Series - Aluminum body Hygienic Design Actuators



How To Order

AC 31 B - N 03 D - V - 8 Y Z - X2217

Air Combination Unit

Body Size

Symbol	Size
21	1/8
31	3/8
41	1/2

Model Combination

Symbol	Model / Assembly Order
Nil	AF + AR + AL
A	AW + AL
B	AF + AR

NPT Threads

Port Size

Symbol	Port Size	Applicable Body Size
02	1/4	21
03	3/8	31
04	1/2	41

Note: Other sizes, thread forms, options, etc. may be possible, please contact SMC for availability.

• With External Epoxy Coating, Stainless Fasteners

• Name Plate, Caution Plate On Bowl in psi, °F

• Regulator Handle Orientation

Symbol	Description
Nil	Downward Handle
Y	Upward Handle

• Bowl

Symbol	Description	Applicable Body Size
2	Metal Bowl	21
8	Metal Bowl With Sight Glass	31, 41

• Residual Pressure Relief Valve

Symbol	Description	Applicable Model Combo
Nil	Without Valve	All
V	With Downstream Valve	All

• Accessories

Symbol	Description	Applicable Body Size
Nil	None	All
C	Float Auto Drain (N.C.)	31, 41
D	Float Auto Drain (N.O.)	31, 41

Specifications



Body size	21	31	41
Operating specifications	Same as standard - see catalog ES40-42D or NC160A		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Auto drain port (AF, AW)	N/A	1/4" NPT	
Bowl type (AF, AL, AW)	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material (AF, AL, AW)	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Bonnet (AR, AW)	Polyacetal		
Manual drain (AF, AW)	POM		
External screws	Stainless steel 410		
Individual mounting brackets	Epoxy coated steel		
Panel mount nut (AR, AW)	POM		
Connector brackets (AC)	Die cast zinc (epoxy coated)		
Fill plug (AL)	Stainless steel 304		
Sight dome (AL)	Polycarbonate		
Sight glass hardware (AF,AL,AW)	Stainless steel 304		

Dimensions - Refer to drawings on page 3

AC	A*	AA**	B	C	E	F	G	J	K	M	N	Q	U	V	W
AC21	140	190	160	73	—	45.5	40	26	5	30	51	24	5	33	—
AC31	181	245	220	86	30	58.5	55	29.5	3.5	41	64	35	7	45	34.5
AC41	238	322	239	92	38	75.5	80	37.5	1.5	50	81	40	7	50	41

\* Without relief valve option \*\* With relief valve option

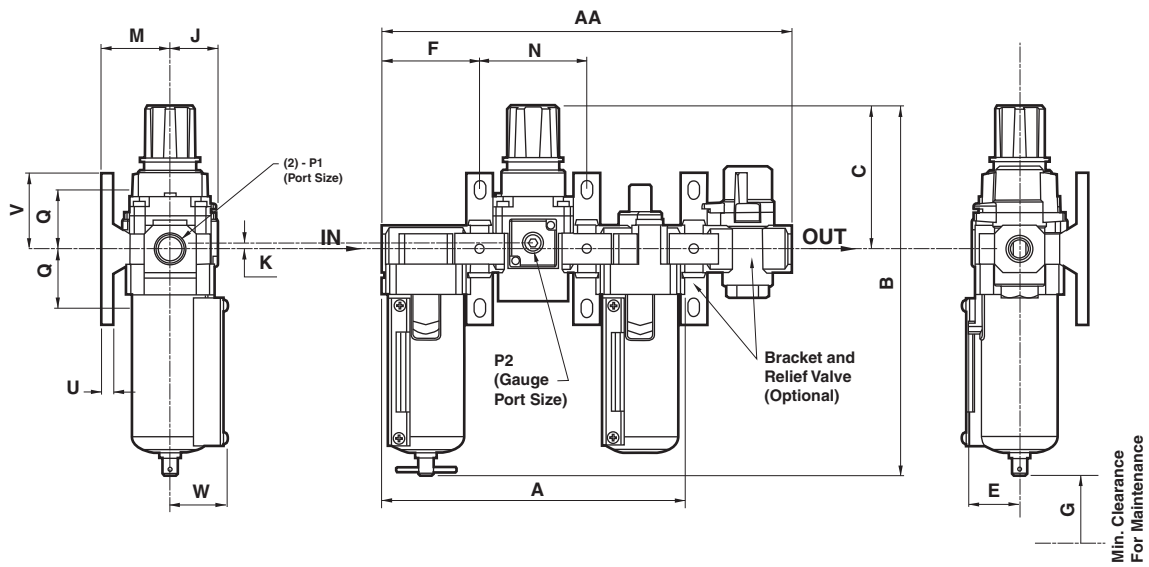
AC-A	A*	AA**	B	C	E	F	G	J	K	M	N	Q	U	V	W
AC21A	90	140	160	73	—	45.5	40	26	5	30	51	24	5	33	—
AC31A	117	181	220	86	30	58.5	55	29.5	3.5	41	64	35	7	45	34.5
AC41A	154	238	239	92	38	75.5	80	37.5	1.5	50	81	40	7	50	41

\* Without relief valve option \*\* With relief valve option

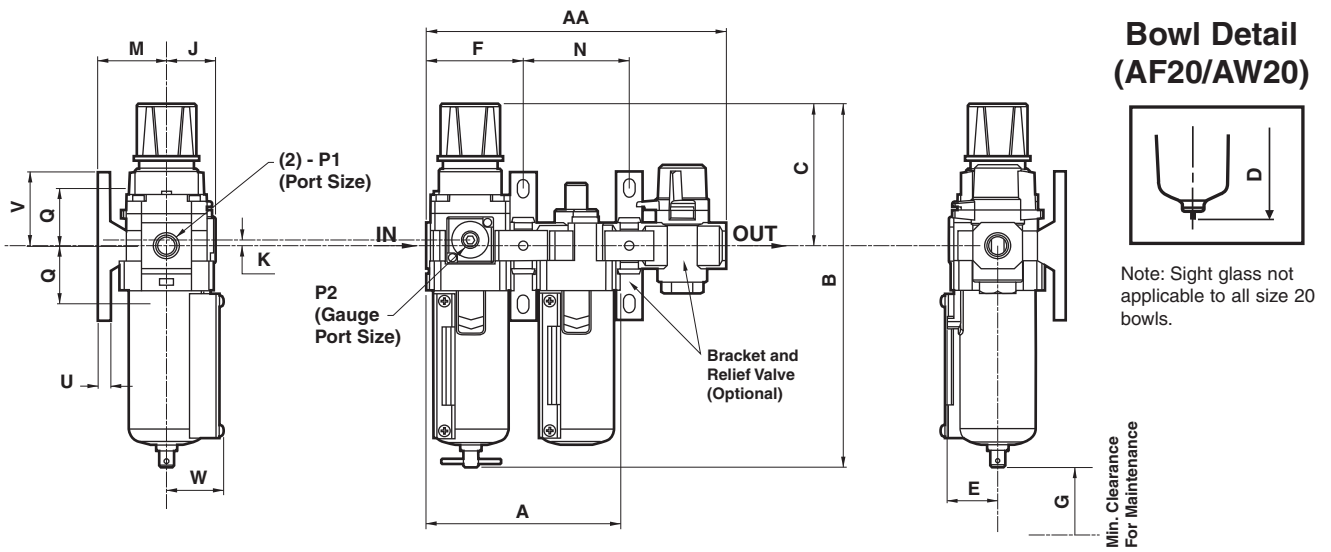
AC-B	A*	AA**	B	C	E	F	G	J	K	M	N	Q	U	V	W
AC21B	90	140	160	73	—	45.5	40	26	5	30	51	24	5	33	—
AC31B	117	181	220	86	30	58.5	55	29.5	3.5	41	64	35	7	45	34.5
AC41B	154	238	239	92	38	75.5	80	37.5	1.5	50	81	40	7	50	41

\* Without relief valve option \*\* With relief valve option

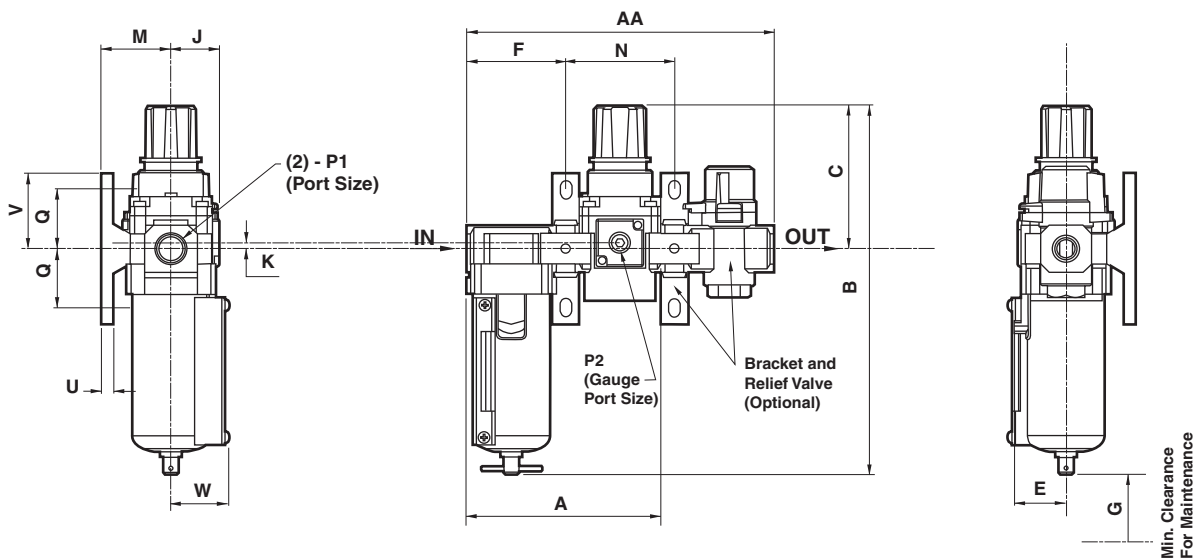
## AC



## AC-A



## AC-B



Notes: Filter & Filter Regulator Bowls depict manual drain, see individual sections for details with auto-drain options.

How To Order

**AF 30 - N 03 D - 8 Z - X480**

Filter ●

Body Size ●

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

NPT Threads ●

Port Size ●

Symbol	Port Size	Applicable Body Size
02	1/4	20
03	3/8	30
04	1/2	40

● With External Epoxy Coating, Stainless Fasteners

● Name Plate, Caution Plate On Bowl in psi, °F

● Bowl

Symbol	Description	Applicable Body Size
2	Metal Bowl	20
8	Metal Bowl With Sight Glass	30, 40

● Accessories

Symbol	Description	Applicable Body Size
Nil	None	All
B*	Mounting Bracket	All
C	Float Auto Drain (N.C.)	30, 40
D	Float Auto Drain (N.O.)	30, 40

Note: Other sizes, thread forms, options, etc. may be possible, please contact SMC for availability.

\*Note: Bracket is not assembled and is supplied loose at time of shipment.

Specifications



Body size	20	30	40
Operating specifications	Same as standard - see catalog ES40-42D or NC160A		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Auto drain port	N/A	1/4" NPT	
Bowl type	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Manual drain (AF, AW)	POM		
External screws	Stainless steel 410		
Individual mounting brackets	Epoxy coated steel		
Sight glass hardware	Stainless steel 304		

Dimensions - Refer to drawings on page 5

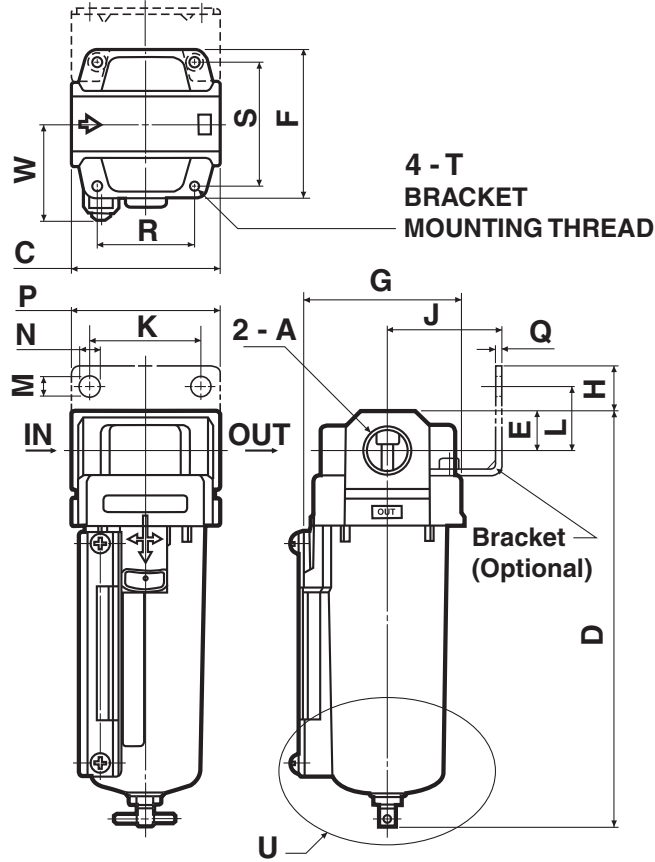
Standard

Model	Port Size	Dimensions																Mounting Bracket Kit (Optional)	
		A	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S		T
AF20	NPT 1/4	40	97	10	40	—	18	30	27	22	5.4	8.4	40	2.3	26	32	M4 X 0.7	—	AF20P-050AS-X480
AF30	NPT 3/8	53	149	14	53	57	16	41	40	23	6.5	8	53	2.3	35	44	M4 X 0.7	34.5	AF30P-050AS-X480
AF40	NPT 1/2	70	185	18	70	73	17	50	54	26	8.5	10.5	70	2.3	47	60	M5 X 0.8	41	AF40P-050AS-X480

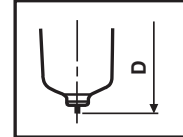
Auto Drain

Model	Port Size	Dimensions																Mounting Bracket Kit (Optional)	
		A	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S		T
AF30	NPT 3/8	53	158	14	53	57	16	41	40	23	6.5	8	53	2.3	35	44	M4 X 0.7	34.5	AF30P-050AS-X480
AF40	NPT 1/2	70	194	18	70	73	17	50	54	26	8.5	10.5	70	2.3	47	60	M5 X 0.8	41	AF40P-050AS-X480

Standard  
(Manual Drain)

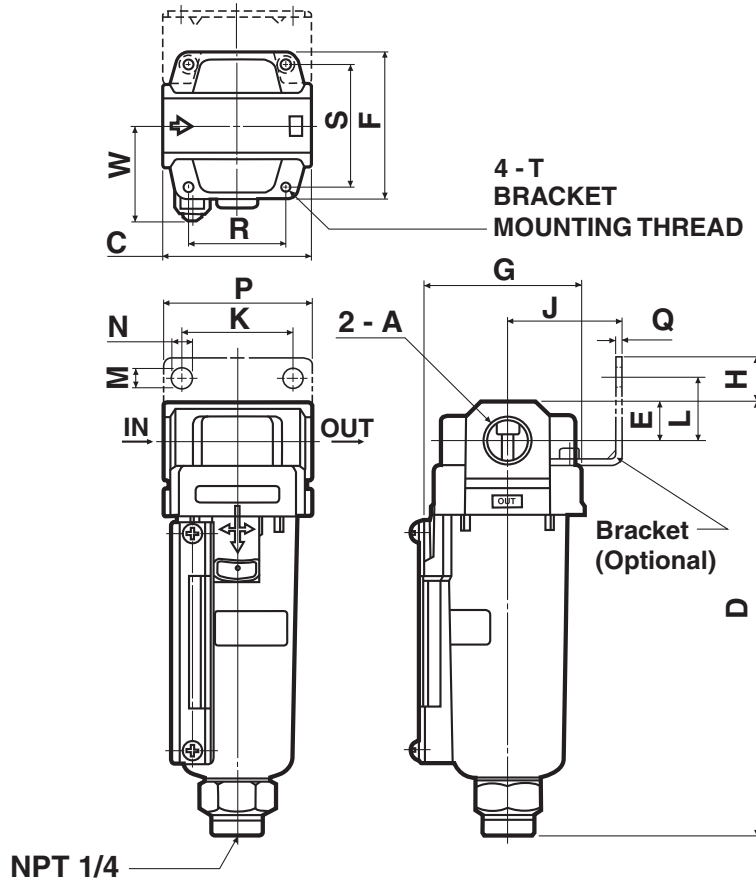


Bowl Detail U  
(AF20)



Note: Sight glass not applicable to AF20.

With Auto Drain



## How To Order

**AW 30 - N 03 D - 8 Z - X48**

Filter - Regulator •

Body Size •

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

NPT Threads •

Port Size •

Symbol	Port Size	Applicable Body Size
02	1/4	20
03	3/8	30
04	1/2	40

• With External Epoxy Coating, Stainless Fasteners

• Name Plate, Caution Plate On Bowl in psi, °F

• Bowl

Symbol	Description	Applicable Body Size
2	Metal Bowl	20
8	Metal Bowl With Sight Glass	30, 40

• Accessories

Symbol	Description	Applicable Body Size
Nil	None	All
B*	Mounting Bracket	All
C	Float Auto Drain (N.C.)	30, 40
D	Float Auto Drain (N.O.)	30, 40
H*	Panel Mount Nut	All

Note: Other sizes, thread forms, options, etc. may be possible, please contact SMC for availability.

\*Note: Bracket and/or panel mount nut are not assembled and are supplied loose at time of shipment.



## Specifications

Body size	20	30	40
Operating specifications	Same as standard - see catalog ES40-42D or NC160A		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Auto drain port	N/A	1/4" NPT	
Bowl type	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Bonnet	Polyacetal		
Manual drain (AF, AW)	POM		
External screws	Stainless steel 410		
Individual mounting brackets	Epoxy coated steel		
Panel mount nut	POM		
Sight glass hardware	Stainless steel 304		

## Accessories

Model	Mounting Bracket Kit (Optional)	Panel Mounting Nut (Optional)
AW20	AW20P-270AS-X480	AR20P-260S
AW30	AR30P-270AS-X480	AR30P-260S
AW40	AR40P-270AS-X480	AR40P-260S

Dimensions - Refer to drawings on page 7

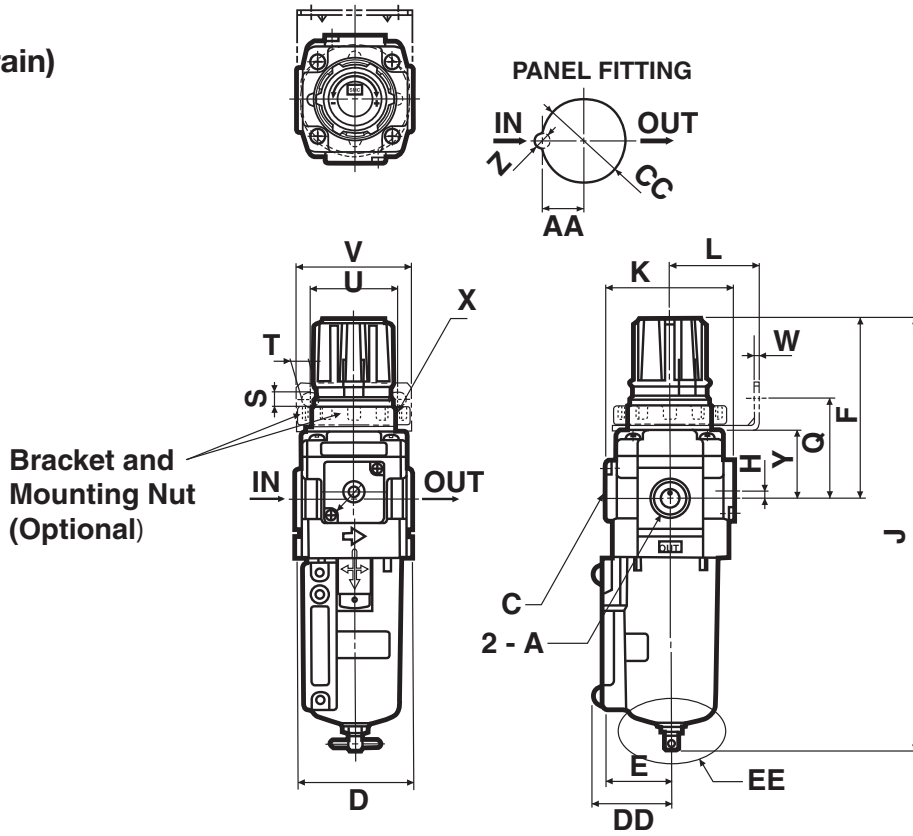
## Standard

Model	Port Size Gauge Port		Dimensions																		
	A	C	D	DD	E	F	H	J	K	L	Q	S	T	U	V	W	X	Y	Z	AA	CC
AW20	NPT 1/4	NPT 1/8	40	—	—	70(max.73)	5	157(max.160)	52	30	44	5.4	15.4	34	55	2.3	M28 X 1	30	6	14	28.5
AW30	NPT 3/8	NPT 1/8	53	34.5	30	83(max.86)	3.5	218(max.221)	59	41	46	6.5	8	40	53	2.3	M38 X 1.5	31	7	19	38.5
AW40	NPT 1/2	NPT 1/4	70	41	38	88(max.92)	1.5	255(max.259)	75	50	54	8.5	10.5	54	70	2.3	M42 X 1.5	35.5	7	21	42.5

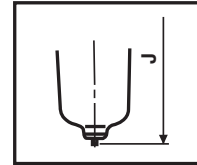
## Auto Drain

Model	Port Size Gauge Port		Dimensions																		
	A	C	D	DD	E	F	H	J	K	L	Q	S	T	U	V	W	X	Y	Z	AA	CC
AW30	NPT 3/8	NPT 1/8	53	34.5	30	83(max.86)	3.5	239(max.242)	59	41	46	6.5	8	40	53	2.3	M38 X 1.5	31	7	19	38.5
AW40	NPT 1/2	NPT 1/4	70	41	38	88(max.92)	1.5	276(max.280)	75	50	54	8.5	10.5	54	70	2.3	M42 X 1.5	35.5	7	21	42.5

Standard  
(Manual Drain)

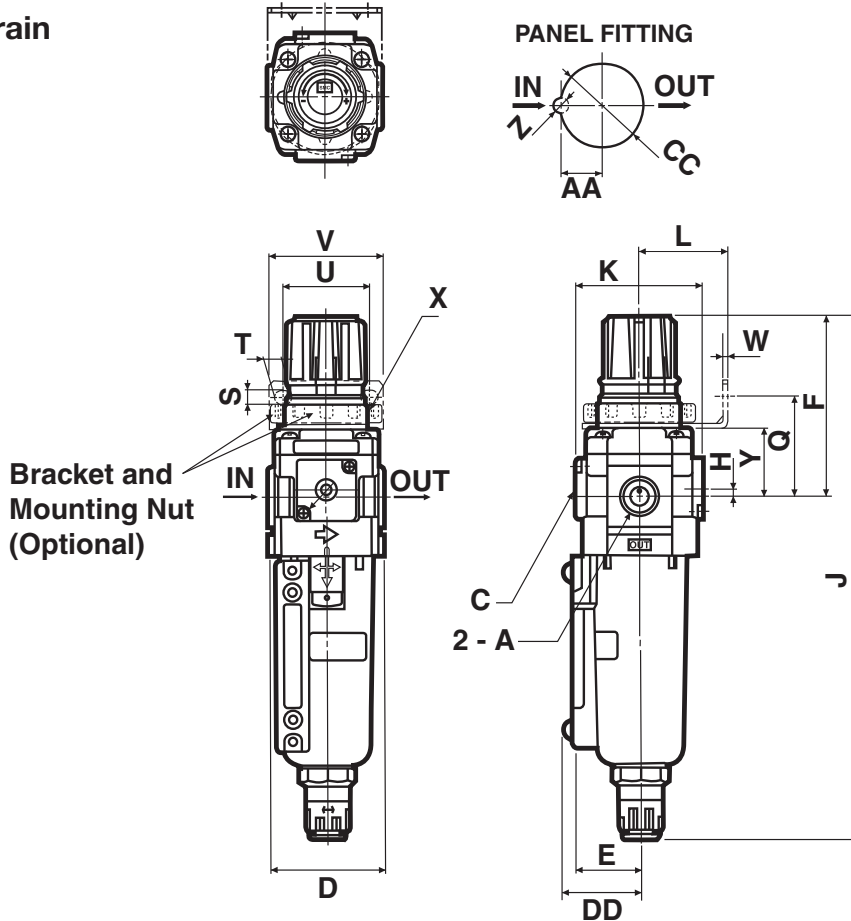


Bowl Detail EE  
(AW20)



Note: Sight glass not applicable to AW20.

With Auto Drain



## How To Order

**AR 20 - N 02 B - Y Z - X48**

Regulator

Body Size

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

NPT Threads

Port Size

Symbol	Port Size	Applicable Body Size
02	1/4	20
03	3/8	30
04	1/2	40

• With External Epoxy Coating, Stainless Fasteners

• Name Plate, Caution Plate On Bowl in psi, °F

• Handle Orientation

Symbol	Description
Nil	Handle Down
Y	Handle Up

Note: Other sizes, thread forms, options, etc. may be possible, please contact SMC for availability.

• Accessories

Symbol	Description
Nil	None
B*	Mounting Bracket
H*	Panel Mount Nut

\*Note: Bracket and/or panel mount nut are not assembled and are supplied loose at time of shipment.



## Specifications

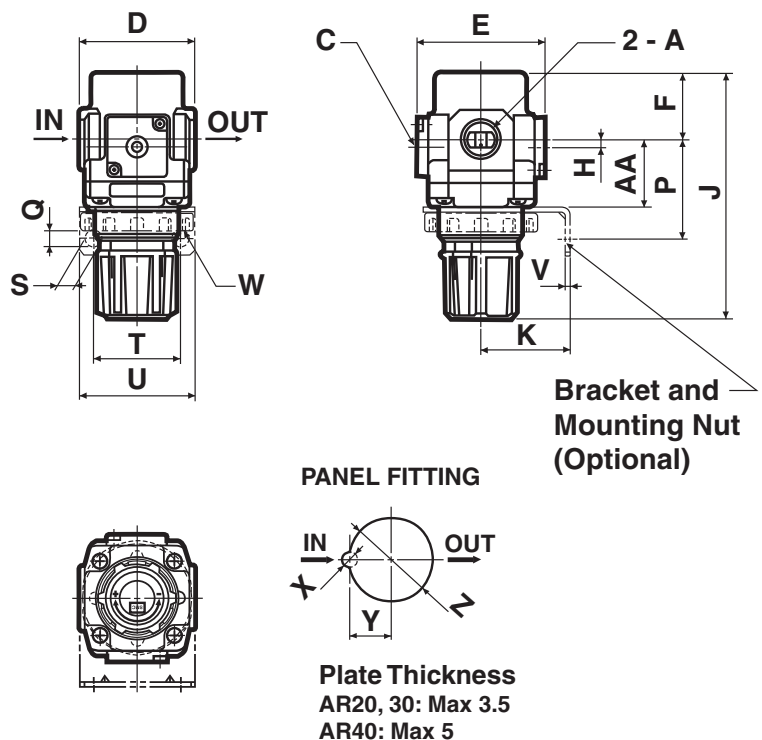
Body size	20	30	40
Operating specifications	Same as standard - see catalog ES40-42D or NC160A		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Body material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Bonnet	Polyacetal		
Individual mounting brackets	Epoxy coated steel		
Panel mount nut	POM		

## Dimensions

Model	Port Size	Gauge Port	Dimensions																		
			A	C	D	E	F	H	J	K	L	M	P	Q	S	T	U	V	W	X	Y
AR20	NPT 1/4	NPT 1/8	40	57	26.5	-2	91(max.94)	30	65	37.5	44	5.4	15.4	34	55	2.3	M28 X 1	6	14	28.5	25
AR30	NPT 3/8	NPT 1/8	53	59	31	3.5	113(max.116)	41	66	37.5	46	6.5	8	40	53	2.3	M38 X 1.5	7	19	38.5	31
AR40	NPT 1/2	NPT 1/4	70	68	36	3.5	124(max.128)	50	74	42.5	54	8.5	10.5	54	70	2.3	M42 X 1.5	7	21	42.5	35.5

## Accessories

Model	Mounting Bracket Kit (Optional)	Panel Mounting Nut (Optional)
AR20	AR20P-270AS-X48	AR20P-260S
AR30	AR30P-270AS-X48	AR30P-260S
AR40	AR40P-270AS-X48	AR40P-260S



## How To Order

**AL 20 - N 02 B - 2 Z - X480**

Lubricator ●  
 Body Size ●  
 NPT Threads ●  
 Port Size ●  
 Bowl ●  
 Accessories ●  
 ● With External Epoxy Coating, Stainless Fasteners  
 ● Name Plate, Caution Plate On Bowl in psi, °F

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

Symbol	Port Size	Applicable Body Size
02	1/4	20
03	3/8	30
04	1/2	40

Symbol	Description	Applicable Body Size
2	Metal Bowl	20
8	Metal Bowl With Sight Glass	30, 40

Symbol	Description	Applicable Body Size
Nil	None	All
B*	Mounting Bracket	All

\*Note: Bracket is not assembled and is supplied loose at time of shipment.

Note: Other sizes, thread forms, options, etc. may be possible, please contact SMC for availability.



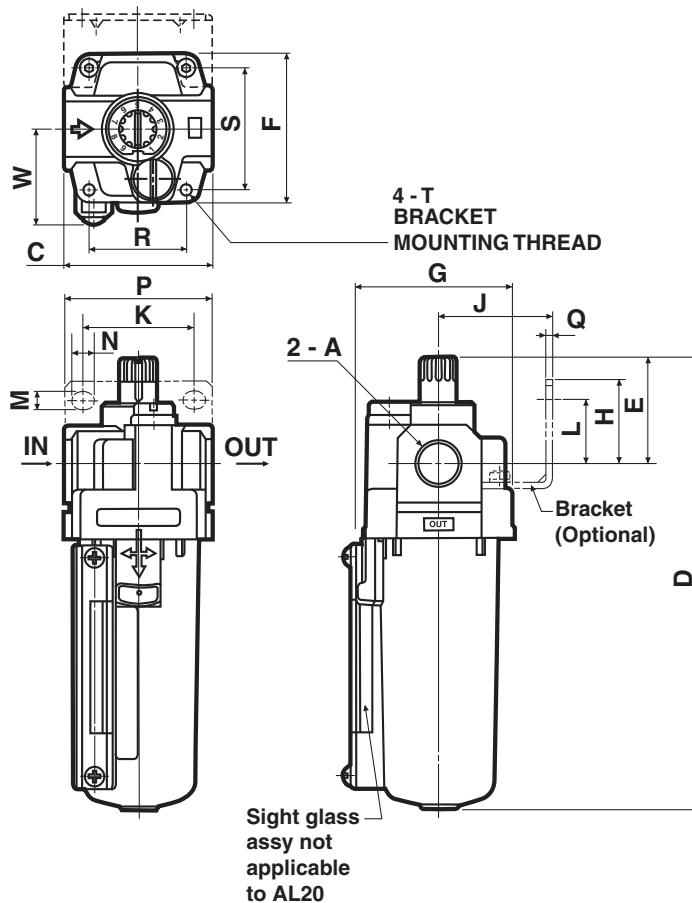
## Specifications

Body size	20	30	40
Operating specifications	Same as standard - see catalog ES40-42D or NC160A		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Bowl type	Metal	Metal with sight gauge	
Body material	Die cast zinc	Die cast aluminum	
Bowl material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Individual mounting brackets	Epoxy coated steel		
Fill plug	Stainless steel 304		
Sight dome	Polycarbonate		
Sight glass hardware	Stainless steel 304		

## Dimensions

mm

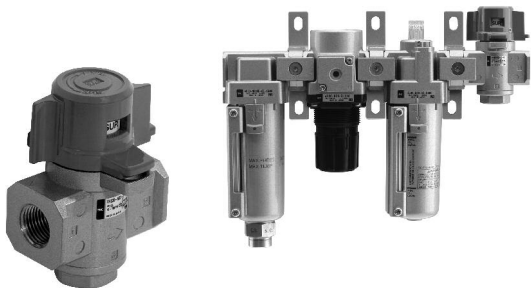
Model	Port Size	Dimensions																Mounting Bracket Kit (Optional)	
		A	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S		T
AL20	NPT 1/4	40	121	36	40	—	28	30	27	22	5.4	8.4	40	2.3	26	32	M4 X 0.7	—	AF20P-050AS-X480
AL30	NPT 3/8	53	162	38	53	57	30	41	40	23	6.5	8	53	2.3	35	44	M4 X 0.7	34.5	AF30P-050AS-X480
AL40	NPT 1/2	70	196	40	70	73	35	50	54	26	8.5	10.5	70	2.3	47	60	M5 X 0.8	41	AF40P-050AS-X480



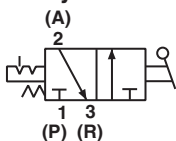


## Residual Pressure Relief 3 Port Valve (V)

With the use of a 3 port valve for residual pressure release, pressure left in the line can be easily exhausted.



### JIS Symbol



Model	Port Size			Effective area mm <sup>2</sup> (Cv)	
	IN, OUT	EXH	IN to OUT	OUT to EXH	
VHS20	1/4	1/8	14 (0.76)	16 (0.87)	
VHS30	3/8	1/4	31 (1.68)	29 (1.57)	
VHS40	1/2	3/8	55 (2.98)	42 (2.28)	

Paint color (Standard) Handle: Red Body: Platinum silver  
Use an air filter on the IN side for operating protection.

## How To Order

**VHS 30 - N 02 - Z - X513**

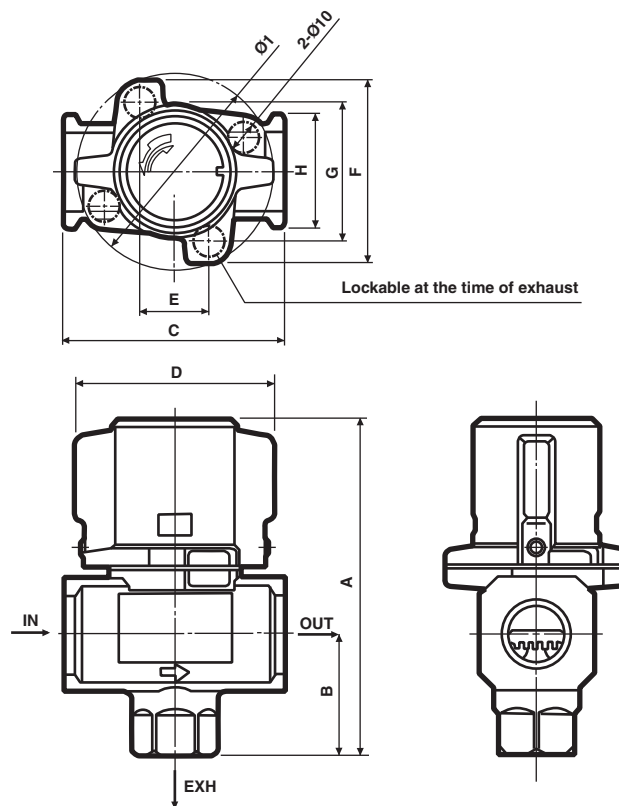
- Residual Pressure Relief 3 Port Valve**
- Body Size**

Symbol	Applicable Model
20	AC21
30	AC31
40	AC41
- Thread Type**

N	NPT
---	-----
- Body Size**

Symbol	Port Size	Body Size		
		20	30	40
02	1/4	●		
03	3/8		●	
04	1/2			●
- With External Epoxy Coating, Stainless Fasteners**
- Name Plate In Imperial Units (PSI, °F)**

Note: Other sizes, thread forms, options, etc. may be possible, please contact SMC for availability.



### Dimensions

Model	A	B	C	D	E	F	G	H	I
VHS20	59	20	40	34	—	45	33	28	45
VHS30	78	29	53	46	—	55	42	30	55
VHS40	107	39	70	63	22	58	44	36	63

## Caution

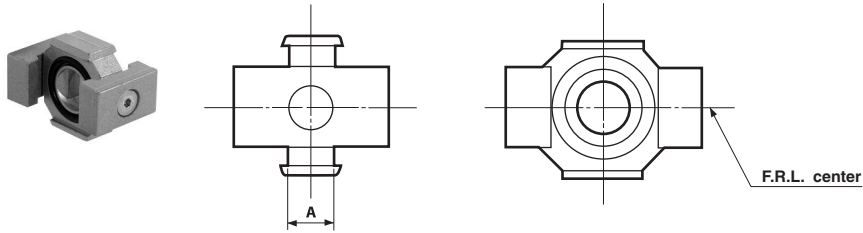
- If a stop valve or a silencer is connected to the exhaust port of VHS20/30, the effective sectional area should be larger than the figure indicated in the following table, to prevent malfunction caused by back pressure. (This is not applicable to VHS40)

Model	Effective area (mm <sup>2</sup> )
VHS20	5
VHS30	5

- If unit is to be used in a washdown application, avoid directing fluid into the exhaust port.

## Spacer

Epoxy Coated Aluminum,  
Stainless Screws,  
NBR Seals

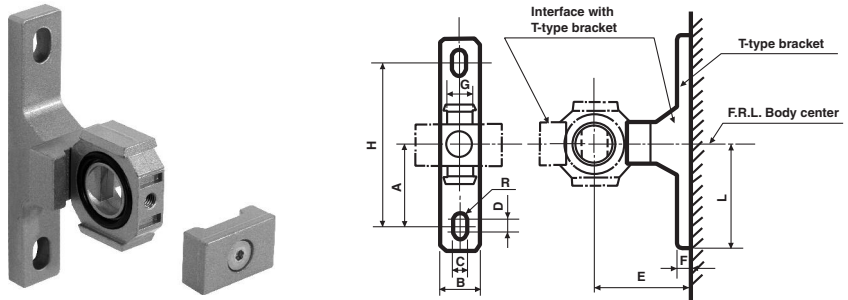


### Dimensions

mm	
Model	A
Y20-T4	10
Y30-T4	11
Y40-T4	14

## Interface With T Bracket

Epoxy Coated Aluminum, Stainless Screws,  
NBR Seals



### Dimensions

mm											
Interface With T Bracket	A	B	C	D	E	F	G	H	R	L	Applicable Models
Y20T-T4	24	15	5.5	3	30	5	10	48	2.75	33	AC21*-X2217
Y30T-T4	35	16	7	4	41	7	11	70	3.5	45	AC31*-X2217
Y40T-T4	40	22	9	4	50	7	14	80	4.5	50	AC41*-X2217

## Other Available Air Line Products with Epoxy Coating/Stainless Hardware

Series	Description	Option Code
(N)AV	Soft Start Valve	X480
AMG	Water Removal Filter	X229
AR20-60	Regulator with Stainless T-handle, aluminum bonnet for UV resistance	X480
AVL	Soft Start Valve with Pilot Lock-Out	X480
AW20-40	Filter-Regulator with Stainless T-handle, aluminum bonnet for UV resistance	X480
E*00	Piping Adapter	X480
Y*10	T Interface	X480
Y*4	Cross Interface	T3

Please contact SMC for ordering information

# Salt Spray Test Results (for reference)

## 1. Test Conditions

- 1) **Method:** In compliance with ASTM B117-07a (JIS Z 2371), leave parts in a salt spray test chamber, and compare rust generation.
- 2) **Conditions:** Temperature: 95°F (35°C) Salt Water Concentration: 5%
- 3) **Time:** 1000 hours [Frequency: 0hr, 24hrs, 48hrs, 72hrs, 96hrs, 168hrs, 240hrs, 480hrs, 720hrs, 1000hrs]
- 4) **Samples:** Parts for AF and AW30 (See Figure 1.)
  - Part descriptions: 4 parts (1) Body (2) Drain cock (3) Small screw for level gauge (4) Bonnet screw
  - Types: 2 Types A) Standard B) Special X480 (Coated with epoxy resin [External metal parts are made of SUS])
  - Refer to Table 1 for part materials and treatments. \*Quantity; 2 pieces for each

## 2. Test Results Table 1 Salt spray resistance test results

No.	Description	Type	Material & Treatment	Results
1	Body	A Standard	Material: Die Cast Aluminum Treatment: Platinum Coating	Rusted in 480hrs Part of coating swelled
		B Special X480	Material: Die Cast Aluminum Treatment: Platinum & Epoxy Coating	Not rusted in 1000hrs Part of coating swelled
2	Drain cock	A Standard	Material: Die Cast Aluminum Treatment: Zinc Chromate	Rusted in 24hrs
		B Special X480	Material: SUS	Not rusted in 1000hrs
3	Cross recessed round head screw for metal bowl with level gauge	A Standard	Material: Steel Treatment: Nickel Plating	Rusted in 24hrs
		B Special X480	Material: SUS	Not rusted in 1000hrs
4	Self-tapping screw for AR and AW bonnet	A Standard	Material: Steel Treatment: Zinc Chromate	Rusted in 24hrs
		B Special X480	Material: SUS	Not rusted in 1000hrs

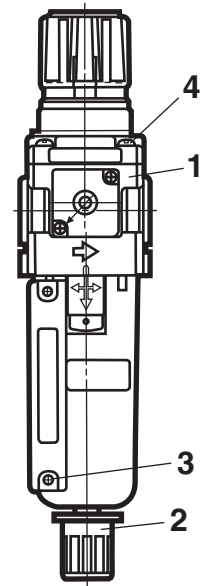
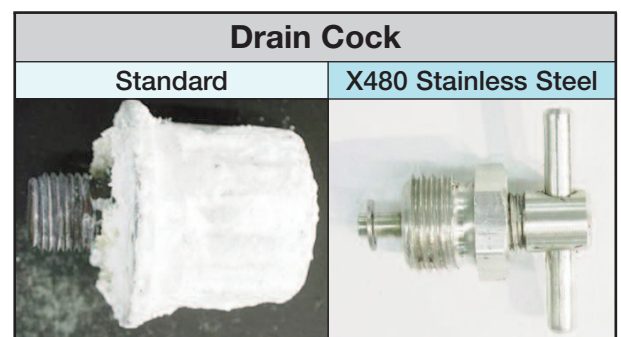
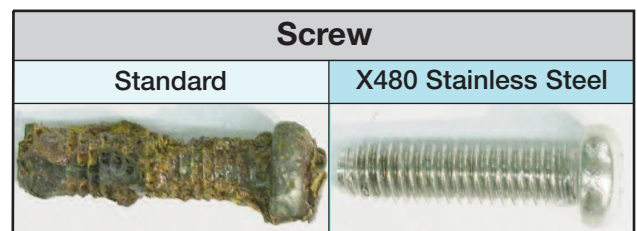
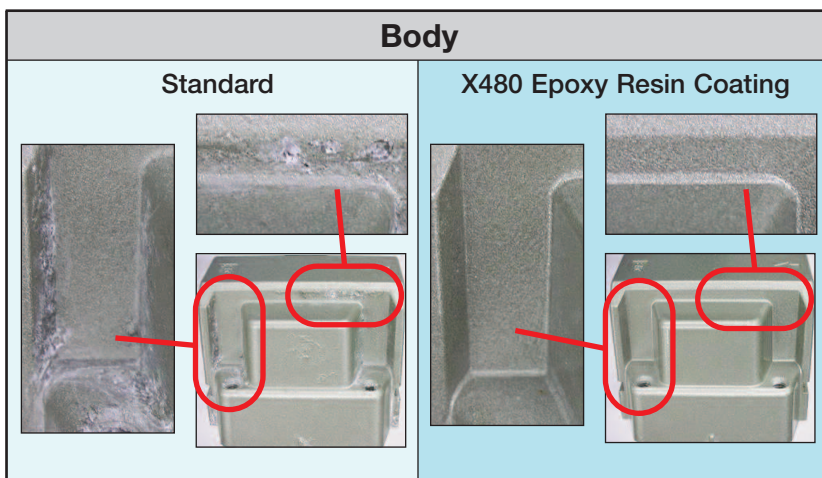


Figure 1



**Caution!** To ensure the safest possible operation of this product, please be sure to read thoroughly the "Safety Instructions" in our "Best Pneumatics" catalog before use.

### LUBRICATOR SERIES (N)AL

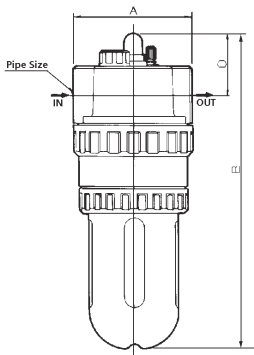
- ✓ Port Sizes 1½~2
- ✓ Atomizes Lubricant into fine particles at a uniform rate
- ✓ Drip Rate easily monitored with Sight Dome
- ✓ Can be filled under pressure
- ✓ Bowl Guard Standard
- ✓ Damper precludes oil flooding



SYMBOLS



DIMENSIONS  
LUBRICATOR



Model	A	B	C	Pipe Size
NAL800	100	283	59	1½
NAL900	100	288	63	2

HOW TO  
ORDER  
LUBRICATOR  
SERIES NAL

- NAL800-N12 (1¼ NPT)
- NAL800-N14 (1½ NPT)
- NAL900-N20 (2 NPT)

TECHNICAL  
SPECIFICATIONS

	NAL800	NAL900
Max Supply pressure	1.5MPa / 220PSI	
Max Operating Pressure	1MPa / 145PSI	
Operating Temp Range	5~60°C /40~140°F	
Recommended lubricant	Turbine oil #1 (ISO VG32)	
Bowl	Polycarbonate	
Pipe Size	1¼, 1½	2
Min Flow for Oil Drip	650	1800
Oil Capacity (cm3)	500	500
Flow Rate /n/min	12500	16500

Flow rate quoted at: 0.5MPa supply  
0.03MPa pressure drop

HOW TO  
ORDER  
LUBRICATOR  
SERIES AL

- AL800-12 (1¼ PT)
- AL800-14 (1½ PT)
- AL900-20 (2 PT)



FOR FURTHER TECHNICAL  
DETAILS ON THIS  
PRODUCT CONSULT  
SMC CUSTOMER SERVICE

# Large Flow Lubricator

## Series AL800/900

### Individual lubrication Large flow type



AL800



AL900

Symbol



### Standard Specifications

Model	AL800	AL900
Port size	1 1/4 1 1/2	2
Fluid	Air	
Proof pressure	1.5 MPa	
Max. operating pressure	1.0 MPa	
Min. operating flow (L/min (ANR)) <sup>(Note)</sup>	1 1/4 : 460 1 1/2 : 650	1800
Bowl capacity (cm <sup>3</sup> )	380 (Capacity between levels 350)	
Recommended lubricant	Turbine oil Class 1 (With no additives), ISO VG32	
Ambient and fluid temperature	-5 to 60°C (No freezing)	
Bowl material	Polycarbonate	
Weight (kg)	1.56	1.78
Accessory (Standard)	Bowl guard	●

Note) • Conditions: Inlet pressure = 0.5 MPa, Number of drop = 5 drops/min, Turbine oil Class 1 (with no additives) ISO VG32, Temperature = 20°C, Needle fully open  
• Use consumption air flow for operating minimum flow.

### How to Order

**AL 80 0 - [ ] 12 - 23 - R**

- Lubricator**: AL
- Body size**: 80 (1 1/2), 90 (2)
- Port size**: 12 (1 1/4), 14 (1 1/2), 20 (2)
- Thread type**: Nil, Rc, N (NPT), F, G
- Semi-standard**: 23 (Metal bowl), 3 (With drain cock), 6 (Nylon bowl), 8 (Metal bowl with level gauge)
- Flow direction**: R (Right → Left)

Symbol:

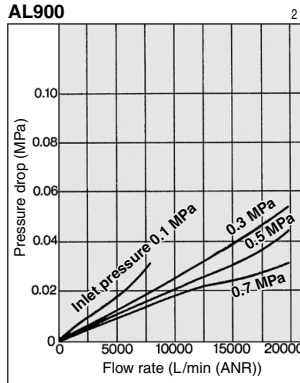
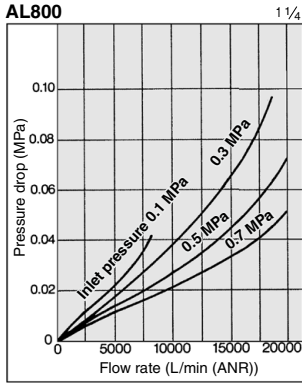
### Semi-standard Combinations

☉ Available ☐ Not available

Accessory, Semi-standard	Symbol	Option							
		1	1S-1	1S-2	2	3	6	8	R
1000 cm <sup>3</sup> tank	-1	☉							☉
1000 cm <sup>3</sup> (With switch) Bottom limit ON	-1S-1								☉
1000 cm <sup>3</sup> (With switch) Bottom limit OFF	-1S-2								☉
Metal bowl	-2					☉			☉
Lubricator with drain cock	-3				☉			☉	☉
Nylon bowl	-6					☉			☉
Metal bowl with level gauge	-8								☉
Flow direction: Right to left	-R	☉	☉	☉	☉	☉	☉	☉	☐

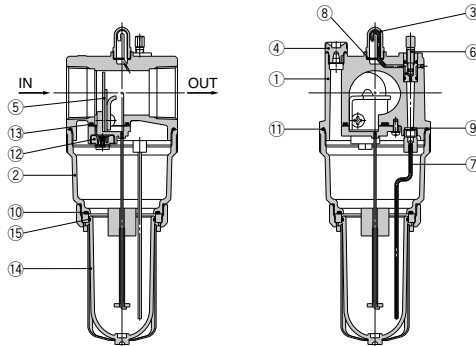
Note) -1, -1S-1 and -1S-2 are with metal bowl with level gauge and with drain cock.

## Flow Characteristics (Representative Value)



## Construction

**AL800/900**



## Component Parts

No.	Description	Material		Note
		AL800	AL900	
1	Body	Aluminum die-casted	Aluminum casted	Platinum silver painted
2	Housing	Aluminum die-casted		Platinum silver painted

## Replacement Parts

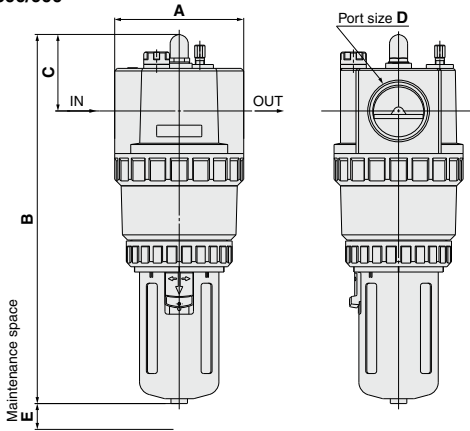
No.	Description	Material	Part no.		Qty.		
			AL800	AL900			
3	Sight dome	Standard	Polycarbonate	12316	12316	1	
		-6	Nylon	123156	123156		
4	Lubrication plug assembly	—		12314PA	12314PA	1	
5	Bumper assembly	Standard	—	123413A-1(12)	123528A	1	
				123413A-2(14)			
				123417A(12) <sup>Note 1)</sup>			
				123416A(14) <sup>Note 1)</sup>	123528-1A		
6	Needle stud assembly	—		123128PA	123128PA	1	
7	Siphon tube assembly	Standard	—	124232A	124232A	1	
				-8	123321-1A		123321-1A
				-1	123321-4A		123321-4A
8	Sight dome seal	Urethane rubber		12318	12318	1	
9	Siphon nut seal	Urethane rubber		123111	123111	1	
10	O-ring	NBR		113136	113136	1	
11	O-ring	NBR		KA00466	KA00466	1	
12	Bumper retainer assembly	-2, -8	—	123032A	—	1	
13	Bumper retainer seal	Standard	NBR	123058	—	1	
				-2	C4SL	C4SL	1
				-3	C4SL-2	C4SL-2	
				-6	C4SL-3	C4SL-3	
				-8	C4SL-6	C4SL-6	
				-1	C4LL-8	C4LL-8	
				-1S-1	800147AP	800147AP	
				-1S-2	800147A-S1P	800147A-S1P	
15	O-ring	NBR	—	800147A-S2P	800147A-S2P	1	
				C4SFP-260S	C4SFP-260S		

Note 1) Description: Bumper assembly  
 Note) O-ring ⑪ is attached.

# Series AL800/900

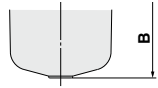
## Dimensions

### AL800/900

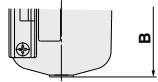


## Semi-standard

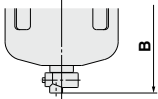
### Metal bowl



### Metal bowl with level gauge



### With drain cock

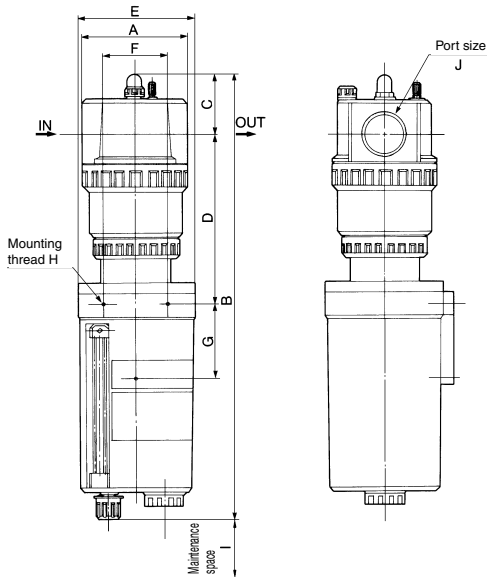


### Semi-standard/Dimensions

Model	Port size D	A	B	C	E
AL800	1 1/4, 1 1/2	100	286	59	125
AL900	2	100	292	63	125

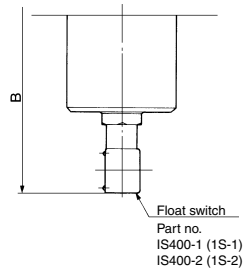
Model	B		
	Metal bowl	Metal bowl with level gauge	With drain cock
AL800	286	306	297
AL900	292	312	303

## Semi-standard/1000 cm<sup>3</sup> Tank



### Float switch

Contact point capacity: AC: 15 VA, DC: 15 W  
Contact point construction: 1a, 1b



Model	Port size J	A	B*	C	D	E	F	G	H	I
AL800-12 to 14-1	1 1/4, 1 1/2	100	431 (481)	59	166	ø117	60	73	3 x M5 x 0.8 x depth 6	230
AL900-20-1	2	100	437 (487)	63	162	ø117	60	73	3 x M5 x 0.8 x depth 6	230

\* ( ): With float switch