

# Modular/F.R.L. Units

## Series AC



Round type pressure gauge (with color zone)

AC

AF□

AR

AL

AW□

A□G

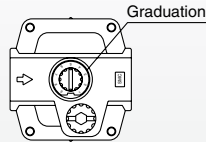
AV

AF800  
AF900

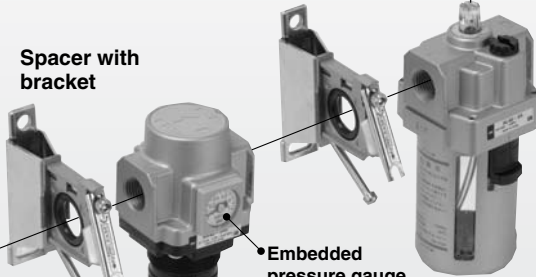


# Modular F.R.L. Units Series AC

Improved visibility for lubricant drip with graduation for lubricant control



Spacer with bracket

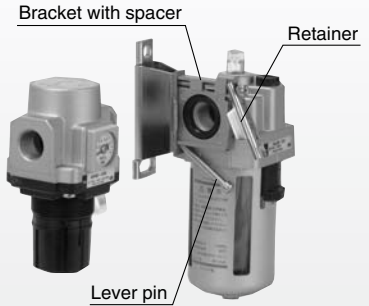


Embedded pressure gauge is a standard feature.

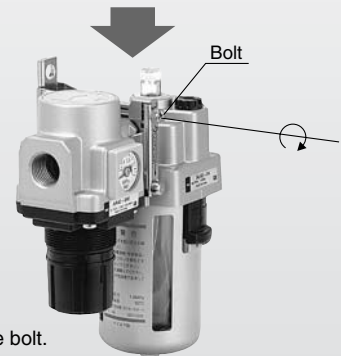
- Ozone resistant rubber material (HNBR)
- Improved relief sensitivity

• Float type auto drain with excellent operability is used for compact models (AF10/20). Drain cock is easy-to-use rotary type.

## Improved installation



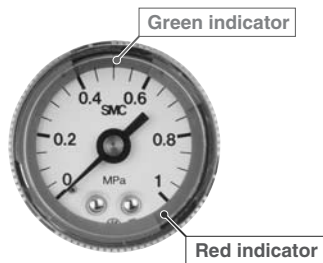
- ① Attach the component into the fitting of the spacer with bracket.
- ② Lock the lever pin into the retainer. (temporary installation)



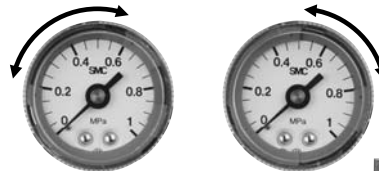
- ③ Tighten the bolt.

## Round type pressure gauge (with color zone) type

■ Red and green zones offer improved visibility of pressure control range.



Indicator adjusts to highlight preferred range



- Filter Regulator AW20(K) to 60(K)
- Mist Separator Regulator AWM20 to 40
- Micro Mist Separator Regulator AWD20 to 40


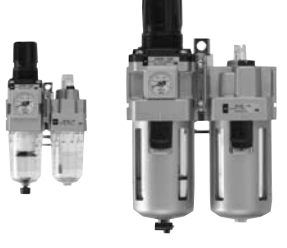





- Regulator AR20(K) to 60(K)



- F.R.L. Unit
  - AC20 to 60 (AF + AR + AL)
  - AC20A to 60A (AW + AL)
  - AC20B to 60B (AF + AR)
  - AC20C to 40C (AF + AFM + AR)
  - AC20D to 40D (AW + AFM)

## Series Configuration

Product	Model	Port size							Page
		M5 x 0.8	1/8	1/4	3/8	1/2	3/4	1	
<b>Air Filter + Regulator + Lubricator</b> <b>AF AR AL</b> 	AC10	●							300
	AC20		●	●					
	AC25			●	●				
	AC30			●	●				
	AC40			●	●	●			
	AC40-06						●		
	AC50						●	●	
	AC55							●	
	AC60							●	
<b>Filter Regulator + Lubricator</b> <b>AW AL</b> 	AC10A	●							306
	AC20A		●	●					
	AC30A			●	●				
	AC40A			●	●	●			
	AC40A-06						●		
	AC50A						●	●	
	AC60A							●	
<b>Air Filter + Regulator</b> <b>AF AR</b> 	AC10B	●							310
	AC20B		●	●					
	AC25B			●	●				
	AC30B			●	●				
	AC40B			●	●	●			
	AC40B-06						●		
	AC50B						●	●	
	AC55B							●	
	AC60B							●	
<b>Air Filter + Mist Separator + Regulator</b> <b>AF AFM AR</b> 	AC20C		●	●					314
	AC25C			●	●				
	AC30C			●	●				
	AC40C			●	●	●			
	AC40C-06						●		
<b>Filter Regulator + Mist Separator</b> <b>AW AFM</b> 	AC20D		●	●					318
	AC30D			●	●				
	AC40D			●	●	●			
	AC40D-06						●		

Air Combination

AC

AF□

AR

AL






AW□

A□G






AV

AF800  
AF900

## Series Configuration

Product	Model	Port size							Page	
		M5 x 0.8	1/8	1/4	3/8	1/2	3/4	1		
<b>Air Filter</b> 	<b>AF</b>	AF10	●							327
	AF20		●	●						
	AF30			●	●					
	AF40			●	●	●				
	AF40-06						●			
	AF50						●	●		
	AF60							●		
<b>Mist Separator</b> 	<b>AFM</b>	AFM20		●	●					338
	AFM30			●	●					
	AFM40			●	●	●				
	AFM40-06						●			
<b>Micro Mist Separator</b> 	<b>AFD</b>	AFD20		●	●					338
	AFD30			●	●					
	AFD40			●	●	●				
	AFD40-06						●			
<b>Regulator</b> 	<b>AR</b>	AR10	●							345
	AR20		●	●						
	AR25			●	●					
	AR30			●	●					
	AR40			●	●	●				
	AR40-06						●			
	AR50						●	●		
AR60							●			
<b>Regulator with Backflow Function</b> 	<b>AR□K</b>	AR20K		●	●					345
	AR25K			●	●					
	AR30K			●	●					
	AR40K			●	●	●				
	AR40K-06						●			
	AR50K						●	●		
AR60K							●			

## Series Configuration

Product	Model	Port size							Page
		M5 x 0.8	1/8	1/4	3/8	1/2	3/4	1	
<b>Lubricator</b> 	AL10	●							357
	AL20		●	●					
	AL30			●	●				
	AL40			●	●	●			
	AL40-06						●		
	AL50						●	●	
	AL60							●	
<b>Filter Regulator</b> 	AW10	●						365	
	AW20		●	●					
	AW30			●	●				
	AW40			●	●	●			
	AW40-06						●		
	AW60						●		●
<b>Filter Regulator with Backflow Function</b> 	AW20K		●	●				365	
	AW30K			●	●				
	AW40K			●	●	●			
	AW40K-06						●		
	AW60K						●		●
<b>Mist Separator Regulator</b> 	AWM20		●	●				378	
	AWM30			●	●				
	AWM40			●	●	●			
<b>Micro Mist Separator Regulator</b> 	AWD20		●	●				378	
	AWD30			●	●				
	AWD40			●	●	●			

## Simple Specials System

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

Simple  
**S**pecials  
 System

### Short lead times

This system enables us to respond to your special needs, such as additional machining, accessory assembly, or modular unit, and deliver such special products as quickly as standard products.

### Repeat orders

Once we receive a Simple Special part number from your previous order, we will process the order, manufacture the product, and deliver it to you.

AC

AF□

AR

AL

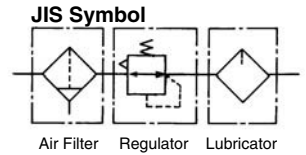
AW□

A□G

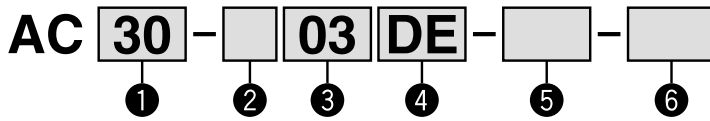
AV

AF800  
AF900

# AC10 to AC60



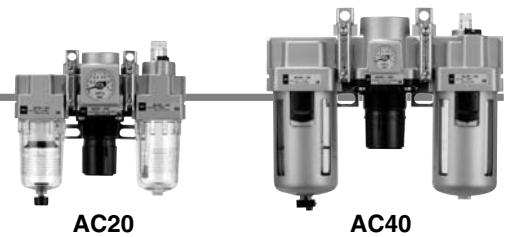
## How to Order



- Option/Semi-standard: Select one each for a to m.
- Option/Attachment/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.  
Example) AC30-F03DE1-KSTV-136NR

		Symbol	Description	①								
				Body size								
				10	20	25	30	40	50	55	60	
②	Thread type	Nil	Metric thread (M5)	●	—	—	—	—	—	—	—	
		N <sup>Note 1)</sup>	Rc	—	●	●	●	●	●	●	●	
		F <sup>Note 2)</sup>	NPT	—	●	●	●	●	●	●	●	
			G	—	●	●	●	●	●	●	●	
+												
③	Port size	M5	M5	●	—	—	—	—	—	—	—	
		01	1/8	—	●	—	—	—	—	—	—	
		02	1/4	—	●	●	●	●	—	—	—	
		03	3/8	—	—	●	●	●	—	—	—	
		04	1/2	—	—	—	—	●	—	—	—	
		06	3/4	—	—	—	—	—	●	●	—	—
+												
④	a	Float type auto drain	Nil	Without auto drain	●	●	●	●	●	●	●	
			C	Float type auto drain (N.C.)	●	●	●	●	●	●	●	
			D	Float type auto drain (N.O.)	—	—	●	●	●	●	●	
	+											
	b	Pressure gauge	Nil	Without pressure gauge	●	●	●	●	●	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●
			G	Round type pressure gauge (without limit indicator)	●	—	—	—	—	—	—	
			M	Round type pressure gauge (with color zone)	—	●	●	●	●	●	●	
		Digital pressure switch	E1	Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
			E2	Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●
	+											
	⑤	c	Check valve	Nil	Without attachment	●	●	●	●	●	●	●
K				Mounting position: AF+AR+K+AL	—	●	●	●	● <sup>Note 4)</sup>	—	—	—
+												
d		Pressure switch	Nil	Without attachment	●	●	●	●	●	●	●	●
			S <sup>Note 5)</sup>	Mounting position: AF+AR+S+AL	—	●	●	●	●	●	●	●
+												
e	T-interface	Nil	Without attachment	●	●	●	●	●	●	●	●	
		T <sup>Note 5)</sup>	Mounting position: AF+T+AR+AL	●	●	●	●	●	●	●	●	
+												
f	3-port valve for residual pressure release	Nil	Without attachment	●	●	●	●	●	●	●	●	
		V	Mounting position: AF+AR+AL+V	—	●	●	●	●	—	—	—	
+												
⑥	g	Set pressure	Nil	0.05 to 0.85 MPa setting	●	●	●	●	●	●	●	
			1 <sup>Note 6)</sup>	0.02 to 0.2 MPa setting	●	●	●	●	●	●	●	
	+											
	h	Bowl <sup>Note 7)</sup>	Nil	Polycarbonate bowl	●	●	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●	●	
			6	Nylon bowl	●	●	●	●	●	●	●	
8			Metal bowl with level gauge	—	—	●	●	●	●	●		
+												
C	With bowl guard	Nil	Without attachment	—	—	—	—	—	—	—	—	
		6C	Nylon bowl with bowl guard	—	●	—	—	—	—	—	—	

# Air Combination Series AC10 to AC60



		Symbol	Description	①								
				Body size								
				10	20	25	30	40	50	55	60	
⑥	i	Filter drain port <small>Note 8)</small>	Nil	With drain cock	●	●	●	●	●	●	●	●
			J <small>Note 9)</small>	Drain guide 1/8	—	●	—	—	—	—	—	—
			—	Drain guide 1/4	—	—	●	●	●	●	●	●
			W <small>Note 10)</small>	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●	●	●
	+											
	j	Lubricator lubricant exhaust port	Nil	Without drain cock	●	●	●	●	●	●	●	●
			3 <small>Note 11)</small>	Lubricator with drain cock	●	●	●	●	●	●	●	●
	+											
	k	Exhaust mechanism	Nil	Relieving type	●	●	●	●	●	●	●	●
			N	Non-relieving type	●	●	●	●	●	●	●	●
	+											
	l	Flow direction	Nil	Flow direction: Left to right	●	●	●	●	●	●	●	●
R			Flow direction: Right to left	●	●	●	●	●	●	●	●	
+												
m	Pressure unit	Nil	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	●	●	●	
		Z <small>Note 12)</small>	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ <small>Note 14)</small>	○ <small>Note 14)</small>	○ <small>Note 14)</small>	○ <small>Note 14)</small>	○ <small>Note 14)</small>	○ <small>Note 14)</small>	○ <small>Note 14)</small>	○ <small>Note 14)</small>	
		ZA <small>Note 13)</small>	Digital pressure switch: With unit conversion function	—	△ <small>Note 15)</small>	△ <small>Note 15)</small>	△ <small>Note 15)</small>	△ <small>Note 15)</small>	△ <small>Note 15)</small>	△ <small>Note 15)</small>	△ <small>Note 15)</small>	

- Note 1) Drain guide is NPT1/8 (applicable to the AC20) and NPT1/4 (applicable to the AC25 to AC60). The auto drain port comes with ø3/8" one-touch fitting (applicable to the AC25 to AC60).
- Note 2) Drain guide is G1/8 (applicable to the AC20) and G1/4 (applicable to the AC25 to AC60).
- Note 3) Option G, M are not assembled and supplied loose at the time of shipment.
- Note 4) Not available with piping port size: 06.
- Note 5) The bracket position varies depending on the T-interface or pressure switch mounting.

- Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
- Note 7) Refer to Chemical Data on page 287 when selecting a case material.
- Note 8) Float type auto drain: The combination of C and D is not possible.
- Note 9) Without a valve function
- Note 10) Metal bowl: The combination of 2 and 8 is not possible.
- Note 11) Filter drain port: When choosing with W, the drain cock of a lubricator will be with barb fittings.

- Note 12) 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.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially. MPa and psi are shown together on the pressure unit.
- Note 13) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
- Note 14) ○: For thread type: M5 and NPT only
- Note 15) △: Select with options: E1, E2, E3, E4.

## Standard Specifications

Model		AC10	AC20	AC25	AC30	AC40	AC40-06	AC50	AC55	AC60
Component	Air filter	AF10	AF20	AF30	AF30	AF40	AF40-06	AF50	AF60	AF60
	Regulator	AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60	AR60
	Lubricator	AL10	AL20	AL30	AL30	AL40	AL40-06	AL50	AL60	AL60
Port size		M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1	1
Pressure gauge port size <small>Note 1)</small>		1/16	1/8			1/4				
Fluid		Air								
Ambient and fluid temperature <small>Note 2)</small>		-5 to 60°C (with no freezing)								
Proof pressure		1.5 MPa								
Max. operating pressure		1.0 MPa								
Set pressure range		0.05 to 0.7 MPa	0.05 to 0.85 MPa							
Relief pressure		Set pressure + 0.05 MPa <small>Note 3)</small> [at relief flow rate of 0.1 ℓ/min (ANR)]								
Nominal filtration rating		5 μm								
Recommended lubricant		Class 1 turbine oil (ISO VG32)								
Bowl material		Polycarbonate								
Bowl guard		—	Semi-standard	Standard						
Regulator construction		Relieving type								
Mass (kg)		0.27	0.73	0.91	1.00	1.74	1.95	4.17	4.25	4.34

- Note 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 (AC20 to AC60).
- Note 2) -5 to 50°C for the products with the digital pressure switch
- Note 3) Not applicable to the AC10.

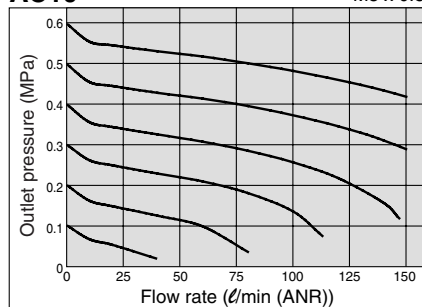
AC  
AF□  
AR  
AL  
AW□  
A□G  
AV  
AF800  
AF900

# Series AC10 to AC60

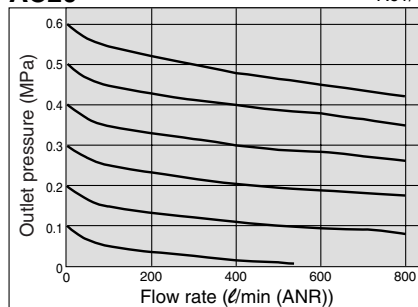
## Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

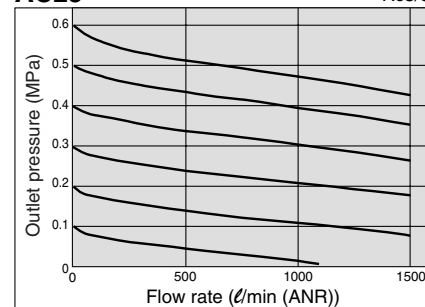
**AC10** M5 x 0.8



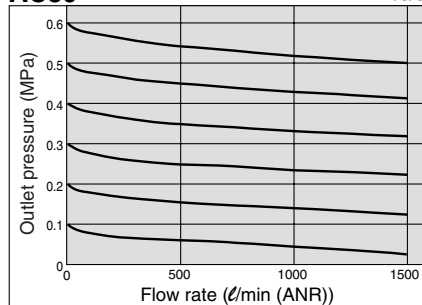
**AC20** Rc1/4



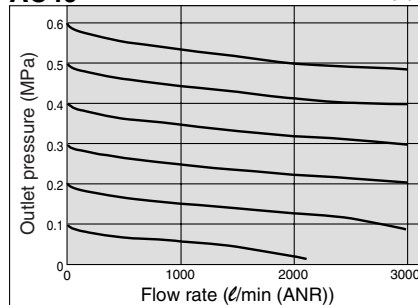
**AC25** Rc3/8



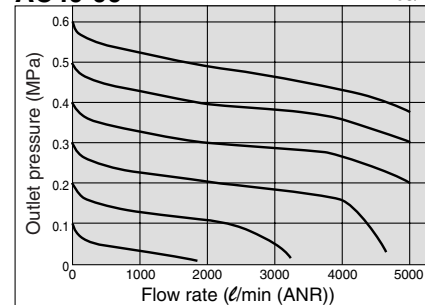
**AC30** Rc3/8



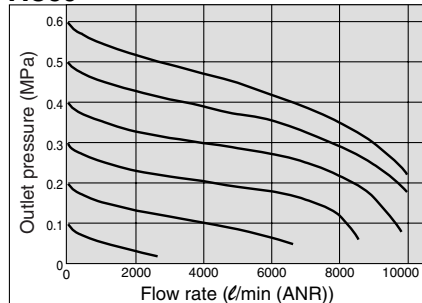
**AC40** Rc1/2



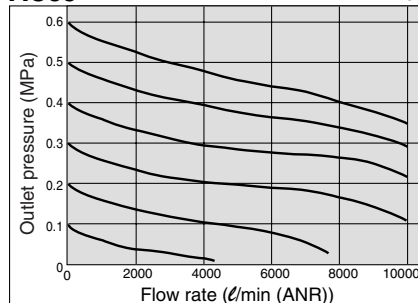
**AC40-06** Rc3/4



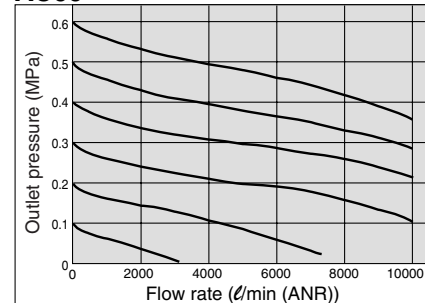
**AC50** Rc1



**AC55** Rc1



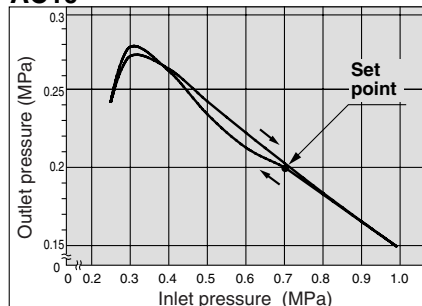
**AC60** Rc1



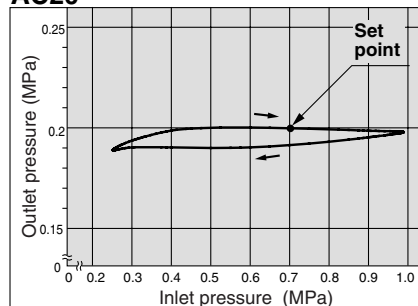
## Pressure Characteristics (Representative values)

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

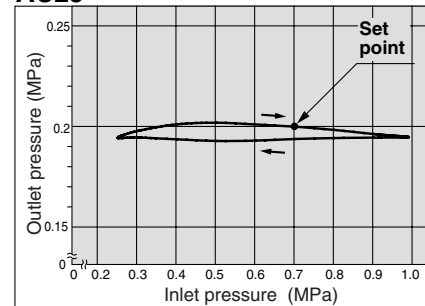
**AC10**



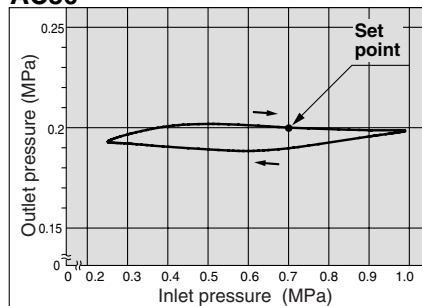
**AC20**



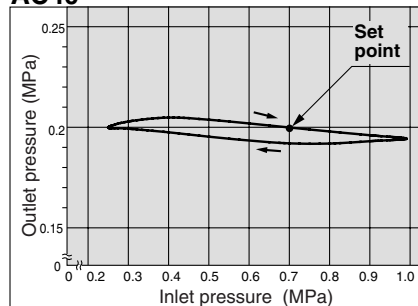
**AC25**



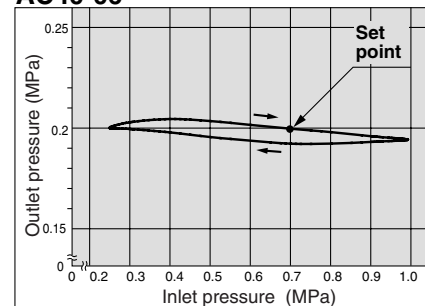
**AC30**



**AC40**



**AC40-06**

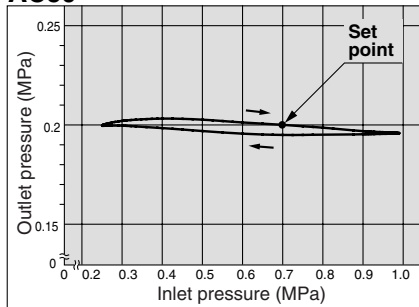




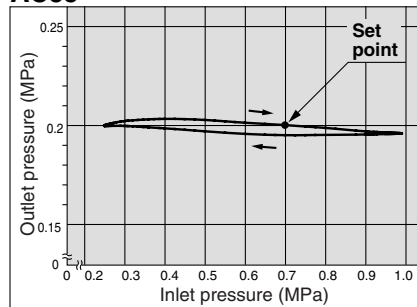
## Pressure Characteristics (Representative values)

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

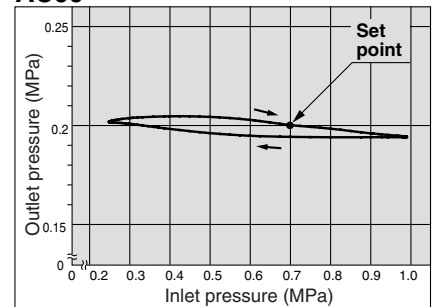
**AC50**



**AC55**



**AC60**



## ⚠ Specific Product Precautions

- Be sure to read before handling.  
 Refer to front matters 42 and 43 for Safety Instructions and pages 287 to 291 for F.R.L. Precautions.

### Mounting and Adjustment

#### ⚠ Caution

1. A knob cover is available to prevent careless operation of the knob. Refer to page 389 for details.

### Piping

#### ⚠ Warning

1. When mounting a check valve, make sure the arrow (IN side) points in the correct direction of air flow.

### 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 3-port valve for residual pressure release on the inlet side.

### Selection

#### ⚠ Warning

1. Float type auto drain

Operate under the following conditions to avoid 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 AD17/27: 0.1 MPa or more.

- Operating pressure for AD37/47: 0.15 MPa or more.

2. Use a regulator or filter regulator with backflow function when mounting a 3-port valve for residual pressure release on the IN 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-interface on the inlet side of the lubricator, lubricant may back flow. 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 residual pressure-release 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. Please do not use it in this fashion.

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.

**AC**

**AF** □

**AR**

**AL**

**AW** □

**A** □ **G**

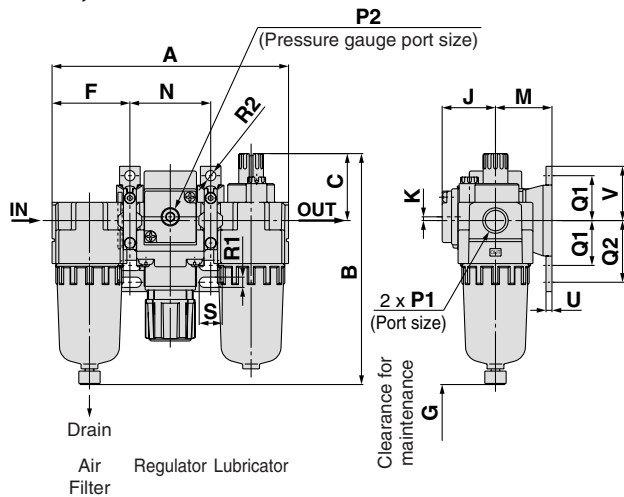
**AV**

**AF800**  
**AF900**

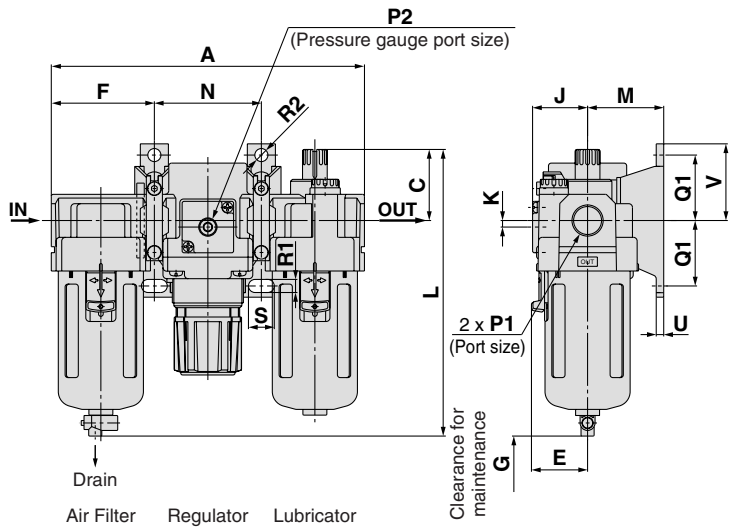
# Series AC10 to AC60

## Dimensions

### AC10, AC20



### AC25 to AC60



Applicable model	AC20 to AC60		AC10 to AC60	AC20 to AC60
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with color zone)
Dimensions				

Applicable model	AC10, AC20		AC20	AC25 to AC60				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications										Optional specifications							
	P1	P2	A	B	C	E	F	G	J	K	Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with color zone)	
AC10	M5 x 0.8	1/16	87	85	26	—	28	35	13	0	—	—	—	—	ø26	26	—	—
AC20	1/8, 1/4	1/8	126	123	36	—	41.5	60	28.5	2 (Note)	□28	29.5	□27.8	40	ø37.5	65	ø37.5	65
AC25	1/4, 3/8	1/8	167	153	38	30	55	80	27.5	0	□28	28.5	□27.8	39	ø37.5	64	ø37.5	64
AC30	1/4, 3/8	1/8	167	153	38	30	55	80	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AC40	1/4, 3/8, 1/2	1/4	220	187	40	38	72.5	110	34	3.5	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC40-06	3/4	1/4	235	187	38	38	77.5	110	34	3	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC50	3/4, 1	1/4	282	264	43	45	93	110	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AC55	1	1/4	292	279	45	47.5	98	110	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AC60	1	1/4	297	280	46	47.5	98	110	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84

Model	Optional specifications										Semi-standard specifications				
	Bracket mount										With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	N	Q1	Q2	R1	R2	S	U	V		B	B	B	B	B
AC10	25	31	20	27	4.5	ø4.5	7	2.8	24.5		104	—	—	85	—
AC20	30	43	24	33	5.5	ø5.5	12	3.2	29		141	—	127	123	—
AC25	41	57	35	—	7	ø7	14	4	41		194	161	160	166	186
AC30	41	57	35	—	7	ø7	14	4	41		194	161	160	166	186
AC40	50	75	40	—	9	ø9	18	4	48		226	195	194	200	220
AC40-06	50	80	40	—	9	ø9	18	4.6	48		226	195	194	200	220
AC50	70	96	50	—	11	ø11	20	6.4	60		303	272	271	276	296
AC55	70	96	50	—	11	ø11	20	6.4	60		318	287	286	292	312
AC60	70	101	50	—	11	ø11	20	6.4	60		319	288	287	293	313

Note) For the AC20 only, the position of the pressure gauge is above the center of the piping.