

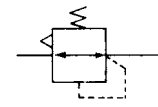
Regulator

AR10 to AR60

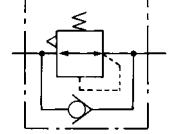
Regulator with Backflow Function

AR20K to AR60K

JIS Symbol
Regulator



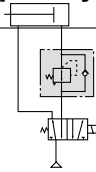
Regulator with
Backflow Function



- With the backflow function it incorporates a mechanism to exhaust the air pressure in the outlet side reliably and quickly.

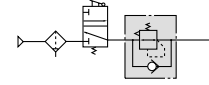
Example 1)

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

AR **30** **K** - **03** **BE** - **1NR**

① ② ③ ④ ⑤ ⑥

Made to Order

(Refer to pages 354 and 355 for details.)

- 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

		Symbol	Description	①									
				Body size									
				10	20	25	30	40	50	60			
②	With backflow function	Nil	Without backflow function	●	●	●	●	●	●	●	●		
		K ^{Note 1)}	With backflow function	—	●	●	●	●	●	●	●		
+													
③	Thread type	Nil	Metric thread (M5)	●	—	—	—	—	—	—	—		
			Rc	—	●	●	●	●	●	●	●		
		N	NPT	—	●	●	●	●	●	●	●		
		F	G	—	●	●	●	●	●	●	●		
+													
④	Port size	M5	M5	●	—	—	—	—	—	—	—		
		01	1/8	—	●	—	—	—	—	—	—		
		02	1/4	—	●	●	●	●	—	—	—		
		03	3/8	—	—	●	●	●	—	—	—		
		04	1/2	—	—	—	—	●	—	—	—		
		06	3/4	—	—	—	—	●	●	—	—		
		10	1	—	—	—	—	—	●	●	—		
+													
⑤ ^{Note 2)} Option	a	Mounting	Nil	Without mounting option	●	●	●	●	●	●	●		
			B ^{Note 3)}	With bracket	●	●	●	●	●	●	●	●	
			H	With set nut (for panel fitting)	●	●	●	●	●	—	—	—	
	+												
	b	Pressure gauge	Nil	Without pressure gauge	●	●	●	●	●	●	●	●	
			E	Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●	
			G	Round type pressure gauge (without limit indicator)	●	—	—	—	—	—	—	—	
				Round type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●	
		Digital pressure switch	M	Round type pressure gauge (with color zone)	—	●	●	●	●	●	●	●	
				E1 ^{Note 4)}	Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
				E2 ^{Note 4)}	Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●
				E3 ^{Note 4)}	Output: PNP output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
		E4 ^{Note 4)}	Output: PNP output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●		

Regulator *Series AR10 to AR60*

Regulator with Backflow Function *Series AR20K to AR60K*



AR20, AR20K AR40, AR40K

		Symbol	Description	1										
				Body size										
				10	20	25	30	40	50	60				
6	Semi-standard	c	Set pressure	Nil ^{Note 5)}	0.05 to 0.85 MPa setting			●	●	●	●	●	●	●
				1 ^{Note 6)}	0.02 to 0.2 MPa setting			●	●	●	●	●	●	●
		+												
		d	Exhaust mechanism	Nil	Relieving type			●	●	●	●	●	●	●
				N	Non-relieving type			●	●	●	●	●	●	●
		+												
		e	Flow direction	Nil	Flow direction: Left to right			●	●	●	●	●	●	●
				R	Flow direction: Right to left			●	●	●	●	●	●	●
		+												
		f	Knob	Nil	Downward			●	●	●	●	●	●	●
				Y	Upward			●	●	●	●	●	●	●
		+												
		g	Pressure unit	Nil	Name plate and pressure gauge in imperial units: MPa			●	●	●	●	●	●	●
				Z ^{Note 7)}	Name plate and pressure gauge in imperial units: psi			○ ^{Note 9)}	○ ^{Note 9)}	○ ^{Note 9)}	○ ^{Note 9)}	○ ^{Note 9)}	○ ^{Note 9)}	○ ^{Note 9)}
				ZA ^{Note 8)}	Digital pressure switch: With unit conversion function			—	△ ^{Note 10)}	△ ^{Note 10)}	△ ^{Note 10)}	△ ^{Note 10)}	△ ^{Note 10)}	△ ^{Note 10)}

Note 1) The AR10 type comes with a backflow function as a standard feature. (K is not available.) When using the AR10 type as w/ backflow function, backflow may not occur with the set pressure 0.15 MPa or less. Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

Note 2) Option B, G, H, M are not assembled and supplied loose at the time of shipment.

Note 3) Assembly of a bracket and set nuts (AR10, AR20(K) to AR40(K))
Including 2 mounting screws for the AR50(K) and AR60(K)

Note 4) 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.)

Note 5) Only the AR10 has a pressure setting of 0.05 to 0.7 MPa.

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) 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.

Note 8) 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 9) ○: For thread type: M5 and NPT only

Note 10) △: Select with options: E1, E2, E3, E4.

Standard Specifications

Model	AR10	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)
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
Pressure gauge port size ^{Note 1)}	1/16 ^{Note 2)}	1/8			1/4			
Fluid	Air							
Ambient and fluid temperature ^{Note 3)}	−5 to 60°C (with no freezing)							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Set pressure range	0.05 to 0.7 MPa	0.05 to 0.85 MPa						
Relief pressure ^{Note 4)}	Set pressure + 0.05 MPa [at relief flow rate of 0.1 ℓ/min (ANR)]							
Construction	Relieving type							
Mass (kg)	0.06	0.26	0.21	0.29	0.44	0.47	1.17	1.22

Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge (AR20(K) to AR60(K)).

Note 2) Use a bushing (part no:131368) when connecting the R1/8 pressure gauge to the Rc1/16.

Note 3) -5 to 50°C for the products with the digital pressure switch.

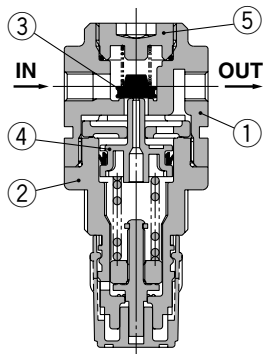
Note 4) Not applicable to the AR10.

Regulator *Series AR10 to AR60*

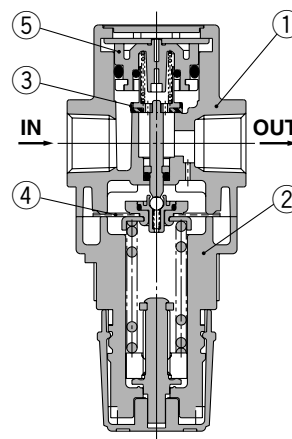
Regulator with Backflow Function *Series AR20K to AR60K*

Construction

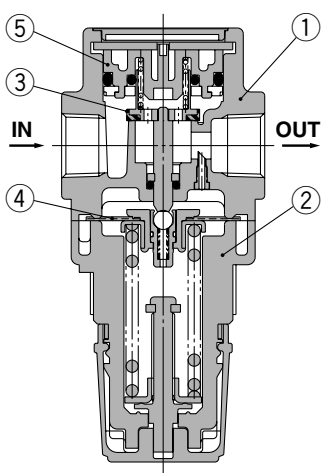
AR10



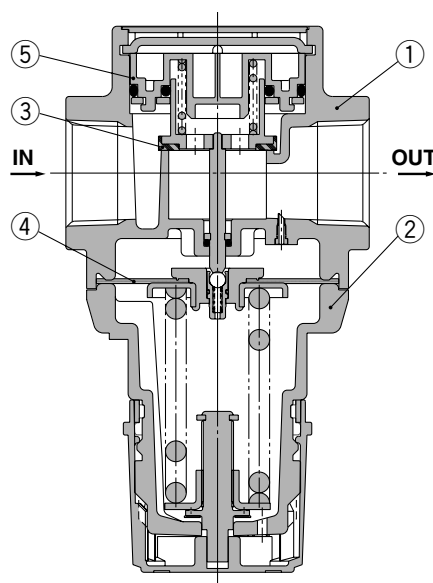
AR20(K), AR25(K)



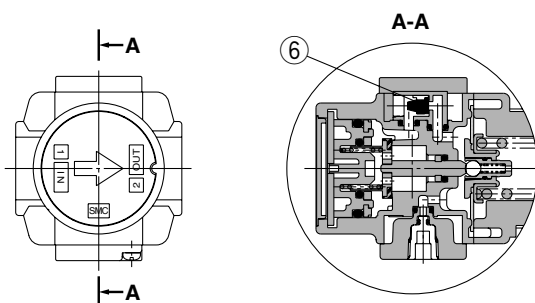
AR30(K), AR40(K)



AR50(K), AR60(K)



AR20K to AR60K (Regulator with Backflow Function)



Component Parts

No.	Description	Material	Model	Color
1	Body	Zinc die-cast	AR10, AR20(K)	Platinum silver
		Aluminum die-cast	AR25(K) to AR60(K)	
2	Bonnet	Polyacetal	AR10, AR20(K) to AR40(K)-06	Black
		Aluminum die-cast	AR50(K), AR60(K)	

Replacement Parts

No.	Description	Material	Part no.							
			AR10	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)
3	Valve assembly	Brass, HNBR	AR10P-090S	AR20P-410S	AR25P-410S	AR30P-410S	AR40P-410S		AR50P-410S	AR60P-410S
4	Diaphragm assembly	Weatherable NBR	AR10P-150AS <small>Note 1)</small>	AR20P-150AS	AR25P-150AS	AR30P-150AS	AR40P-150AS		AR50P-150AS	
5	Valve guide assembly	Polyacetal	131329	AR20P-050AS	AR25P-050AS	AR30P-050AS	AR40P-050AS		AR50P-050AS	AR60P-050AS
6	Check valve assembly <small>Note 2)</small>	—	—	AR20KP-020AS						

Note 1) The AR10 is a piston type. Assembly of a piston and a seal (KSYP-13).

Note 2) Check valve assembly is applicable for a regulator with backflow function (AR20K to AR60K) only.

Assembly of a check valve cover, check valve body assembly and 2 screws

AC

AF□

AR

AL

AW□

A□G

AV

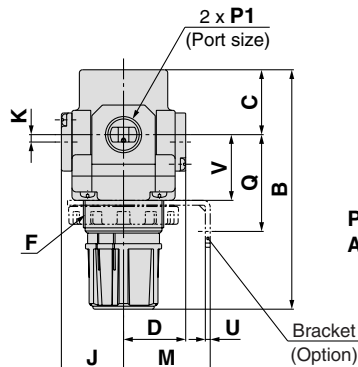
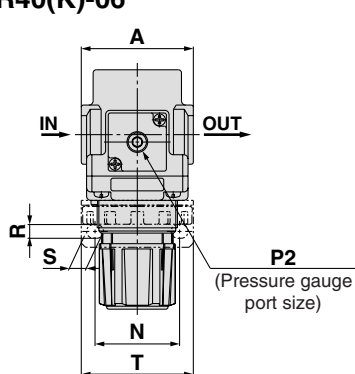
AF800
AF900

Regulator **Series AR10 to AR60**

Regulator with Backflow Function **Series AR20K to AR60K**

Dimensions

AR10, AR20(K) to AR40(K)-06



Panel fitting dimension

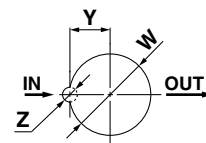
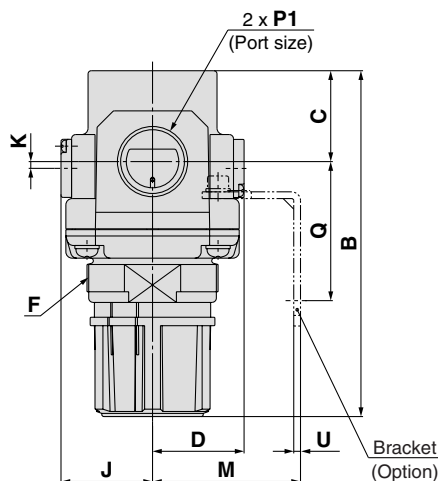
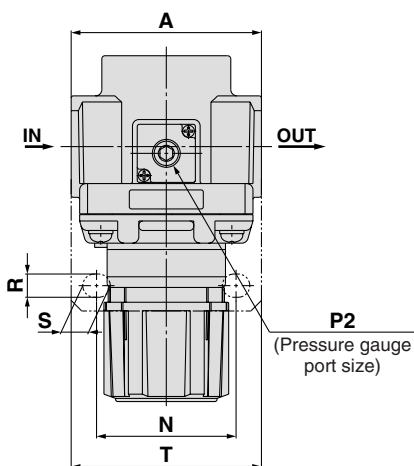
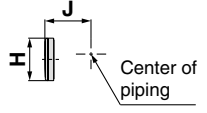
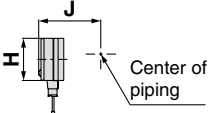
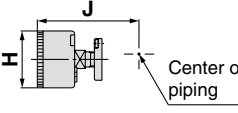


Plate thickness
AR10, AR20(K) to AR30(K): Max. 3.5
AR40(K): Max. 5

AR50(K), AR60(K)



Applicable model	AR20(K) to AR60(K)		AR10, AR20(K) to AR60(K)	AR20(K) to AR60(K)
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with color zone)
Dimensions				

Model	Standard specifications									Optional specifications							
	P1	P2	A	B <small>Note 1)</small>	C	D	F	J	K	Square type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with color zone)				
AR10	M5 x 0.8	1/16	25	58	11	12.5	M18 x 1	13	0	—	—	—	—	ø26	26	—	—
AR20(K)	1/8, 1/4	1/8	40	94	26.5	28.5	M28 x 1	28.5	2 <small>Note 2)</small>	□28	29.5	□27.8	40	ø37.5	65	ø37.5	65
AR25(K)	1/4, 3/8	1/8	53	101	28	27.5	M32 x 1.5	27.5	0	□28	28.5	□27.8	39	ø37.5	64	ø37.5	64
AR30(K)	1/4, 3/8	1/8	53	116	31	29.5	M38 x 1.5	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AR40(K)	1/4, 3/8, 1/2	1/4	70	128	36	34	M42 x 1.5	34	3.5	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AR40(K)-06	3/4	1/4	75	129	36	34	M42 x 1.5	34	3	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AR50(K)	3/4, 1	1/4	90	169	43	43.5	M62 x 1.5	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AR60(K)	1	1/4	95	176	46	43.5	M62 x 1.5	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84

Model	Optional specifications											
	Bracket mount								Panel mount			
	M	N	Q	R	S	T	U	V	W	Y	Z	
AR10	25	28	30	4.5	6.5	40	2	18	18.5	—	—	
AR20(K)	30	34	44	5.4	15.4	55	2.3	25	28.5	14	6	
AR25(K)	30	34	44	5.4	15.4	55	2.3	26	32.5	16	6	
AR30(K)	41	40	46	6.5	8	53	2.3	31	38.5	19	7	
AR40(K)	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	
AR40(K)-06	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7	
AR50(K)	70	66	65.8	11	13	90	3.2	—	—	—	—	
AR60(K)	70	66	65.8	11	13	90	3.2	—	—	—	—	

Note 1) The total length of B dimension is the length when the filter regulator knob is unlocked.
Note 2) For the AR20 only, the position of the pressure gauge is above the center of the piping.

AC

AF□

AR

AL

AW□

A□G

AV

AF800
AF900

Issued: Sep 2009



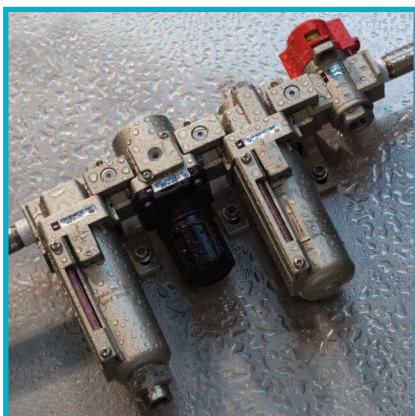
SMC Corporation of America

10100 SMC Boulevard
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