

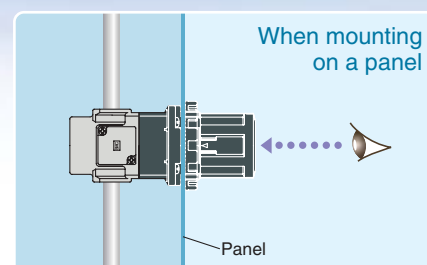
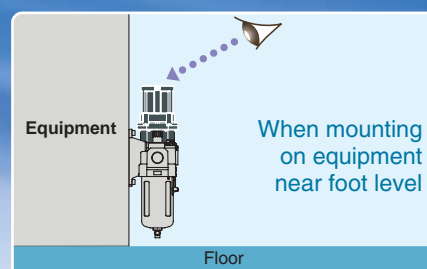


Regulator with Built-in Pressure Gauge Filter Regulator with Built-in Pressure Gauge

Series *ACG/ARG/AWG*



Visibility of pressure gauge is improved
in various installation places



Installation and removal of pressure gauge cover is possible with one-touch. (PAT.PEND.)

Easy to adjust limit indicator.



Mounting angle of pressure gauge is selectable depending on the piping direction

* Mounting angle can be changed as desired. For details, refer to "Procedure for replacing or changing the mounting angle of a pressure gauge" on back page 6.

Mounting angle	0°	90°
Mounting angle view		
Mounting angle	180°	270°
Mounting angle view		

Pressure gauge anti-revolving mechanism (PAT.PEND.)

* Pressure gauge will not revolve even after the handle is operated.



Space saving, Labour saving

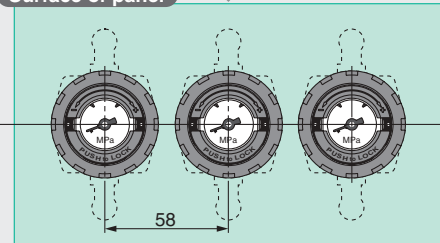
Panel-cut for pressure gauge is not necessary.

In the case of panel mounting, the number of holes required for installing the products (pressure gauge plus regulator handle parts) can be reduced into one location. By changing the angle of pressure gauge, the internal volume of a panel can be used effectively.

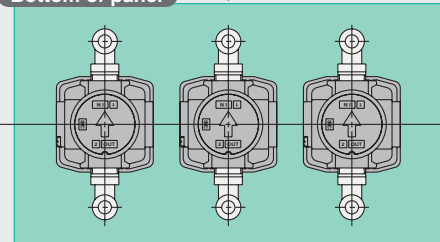
■ Mounting example: In the case of aligning three ARG30s in line.

Mounting at **90°** (In the case of restricted in side direction)

Surface of panel



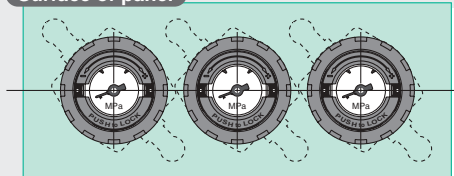
Bottom of panel



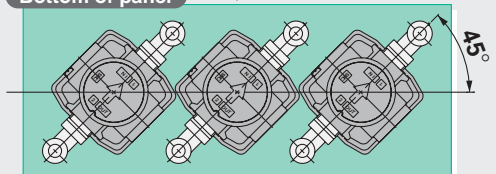
Mounting at **45°** (In the case of considering the effectiveness of panel)

* Contact SMC separately, since it will be made to order.

Surface of panel

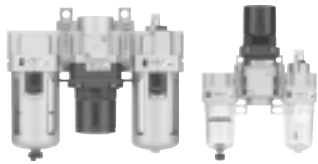



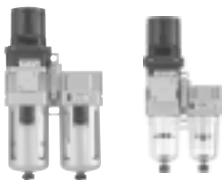


Bottom of panel



In the case of ARG30, dimension in height can be reduced by approx. 30 mm.

Standard Combinations

Combination	Model	Port size	Components				
			Air filter AF	Regulator with Built-in Pressure Gauge ARG	Filter Regulator with Built-in Pressure Gauge AWG	Lubricator AL	Mist separator AFM
AF + ARG + AL 	ACG20	1/8, 1/4	AF20	ARG20		AL20	
	ACG30	1/4, 3/8	AF30	ARG30		AL30	
	ACG40	1/4, 3/8, 1/2	AF40	ARG40		AL40	
AWG + AL 	ACG20A	1/8, 1/4			AWG20	AL20	
	ACG30A	1/4, 3/8			AWG30	AL30	
	ACG40A	1/4, 3/8, 1/2			AWG40	AL40	
AF + ARG 	ACG20B	1/8, 1/4	AF20	ARG20			
	ACG30B	1/4, 3/8	AF30	ARG30			
	ACG40B	1/4, 3/8, 1/2	AF40	ARG40			
AF + AFM + ARG 	ACG20C	1/8, 1/4	AF20	ARG20			AFM20
	ACG30C	1/4, 3/8	AF30	ARG30			AFM30
	ACG40C	1/4, 3/8, 1/2	AF40	ARG40			AFM40
AWG + AFM 	ACG20D	1/8, 1/4			AWG20		AFM20
	ACG30D	1/4, 3/8			AWG30		AFM30
	ACG40D	1/4, 3/8, 1/2			AWG40		AFM40

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■ Air Combination

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■ Regulator with Built-in Pressure Gauge

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■ Filter Regulator with Built-in Pressure Gauge

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How to Order

ACG 30 A 03 G1

Body size

Symbol	Port size
20	1/8
30	3/8
40	1/2

Model combination

Symbol	Combination				
	Air filter	Regulator with Built-in Pressure Gauge	Lubricator	Filter Regulator with Built-in Pressure Gauge	Mist separator
-	(1)	(2)	(3)	—	—
A	—	—	(2)	(1)	—
B ⁽¹⁾	(1)	(2)	—	—	—
C	(1)	(3)	—	—	(2)
D	—	—	—	(1)	(2)

Note 1) Wall mount is not available for size 20 regulator with downward facing handle in B combination. Contact SMC when wall mount is needed.

Note 2) The number inside () indicates the combination order counted from the inlet side.

Thread type

Symbol	Type
-	Rc
N	NPT
F	G

Note 3) Drain guide is NPT1/8 for ACG20 and NPT1/4 for ACG30 and 40. Auto-drain port is provided with $\phi 3.8$ " One-touch fitting (applicable to ACG30 and 40).

Note 4) Drain guide is G1/8 for ACG20 and G1/4 for ACG30 and 40.

Port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

Accessory

Symbol	Description	Applicable model
-	—	—
C	Float type auto-drain (Normally closed)	ACG20□ to 40□
D	Float type auto-drain (Normally open)	ACG30□, 40□

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

Mounting angle of pressure gauge 0°

Note 5) Mounting angle of pressure gauge is G1 only. If other mounting angles are needed, contact SMC. * Possible to change to the optional mounting angles. For details, refer to back page 6, "Procedure for replacing or changing the mounting angle of a pressure gauge".

Option

Symbol	Description	Applicable model
-	—	—
1 ⁽⁸⁾	0.02 to 0.2 MPa setting	ACG20□ to 40□
2	Metal bowl	ACG20□ to 40□
3	Lubricator with drain cock	ACG20□ to 40□
6	Nylon bowl	ACG20□ to 40□
8	Metal bowl with level gauge	ACG30□, 40□
C	With bowl guard	ACG20□
J ⁽⁹⁾	Filter case with drain guide	ACG20□ to 40□
N	Non-relieving type	ACG20□ to 40□
R	Flow direction: Right → Left	ACG20□ to 40□
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tubing	ACG30□, 40□
Y	Regulator with upward facing handle	ACG20□ to 40□
Z ⁽¹⁰⁾	Name plate and pressure gauge in imperial units (PSI), caution plate for bowl (PSI · °F)	ACG20□ to 40□



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

Note 8) Adjusting spring and pressure gauge (full-span 0.3 MPa) are different from those for the standard specification. Outlet pressure may still be increased from 0.2 MPa or more.

Note 9) Without a valve function.

Note 10) For thread type NPT.

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

Attachment

Symbol	Description	Attachment mounting position	Applicable model	Port size for intermediate air release
-	—	—	—	—
K	Check valve	AF + ARG + [K] + AL	ACG20 to 40	ACG20□: 1/8 ACG30□: 1/4 ACG40□: 3/8
		AW + [K] + AL	ACG20A to 40A	
S ⁽⁷⁾	Pressure switch	AF + ARG + [S] + AL	ACG20 to 40	—
		AF + [S] + ARG	ACG20B to 40B	
		AF + AFM + [S] + ARG	ACG20C to 40C	
V	Residual pressure relief 3 port valve	AF + ARG + AL + [V]	ACG20 to 40	—
		AW + AL + [V]	ACG20A to 40A	
		AF + ARG + [V]	ACG20B to 40B	
		AF + AFM + ARG + [V]	ACG20C to 40C	
		AW + AFM + [V]	ACG20D to 40D	



Note 6) When more than one attachment is required, order in alphabetical order.

Note 7) Pressure switch cannot be mounted on the inlet and outlet sides of an ARG with an upward facing handle (optional specification: -Y).

Mounting Angle of Pressure Gauge

Symbol	G1
Mounting angle	0°
Mounting angle view	
Mounting angle view (-R specification)	

Air Combination

Air Filter + Regulator + Lubricator

Series ACG20/30/40

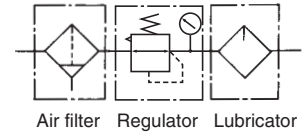


ACG20



ACG40

JIS Symbol



Standard Specifications

Model		ACG20	ACG30	ACG40
Component	Air filter	AF20	AF30	AF40
	Regulator	ARG20	ARG30	ARG40
	Lubricator	AL20	AL30	AL40
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2
Fluid		Air		
Proof pressure		1.5 MPa		
Maximum operating pressure		1.0 MPa		
Regulating pressure range		0.05 to 0.85 MPa		
Relief pressure		Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature		-5 to 60°C (With no freezing)		
Nominal filtration rating		5 μm		
Recommended lubricant		Class 1 turbine oil (ISO VG32)		
Regulator construction		Relieving type		
Bowl material		Polycarbonate		
Bowl guard		Optional	Standard	
Sight dome material		Polycarbonate		
Weight (kg)		0.78	1.11	1.87

Accessory/Attachment Part No.

Description			Accessory/Attachment part no.		
		Model	ACG20	ACG30	ACG40
Pressure gauge ⁽¹⁾	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
	Optional	0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
Access-ory	Float type auto-drain ⁽²⁾	Normally closed	AD27	AD37	AD47
		Normally open	—	AD38	AD48
Attachment	Spacer		Y200	Y300	Y400
	Spacer with bracket		Y200T	Y300T	Y400T
	Check valve ⁽³⁾ ⁽⁴⁾		AKM2000-□01, □02	AKM3000-(□01), □02	AKM4000-(□02), □03
	Pressure switch ⁽⁴⁾ ⁽⁵⁾		IS1000M-20	IS1000M-30	IS1000M-40
	Residual pressure relief 3 port valve ⁽⁴⁾		VHS20-□01, □02	VHS30-□02, □03	VHS40-□02, □03, □04



Note 1) Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.15 MPa. Contact SMC regarding the specifications for PSI unit and °F.

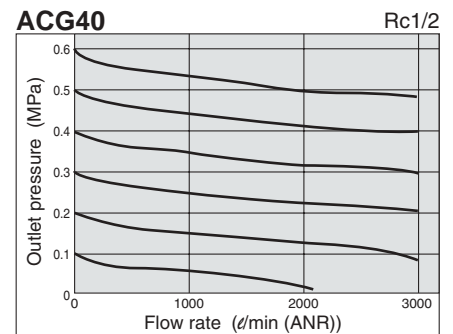
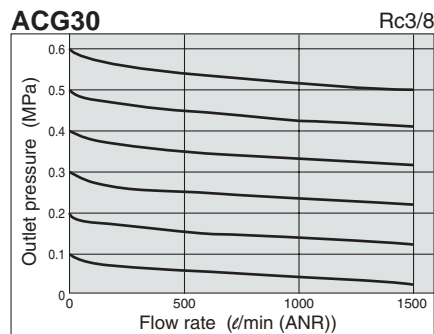
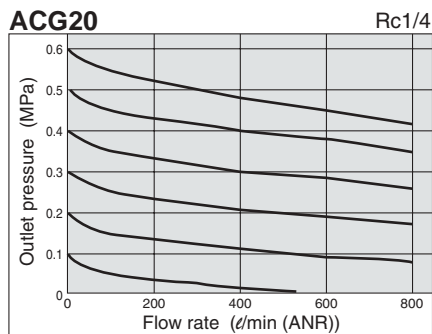
Note 3) For F.R.L. units, port sizes not in () are for standard application.

Note 4) Separate spacers are required for modular unit.

Note 5) Pressure switch cannot be mounted on the inlet and outlet sides of an ARG with an upward facing handle (optional specification: -Y).

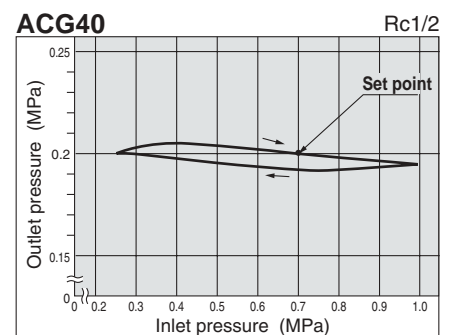
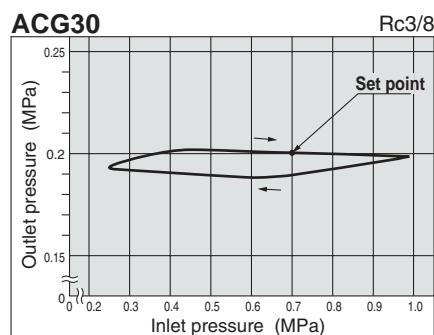
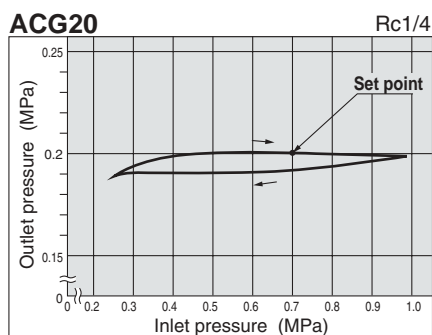
Flow Characteristics

Condition: Inlet pressure 0.7 MPa



Pressure Characteristics

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



⚠ Specific Product Precautions

Piping

⚠ Warning

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

Selection

⚠ Warning

- 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.
- Use a regulator or filter regulator with a back flow mechanism 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.

Selection

⚠ Caution

- Mounting a 3 port valve for residual pressure release on the IN side of the lubricator can cause lubricant to back flow. Take measures to prevent lubricant from splashing by installing a filter on the EXH port.
- 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.
- Contact SMC when mounting a pressure switch, filter regulator on the OUT side of the 3 port valve for residual pressure release.

Air Supply

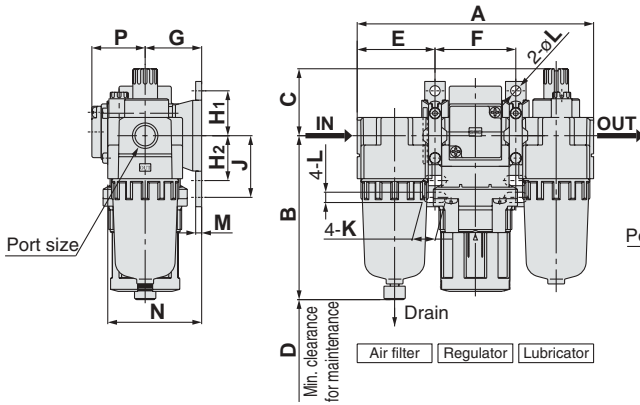
⚠ Caution

- 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.

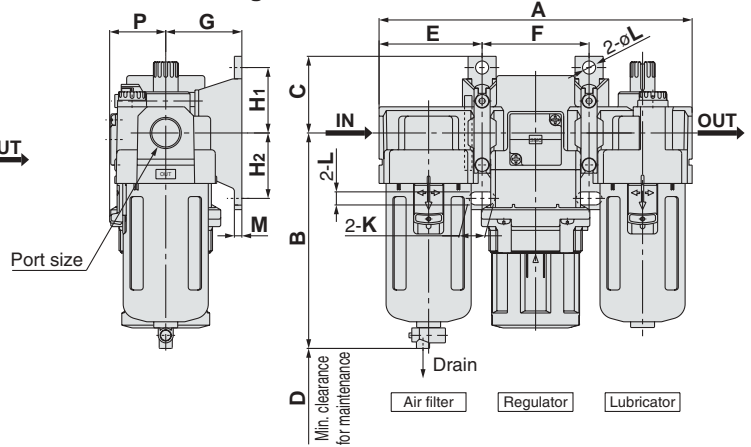
Series ACG20/30/40

Dimensions

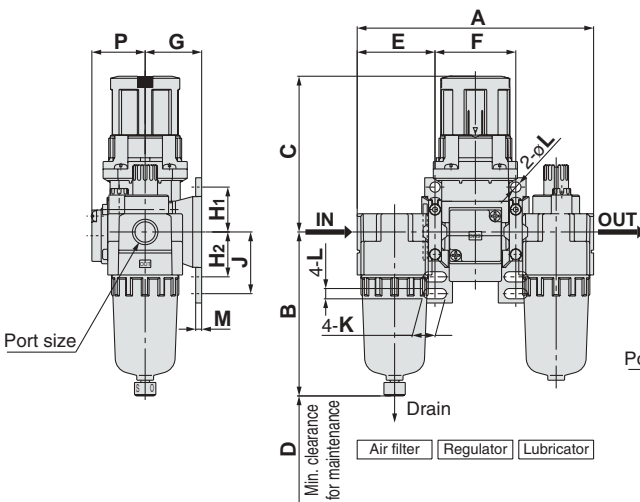
ACG20 Standard Downward facing handle



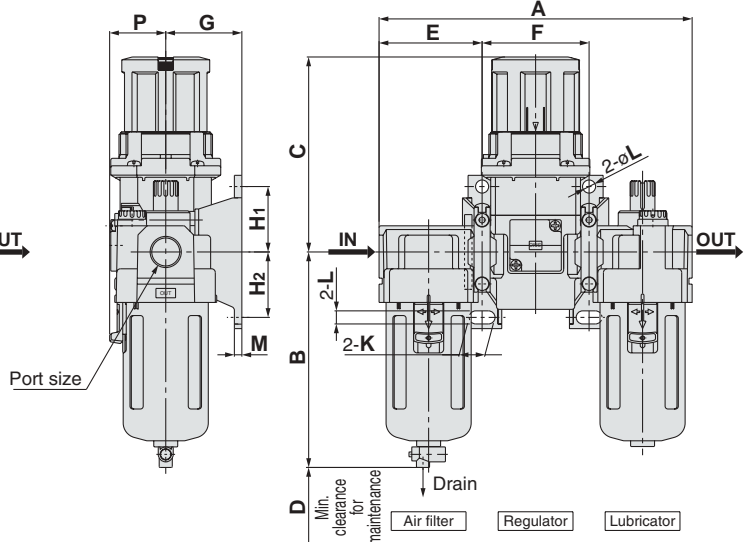
ACG30/40 Standard Downward facing handle



ACG20 Optional (-Y) Upward facing handle



ACG30/40 Optional (-Y) Upward facing handle



Applicable model Accessory/Optional specifications	ACG20				ACG30/40				
	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									
	M5		1/8 Width across flats 17	N.O.: Black N.C.: Gray ø10 One-touch fitting			1/4 Width across flats 17	Barb fitting Applicable tubing: T0604	

Model	Port size	Standard specifications														
		A	B	C	D	P	Bracket mount									
							E	F	G	H ₁	H ₂	J	K	L	øL	M
ACG20	1/8, 1/4	126	87	36	60	28.5	41.5	43	30	24	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	5.5	3.2
ACG30	1/4, 3/8	167	115	41	80	30	55	57	41	35	35	—	14	7	7	4
ACG40	1/4, 3/8, 1/2	220	147	48	110	38	72.5	75	50	40	40	—	18	9	9	4

Model	Accessory/Optional specifications									
	Upward facing handle ⁽²⁾					With auto-drain ⁽³⁾	With barb fitting ⁽³⁾	With drain guide ⁽³⁾	Metal bowl ⁽³⁾	Metal bowl with level gauge ⁽³⁾
	C	H ₂	J	K	L	B	B	B	B	B
ACG20	87	24	33	12	5.5	105	—	91	87	—
ACG30	108.5	35	—	14	7	156	123	122	128	148
ACG40	114.5	40	—	18	9	186	155	154	160	180

Note 1) In the case of the ACG20's standard specification (downward facing handle), the wall mounting is not possible using the lower side mounting hole on the spacer with a bracket. Use the upper side mounting hole when wall mounting.

Note 2) In the case of the upward facing handle in the optional specification, the C dimension will change. Also, in the case of the ACG20, wall mounting is possible by using the lower side mounting hole on the spacer with a bracket.

Note 3) For the accessory/optional specifications (with auto-drain, with barb fitting, with drain guide, metal bowl, or metal bowl with level gauge), the total length (B dimension) will vary.

Air Combination

Filter Regulator + Lubricator

Series ACG20A/30A/40A

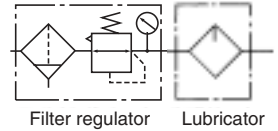


ACG20A



ACG40A

JIS Symbol



Standard Specifications

Model		ACG20A	ACG30A	ACG40A
Component	Filter regulator	AWG20	AWG30	AWG40
	Lubricator	AL20	AL30	AL40
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2
Fluid		Air		
Proof pressure		1.5 MPa		
Maximum operating pressure		1.0 MPa		
Regulating pressure range		0.05 to 0.85 MPa		
Relief pressure		Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature		-5 to 60°C (With no freezing)		
Nominal filtration rating		5 μm		
Recommended lubricant		Class 1 turbine oil (ISO VG32)		
Filter regulator construction		Relieving type		
Bowl material		Polycarbonate		
Bowl guard		Optional	Standard	
Sight dome material		Polycarbonate		
Weight (kg)		0.65	0.86	1.55

Accessory/Attachment Part No.

Description			Accessory/Attachment part no.		
			ACG20A	ACG30A	ACG40A
Pressure gauge ⁽¹⁾	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
	Optional	0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
Accessory	Float type auto-drain ⁽²⁾	Normally closed	AD27	AD37	AD47
		Normally open	—	AD38	AD48
Attachment	Spacer		Y200	Y300	Y400
	Spacer with bracket		Y200T	Y300T	Y400T
	Check valve ⁽³⁾ ₍₄₎		AKM2000-□01, (□02)	AKM3000-(□01), □02	AKM4000-(□02), □03
	Residual pressure relief 3 port valve ⁽⁴⁾		VHS20-□01, □02	VHS30-□02, □03	VHS40-□02, □03, □04



Note 1) Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.15 MPa. Contact SMC regarding the PSI and °F unit specifications.

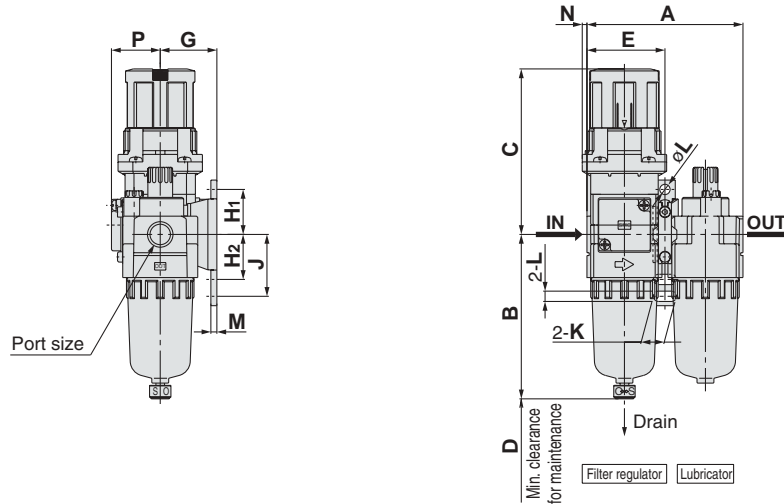
Note 3) For F.R.L. units, port sizes not in () are for standard application.

Note 4) Separate spacers are required for modular unit.

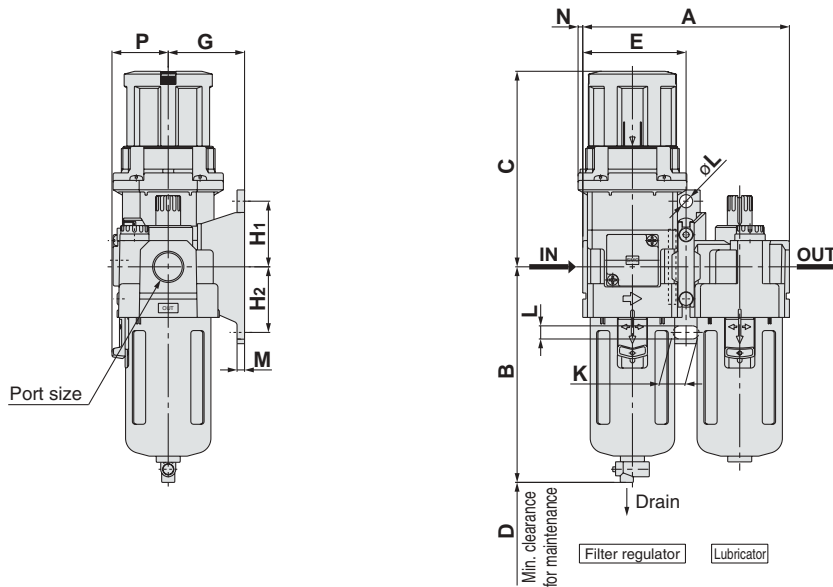
Series ACG20A/30A/40A

Dimensions

ACG20A



ACG30A/40A



Applicable model Accessory/Optional specifications	ACG20A				ACG30A/40A			
	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	Port size	Standard specifications														
		A	B	C	D	N	P	Bracket mount								
		E	G	H1	H2	J	K	L	øL	M						
ACG20A	1/8, 1/4	83	87	91	60	2.5	26	41.5	30	24	24	33	12	5.5	5.5	3.2
ACG30A	1/4, 3/8	110	115	108.5	80	2.5	30	55	41	35	35	—	14	7	7	4
ACG40A	1/4, 3/8, 1/2	145	147	114.5	110	0	38	72.5	50	40	40	—	18	9	9	4

Model	Accessory/Optional specifications ^{Note)}				
	With auto-drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B	B
ACG20A	105	—	91	87	—
ACG30A	156	123	122	128	148
ACG40A	186	155	154	160	180

Note) For the accessory/optional specifications (with auto-drain, with barb fitting, with drain guide, metal bowl, or with level gauge), the total length (B dimension) will vary.

Air Combination

Air Filter + Regulator

Series ACG20B/30B/40B

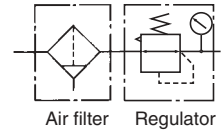


ACG20B



ACG40B

JIS Symbol



Standard Specifications

Model		ACG20B	ACG30B	ACG40B
Component	Air filter	AF20	AF30	AF40
	Regulator	ARG20	ARG30	ARG40
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2
Fluid		Air		
Proof pressure		1.5 MPa		
Maximum operating pressure		1.0 MPa		
Regulating pressure range		0.05 to 0.85 MPa		
Relief pressure		Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature		-5 to 60°C (With no freezing)		
Nominal filtration rating		5 μm		
Regulator construction		Relieving type		
Bowl material		Polycarbonate		
Bowl guard		Optional	Standard	
Weight (kg)		0.56	0.74	1.25

Accessory/Attachment Part No.

Description			Accessory/Attachment part no.		
			ACG20B	ACG30B	ACG40B
Pressure gauge ⁽¹⁾	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
	Optional	0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
Accessory	Float type auto-drain ⁽²⁾	Normally closed	AD27	AD37	AD47
		Normally open	—	AD38	AD48
Attachment	Spacer		Y200	Y300	Y400
	Spacer with bracket		Y200T	Y300T	Y400T
	Pressure switch ⁽³⁾ ⁽⁴⁾		IS1000M-20	IS1000M-30	IS1000M-40
	Residual pressure relief 3 port valve ⁽³⁾		VHS20-□01, □02	VHS30-□02, □03	VHS40-□02, □03, □04



Note 1) Contact SMC regarding pressure gauge supply for PSI unit specifications.

Note 2) Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.15 MPa. Contact SMC regarding the PSI and °F unit specifications.

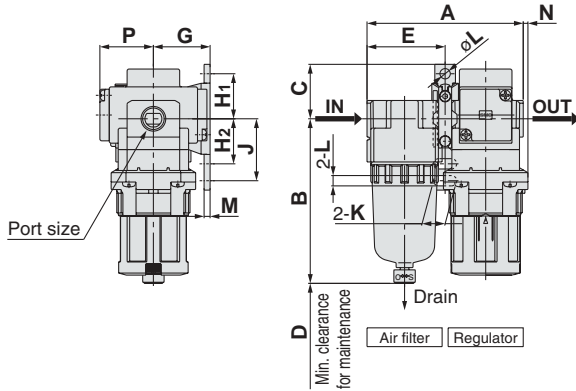
Note 3) Separate spacers are required for modular unit.

Note 4) Pressure switch cannot be mounted on the inlet and outlet sides of an ARG with an upward facing handle (optional specification: -Y).

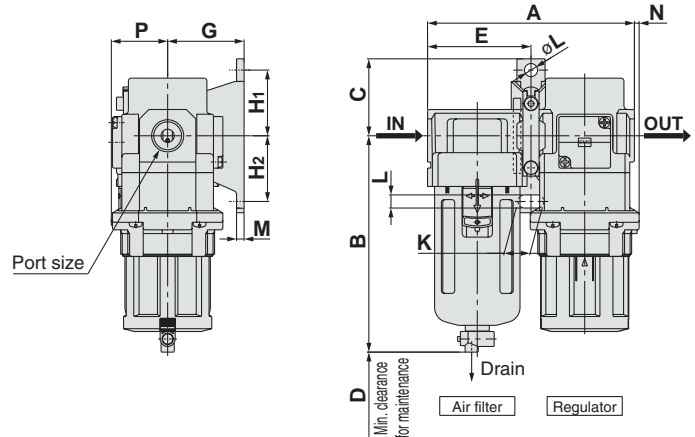
Series ACG20B/30B/40B

Dimensions

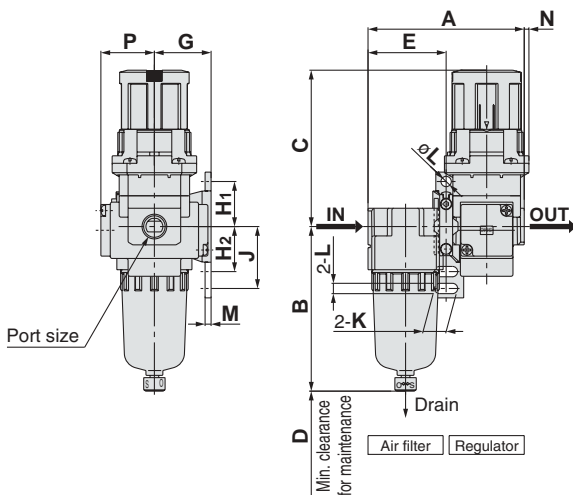
ACG20B Standard Downward facing handle



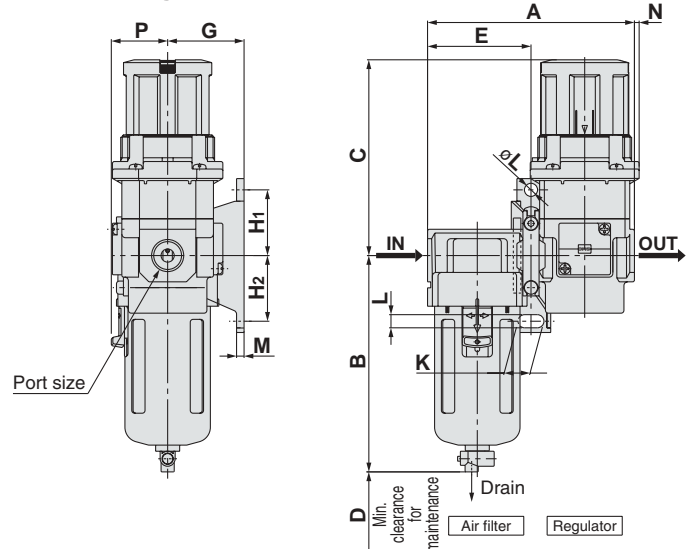
ACG30B/40B Standard Downward facing handle



ACG20B Optional (-Y) Upward facing handle



ACG30B/40B Optional (-Y) Upward facing handle



Applicable model Accessory/Optional specifications	ACG20B				ACG30B/40B				
	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									
	M5		1/8 Width across flats 17	N.C.: Black N.C.: Gray ø10 One-touch fitting			1/4 Width across flats 17	Barb fitting Applicable tubing: T0604	

Model	Port size	Standard specifications														
		A	B	C	D	N	P	Bracket mount								
		E	G	H1	H2	J	K	L	øL	M						
ACG20B	1/8, 1/4	83	87	29	60	2.5	28.5	41.5	30	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	3.2
ACG30B	1/4, 3/8	110	115	41	80	2.5	29.5	55	41	35	35	—	14	7	7	4
ACG40B	1/4, 3/8, 1/2	145	147	48	110	0	38	72.5	50	40	40	—	18	9	9	4

Model	Accessory/Optional specifications														
	Upward facing handle ⁽²⁾							With auto-drain ⁽³⁾	With barb fitting ⁽³⁾	With drain guide ⁽³⁾	Metal bowl ⁽³⁾	Metal bowl with level gauge ⁽³⁾			
	C	H1	H2	J	K	L	øL	B	B	B	B	B			
ACG20B	87	24	24	33	12	5.5	5.5	105	—	91	87	—			
ACG30B	108.5	35	35	—	14	7	7	156	123	122	128	148			
ACG40B	114.5	40	40	—	18	9	9	186	155	154	160	180			

Note 1) In the case of the ACG20B's standard specification (downward facing handle), the wall mounting is not possible using the lower side mounting hole on the spacer with a bracket. Contact SMC.

Note 2) In the case of the upward facing handle in the optional specification, the C dimension will change. Also, in the case of the ACG20B, wall mounting is possible by using the lower side mounting hole on the spacer with a bracket.

Note 3) For the accessory/optional specifications (with auto-drain, with barb fitting, with drain guide, metal bowl, or metal bowl with level gauge), the total length (B dimension) will vary.

Air Combination

Air Filter + Mist Separator + Regulator

Series ACG20C/30C/40C

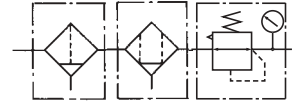


ACG20C



ACG40C

JIS Symbol



Air filter Mist Separator Regulator

Standard Specifications

Model		ACG20C	ACG30C	ACG40C
Component	Air filter	AF20	AF30	AF40
	Mist separator	AFM20	AFM30	AFM40
	Regulator	ARG20	ARG30	ARG40
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2
Fluid		Air		
Proof pressure		1.5 MPa		
Maximum operating pressure		1.0 MPa		
Regulating pressure range		0.05 to 0.85 MPa		
Rated flow (l/min (ANR)) ⁽¹⁾		200	450	1100
Relief pressure		Set pressure + 0.05 MPa (at relief flow rate of 0.1 l/min (ANR))		
Ambient and fluid temperature		-5 to 60°C (With no freezing)		
Nominal filtration rating		AF: 5 μm; AFM: 0.3 μm (95% filtered particle size)		
Outlet side oil mist concentration		Maximum 1.0 mg/Nm ³ (approx. 0.8 ppm) ⁽²⁾		
Regulator construction		Relieving type		
Bowl material		Polycarbonate		
Bowl guard		Optional	Standard	
Weight (kg)		0.79	1.06	1.89

Note 1) P₁ = 0.7 MPa, 0.5 MPa setting and fully open
 Note 2) At compressor discharge 30 mgf/Nm³.

Accessory/Attachment Part No.

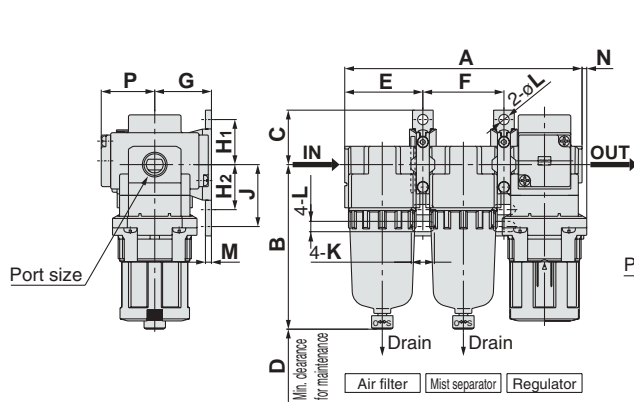
Description			Accessory/Attachment part no.		
Model			ACG20C	ACG30C	ACG40C
Pressure gauge ⁽¹⁾	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
	Optional	0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
Accessory	Float type auto-drain ⁽²⁾	Normally closed	AD27	AD37	AD47
		Normally open	—	AD38	AD48
Attachment	Spacer		Y200	Y300	Y400
	Spacer with bracket		Y200T	Y300T	Y400T
	Pressure switch ⁽³⁾		IS1000M-20	IS1000M-30	IS1000M-40
	Residual pressure relief 3 port valve ⁽³⁾		VHS20-□01, □02	VHS30-□02, □03	VHS40-□02, □03, □04

Note 1) Contact SMC regarding pressure gauge supply for PSI unit specifications.
 Note 2) Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.15 MPa. Contact SMC regarding the PSI and °F unit specifications.
 Note 3) Separate spacers are required for modular unit.
 Note 4) Pressure switch cannot be mounted on the inlet and outlet sides of an ARG with an upward facing handle (optional specification: -Y).

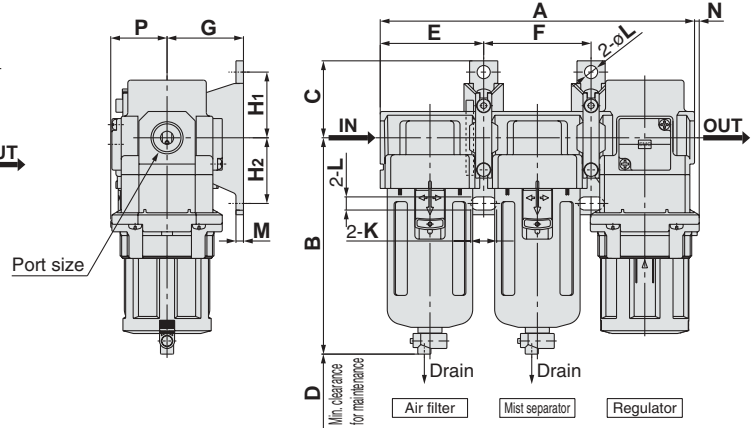
Series ACG20C/30C/40C

Dimensions

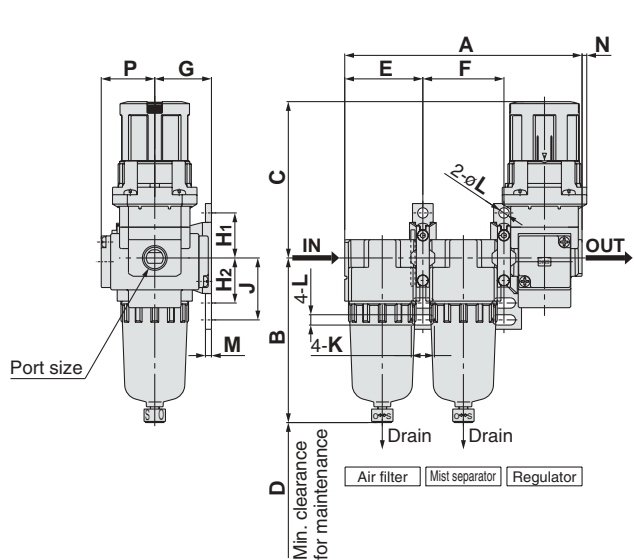
ACG20C Standard Downward facing handle



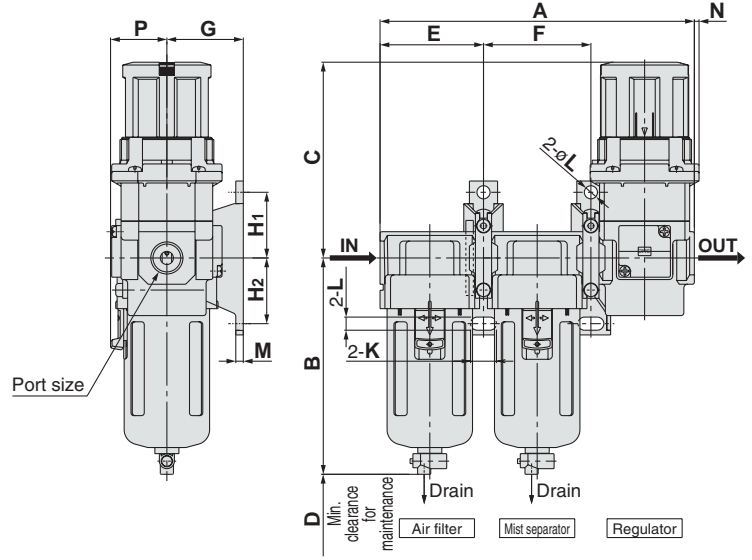
ACG30C/40C Standard Downward facing handle



ACG20C Optional (-Y) Upward facing handle



ACG30C/40C Optional (-Y) Upward facing handle



Applicable model Accessory/Optional specifications	ACG20C				ACG30C/40C			
	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	Port size	Standard specifications															
		A	B	C	D	N	P	Bracket mount									
		E	F	G	H ₁	H ₂	J	K	L	øL	M						
ACG20C	1/8, 1/4	41.5	43	30	24	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	5.5	3.2						
ACG30C	1/4, 3/8	55	57	41	35	35	—	14	7	7	4						
ACG40C	1/4, 3/8, 1/2	72.5	75	50	40	40	—	18	9	9	4						

Model	Accessory/Optional specifications									
	Upward facing handle ⁽²⁾					With auto-drain ⁽³⁾	With barb fitting ⁽³⁾	With drain guide ⁽³⁾	Metal bowl ⁽³⁾	Metal bowl with level gauge ⁽³⁾
	C	H ₂	J	K	L	B	B	B	B	B
ACG20C	87	24	33	12	5.5	105	—	91	87	—
ACG30C	108.5	35	—	14	7	156	123	122	128	148
ACG40C	114.5	40	—	18	9	186	155	154	160	180

Note 1) In the case of the ACG20C's standard specification (downward facing handle), the wall mounting is not possible using the lower side mounting hole on the spacer with a bracket. Use the upper side mounting hole when wall mounting.

Note 2) In the case of the upward facing handle in the optional specification, the C dimension will change. Also, in the case of the ACG20C, wall mounting is possible by using the lower side mounting hole on the spacer with a bracket.

Note 3) For the accessory/optional specifications (with auto-drain, with barb fitting, with drain guide, metal bowl, or metal bowl with level gauge), the total length (B dimension) will vary.

Air Combination

Filter Regulator + Mist Separator

Series ACG20D/30D/40D

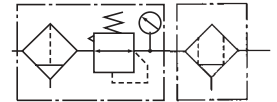


ACG20D



ACG40D

JIS Symbol



Filter regulator Mist Separator

Standard Specifications

Model		ACG20D	ACG30D	ACG40D
Component	Filter regulator	AWG20	AWG30	AWG40
	Mist separator	AFM20	AFM30	AFM40
Port size		1/8 1/4	1/4 3/8	1/4 3/8 1/2
Fluid		Air		
Proof pressure		1.5 MPa		
Maximum operating pressure		1.0 MPa		
Regulating pressure range		0.05 to 0.85 MPa		
Rated flow (l/min (ANR)) ⁽¹⁾		150	330	800
Relief pressure		Set pressure + 0.05 MPa (at relief flow rate of 0.1 l/min (ANR))		
Ambient and fluid temperature		-5 to 60°C (With no freezing)		
Nominal filtration rating		AF: 5 μm; AFM: 0.3 μm (95% filtered particle size)		
Outlet side oil mist concentration		Maximum 1.0 mg/Nm ³ (approx. 0.8 ppm) ⁽²⁾		
Regulator construction		Relieving type		
Bowl material		Polycarbonate		
Bowl guard		Optional	Standard	
Weight (kg)		0.63	0.85	1.52



Note 1) P₁ = 0.7 MPa, 0.5 MPa setting and fully open
 Note 2) At compressor discharge 30 mgf/Nm³.

Accessory/Attachment Part No.

Description			Accessory/Attachment part no.		
		Model	ACG20D	ACG30D	ACG40D
Pressure gauge ⁽¹⁾	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
	Optional	0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
Access-ory	Float type auto-drain ⁽²⁾	Normally closed	AD27	AD37	AD47
		Normally open	—	AD38	AD48
Attach-ment	Spacer		Y200	Y300	Y400
	Spacer with bracket		Y200T	Y300T	Y400T
	Residual pressure relief 3 port valve ⁽³⁾		VHS20-□01, □02	VHS30-□02, □03	VHS40-□02, □03, □04

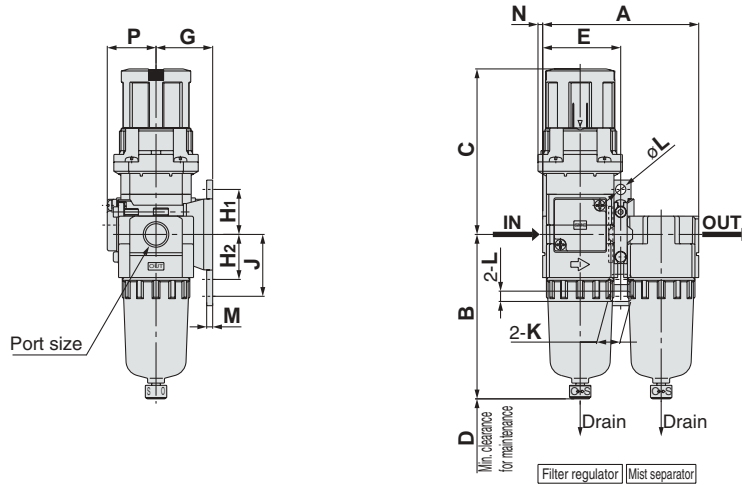


Note 1) Contact SMC regarding pressure gauge supply for PSI unit specifications.
 Note 2) Minimum operating pressure: N.O. type—0.1 MPa; N.C. type—0.15 MPa. Contact SMC regarding the PSI and °F unit specifications.
 Note 3) Separate spacers are required for modular unit.

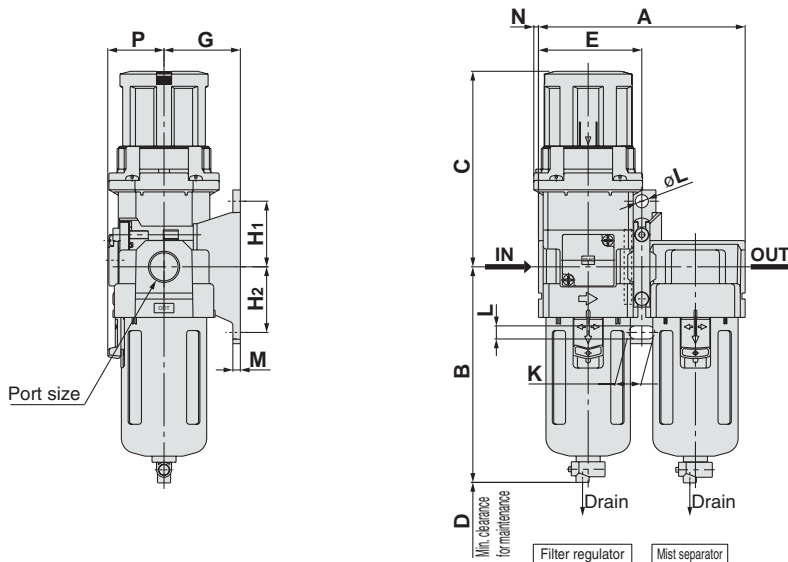
Series ACG20D/30D/40D

Dimensions

ACG20D



ACG30D/40D



Applicable model	ACG20D			ACG30D/40D				
Accessory/Optional specifications	With auto-drain (N.C.)	Metal bowl	With rain 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	Port size	Standard specifications															
		A	B	C	D	N	P	Bracket mount									
								E	G	H1	H2	J	K	L	øL	M	
ACG20D	1/8, 1/4	83	87	91	60	2.5	26	41.5	30	24	24	33	12	5.5	5.5	3.2	
ACG30D	1/4, 3/8	110	115	108.5	80	2.5	30	55	41	35	35	—	14	7	7	4	
ACG40D	1/4, 3/8, 1/2	145	147	114.5	110	0	38	72.5	50	40	40	—	18	9	9	4	

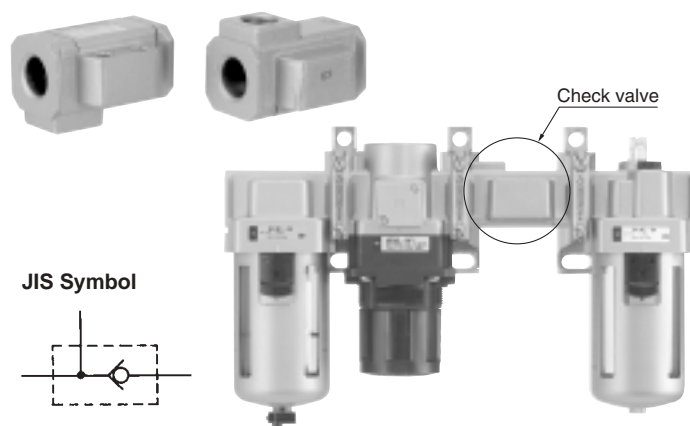
Model	Accessory/Optional specifications ^{Note)}				
	With auto-drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B	B
ACG20D	105	—	91	87	—
ACG30D	156	123	122	128	148
ACG40D	186	155	154	160	180

Note) For the accessory/optional specifications (with auto-drain, with barb fitting, with drain guide, metal bowl, or metal bowl with level gauge), the total length (B dimension) will vary.

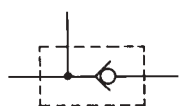
Series ACG Air Combination Attachments

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

A check valve with intermediate air release port can be easily installed to prevent a back flow of lubricant when redirecting the air flow and releasing the air on the outlet side of the regulator.



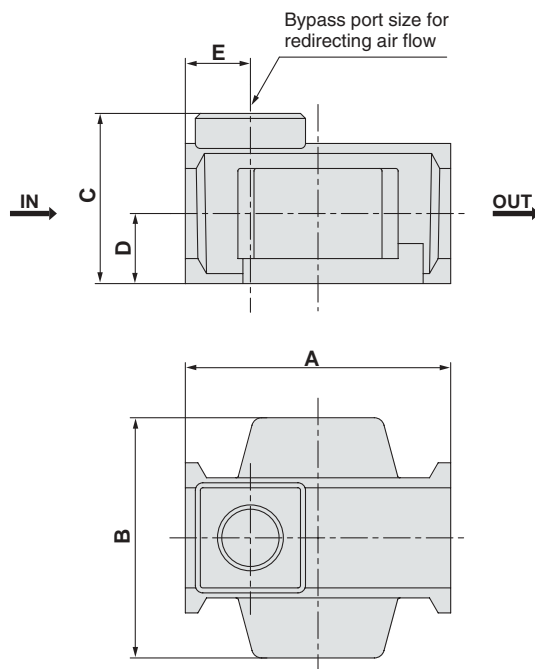
JIS Symbol



Specifications

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

Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator. Threads for IN and OUT ports are not machined.



Model	Bypass port size	A	B	C	D	E	Applicable model
AKM2000	1/8, 1/4	40	40	28	11	11	ACG20/ACG20A
AKM3000	1/8, 1/4	53	48	34	14	13	ACG30/ACG30A
AKM4000	1/4, 3/8	70	54	42	18	15	ACG40/ACG40A

* Refer to the attachment table on page 4 or 7 for standard bypass port sizes applicable to ACG.

How to Order

AKM 30 00 - 01

Check valve

Body size

20	30	40
----	----	----

Bypass port size for redirecting air flow

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	●	—
02	1/4	●	●	●
03	3/8	—	—	●

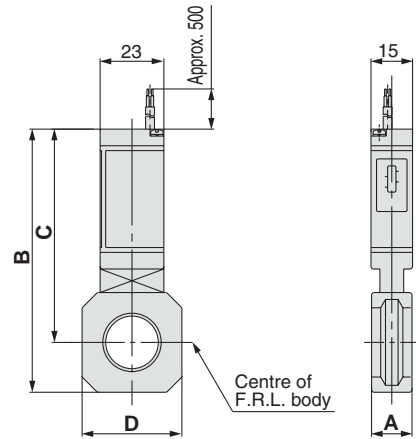
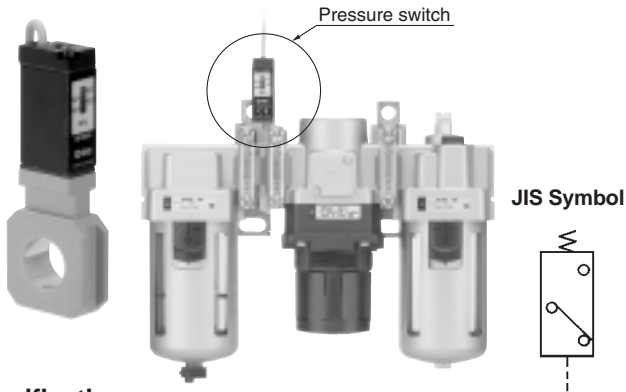
Thread type

-	Rc
N	NPT
F	G

Series ACG

Pressure Switch (S)

A compact integrated pressure switch can be easily installed and facilitates the pressure detection of the line.



Specifications

Fluid	Air
Proof pressure	1.0 MPa
Maximum operating pressure	0.7 MPa
Regulating pressure range (when off)	0.1 to 0.4 MPa
Differential	0.08 MPa
Ambient and fluid temperature	-5 to 60°C (With no freezing)

Model	A	B	C	D	Applicable model
IS1000M-20	11	76	66	28	ACG20/ACG20B/ACG20C
IS1000M-30	13	86	72	30	ACG30/ACG30B/ACG30C
IS1000M-40	15	95	77	36	ACG40/ACG40B/ACG40C

Note 1) Separate spacers are required for modular unit.

Note 2) Pressure switch cannot be mounted on the inlet and outlet sides of an ARG with an upward facing handle (optional specification: -Y).

Switch Characteristics

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

How to Order

IS1000M-30-X201

Pressure switch

Body size

20	For ACG20
30	For ACG30
40	For ACG40

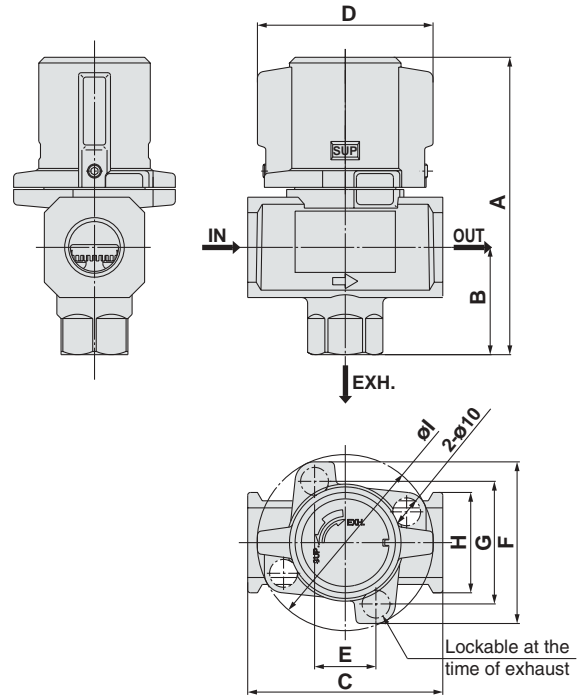
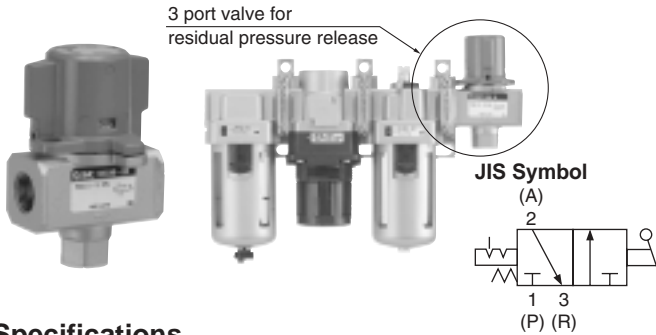
Accessory

X201	Lead wire length: 3 m
X202	Regulating pressure range: 0.1 to 0.6 MPa
X207*	MPa/PSI dual scale
X215	Lead wire length: 3 m; Regulating pressure range: 0.1 to 0.6 MPa

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

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.



Specifications

Model	Port size		Effective area (mm ²) (): Effective Area mm ² (Cv)	
	IN,OUT	EXH.	IN→OUT	OUT→EXH.
VHS20	1/8	1/8	10 (0.54)	11 (0.60)
	1/4		14 (0.76)	16 (0.87)
VHS30	1/4	1/4	16 (0.87)	14 (0.76)
	3/8		31 (1.68)	29 (1.57)
VHS40	1/4	3/8	27 (1.46)	36 (1.95)
	3/8		38 (2.06)	40 (2.17)
	1/2		55 (2.98)	42 (2.28)

Note) Use an air filter on the IN side for operating protection.

How to Order

VHS 30 **03** **RZ**

Residual pressure relief 3 port valve

Body size

Symbol	Applicable model
20	ACG20
30	ACG30
40	ACG40

Thread type

-	Rc
N	NPT
F	G

Port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

Option

Code	Description
R	Flow direction: Right → Left
Z ⁽¹⁾	Name plate in imperial units (PSI, °F)

Note 1) Only for the NPT thread.

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

(mm)

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

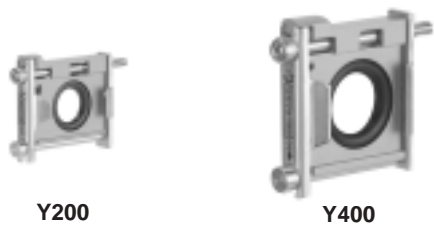
Caution

1. Consult with SMC when a pressure switch is installed on the outlet of pressure release valve.
2. 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 ²)
VHS20	5
VHS30	5

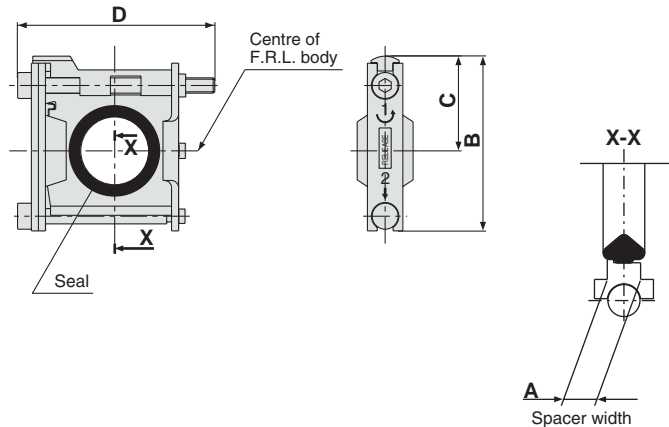
Series AC Spacers and Brackets Accessories

Spacer (X)



Y200

Y400

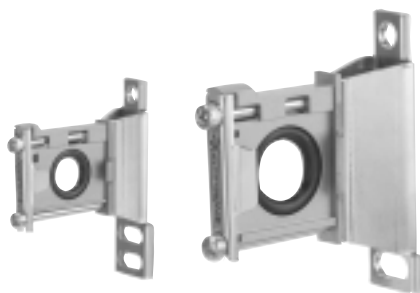


Model	A	B	C	D	Applicable model
Y200	3	35.5	18.5	48	ACG20□
Y300	4	47	26	59	ACG30□
Y400	5	57	31	65	ACG40□

Replacement Parts

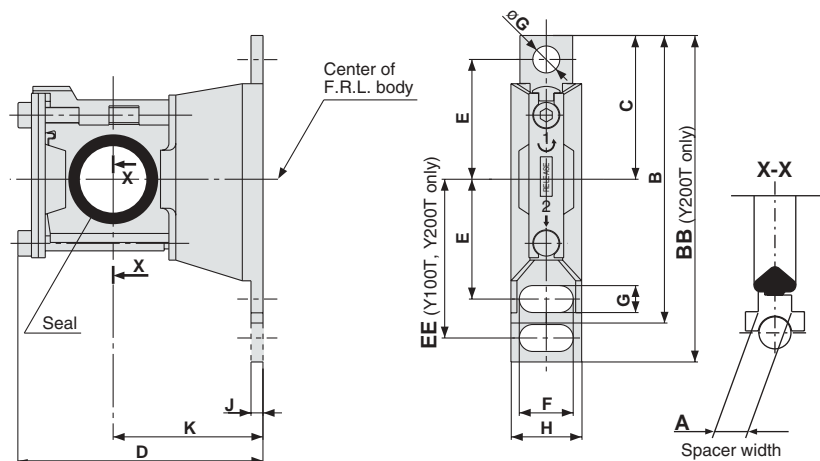
Description	Material	Part no.		
		Y200	Y300	Y400
Seal	HNBR	Y200P-060S	Y300P-060S	Y400P-060S

Spacer with Bracket (Z)



Y200T

Y400T


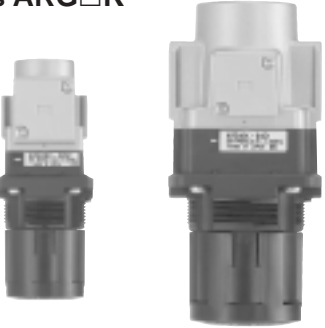


Model	A	B	BB	C	D	E	EE	F	G	øG	H	J	K	Applicable model
Y200T	3	—	67	29	53	24	33	12	5.5	5.5	19	3.2	30	ACG20□
Y300T	4	82	—	41	68	35	—	14	7	7	21	4	41	ACG30□
Y400T	5	96	—	48	81.5	40	—	18	9	9	26	4	50	ACG40□

Replacement Parts

Description	Material	Part no.		
		Y200T	Y300T	Y400T
Seal	HNBR	Y200P-060S	Y300P-060S	Y400P-060S

Modular Style Regulator with Built-in Pressure Gauge Series ARG

Regulator with Built-in Pressure Gauge Series ARG	Model	Port size	Accessory
 <p data-bbox="140 922 351 958">Pages 20 to 23</p>	ARG20	1/8, 1/4	Bracket Set nut for changing the mounting angle of pressure gauges
	ARG30	1/4, 3/8	
	ARG40	1/4, 3/8, 1/2	
 <p data-bbox="140 1370 351 1404">Pages 24 to 28</p>	ARG20K	1/8, 1/4	
	ARG30K	1/4, 3/8	
	ARG40K	1/4, 3/8, 1/2	

Regulator with Built-in Pressure Gauge

Series ARG20/30/40

How to Order



ARG20



ARG40

ARG 20 — 01 — G1 —

Body size

Symbol	Port size
20	1/8
30	3/8
40	1/2

Thread type

Symbol	Type
-	Rc
N	NPT
F	G

Port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

Option

Symbol	Description
-	—
1 ⁽¹⁾	0.02 to 0.2 MPa setting
N	Non-relieving type
Z ⁽²⁾	Name plate and pressure gauge in imperial units (PSI)



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

Note 1) Adjusting spring and pressure gauge (full-span 0.3 MPa) are different from those for the standard specification.

Outlet pressure may increase by 0.2 MPa or more.

Note 2) For thread type NPT.

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

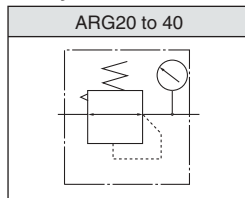
Accessory (2)

Symbol	Description
-	—
H	With set nut

Accessory (1)

Symbol	Description
-	—
B	With bracket (With nuts)

JIS Symbol



Mounting Angle of Pressure Gauge

Symbol	G1	G2	G3	G4
Mounting angle	0°	90°	180°	270°
Mounting angle view				

* Mounting angles other than 45°, 135°, 225° and 315° are available through the Made to Order (page 29).

* Possible to change to the optional mounting angles.

For details, refer to back page 6, "Procedure for replacing or changing the mounting angle of a pressure gauge".

⊙: Combination available

■: Combination not available

△: Available only with NPT thread

Accessory/Optional Combinations

Accessory/Optional specifications		Combination Symbol	Accessory		Option			Applicable regulator
			B	H	1	N	Z	
Accessory	With bracket	B	■	■	⊙	⊙	△	⊙
	With set nut	H	■	■	⊙	⊙	△	⊙
Option	0.02 to 0.2 MPa setting	-1	⊙	⊙	■	⊙	△	⊙
	Non-relieving type	-N	⊙	⊙	⊙	■	△	⊙
	Name plate and pressure gauge in imperial units (PSI)	-Z	△	△	△	△	■	△

Regulator with Built-in Pressure Gauge *Series ARG20/30/40*

Standard Specifications

Model	ARG20	ARG30	ARG40
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Regulating pressure range	0.05 to 0.85 MPa		
Relief pressure	Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature	-5° to 60°C (With no freezing)		
Construction	Relieving type		
Weight (kg)	0.31	0.40	0.57

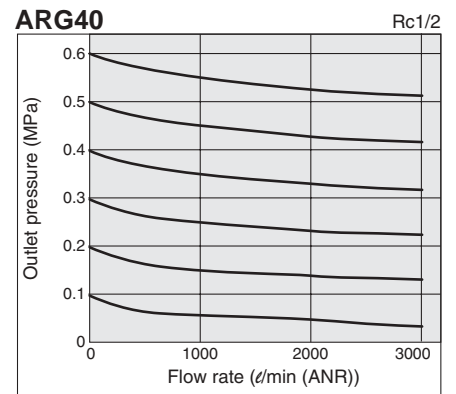
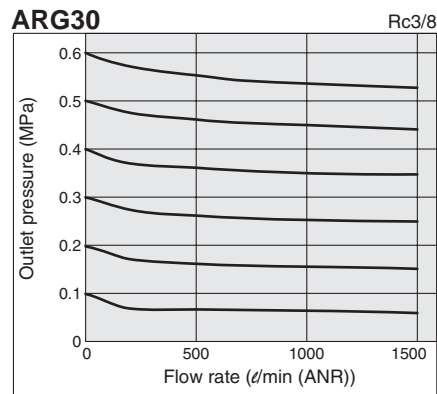
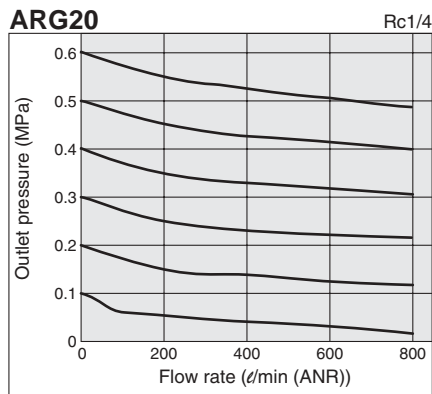
Accessory Part No.

Accessory		Applicable model	ARG20	ARG30	ARG40	
Bracket assembly ⁽¹⁾			ARG20P-270AS	ARG30P-270AS	ARG40P-270AS	
Set nut			ARG20P-260S	ARG30P-260S	ARG40P-260S	
Pressure gauge	Pressure gauge display range	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
		Optional	0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
			0 to 150 PSI	GB2-P10AS	GB3-P10AS	GB4-P10AS
			0 to 45 PSI	GB2-P3AS	GB3-P3AS	GB4-P3AS

Note 1) Assembly includes a bracket and set nuts.

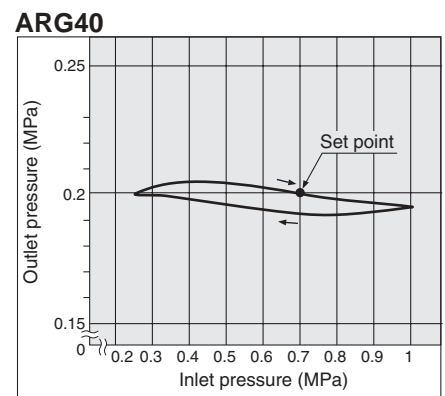
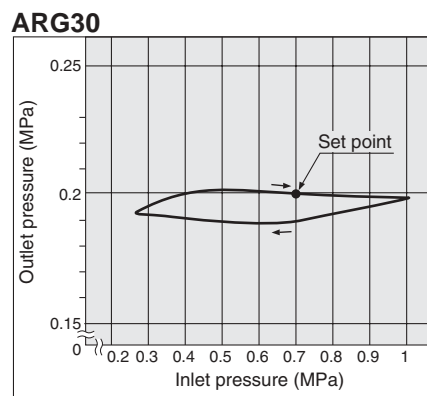
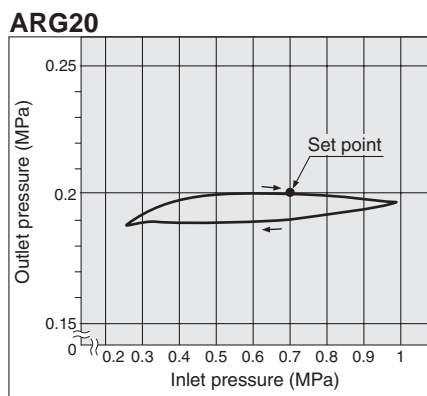
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa



Pressure Characteristics (Representative values)

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



Series ARG20/30/40

⚠ Specific Product Precautions

Be sure to read before handling. Refer to back pages 1 through to 5 for Safety Instructions and Precautions.

Mounting and Adjustment

⚠ Warning

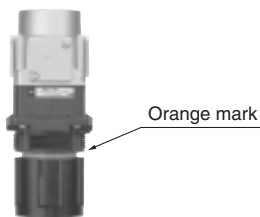
1. Set the regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator handle excessively can cause damage to the internal parts.
2. Do not use tools on the pressure regulator handle as this may cause damage. It must be operated manually.

⚠ Caution

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

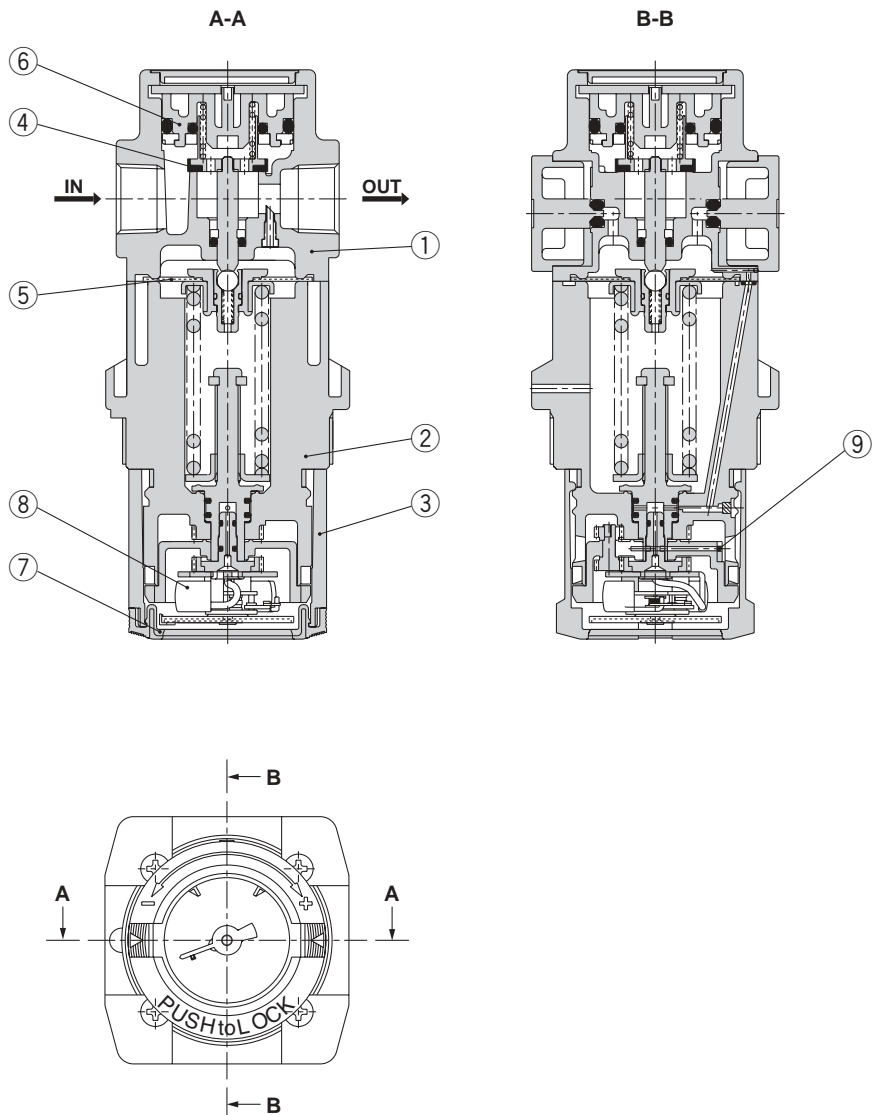
Failure to follow this procedure can cause damage to the handle and the outlet pressure may fluctuate.

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



2. When using the regulator between a solenoid valve and an actuator, check the pressure gauge periodically.

Construction



Component Parts

No.	Description	Material			Note
		ARG20	ARG30	ARG40	
1	Body	ZDC	ADC		Platinum silver
2	Bonnet	PBT			Black
3	Handle	POM			Black

Replacement Parts

No.	Description	Material	Part no.		
			ARG20	ARG30	ARG40
4	Valve	Brass, HNBR	AR20P-410S	AR30P-410S	AR40P-410S
5	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
6	Valve guide assembly	POM, NBR	AR20P-050AS	AR30P-050AS	AR40P-050AS
7	Pressure gauge cover	PC	ARG20P-400S	ARG30P-400S	ARG40P-400S
8	Pressure gauge	—	GB2-10AS	GB3-10AS	GB4-10AS
9	Clip	Stainless steel	ARG20P-420S	ARG30P-420S	ARG40P-420S

Note) Only the standard part numbers are listed in the pressure gauges. For the optional part numbers, refer to page 21.

Dimensions

Panel fitting dimension

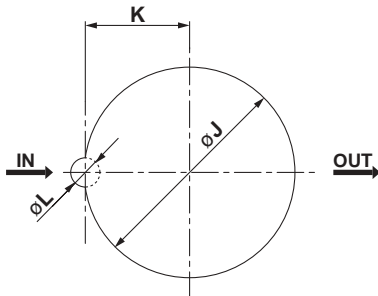
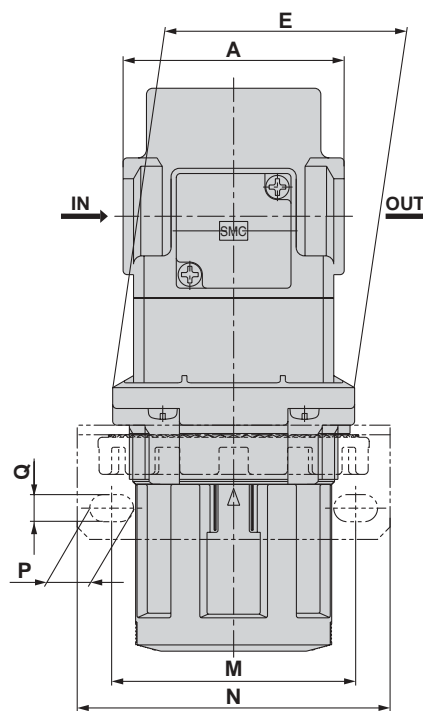
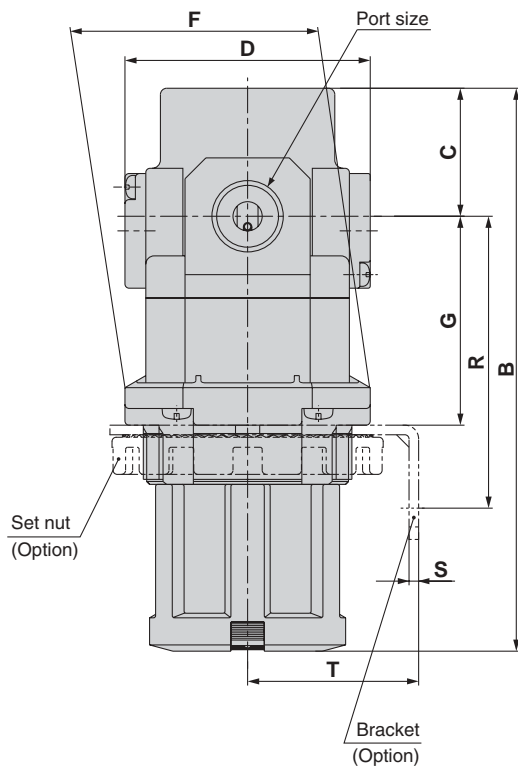
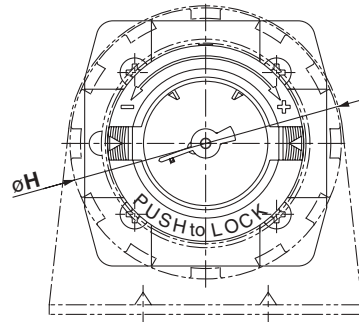


Plate thickness
ARG20 to 40: Max. 3.5



Model	Port size	Standard specifications						Accessory specifications											
		A	B	C	D	E	F	Panel mount					Bracket mount						
								G	H	J	K	L	M	N	P	Q	R	S	T
ARG20	1/8, 1/4	40	114	26.5	57	45	47	38	52.5	39.5	19.5	6	48	65	10.4	5.4	60	2.3	35
ARG30	1/4, 3/8	53	138.5	31	59	58	59	50	65	50.5	25	7	59	75	10.5	6.5	70	2.3	45
ARG40	1/4, 3/8, 1/2	70	150.5	36	68	70	70	54	70	55.5	27.5	7	65.5	85	12.5	8.5	75	2.3	50

Regulator with Built-in Pressure Gauge with Back Flow Mechanism

Series ARG20K/30K/40K

How to Order



ARG20K



ARG40K

ARG 20 K- 01 G1

Body size

Symbol	Port size
20	1/8
30	3/8
40	1/2

With back flow mechanism

Note 1) If the set pressure is not exceeding 0.15 MPa, back flow may not occur. Contact SMC when a back flow mechanism is required with a set pressure of less than 0.15 MPa.

Thread type

Symbol	Type
-	Rc
N	NPT
F	G

Port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

Option

Symbol	Description
-	—
1 ⁽²⁾	0.02 to 0.2 MPa setting
N	Non-relieving type
Z ⁽³⁾	Name plate and pressure gauge in imperial units (PSI)



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

Note 2) Adjusting spring and pressure gauge (full-span 0.3 MPa) are different from those for the standard specification. Outlet pressure may still be increased from 0.2 MPa or more.

Note 3) For thread type NPT.

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

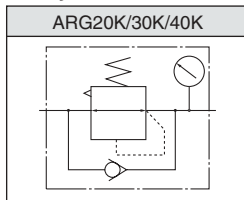
Accessory (2)

Symbol	Description
-	—
H	With set nut

Accessory (1)

Symbol	Description
-	—
B	With bracket (With nuts)

JIS Symbol



Mounting Angle of Pressure Gauge

Symbol	G1	G2	G3	G4
Mounting angle	0°	90°	180°	270°
Mounting angle view				

* Mounting angles other than 45°, 135°, 225° and 315° are available through the Made to Order (page 29).

* Possible to change to the optional mounting angles.

For details, refer to back page 6, "Procedure for replacing or changing the mounting angle of a pressure gauge".

Accessory/Optional Combinations

- ⊙: Combination available
- : Varies depending on a model
- : Combination not available
- △: Available only with NPT thread

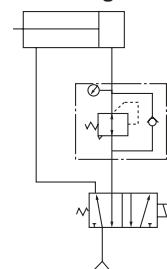
Accessory/Optional specifications	Combination	Symbol	Accessory		Option			Applicable regulator
			B	H	1	N	Z	
Accessory	With bracket	B	■	■	⊙	⊙	△	⊙
	With set nut	H	■	■	⊙	⊙	△	⊙
Option	0.02 to 0.2 MPa setting	-1	⊙	⊙	■	⊙	△	⊙
	Non-relieving type	-N	⊙	⊙	⊙	■	△	⊙
	Name plate and pressure gauge in imperial units (PSI)	-Z	△	△	△	△	■	△

Application examples of a regulator with a back flow mechanism

With a built-in mechanism which enables reliable discharge of air pressure from outlet to inlet

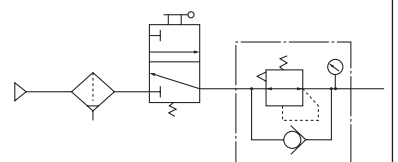
Example 1)
When the pressure in the rear and the front of the cylinder differs:

Circuit diagram



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.

Circuit diagram



Regulator with Built-in Pressure Gauge with Back Flow Mechanism *Series ARG20K/30K/40K*

Standard Specifications

Model	ARG20K	ARG30K	ARG40K
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Regulating pressure range ⁽¹⁾	0.05 to 0.85 MPa		
Relief pressure	Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature	-5° to 60°C (With no freezing)		
Construction	Relieving type		
Weight (kg)	0.31	0.40	0.57

Note 1) Set the inlet pressure to 0.05 MPa or higher than the set pressure.

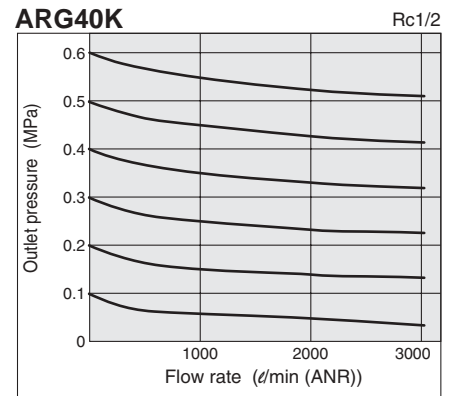
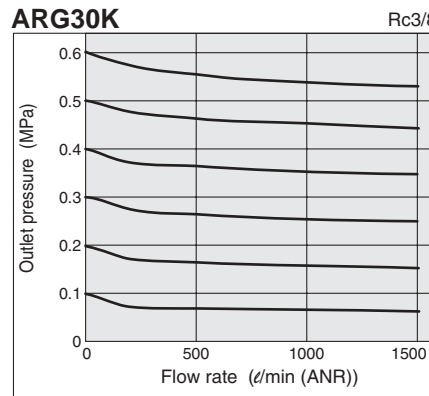
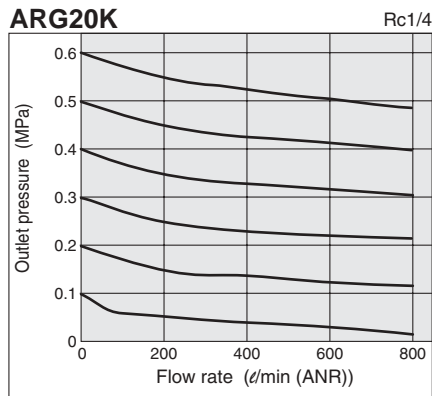
Accessory Part No.

Applicable model				ARG20K	ARG30K	ARG40K
Accessory						
Bracket assembly ⁽¹⁾				ARG20P-270AS	ARG30P-270AS	ARG40P-270AS
Set nut				ARG20P-260S	ARG30P-260S	ARG40P-260S
Pressure gauge	Pressure gauge display range	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
			0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
		Optional	0 to 150 PSI	GB2-P10AS	GB3-P10AS	GB4-P10AS
			0 to 45 PSI	GB2-P3AS	GB3-P3AS	GB4-P3AS

Note 1) Assembly includes a bracket and set nuts.

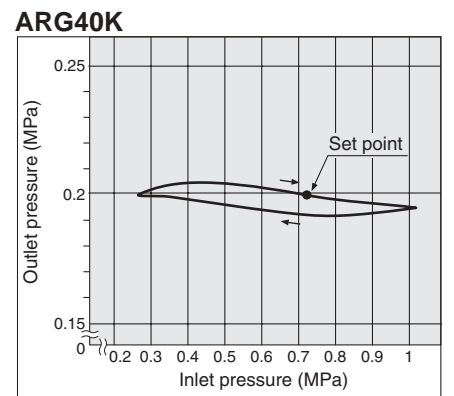
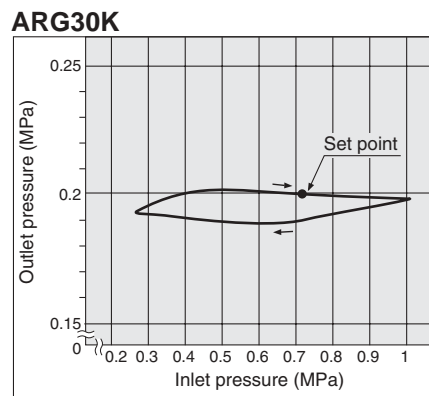
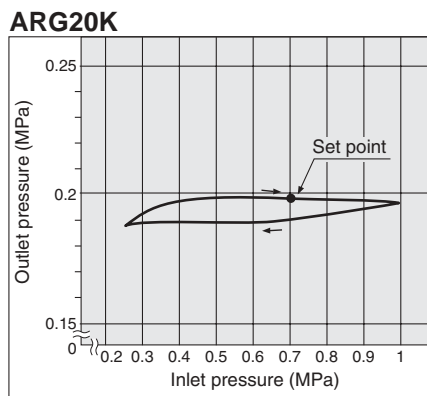
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa



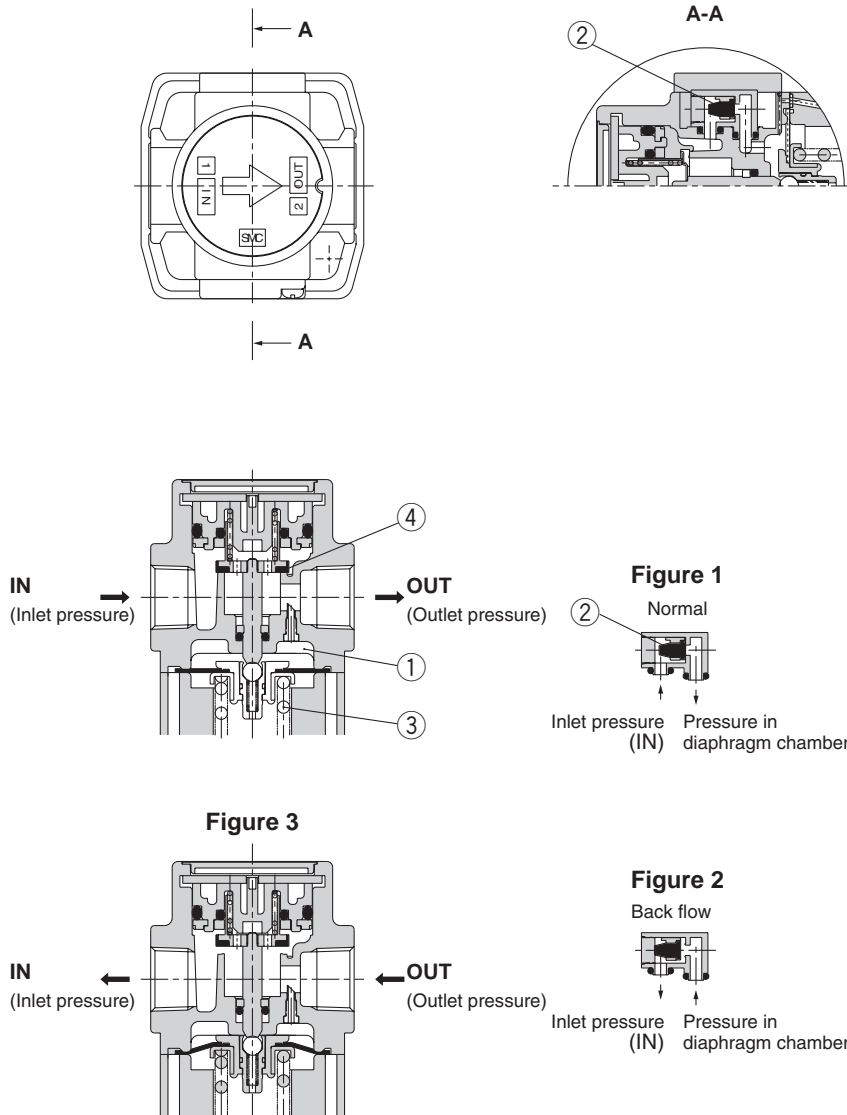
Pressure Characteristics (Representative values)

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



Series ARG20K/30K/40K

Working Principle



When the inlet pressure (P_1) is higher than the regulating pressure, the check valve ② closes and operates as a normal regulator (Figure 1).

When the inlet pressure (P_1) is shut off and released, the check valve ② opens and the pressure in the diaphragm chamber ① is released into the inlet side (Figure 2).

This lowers the pressure in the diaphragm chamber ① and the force generated by the pressure regulator spring ③ lifts the diaphragm. Valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 3).

⚠ Specific Product Precautions

Be sure to read before handling. Refer to back pages 1 through to 5 for Safety Instructions and Precautions.

Mounting and Adjustment

⚠ Warning

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

⚠ Caution

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

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



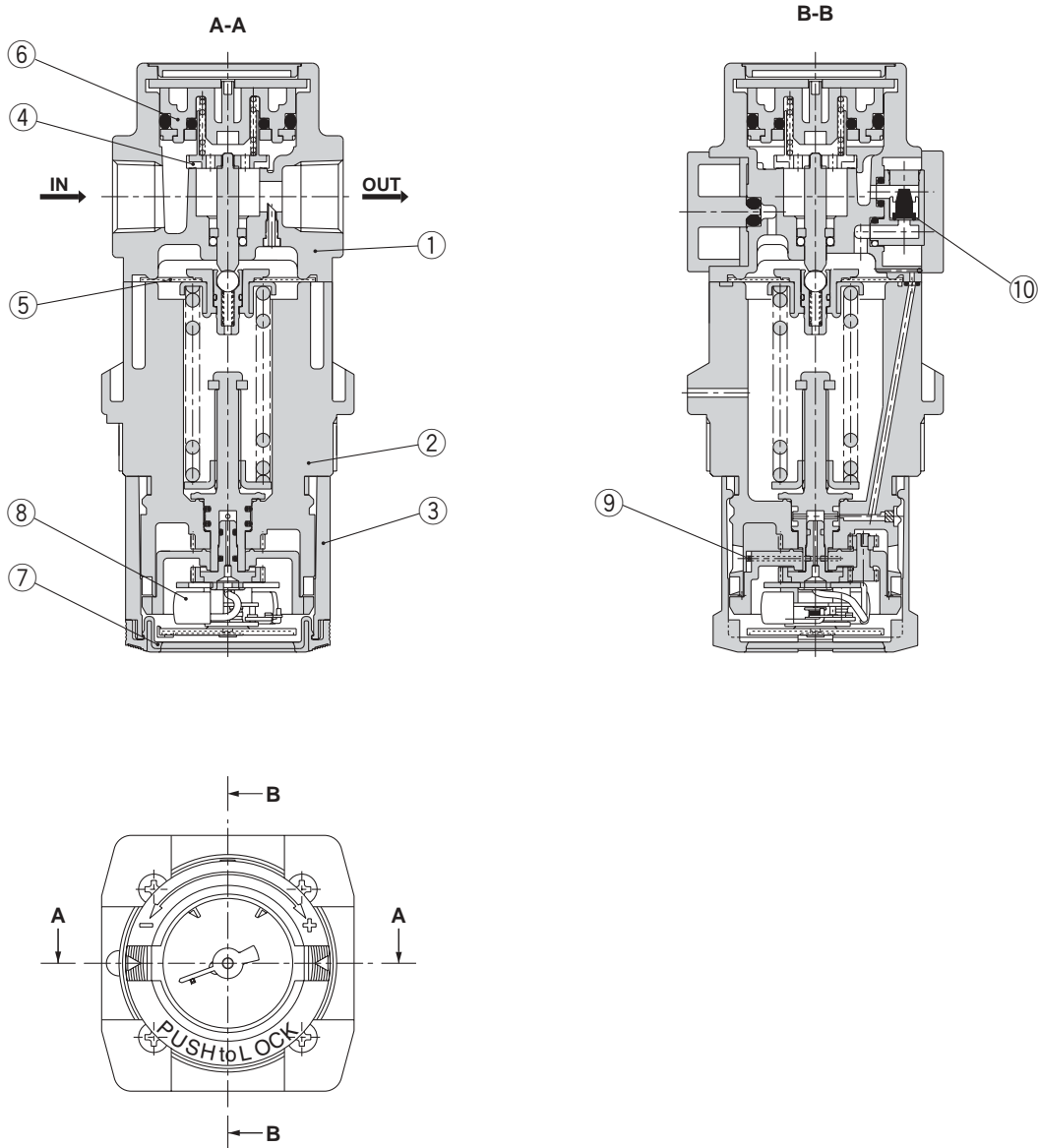
- Pull the pressure regulator handle to unlock. (You can visually verify this with the “orange mark” that appears in the gap.)
- Push the pressure regulator handle to lock. When the handle is not easily locked, turn it left and right a little and then push it (when the handle is locked, the “orange mark”,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

Maintenance

⚠ Warning

1. When using the regulator between a solenoid valve and an actuator, check the pressure gauge periodically. Sudden pressure fluctuations may shorten the durability of the pressure gauge.

Construction



Component Parts

No.	Description	Material			Note
		ARG20	ARG30	ARG40	
1	Body	ZDC	ADC		Platinum silver
2	Bonnet	PBT			Black
3	Handle	POM			Black

Replacement Parts

No.	Description	Material	Part no.		
			ARG20	ARG30	ARG40
4	Valve	Brass, HNBR	AR20P-410S	AR30P-410S	AR40P-410S
5	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
6	Valve guide assembly	POM, NBR	AR20P-050AS	AR30P-050AS	AR40P-050AS
7	Pressure gauge cover	PC	ARG20P-400S	ARG30P-400S	ARG40P-400S
8	Pressure gauge ⁽¹⁾	—	GB2-10AS	GB3-10AS	GB4-10AS
9	Clip	Stainless steel	ARG20P-420S	ARG30P-420S	ARG40P-420S
10	Check valve assembly ⁽²⁾	—	AR20KP-020AS		

Note 1) Only the standard part numbers are listed for the pressure gauges. For the optional part numbers, refer to page 25.

Note 2) Check valve assembly contains check valve, check valve cover and its screws (2 pcs).

Series ARG20K/30K/40K

Construction

Panel fitting dimension

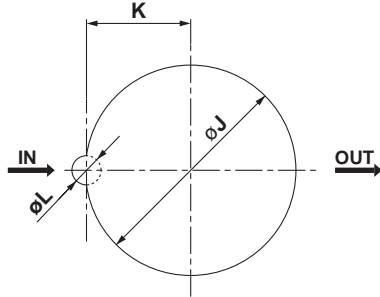
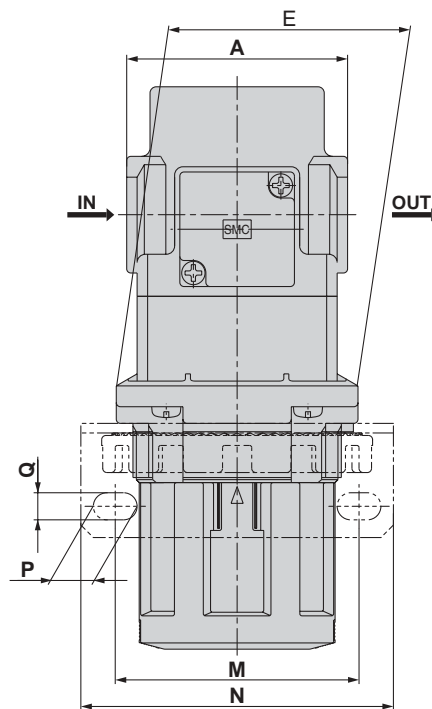
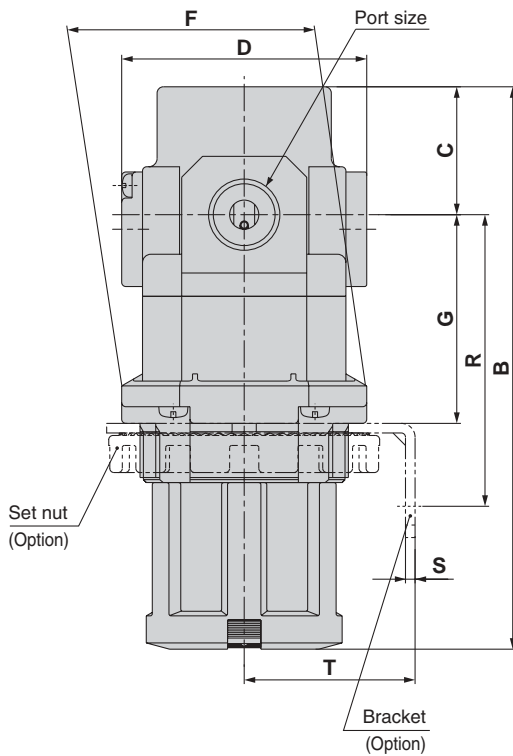
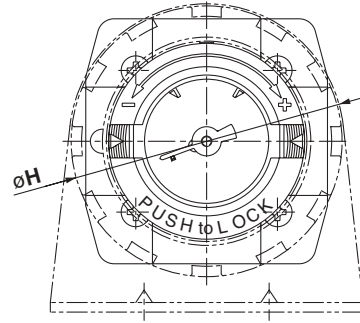


Plate thickness
ARG20K to 40K: Max. 3.5



Model	Port size	Standard specifications						Accessory specifications											
		A	B	C	D	E	F	Panel mount					Bracket mount						
								G	H	J	K	L	M	N	P	Q	R	S	T
ARG20K	1/8, 1/4	40	114	26.5	57	45	47	38	52.5	39.5	19.5	6	48	65	10.4	5.4	60	2.3	35
ARG30K	1/4, 3/8	53	138.5	31	59	58	59	50	65	50.5	25	7	59	75	10.5	6.5	70	2.3	45
ARG40K	1/4, 3/8, 1/2	70	150.5	36	68	70	70	54	70	55.5	27.5	7	65.5	85	12.5	8.5	75	2.3	50

Regulator with Built-in Pressure Gauge ARG20/30/40 Made to Order



Contact SMC for detailed dimensions, specifications, and lead times.

① Special Mounting Angle Specification of Pressure Gauge (45°, 135°, 225°, 315°)

ARG 20 [] [] 01 [] G5 [] [] -X2101 A

Body size

Symbol	Port size
20	1/8
30	3/8
40	1/2

Mounting angle of pressure gauge

Symbol	Description
A	45°
B	135°
C	225°
D	315°

* Refer to the table below.

With back flow mechanism

Symbol	Description
-	—
K ⁽¹⁾	With back flow mechanism

Note 1) If the set pressure is not exceeding 0.15 MPa, back flow may not occur. Contact SMC when a back flow mechanism is required with a set pressure of less than 0.15 MPa.

Thread type

Symbol	Type
-	Rc
N	NPT
F	G

Port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

Option

Symbol	Description
-	—
1 ⁽²⁾	0.02 to 0.2 MPa setting
N	Non-relieving type
Z ⁽³⁾	Name plate and pressure gauge in imperial units (PSI)

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

Note 2) Adjusting spring and pressure gauge (full-span 0.3 MPa) are different from those for the standard specification. Outlet pressure may still be increased from 0.2 MPa or more.

Note 3) For thread type NPT.

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

Accessory (2)

Symbol	Description
-	—
H	With set nut

Special mounting specification of pressure gauge

Accessory (1)

Symbol	Description
-	—
B	With bracket (With nuts)

Mounting Angle of Pressure Gauge

Symbol	X2101A	X2101B	X2101C	X2101D
Mounting angle	45°	135°	225°	315°
Mounting angle view				

⊙: Combination available



■: Combination not available

△: Available only with NPT thread

Accessory/Optional Combinations

Accessory/Optional specifications	Combination	Symbol	Accessory		Option			Applicable regulator
			B	H	1	N	Z	
Accessory	With bracket	B	■	■	⊙	⊙	△	⊙
	With set nut	H	■	■	⊙	⊙	△	⊙
Option	0.02 to 0.2 MPa setting	-1	⊙	⊙	■	⊙	△	⊙
	Non-relieving type	-N	⊙	⊙	⊙	■	△	⊙
	Name plate and pressure gauge in imperial units (PSI)	-Z	△	△	△	△	■	△

Modular Style Filter Regulator with Built-in Pressure Gauge Series *AWG*

Filter Regulator with Built-in Pressure Gauge Series AWG	Model	Port size	Nominal filtration rating	Accessory
 Pages 30 to 33	AWG20	1/8, 1/4	5 μm	Bracket Float type auto-drain Set nut for changing the mounting angle of pressure gauges
	AWG30	1/4, 3/8		
	AWG40	1/4, 3/8, 1/2		
 Pages 34 to 38	AWG20K	1/8, 1/4		
	AWG30K	1/4, 3/8		
	AWG40K	1/4, 3/8, 1/2		

Filter Regulator with Built-in Pressure Gauge Series **AWG20/30/40**



How to Order

AWG 30 — **03** — **G1** —

Body size

Symbol	Port size
20	1/8
30	3/8
40	1/2

Thread type

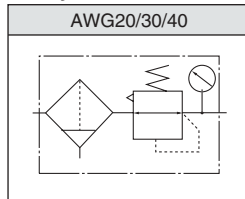
Symbol	Type
- ⁽¹⁾	Rc
N ⁽²⁾	NPT
F ⁽³⁾	G

- Note 1) Drain guide is Rc1/8 for AWG20 and Rc1/4 for AWG30 and 40.
 Note 2) Drain guide is NPT1/8 for AWG20 and NPT1/4 for AWG30 and 40. Auto-drain port is provided with ø3.8" One-touch fitting (applicable to AWG30 and 40).
 Note 3) Drain guide is G1/8 for AWG20 and G1/4 for ACG30 and 40.

Port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

JIS Symbol



Option

Symbol	Description	Applicable model
-	—	—
1 ⁽⁴⁾	0.02 to 0.2 MPa setting	AWG20 to 40
2	Metal bowl	AWG20 to 40
6	Nylon bowl	AWG20 to 40
8	Metal bowl with level gauge	AWG30, 40
C	With bowl guard	AWG20
J ⁽⁵⁾	With drain guide	AWG20 to 40
N	Non-relieving	AWG20 to 40
W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AWG30, 40
Z ⁽⁶⁾	Name plate, caution plate for bowl, and pressure gauge in imperial units (PSI, °F)	AWG20 to 40

- * When more than one specification is required, indicate in ascending alphanumeric order.
 Note 4) Adjusting spring and pressure gauge (full-span 0.3 MPa) are different from those for the standard specification. Outlet pressure may still be increased from 0.2 MPa or more.
 Note 5) Without a valve function.
 Note 6) For thread type NPT.
 This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

Accessory (2)

Symbol	Description	Applicable model
-	—	—
H	With set nut	AWG20 to 40

Accessory (1)

Symbol	Description	Applicable model
-	—	—
B	With bracket (With nuts)	AWG20 to 40
C	Float type auto-drain (Normally closed)	AWG20 to 40
D	Float type auto-drain (Normally open)	AWG30, 40

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

Mounting Angle of Pressure Gauge

Symbol	G1	G2	G3	G4
Mounting angle	0°	90°	180°	270°
Mounting angle view				

* Possible to change to the optional mounting angles.
 For details, refer to back page 6, "Procedure for replacing or changing the mounting angle of a previous gauge".

Accessory/Optional Combinations

- ⊙ : Combination available
 ○ : Varies depending on a model
 ◻ : Combination not available
 △ : Available only with NPT thread

Accessories/Optional specifications	Combination Symbol	Accessory				Option							Applicable filter regulator			
		B	C	D	H	1	2	6	8	C	J	N	W	Z	AWG20	AWG30/40
Accessory	With bracket	◻	⊙	○	◻	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙
	Float type auto-drain (Normally closed)	⊙	◻	◻	⊙	⊙	⊙	⊙	○	○	⊙	◻	△	⊙	⊙	
	Float type auto-drain (Normally open)	⊙	◻	◻	◻	⊙	⊙	⊙	○	○	⊙	◻	△	◻	⊙	
	With set nut	◻	⊙	○	◻	⊙	⊙	⊙	○	○	⊙	○	△	⊙	⊙	
Option	0.02 to 0.2 MPa setting	⊙	⊙	○	⊙	◻	⊙	⊙	○	○	⊙	○	△	⊙	⊙	
	Metal bowl	⊙	⊙	○	⊙	⊙	◻	◻	◻	⊙	⊙	◻	△	⊙	⊙	
	Nylon bowl	⊙	⊙	○	⊙	⊙	◻	◻	◻	○	⊙	○	△	⊙	⊙	
	Metal bowl with level gauge	⊙	⊙	⊙	⊙	⊙	◻	◻	◻	⊙	⊙	◻	△	◻	⊙	
	With bowl guard	⊙	⊙	◻	⊙	⊙	◻	◻	◻	⊙	⊙	◻	△	⊙	◻	
	Drain guide	⊙	◻	◻	⊙	⊙	⊙	⊙	○	○	⊙	◻	△	⊙	⊙	
	Non-relieving type	⊙	⊙	○	⊙	⊙	⊙	⊙	○	⊙	◻	○	△	⊙	⊙	
	Drain cock with barb fitting	⊙	◻	◻	⊙	⊙	⊙	⊙	◻	◻	⊙	◻	△	◻	⊙	
Name plate, caution plate for bowl, and pressure gauge in imperial units (PSI, °F)	△	△	△	△	△	△	△	△	△	△	△	△	△	△		

Series AWG20/30/40

Standard Specifications

Model	AWG20	AWG30	AWG40
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Regulating pressure range	0.05 to 0.85 MPa		
Relief pressure	Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature	-5 to 60°C (With no freezing)		
Nominal filtration rating	5 μm		
Drain capacity (cm ³)	8	25	45
Bowl material	Polycarbonate		
Bowl guard	Optional	Standard	
Construction	Relieving type		
Weight (kg)	0.38	0.51	0.86

Accessory Part No.

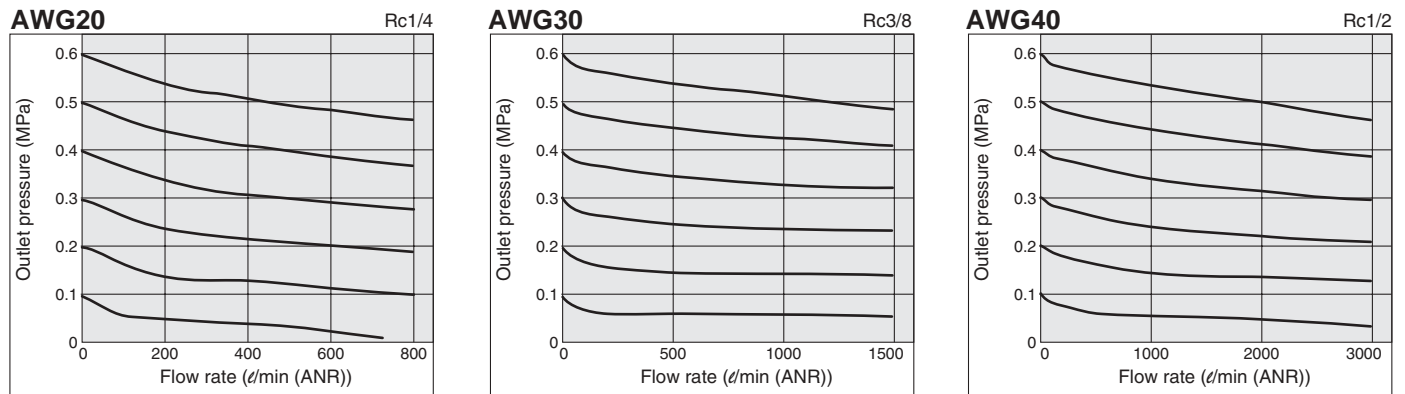
Accessory			Applicable model	AWG20	AWG30	AWG40
Bracket assembly ⁽¹⁾				ARG20P-270AS	ARG30P-270AS	ARG40P-270AS
Set nut				ARG20P-260S	ARG30P-260S	ARG40P-260S
Pressure gauge	Pressure gauge display range	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
			0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
		Optional	0 to 150 PSI	GB2-P10AS	GB3-P10AS	GB4-P10AS
			0 to 45 PSI	GB2-P3AS	GB3-P3AS	GB4-P3AS
Float type auto-drain ⁽²⁾						
			Normally open	—	AD38	AD48
			Normally closed	AD27	AD37	AD47

Note 1) Assembly includes a bracket and set nuts.

Note 2) Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.1 MPa (AD27) and 0.15 MPa (AD37/47). Contact SMC regarding the specifications for PSI unit and °F.

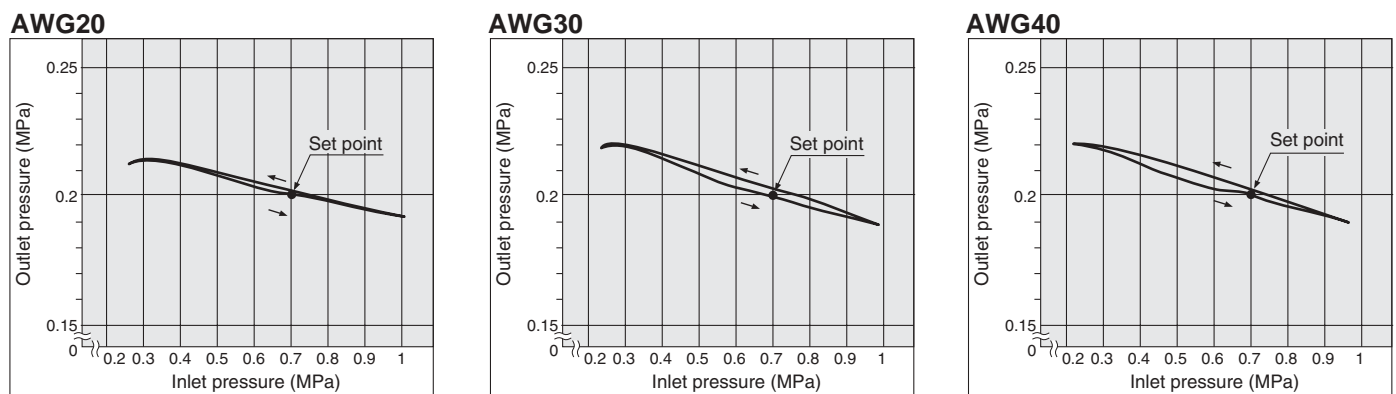
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa



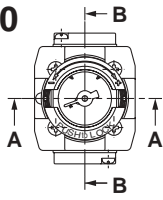
Pressure Characteristics (Representative values)

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

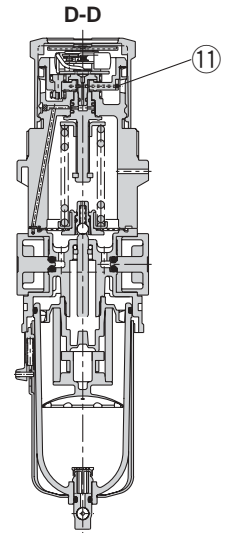
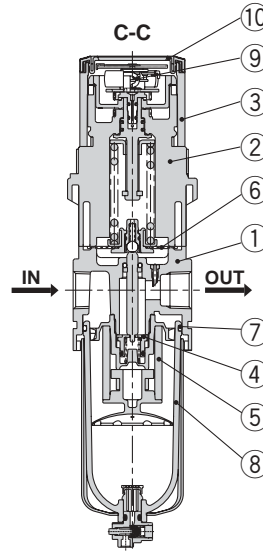
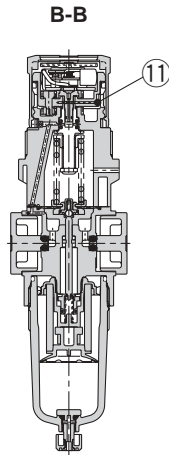
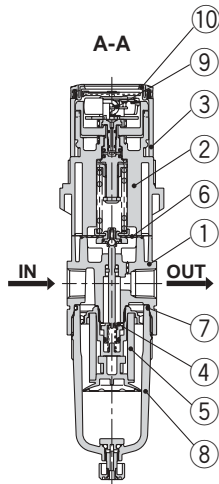
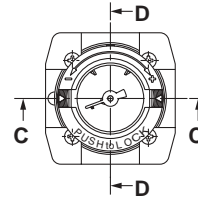


Construction

AWG20



AWG30/40



Component Parts

No.	Description	Material			Note
		AWG20	AWG30	AWG40	
1	Body	ZDC	ADC		Platinum silver
2	Bonnet		PBT		Black
3	Handle		POM		Black

Replacement Parts

No.	Description	Material	Part no.		
			AWG20	AWG30	AWG40
4	Valve assembly	Brass, HNBR	AW20P-340AS	AW30P-340AS	AW40P-340AS
5	Filter element	Non-woven fabric	AF20P-060S	AF30P-060S	AF40P-060S
6	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
7	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S
8	Bowl assembly ⁽¹⁾	PC	C2SF	C3SF ⁽²⁾	C4SF ⁽²⁾
9	Pressure gauge ⁽³⁾	—	GB2-10AS	GB3-10AS	GB4-10AS
10	Pressure gauge cover	PC	ARG20P-400S	ARG30P-400S	ARG40P-400S
11	Clip	Stainless steel	ARG20P-420S	ARG30P-420S	ARG40P-420S

Note 1) Including O-ring. Contact SMC regarding the bowl assembly supply for PSI and °F unit specifications.

Note 2) Bowl assembly includes a bowl guard (steel band material).

Note 3) Only the standard part numbers are listed in the pressure gauges. For the optional part numbers, refer to page 32.

⚠ Specific Product Precautions

Be sure to read before handling. Refer to back pages 1 through to 5 for Safety Instructions and Precautions.

Selection

⚠ Warning

- Residual pressure release (outlet pressure release) is not completed by releasing inlet pressure. To release residual pressure, use a filter regulator with a back flow mechanism.

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 and Adjustment

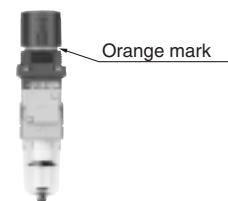
⚠ Warning

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

⚠ Caution

- Be sure to unlock the handle before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the handle and the outlet pressure may fluctuate.

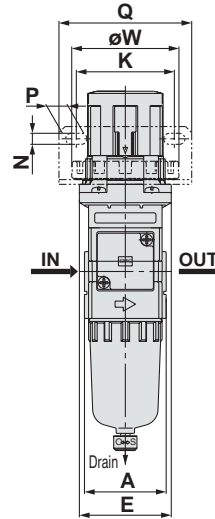
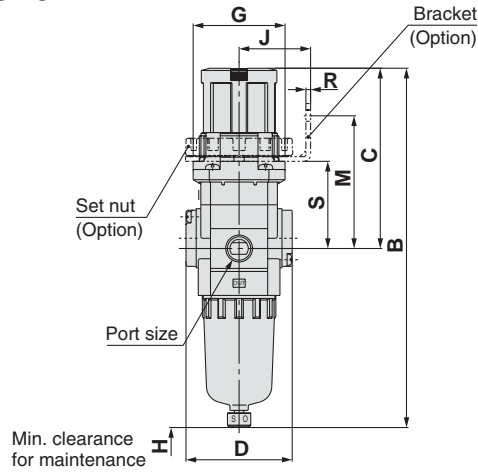
- Pull the pressure regulator handle to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator handle to lock. When the handle is not easily locked, turn it left and right a little and then push it (when the handle is locked, the "orange mark"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



Series AWG20/30/40

Dimensions

AWG20



Panel fitting dimension

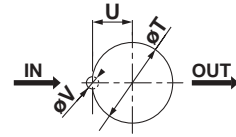
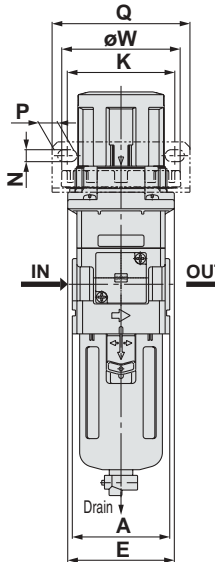
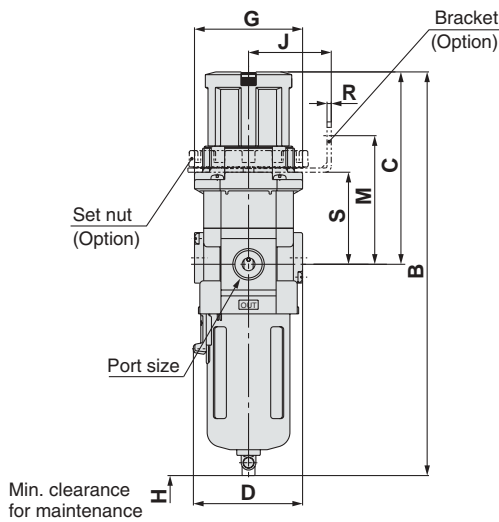


Plate thickness
AWG20: Max. 3.5

AWG30/40



Panel fitting dimension

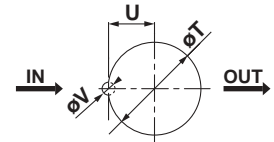


Plate thickness
AWG30/40: Max. 3.5

Applicable model	AWG20			AWG30/40				
	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	Port size	Standard specifications							Accessory specifications						
		A	B	C	D	E	G	H	Bracket mount						
		J	K	M	N	P	Q	R							
AWG20	1/8, 1/4	40	179	91	52	45	47	40	35	48	65	5.4	10.4	65	2.3
AWG30	1/4, 3/8	53	223.5	108.5	59	58	59	55	45	58.5	70	6.5	10.5	75	2.3
AWG40	1/4, 3/8, 1/2	70	261.5	114.5	75	70	70	80	50	70	77	8.5	12.5	85	2.3

Model	Accessory specifications					Optional specifications				
	Panel mount					With auto-drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	S	T	U	V	W	B	B	B	B	B
AWG20	43	39.5	19.5	6	52.5	196	—	183	179	—
AWG30	50	50.5	25	7	65	264	231.5	230.5	236.5	256.5
AWG40	56	55.5	27.5	7	70	300	269.5	268.5	274.5	294.5

Filter Regulator with Built-in Pressure Gauge with Back Flow Mechanism

Series **AWG20K/30K/40K**



How to Order

AWG 30 K — **03** — **G1** —

Body size

Symbol	Port size
20	1/8
30	3/8
40	1/2

With back flow mechanism

Note 1) If the set pressure is not exceeding 0.15 MPa, back flow may not occur. Contact SMC when a back flow mechanism is required with a set pressure of less than 0.15 MPa.

Thread type

Symbol	Type
- (2)	Rc
N (3)	NPT
F (4)	G

Note 2) Drain guide is Rc1/8 for AWG20K and Rc1/4 for AWG30K and 40K.

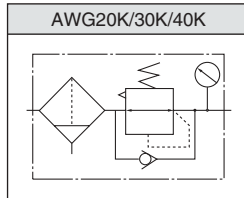
Note 3) Drain guide is NPT1/8 for AWG20K and NPT1/4 for AWG30K and 40K. Auto-drain port is provided with ø3.8" One-touch fitting (applicable to AWG30K and 40K).

Note 4) Drain guide is G1/8 for AWG20K and G1/4 for AC30K and 40K.

Port size

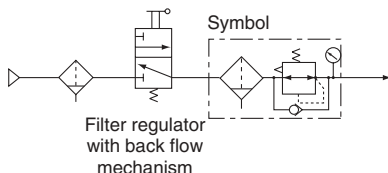
Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

JIS Symbol



Application example of a filter regulator with a back flow mechanism

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.



Option

Symbol	Description	Applicable model
-	—	—
1 (5)	0.02 to 0.2 MPa setting	AWG20K to 40K
2	Metal bowl	AWG20K to 40K
6	Nylon bowl	AWG20K to 40K
8	Metal bowl with level gauge	AWG30K, 40K
C	With bowl guard	AWG20K
J (6)	With drain guide	AWG20K to 40K
N	Non-relieving	AWG20K to 40K
W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AWG30K, 40K
Z (7)	Name plate, caution plate for bowl, and pressure gauge in imperial units (PSI, °F)	AWG20K to 40K



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

Note 5) Adjusting spring and pressure gauge (full-span 0.3 MPa) are different from those for the standard specification.

Outlet pressure may still be increased from 0.2 MPa or more.

Note 6) Without a valve function.

Note 7) For thread type NPT.

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

Accessory (2)

Symbol	Description	Applicable model
-	—	—
H	With set nut	AWG20K to 40K

Accessory (1)

Symbol	Description	Applicable model
-	—	—
B	With bracket (With nuts)	AWG20K to 40K
C	Float type auto-drain (Normally closed)	AWG20K to 40K
D	Float type auto-drain (Normally open)	AWG30K, 40K

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

Mounting Angle of Pressure Gauge

Symbol	G1	G2	G3	G4
Mounting angle	0°	90°	180°	270°
Mounting angle view				

* Possible to change to the optional mounting angles.

For details, refer to back page 6, "Procedure for replacing or changing the mounting angle of a pressure gauge".

Accessory/Optional Combinations

⊙: Combination available

■: Combination not available

○: Varies depending on a model

△: Available only with NPT thread

Accessories/Optional specifications	Combination Symbol	Accessory											Option		Applicable filter regulator		
		B	C	D	H	1	2	6	8	C	J	N	W	Z	AWG20K	AWG30K/40K	
With bracket	B	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Float type auto-drain (N.C.)	C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Float type auto-drain (N.O.)	D	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
With set nut	H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.02 to 0.2 MPa setting	-1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Metal bowl	-2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nylon bowl	-6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Metal bowl with level gauge	-8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
With bowl guard	-C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Drain guide 1/4	-J	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non-relieving type	-N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Drain cock with barb fitting	-W	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Name plate, caution plate for bowl, and pressure gauge in imperial units (PSI, °F)	-Z	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

Series AWG20K/30K/40K

Standard Specifications

Model	AWG20K	AWG30K	AWG40K
Port sizes	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Regulating pressure range ⁽¹⁾	0.05 to 0.85 MPa		
Relief pressure	Set pressure + 0.05 MPa (at relief flow rate of 0.1 ℓ/min (ANR))		
Ambient and fluid temperature	-5 to 60°C (With no freezing)		
Nominal filtration rating	5 μm		
Drain capacity (cm ³)	8	25	45
Bowl material	Polycarbonate		
Bowl guard	Optional	Standard	
Construction	Relieving type		
Weight (kg)	0.38	0.51	0.86

Note 1) Set the inlet pressure so it should be 0.05 MPa or higher than the set pressure.

Accessory Part No.

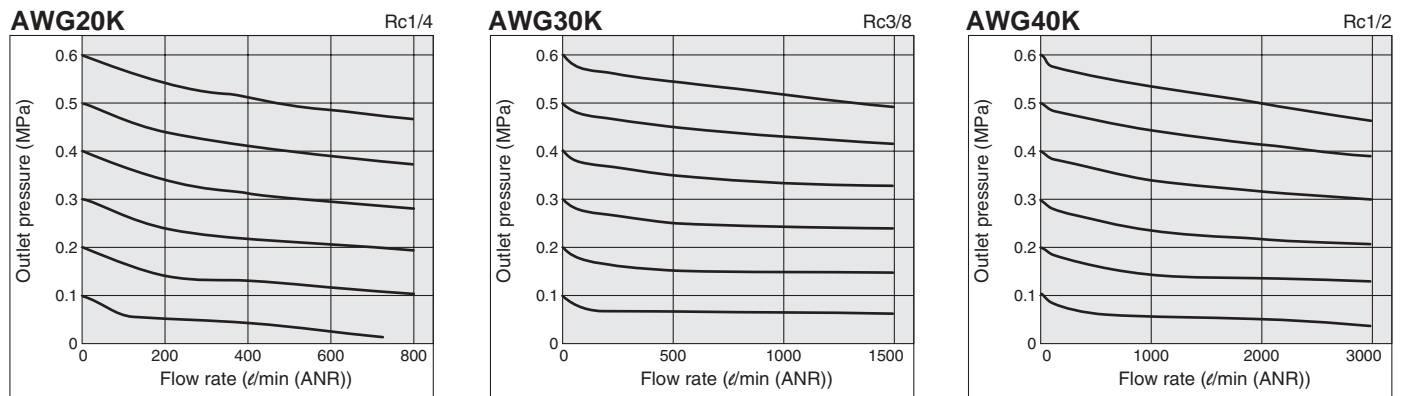
Accessory		Applicable model	AWG20K	AWG30K	AWG40K	
Bracket assembly ⁽¹⁾			ARG20P-270AS	ARG30P-270AS	ARG40P-270AS	
Set nut			ARG20P-260S	ARG30P-260S	ARG40P-260S	
Pressure gauge	Pressure gauge display range	Standard	0 to 1.0 MPa	GB2-10AS	GB3-10AS	GB4-10AS
			0 to 0.3 MPa	GB2-3AS	GB3-3AS	GB4-3AS
		Optional	0 to 150 PSI	GB2-P10AS	GB3-P10AS	GB4-P10AS
			0 to 45 PSI	GB2-P3AS	GB3-P3AS	GB4-P3AS
Float type auto-drain ⁽²⁾		Normally open	—	AD38	AD48	
		Normally closed	AD27	AD37	AD47	

Note 1) Assembly includes a bracket and set nuts.

Note 2) Minimum operating pressure: N.O. type-0.1 MPa; N.C. type-0.1 MPa (AD27) and 0.15 MPa (AD37/47). Contact SMC regarding the specifications for PSI unit and °F.

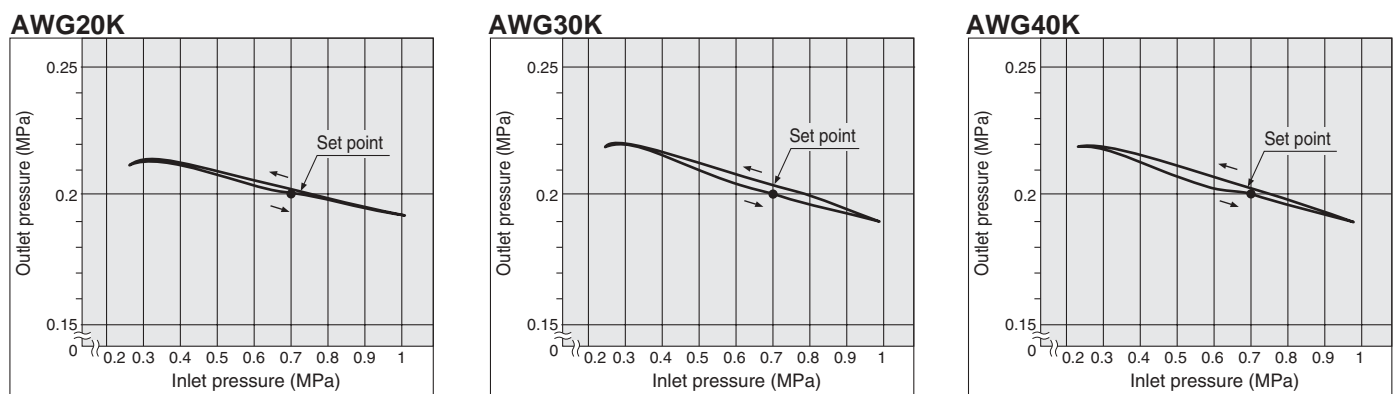
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

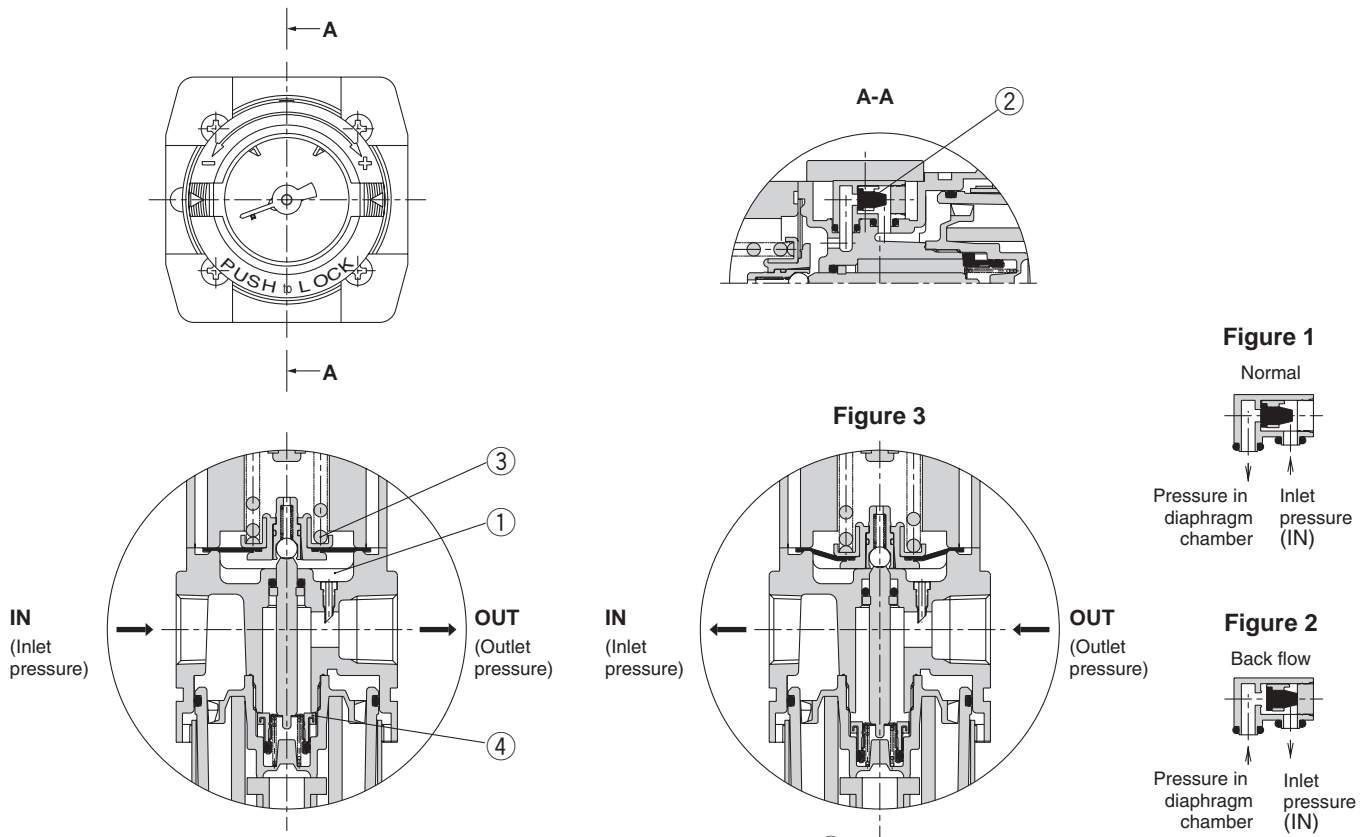


Pressure Characteristics (Representative values)

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



Working Principle



When the inlet pressure (P1) is higher than the regulating pressure, the check valve ② closes and operates as a normal regulator (Figure 1).
 When the inlet pressure (P1) is shut off and released, the check valve ② opens and the pressure in the diaphragm chamber ① is released into the inlet side (Figure 2).
 This lowers the pressure in the diaphragm chamber ① and the force generated by the pressure regulator spring ③ lifts the diaphragm. Valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 3).

⚠ Specific Product Precautions

Be sure to read before handling. Refer to back pages 1 through to 5 for Safety Instructions and Precautions.

Maintenance

⚠ Warning

1. 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 and Adjustment

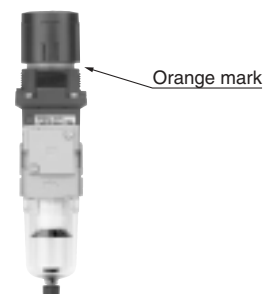
⚠ Warning

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

- Push the pressure regulator handle to lock. When the handle is not easily locked, turn it left and right a little and then push it (when the handle is locked, the "orange mark" will disappear).

⚠ Caution

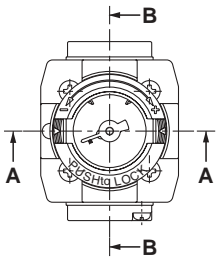
1. Be sure to unlock the handle before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the handle and the outlet pressure may fluctuate.
 - Pull the pressure regulator handle to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)



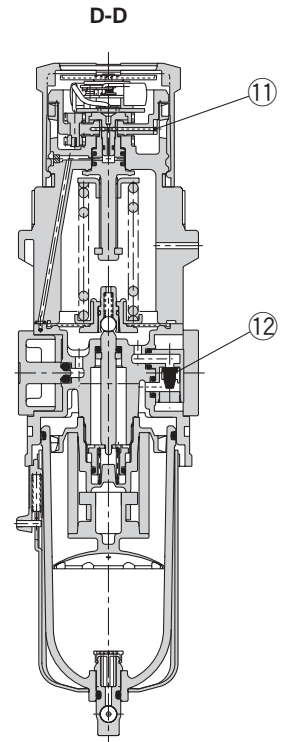
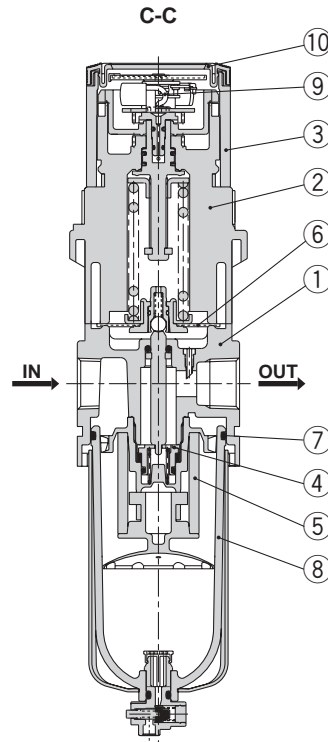
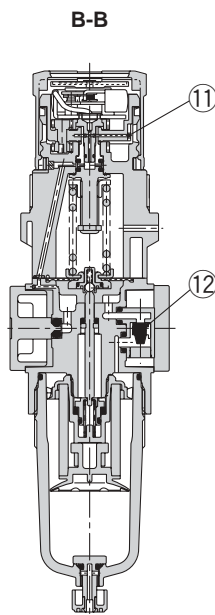
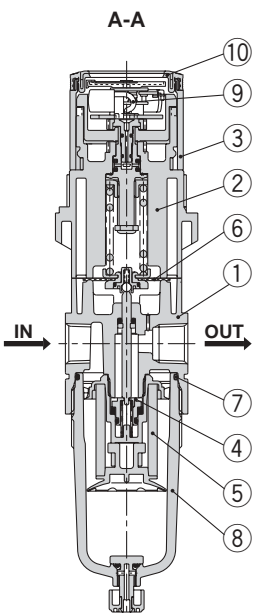
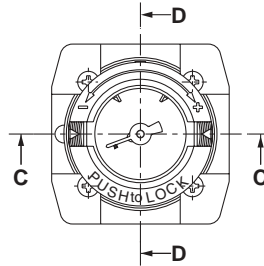
Series AWG20K/30K/40K

Construction

AWG20K



AWG30K/40K



Component Parts

No.	Description	Material			Note
		AWG20K	AWG30K	AWG40K	
1	Body	ZDC	ADC		Platinum silver
2	Bonnet	PBT			Black
3	Handle	POM			Black

Replacement Parts

No.	Description	Material	Part no.		
			AWG20K	AWG30K	AWG40K
4	Valve assembly	Brass, HNBR	AW20P-340AS	AW30P-340AS	AW40P-340AS
5	Filter element	Non-woven fabric	AF20P-060S	AF30P-060S	AF40P-060S
6	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
7	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S
8	Bowl assembly ⁽¹⁾	PC	C2SF	C3SF ⁽²⁾	C4SF ⁽²⁾
9	Pressure gauge ⁽³⁾	—	GB2-10AS	GB3-10AS	GB4-10AS
10	Pressure gauge cover	PC	ARG20P-400S	ARG30P-400S	ARG40P-400S
11	Clip	Stainless steel	ARG20P-420S	ARG30P-420S	ARG40P-420S
12	Check valve assembly	—	AR20KP-020AS		

Note 1) Including O-ring. Contact SMC regarding the bowl assembly supply for PSI and °F unit specifications.

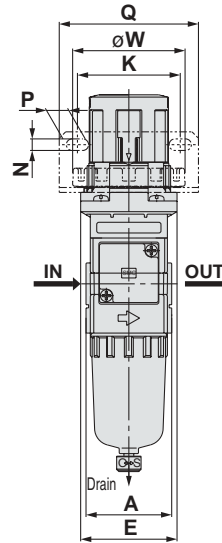
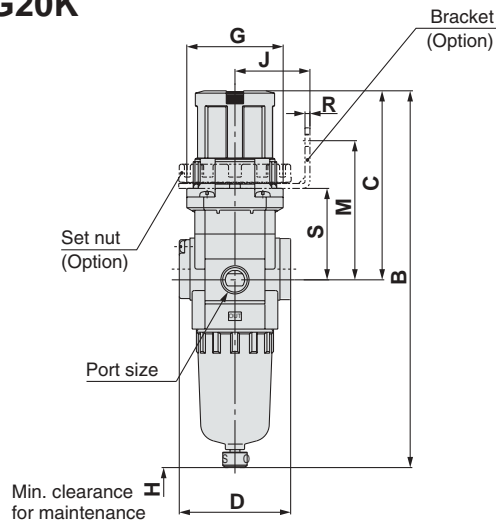
Note 2) Bowl assembly (AWG30K/40K) includes a bowl guard (steel band material).

Note 3) Only the standard part numbers are listed for the pressure gauges. For the optional part numbers, refer to page 36.

Filter Regulator with Built-in Pressure Gauge with Back Flow Mechanism *Series AWG20K/30K/40K*

Dimensions

AWG20K



Panel fitting dimension

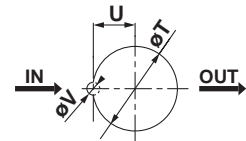
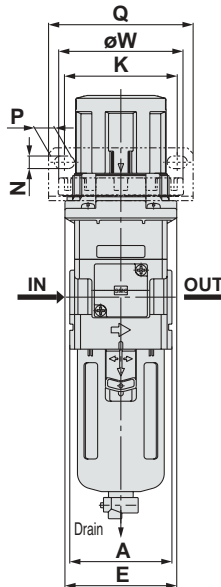
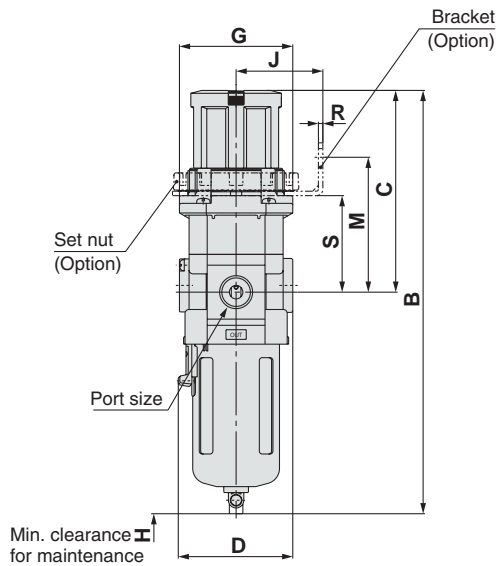


Plate thickness
AWG20K: Max. 3.5

AWG30K/40K



Panel fitting dimension

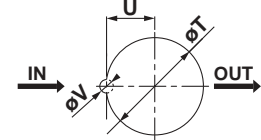


Plate thickness
AWG30K/40K: Max. 3.5

Applicable model Accessory/Optional specifications	AWG20K			AWG30K/40K				
	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	Port size	Standard specifications							Accessory specifications						
		A	B	C	D	E	G	H	Bracket mount						
									J	K	M	N	P	Q	R
AWG20K	1/8, 1/4	40	179	91	52	45	47	40	35	48	65	5.4	10.4	65	2.3
AWG30K	1/4, 3/8	53	223.5	108.5	59	58	59	55	45	58.5	70	6.5	10.5	75	2.3
AWG40K	1/4, 3/8, 1/2	70	261.5	114.5	75	70	70	80	50	70	77	8.5	12.5	85	2.3

Model	Accessory specifications					Optional specifications				
	Panel mount					With auto-drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	S	T	U	V	W	B	B	B	B	B
AWG20K	43	39.5	19.5	6	52.5	196	—	183	179	—
AWG30K	50	50.5	25	7	65	264	231.5	230.5	256.5	276.5
AWG40K	56	55.5	27.5	7	70	300	269.5	268.5	274.5	294.5



Series ACG/ARG/AWG Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO 4414 ^{Note 1)}, JIS B 8370 ^{Note 2)} and other safety practices.

⚠ Caution : Operator error could result in injury or equipment damage.

⚠ Warning : Operator error could result in serious injury or loss of life.

⚠ Danger : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power--General rules relating to systems.

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

⚠ Warning

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

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet your specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
2. When equipment is removed, confirm that safety process as mentioned above. Turn off the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

4. Contact SMC if the product will be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.



F.R.L. (Filters/Regulators/Lubricators) Precautions 1

Be sure to read this and "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.

Design

⚠ Warning

1. The standard bowl for the air filter, filter regulator, and lubricator and the pressure gauge cover for the regulator and filter regulator, as well as the sight dome for the lubricator are made of polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, ester-based compressor oil, alkali, and thread lock solutions.
2. Avoid applications where pressurized air is frequently introduced to and released from the standard bowl of an air filter, filter regulator, or lubricator. It may cause the bowl to be damaged. Use of a metal bowl is recommended for such applications.
3. Consult with SMC if the intended application calls for absolutely zero leakage due to special atmospheric requirements, or if the use of a fluid other than air is required.
4. **Regulator and filter regulator**
Be sure to install a safety device to prevent damage or malfunction of the outlet side components when the output pressure exceeds the set pressure value.

⚠ Caution

1. Select a model that is suitable for the desired purity by referring to the SMC's Best Pneumatics catalogue.
2. Components cannot be used for applications that are outside the range of specifications. Consult with SMC when you anticipate using the component outside the range of its specifications (such as temperature and pressure).
3. **Mist separator and micro-mist separator**
Design the system so that the mist separator and micro-mist separator are installed where there is less pulsation. A pressure difference between internal and external pressure inside the element should be kept within 0.1 MPa, as exceeding this value can cause damage.
4. **Regulator and filter regulator**
Air consumption is 0.1 ℓ/min (ANR) or less under standard specifications. Consult with SMC, if this value is not allowable.
5. **Air combination**
 - 1) When using a 2-unit combination such as ACG□0A, ACG□0B, ACG□0D, secure the top and bottom of the bracket. However, when choosing the ACG20B with a downward facing handle, note that it cannot be fixed with brackets in both the upper and lower side. Consult with SMC if you need to fix the product with brackets in both the upper and lower side.
 - 2) The bracket position varies depending on the attachment (pressure switch) mounting.
 - 3) Brackets cannot be mounted on both sides of pressure switch.
 - 4) Contact SMC for changing the bracket mounting position.

Design

⚠ Caution

6. Regarding specific product precautions on air filters, lubricators and mist separators, refer to the catalogue, "SMC Best Pneumatics" catalogue or "Precautions for Handling Pneumatic Devices (M-03-E3A)".

Selection

⚠ Warning

1. The mineral grease used on internal sliding parts and seals may run down to outlet side components. Consult with SMC if this is not desirable.
2. **Regulator and filter regulator**
 - 1) Residual pressure release (outlet pressure release) is not complete even by releasing the inlet pressure. To release residual pressure, select a model with a back flow mechanism. Using a model without a back flow mechanism makes for inconsistent residual pressure release (i.e., residual pressure may or may not be released) depending upon the operating conditions.
 - 2) Contact SMC if air will not be consumed in the system for a long period of time, or if the outlet side will be used with a sealed circuit and a balanced circuit, as this may cause the set pressure of the outlet side to fluctuate.
 - 3) Set the regulating pressure range for the outlet pressure of the regulator in a range that is 85% or less of the inlet pressure. If set to above 85%, the outlet pressure will be easily affected by fluctuations in the flow rate and inlet pressure, and become unstable.
 - 4) A safety margin is calculated into the maximum regulating pressure range appearing in the catalogue's specification table. However, the pressure settings may exceed the number in the specifications.
 - 5) Contact SMC when a circuit requires the use of a regulator having relief sensitivity with high precision and setting accuracy.
3. **Lubricator**
 - 1) Contact SMC when the lubricator is used in high frequency operations, such as in a press.
 - 2) Lubrication cannot be properly performed if the operating flow rate is too low. Select a proper sized lubricator by referring to the minimum dripping flow rate provided in this catalogue.
 - 3) Avoid the use of a lubricator that causes back flow as this may cause damage to internal parts.
 - 4) Use a check valve (Series AKM) to prevent the lubricant from back flowing when branching the piping on the inlet side.



F.R.L. (Filters/Regulators/Lubricators) Precautions 2

Be sure to read this and "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.

Design

Warning

4. Float-type auto-drain

Use auto-drain 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 above value by the number of auto-drains to find the capacity of the compressors you will need.

For example, when using 2 auto-drains, the compressor capacity with 1.5 kW (200 ℓ/min (ANR)) or greater 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

Mounting

Caution

1. To avoid reversed connections of the air inlet/outlet, make connections after confirming the "IN/OUT" mark or arrows that indicate the direction of air flow. Reversed connections can cause malfunction.
2. Components with a bowl, e.g., air filter, filter regulator, lubricator, must be installed vertically with the bowl facing downward. Otherwise, faulty drain discharge and dripping cannot be verified.
3. Ensure sufficient top, bottom, and front clearance for maintenance and operation of each component. Refer to the dimensions section for the minimum clearance for each component.
4. **Regulator and filter regulator**
 - 1) Be sure to unlock the handle before adjusting the pressure and to lock it after the pressure is set.
 - 2) During transport and installation, do not apply shock to the product, such as by dropping, doing so will affect its precision.
 - 3) Do not install it in an area that is exposed to high temperature or humidity, because doing so will lead to improper operation.

Adjustment

Warning

1. Regulator and filter regulator

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

Caution

1. Regulator and filter regulator

- 1) Check the inlet pressure carefully before setting the product.
- 2) To set the pressure using the handle, turn the handle in the direction that increases pressure and lock the handle after the pressure is set. If this is done in the direction that decreases pressure, the pressure may drop from the original set pressure. Turning the handle clockwise increases the outlet pressure, and turning it counterclockwise reduces the pressure.
- 3) After setting the pressure, there may be an occurrence in which the outlet pressure increases when the inlet pressure is removed and then supplied again. In this case, once the air is consumed at the outlet side, the pressure becomes close to the original set pressure.
- 4) Using a product for a long period of time may fluctuate the outlet pressure. Confirm the set pressure periodically.



F.R.L. (Filters/Regulators/Lubricators) Precautions 3

Be sure to read this and "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.

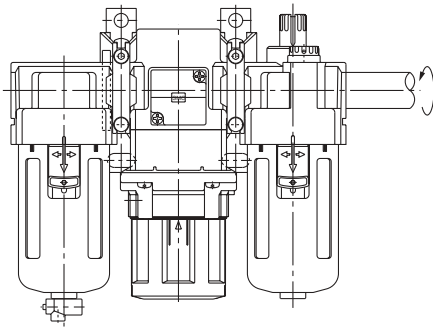
Piping

⚠ Caution

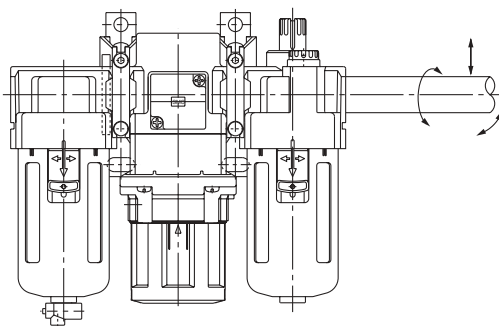
1. Before piping, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.
2. When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not get inside the piping. Also, when the pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.
3. To screw piping materials into components, tighten with a recommended tightening torque while holding the female thread side. If the minimum tightening torque is not observed, this can cause a looseness and seal failure. On the other hand, excess tightening torque can cause damage to the threads. Furthermore, tightening without holding the female thread side can cause damage due to the excess force that is applied directly to the piping bracket.

Recommended Tightening Torque (N·m)

Connection thread	1/8	1/4	3/8	1/2
Torque	7 to 9	12 to 14	22 to 24	28 to 30



4. Avoid excessive torsional moment or bending moment other than those caused by the equipment's own weight as this can cause damage. Support external piping separately.



5. Piping materials without flexibility such as steel tube piping are prone to be affected by excess moment load and vibration from the piping side. Use flexible tubing in between to avoid such an effect.
6. Be sure to provide piping for discharging the drainage because there is no valve function equipped with the drain guide. Without piping, drainage or compressed air will be discharged. Also, when performing the piping work, secure the drain guide using a wrench, etc. The case can be damaged if the drain guide is not fixed.

Piping

⚠ Warning

1. Lubricator

Try to avoid riser piping and branch lines as much as possible on the outlet side, otherwise proper lubrication will be compromised.

2. Float type auto-drain

Drain piping should be performed under the following conditions to avoid malfunction.

<N.O. type>

- Use piping whose I.D. is $\phi 6.5$ or larger, and whose length is 5 m or less. Avoid riser piping.

<N.C. type>

- AD27: Use piping whose I.D. is $\phi 2.5$ or larger
AD37/47: Use piping whose I.D. is $\phi 4$ or larger
Length is 5 m or less. Avoid riser piping.

Air Supply

⚠ Caution

1. Use clean air. If chemicals, organic solvents, synthetic oil or corrosive gases are included in the compressed air, parts could be damaged or they can cause a malfunction.
2. When there is excessive condensate, install a device that eliminates water, such as a dryer or water separator (Drain Catch) on the inlet side of the air filter.

Maintenance

⚠ Warning

1. When disassembly or installation is required during the maintenance, repair, or replacement of a device, be sure to follow the instructions provided in the instruction manual or safety instructions in this catalogue.
2. Perform periodical inspections to detect any cracks, scratches, or other deterioration of the transparent resin bowl of the air filter, filter regulator, and lubricator or the sight dome of the lubricator.
Replace with a new bowl, sight dome, or metal bowl when any kind of deterioration is found, otherwise this can cause damage.
3. Perform periodical inspections to detect dirt on the transparent resin bowl of the air filter, filter regulator, and lubricator or the sight dome of the lubricator or the pressure gauge cover of regulator and filter regulator. When you find dirt on any of the above devices, clean with a mild household cleanser. Do not use other cleaning agents, otherwise this can cause damage.
4. Manually open or close the drain cock of air filters, filter regulators and lubricators. Using tools can cause the product to be damaged.
5. Air filter
 - 1) Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.
 - 2) Release accumulated condensate periodically before it reaches the maximum capacity. Condensate that flows out to the outlet side can cause malfunctions.



F.R.L. (Filters/Regulators/Lubricators) Precautions 4

Be sure to read this and "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.

Maintenance

Warning

1. Lubricator

Use class 1 turbine oil (without additives) ISO VG32. Using other lubricant can cause damage to devices and result in malfunctions.

Caution

1. Perform periodical inspections of the filter element and replace it as necessary. Check the element whenever the outlet pressure drops below normal or air does not flow smoothly during operation.

2. Regulator and filter regulator

Check the sliding part or seat of the internal valve when a setting malfunction or relief leakage occur and temporary or emergency repairs need to be made.

3. Lubricator

Check the dripping amount once a day. Drip failure can cause damage to the components being lubricated.

4. Float type auto-drain

- 1) Turn the handle counterclockwise to release the drain manually. Avoid applying excessive torque to the handle, such as by using a tool, as this can damage an auto-drain. After releasing the condensate, turn the handle clockwise until it stops.
- 2) Air leakage or other performance malfunctions can occur if premature clogging of the element or pressure drop causes the pressure inside the bowl to get outside the specified pressure range parameters. Check the pressure whenever such an irregularity occurs.



Series ACG/ARG/AWG Specific Product Precautions

Be sure to read this and "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.

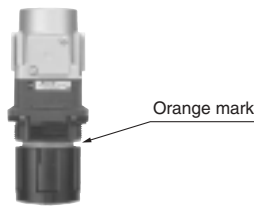
Procedure for replacing or changing the mounting angle of a pressure gauge

Warning

When replacing a pressure gauge and/or changing the mounting angle, release the inlet and outlet pressure completely. It is dangerous to replace the pressure gauge or change the mounting angle while it is under pressure.

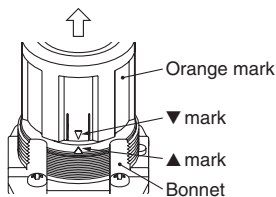
1. Advance preparation

Keep the handle unlocked and completely loosened. The unlocked condition of the handle can be visually confirmed by the "Orange line" shown near the bottom of the handle.



2. Removing the handle

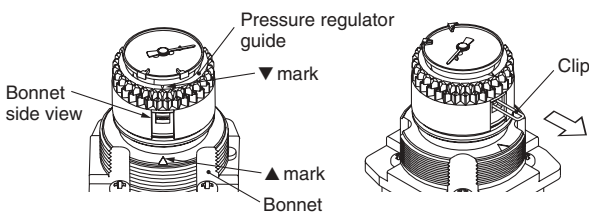
To remove the handle, align the ▼ mark on the handle and the ▲ mark on the bonnet and then pull the handle.



3. Removing the clip

When the ▲ mark on the bonnet and the ▼ mark on the pressure regulator guide are aligned, the clip can be seen from the side view of the bonnet. The clip can be picked and removed with tweezers.

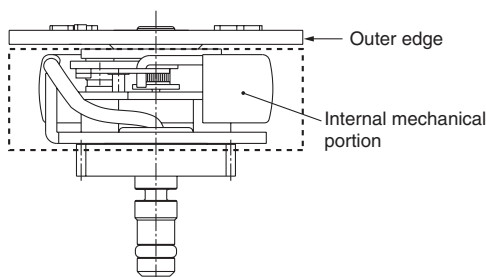
* When adjusting the mark, turn the pressure regulator guide clockwise for adjustment.



4. Removing the pressure gauge

Pull the pressure gauge out by holding the outer edge of the dial.

* Do not touch the internal mechanical portion (shown inside the dotted box). Accuracy of the pressure gauge may be adversely affected.



5. Setting the pressure gauge

After the mounting angle is adjusted as required, hold the outer edge of the pressure gauge dial and gently press down. For reference, the required clearance between the bottom of the dial and the top of the pressure regulator guide is shown in table 1.

Note 1) When the pressure gauge cannot be easily positioned, slightly rotate it. (The cog from the planet gear of the pressure regulator guide may be caught vertically in the cog from the sun gear which is mounted and integrated with the pressure gauge)

Note 2) Position the pressure gauge to the very bottom.

Note 3) Attached to the tip of the pressure gauge is an O-ring with grease applied to it. Please use caution to prevent particles and/or dust from entering the pressure gauge when it is set. Otherwise, they may cause air leakage.

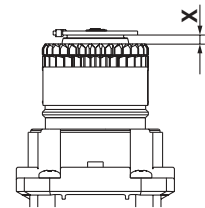


Table 1. Clearance Dimensions

	ARG20 AWG20	ARG30 AWG30	ARG40 AWG40
X dimension (reference value)	2.6 mm	3.3 mm	3.3 mm

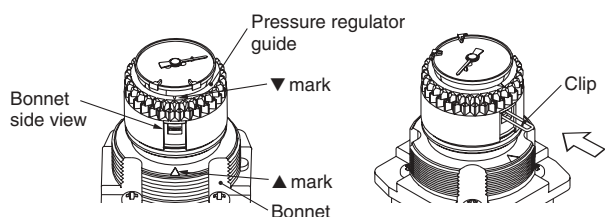
6. Setting the clip

Insert the clip in the side of the bonnet when the ▼ mark on the pressure regulator guide and the ▲ mark on the bonnet are aligned. When inserting and setting the clip, use an instrument with a narrow tip, such as tweezers.

Note 1) The clip is slightly tapered towards its tip to prevent it from being released. Set the clip by slightly opening its tip.

Note 2) When the clip cannot easily be set, the cause may be as follows:

- (1) The pressure regulator screw might have been in a lower position than the current one. (The pressure regulator screw may reach a lower position if the pressing force of the pressure regulator screw is excessively applied. This occurs because there is a clearance between the pressure regulator nut and pressure spring, when the pressure regulator screw is loosened completely.)
- (2) The pressure gauge is not firmly set. Countermeasures Refer to 5 "Setting the pressure gauge".



7. Setting the handle

Finished when the handle is set.



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