

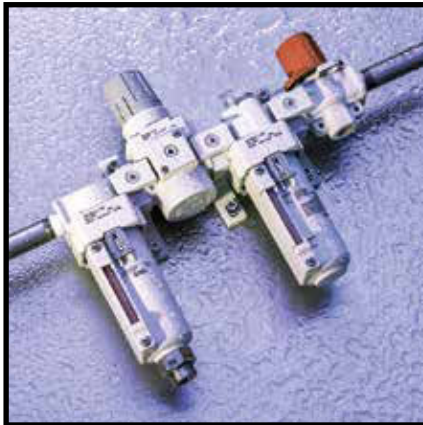


SMC Corporation of America
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Noblesville, IN 46060
www.smcusa.com

SP093-001J
Issued: JULY 2019

P.G. Information

Epoxy Coated F.R.L. Units



AC 21/31/41-N□□-□ Z-B-X2217□

AF 20/30/40-N□□-□ Z-A-X480

AR 20/30/40-N□□-□ Z-B-X48

AL 20/30/40-N□□-□ Z-A-X480

AW 20/30/40-N□□-□ Z-B-X48

VHS 20/30/40-N□B-Z-X513

Y 20/30/40□-A-T4

- Application:** Air preparation in an environment that requires enhanced corrosion protection.
- Feature 1:** Die cast aluminum components are epoxy coated for improved chemical resistance.
- Feature 2:** Steel external hardware is replaced with stainless steel for improved chemical resistance.

Comparison with Standard Product:

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

Applications:

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

Related Products:

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

How to Order

AC 31 B - N 03 D - V - 8 R Z - B-X2217 A

Air Combination Unit

Body Size

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

NPT Threads

Model Combination

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

Port Size

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

Accessories

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

Regulator Handle Orientation

Symbol	Description
Nil	Downward Handle
A	Upward Handle

With External Epoxy Coating, Stainless Fasteners, Plastic Regulator Handle, Bonnet

Name Plate, Caution Plate on Bowl in psi, °F

Flow Direction

Symbol	Description
Nil	Flow direction - Left to Right
R	Flow direction - Right to Left

Bowl

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

Residual Pressure Relief Valve

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

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



Specifications

Body size	21	31	41
Operating specifications	Same as standard - see catalog NAS40-60B		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Auto drain port (AF, AW)	N/A	AF: 1/4" NPT; AW: 3/8" tube fitting	
Bowl type (AF, AL, AW)	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material (AF, AL, AW)	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Bonnet (AR, AW)	Polyacetal		
Manual drain (AF, AW)	POM		
External screws	Stainless steel 410		
Individual mounting brackets	Epoxy coated steel		
Panel mount nut (AR, AW)	POM		
Connector brackets (AC)	Die cast zinc (epoxy coated)		
Fill plug (AL)	Stainless steel 304		
Sight dome (AL)	Polycarbonate		
Sight glass hardware (AF, AL, AW)	Stainless steel 304		

Dimensions - Refer to drawings on page 3

AC	A*	AA**	B	C	F	G	J	M	N	Q	U	V	W
AC21	140	190	155	73	45.5	40	26	30	51	24	5	33	—
AC31	181	245	230	86	58.5	55	29.4	41	64	35	7	45	34.5
AC41	238	322	241	92	75.5	80	37.3	50	81	40	7	50	41

* Without relief valve option ** With relief valve option

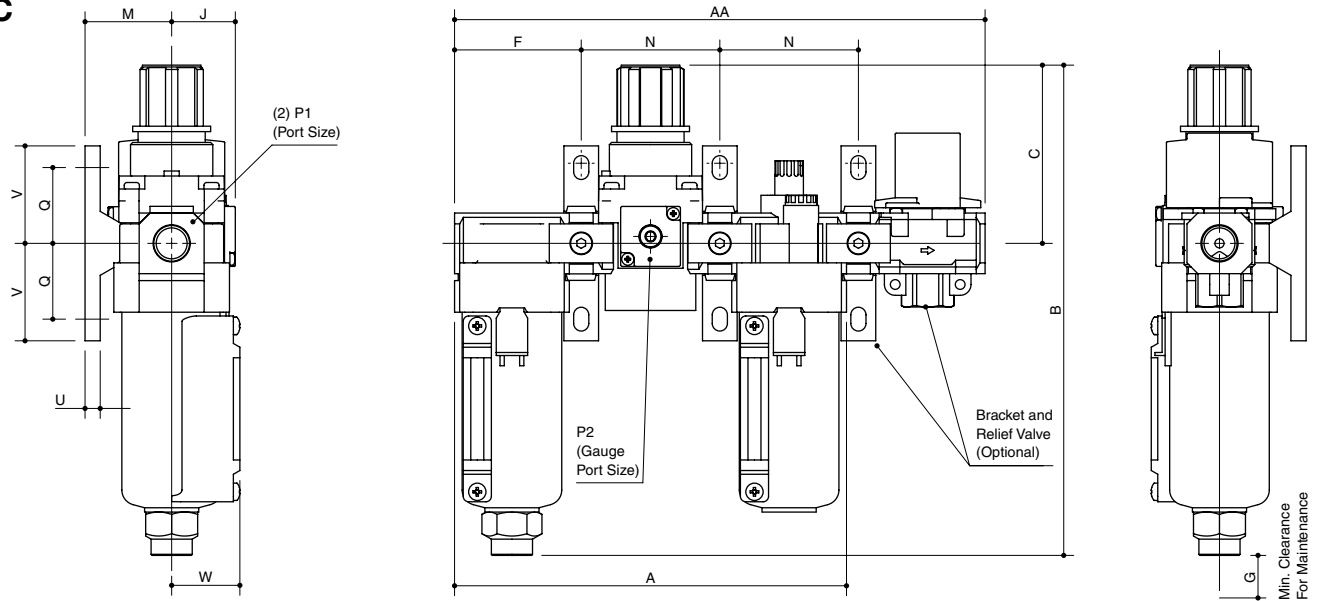
AC□A	A*	AA**	B	C	F	G	J	M	N	Q	U	V	W
AC21A	90	140	155	73	45.5	40	26	30	51	24	5	33	—
AC31A	117	181	230	86	58.5	55	29.4	41	64	35	7	45	34.5
AC41A	154	238	241	92	75.5	80	37.3	50	81	40	7	50	41

* Without relief valve option ** With relief valve option

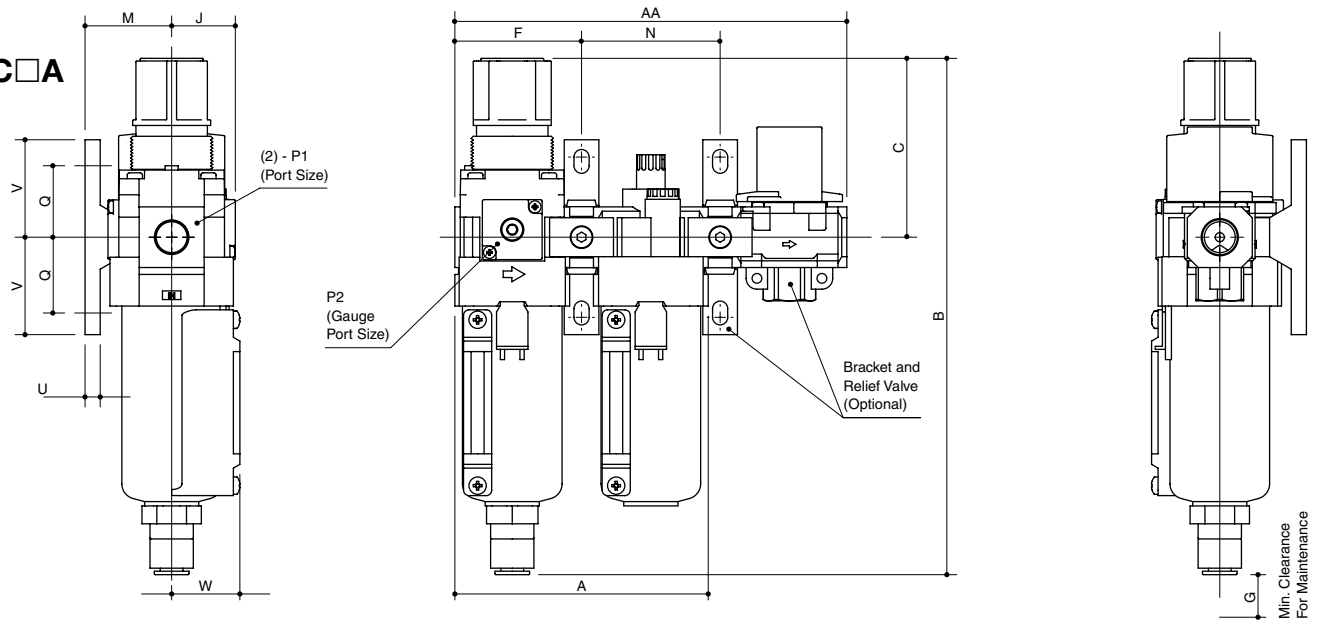
AC□B	A*	AA**	B	C	F	G	J	M	N	Q	U	V	W
AC21B	90	140	155	73	45.5	40	26	30	51	24	5	33	—
AC31B	117	181	230	86	58.5	55	29.4	41	64	35	7	45	34.5
AC41B	154	238	241	92	75.5	80	37.3	50	81	40	7	50	41

* Without relief valve option ** With relief valve option

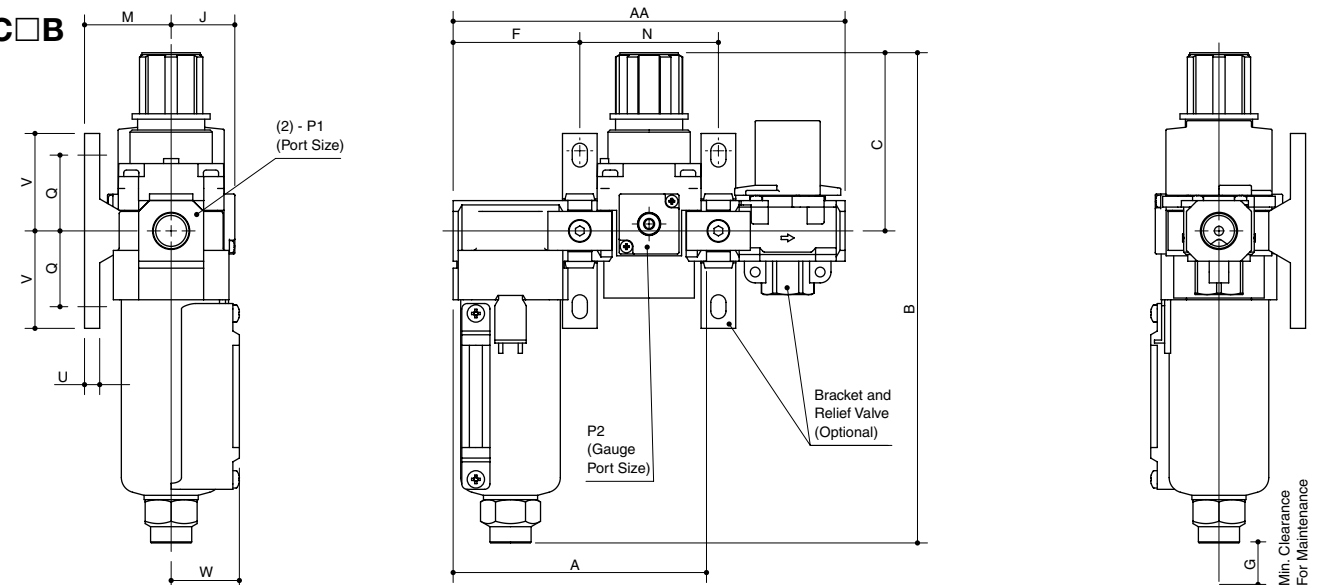
AC



AC□A



AC□B



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

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

How to Order

AF 30 - N 03 D - 8 R Z - A-X480

Filter •

Body Size •

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

NPT Threads •

Port Size •

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

• With External Epoxy Coating, Stainless Fasteners

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

• Flow Direction

Symbol	Description
Nil	Flow direction - Left to Right
R	Flow direction - Right to Left

• Bowl

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

• Accessories

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

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

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



Specifications

Body size	20	30	40
Operating specifications	Same as standard - see catalog NAS40-60B		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Auto drain port	N/A	1/4" NPT	
Bowl type	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Manual drain (AF, AW)	POM		
External screws	Stainless steel 410		
Individual mounting brackets	Epoxy coated steel		
Sight glass hardware	Stainless steel 304		

Dimensions - Refer to drawings on page 5

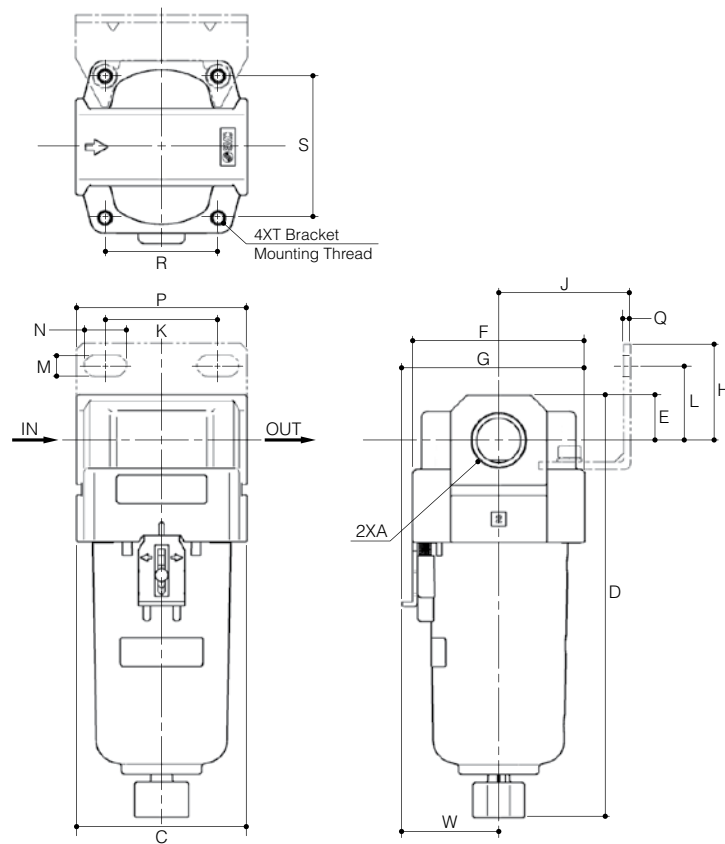
Standard

Model	Port Size	Dimensions																	Mounting Bracket Kit (Optional)
	A	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	W	
AF20	NPT 1/4	40	97.2	9.8	40	-	28	30	27	22	5.4	8.4	40	2.3	26	32	M4 X 0.7	—	AF22P-050AS-X480
AF30	NPT 3/8	53	151.6	14	53.4	57	30	41	35	23	6.5	13	53	2.3	35	44	M4 X 0.7	30	AF32P-050AS-X480
AF40	NPT 1/2	70	187.6	18	71	73	35	50	52	26	8.5	12.5	70	2.3	47	60	M5 X 0.8	38.4	AF42P-050AS-X480

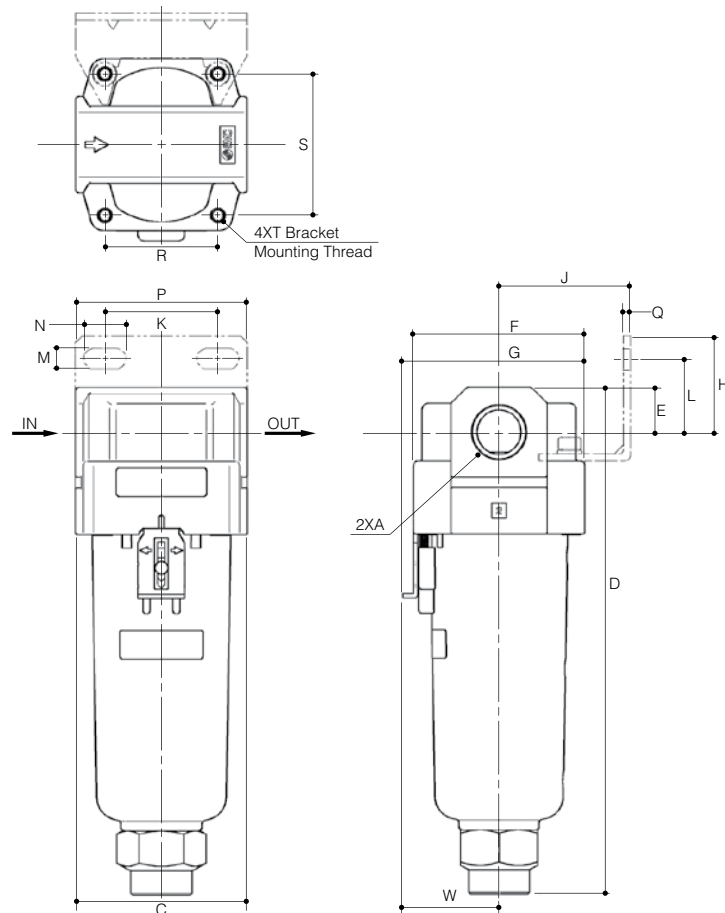
Auto Drain

Model	Port Size	Dimensions																	Mounting Bracket Kit (Optional)
	A	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	W	
AF30	NPT 3/8	53	158	14	53	57	30	41	35	23	6.5	13	53	2.3	35	44	M4 X 0.7	30	AF32P-050AS-X480
AF40	NPT 1/2	70	194	18	70	73	35	50	52	26	8.5	12.5	70	2.3	47	60	M5 X 0.8	38.4	AF42P-050AS-X480

Standard (Manual Drain)



With Auto Drain



How to Order

AW 30 - N 03 D - 8 R Z - B-X48

Filter - Regulator •

Body Size •

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

NPT Threads •

Flow Direction

Symbol	Description
Nil	Flow direction - Left to Right
R	Flow direction - Right to Left

• With External Epoxy Coating, Stainless Fasteners, Plastic Handle, Bonnet, Drain Components

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

Bowl

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

Port Size •

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

Accessories

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

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

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

Specifications

Body size	20	30	40
Operating specifications	Same as standard - see catalog NAS40-60B		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Auto drain port	N/A	3/8" tube fitting	
Bowl type	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Bonnet	Polyacetal		
Manual drain (AF, AW)	POM		
External screws	Stainless steel 410		
Individual mounting brackets	Epoxy coated steel		
Panel mount nut	POM		
Sight glass hardware	Stainless steel 304		

Accessories

Model	Mounting Bracket Kit (Optional)	Panel Mounting Nut (Optional)
AW20	AW23P-270AS-X48	AR23P-260S
AW30	AR33P-270AS-X48	AR33P-260S
AW40	AR43P-270AS-X48	AR43P-260S

Dimensions - Refer to drawings on page 7

Standard

Standard																				mm
Model	Port Size	Gauge Port	Dimensions																	
	A	C	D	DD	F	H	J	K	L	Q	S	T	U	V	W	X	Y	Z	AA	CC
AW20	NPT 1/4	NPT 1/8	40	—	70(max.73)	5	157(max.160)	52	30	44	5.4	15.4	34	55	2.3	M28 X 1	30	6	14	28.5
AW30	NPT 3/8	NPT 1/8	53	30	83(max.86)	3.5	220(max.224)	59	41	46	6.5	8	40	53	2.3	M38 X 1.5	31	7	19	38.5
AW40	NPT 1/2	NPT 1/8	70	38	88(max.92)	1.5	257(max.261)	75	50	54	8.5	10.5	54	70	2.3	M42 X 1.5	35.5	7	21	42.5

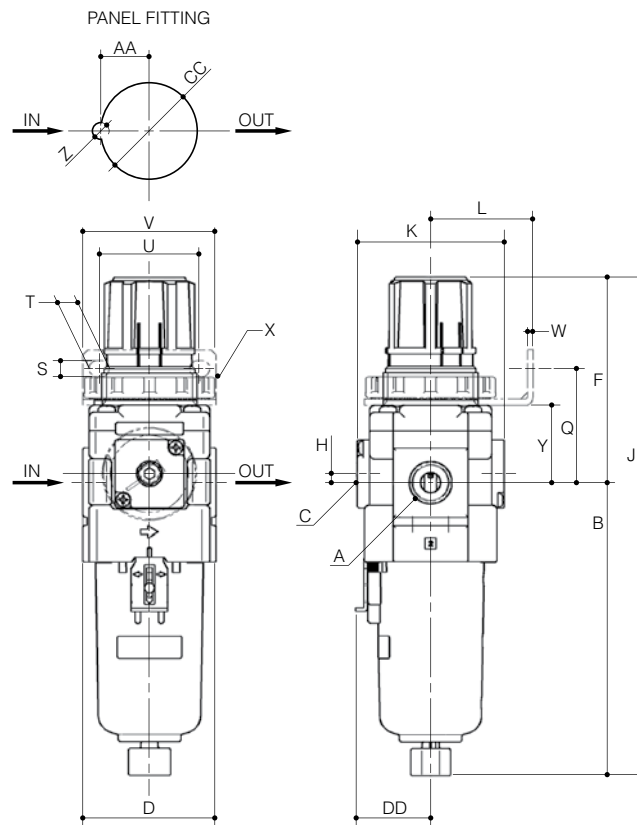
Auto Drain

Auto Drain

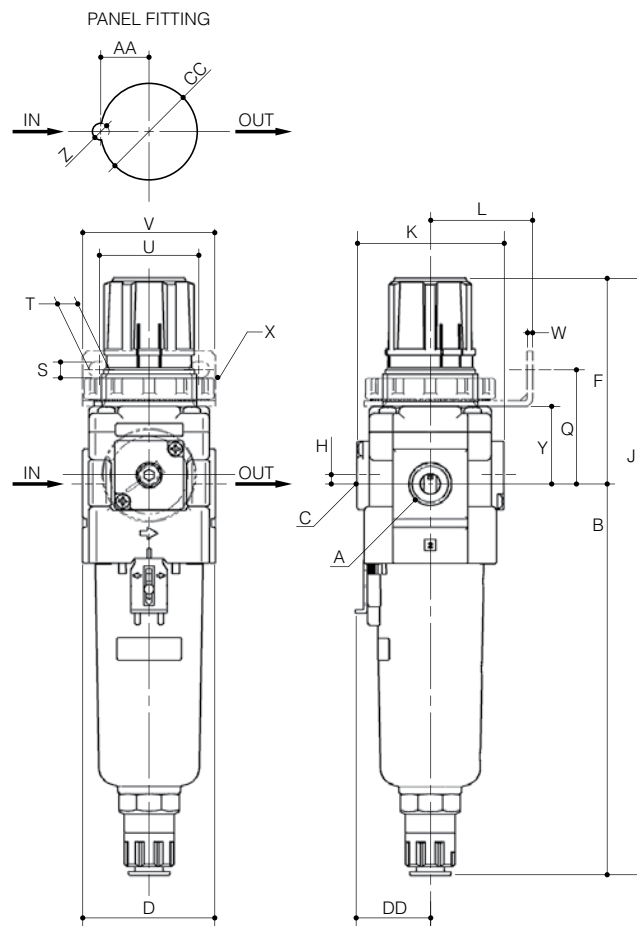
mm

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

Standard (Manual Drain)



With Auto Drain



How to Order

AR20-N02B-RYZ-B-X48

Regulator

Body Size

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

NPT Threads

With External Epoxy Coating, Stainless Fasteners, Plastic Handle, Bonnet

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

Handle Orientation

Symbol	Description
Nil	Handle Down
Y	Handle Up

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

Port Size

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

Accessories

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

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

Flow Direction

Symbol	Description
Nil	Flow direction - Left to Right
R	Flow direction - Right to Left



Specifications

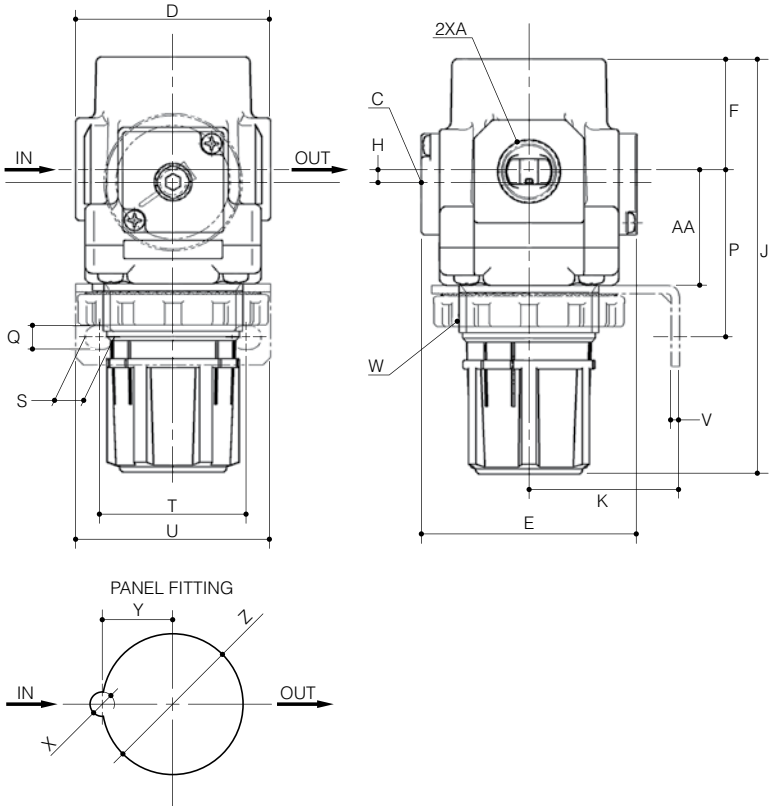
Body size	20	30	40
Operating specifications	Same as standard - see catalog NAS40-60B		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Body material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Bonnet	Polyacetal		
Individual mounting brackets	Epoxy coated steel		
Panel mount nut	POM		

Dimensions

Model	Port Size	Gauge Port	Dimensions																
			D	E	F	H	J	K	P	Q	S	T	U	V	W	X	Y	Z	AA
AR20	NPT 1/4	NPT 1/8	40	57	26.5	-2	91(max.94)	30	44	5.4	15.4	34	55	2.3	M28 X 1	6	14	28.5	24.7
AR30	NPT 3/8	NPT 1/8	53	58.8	30.7	3.5	113(max.116)	41	46	6.5	8	40	53	2.3	M38 X 1.5	7	19	38.5	31.1
AR40	NPT 1/2	NPT 1/8	70	67.6	35.8	3.5	124(max.128)	50	54	8.5	10.5	54	70	2.3	M42 X 1.5	7	21	42.5	35.5

Accessories

Model	Mounting Bracket Kit (Optional)	Panel Mounting Nut (Optional)
AR20	AR23P-270AS-X48	AR23P-260S
AR30	AR33P-270AS-X48	AR33P-260S
AR40	AR43P-270AS-X48	AR43P-260S



How to Order

AL 20 - N 02 B - 2 R Z - A-X480

Body Size

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

Lubricator

NPT Threads

Port Size

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

Accessories

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

Flow Direction

Symbol	Description
Nil	Flow direction - Left to Right
R	Flow direction - Right to Left

Bowl

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

With External Epoxy Coating, Stainless Fasteners

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

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

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

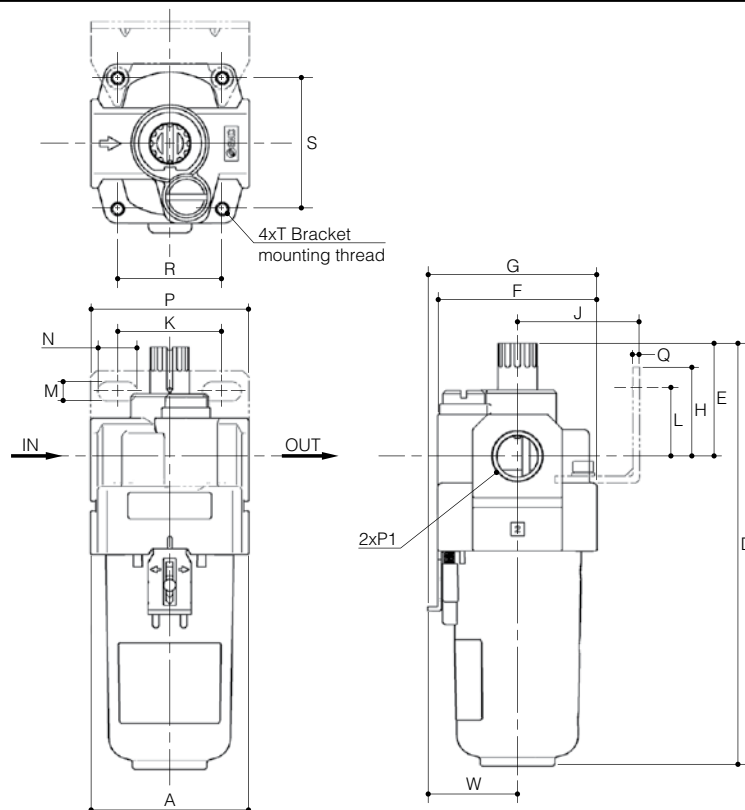


Specifications

Body size	20	30	40
Operating specifications	Same as standard - see catalog NAS40-60B		
Port size	1/4" NPT	3/8" NPT	1/2" NPT
Bowl type	Metal	Metal with sight gauge	
Body material	Die cast aluminum		
Bowl material	Die cast aluminum		
Body, Bowl surface treatment	Epoxy resin coating		
Individual mounting brackets	Epoxy coated steel		
Fill plug	Stainless steel 304		
Sight dome	Polycarbonate		
Sight glass hardware	Stainless steel 304		

Dimensions

Model	Dimensions																		Mounting Bracket Kit (Optional)
	A	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	W	P1	
AL20	40	120.4	35.9	40	-	28	30	27	22	5.4	8.4	40	2.3	26	32	M4 x 0.7	-	1/4 NPT	AF22P-050AS-X480
AL30	53	162.2	38.1	53.4	56.7	30	41	35	23	6.5	13	53	2.3	35	44	M4 x 0.7	30	3/8 NPT	AF32P-050AS-X480
AL40	70	195.9	39.8	71	73.9	35	50	52	26	8.5	12.5	70	2.3	47	60	M5 x 0.8	38.4	1/2 NPT	AF42P-050AS-X480

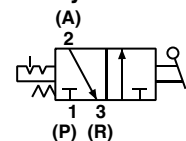


Accessories

Residual Pressure Relief 3 Port Valve (V)

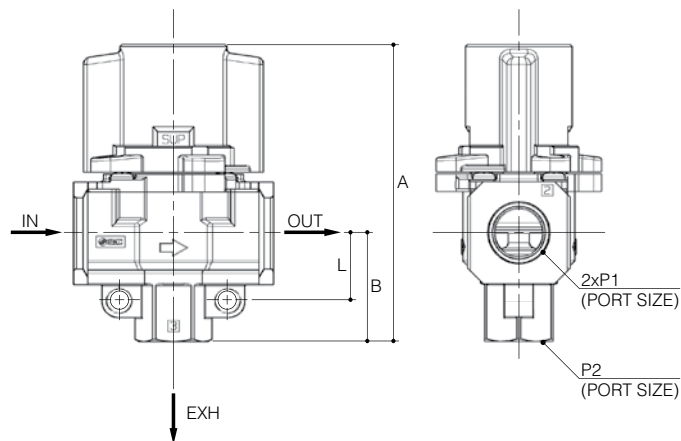
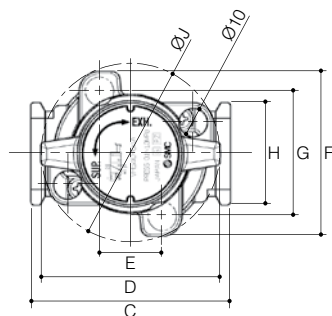
With the use of a 3 port valve for residual pressure release, pressure left in the line can be easily exhausted.

JIS Symbol



Model	Port Size		Flow Characteristics Cv	
	IN, OUT	EXH	IN to OUT	OUT to EXH
VHS20	1/4	1/8	0.88	0.84
VHS30	3/8	1/4	2.3	1.9
VHS40	1/2	3/8	3.8	3.6

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



Dimensions

mm

Model	A	B	C	D	E	F	G	H	J	L
VHS20	66.4	22.3	40	37.5	14	46.6	33.6	28	43	14.8
VHS30	80.3	29.4	53	49	19	52	38	30	49	19
VHS40	104.9	38.5	70	63	22	58	44	36	63	24

Caution

- If unit is to be used in a washdown application, avoid directing fluid into the exhaust port.
- Do not restrict the exhaust port.

How to Order

VHS 30 - N 02 B - R Z - X513

Residual Pressure Relief 3 Port Valve

Body Size

Symbol	Applicable Model
20	AC21
30	AC31
40	AC41

Thread Type

N	NPT
---	-----

With External Epoxy Coating, Stainless Fasteners

Name Plate In Imperial Units (PSI, °F)

Flow Direction

Symbol	Description
Nil	Flow direction - Left to Right
R	Flow direction - Right to Left

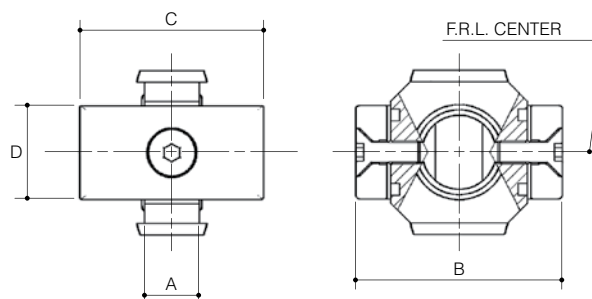
Body Size

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

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

Spacer

Epoxy Coated Aluminum,
Stainless Screws, NBR Seals



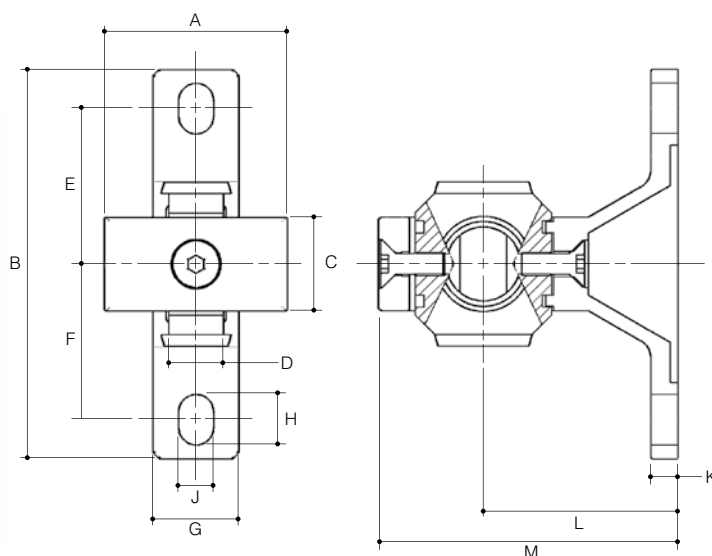
Dimensions

mm

Model	A	B	C	D
Y20-A-T4	10	40.5	21.4	10
Y30-A-T4	11	47	29.5	18
Y40-A-T4	14	53	48	24

Interface with T Bracket

Epoxy Coated Aluminum,
Stainless Screws, NBR Seals



Dimensions

mm

Interface with T Bracket	A	B	C	D	E	F	G	H	J	K	L	M	Applicable Models
Y20T-A-T4	21.4	66	10	10	24	24	15	8.5	5.5	5	30	50.5	AC21*-X2217
Y30T-A-T4	29.5	90	18	11	35	35	16	11	7	7	41	65	AC31*-X2217
Y40T-A-T4	48	100	24	14	40	40	22	13	9	7	50	77	AC41*-X2217

Other Available Air Line Products with Epoxy Coating/Stainless Hardware

Series	Description	Option Code
AV	Soft start valve	X480
AMG	Water removal filter	X229
AR20-60	Regulator with stainless T-handle, aluminum bonnet for UV resistance	X480
AVL	Soft start valve with pilot lock-out	X480
AW20-40	Filter-regulator with stainless T-handle, aluminum bonnet for UV resistance	X480
AW30-40	Filter-regulator with stainless construction and expanded temperature range	X2622
E*00-A	Piping adapter	X480
VHS30	Residual pressure relief 3-port valve, stainless steel	X2155
VP*44	Venting valve with direct monitoring and soft start (conforms to ISO 13849-1)	X597
Y*10-A	T interface	X480
Y*4-A	Cross interface	T3

Please contact SMC for ordering information

An all-stainless steel gauge with polycarbonate lens is available for use with the epoxy coated regulators (K50S-MP1.0-N01MS-W-X52).

Other gauge configurations are available, please consult the SMC gauge catalogs.

Salt Spray Test Results (for reference)

1. Test Conditions

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

2. Test Results

Table 1: Salt spray resistance test results

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

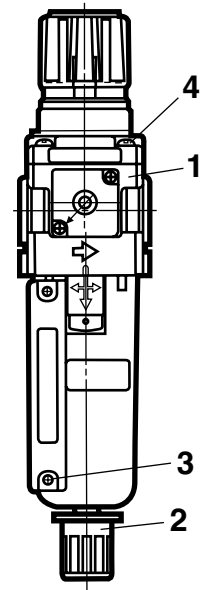
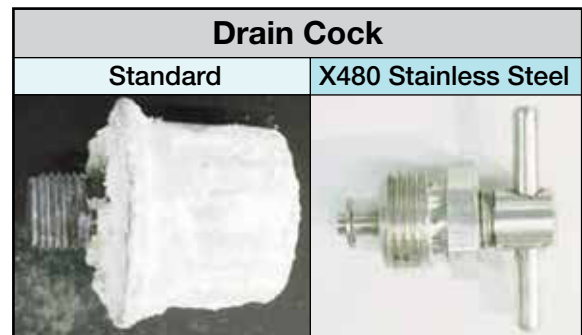
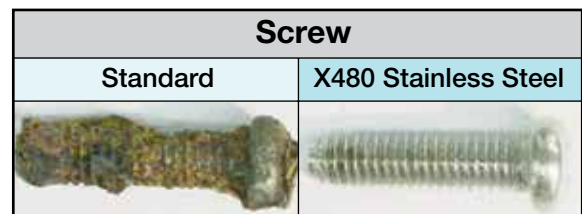
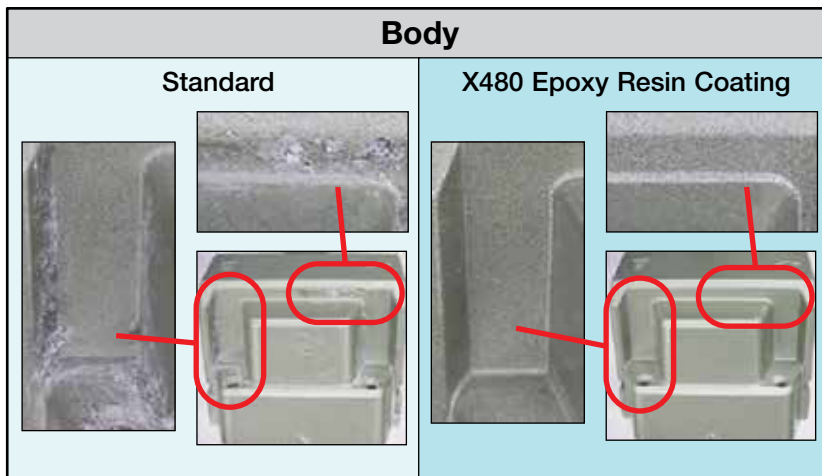


Figure 1



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

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