

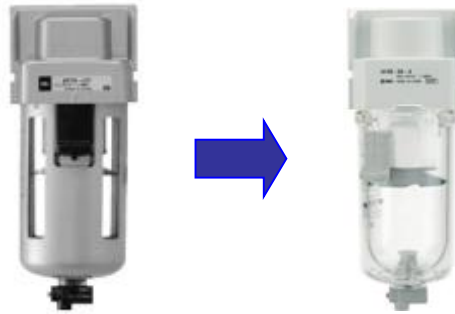


New FRL units Series AC, AR, AF, AL, AW, IS10, VHS

Improved features and related benefits

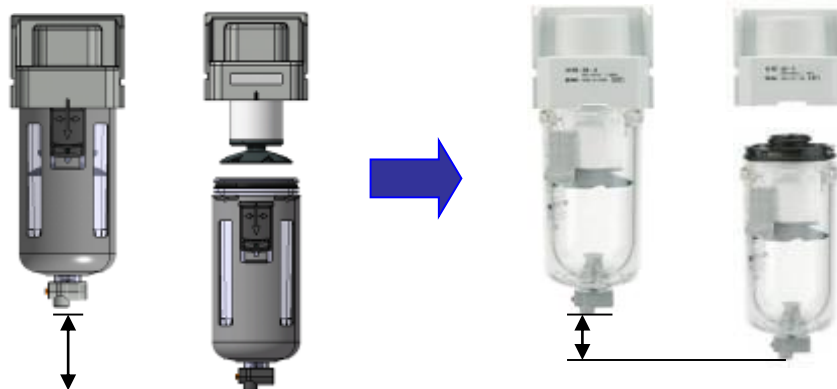
FEATURE: Filter bowl is changed to double layer transparent polycarbonate

CUSTOMER BENEFIT: Lighter bowl and improved resistance to corrosion. Visibility of the internal conditions provides easier maintenance.



FEATURE: The filter element and the bowl are now integrated.

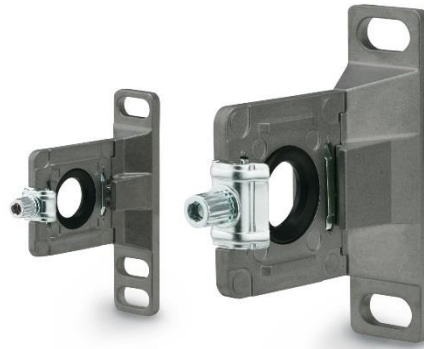
CUSTOMER BENEFIT: Reduced labour costs and required space for maintenance.



Improved features and related benefits

FEATURE: New spacer brackets with knurled tightening nut makes possible tentative tightening by finger.

CUSTOMER BENEFIT: Reduced labour costs thanks to easier assembly.



FEATURE: External colour changed to urban white.

CUSTOMER BENEFIT: Contribution to an improved external appearance.



Technical details: Air Filter (AF/AFM/AFD)

General specifications

Size	Existing series							New series						
	10 (*)	20	30	40	40-06	50 (*)	60 (*)	10-A (*)	20-A	30-A	40-A	40-06	50-A (*)	60-A (*)
Face-to-face dimension [mm]	25	40	53	70	75	90	95	25	40	53	70	75	90	95
Weight [kg]	0.06	0.18 (0.18)	0.22 (0.22)	0.45 (0.44)	0.50 (0.49)	0.99	1.05	0.06	0.08 (0.09)	0.18 (0.19)	0.36 (0.38)	0.41 (0.43)	0.87	1.00
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4~1/2	3/4	3/4, 1	1	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4~1/2	3/4	3/4, 1	1
Fluid	Air							Air						
Ambient and fluid temp. [°C]	-5~60 (No freezing)							-5~60 (No freezing)						
Proof pressure [MPa]	1.5							1.5						
Max. operating pressure [MPa]	1.0							1.0						
Filtration [µm]	5	5 (AF); 0.3 (AFM); 0.01 (AFD)					5	5	5 (AF); 0.3 (AFM); 0.01 (AFD)					5
Drain capacity [cm³]	2.5	8	25	45		45	2.5	8	25	45				
Bowl material	Polycarbonate							Polycarbonate						
Bowl guard	-	- Semi-standard; Steel band	Steel band				-	- Semi-standard; Steel band	Polycarbonate					

 Difference in specifications

() : Weight figures for AFM/AFD

(*) : Not available for AFM/AFD

Technical details: Air Filter (AF/AFM/AFD)

Options

	Symbol	Existing series							New series						
		10 (*)	20	30	40	40-06	50 (*)	60 (*)	10-A (*)	20-A	30-A	40-A	40-06-A	50-A (*)	60-A (*)
Bracket mounting	B	-	○	○	○	○	○	○	-	○	○	○	○	○	○
Float type auto-drain (N.C.)	C	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Float type auto-drain (N.O.)	D	-	-	○	○	○	○	○	-	-	○	○	○	○	○
Metal bowl	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nylon bowl	6	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Metal bowl with level gauge	8	-	-	○	○	○	○	○	-	-	○	○	○	○	○
With bowl guard	C	-	○	-	-	-	-	-	-	○	X	X	X	X	X
Nylon bowl with bowl guard	6C	-	○	-	-	-	-	-	-	○	X	X	X	X	X
With drain guide	J	-	○	○	○	○	○	○	-	○	○	○	○	○	○
With drain cock and barb fitting	W	-	-	○	○	○	○	○	-	-	○	○	○	○	○
Flow direction right to left	R	○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ : Available as standard model

X : A bowl guard is provided as standard element (polycarbonate for C, nylon for 6C)

(*) : Not available for AFM/AFD

Technical details: Regulator

General specifications

Model	Existing series								New series								
	AR10	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)	AR10-A	AR20(K)-B	AR25(K)-B	AR30(K)-B	AR40(K)-B	AR40(K)-06-B	AR50(K)-B	AR60(K)-B	
Face-to-face dimensions	25	40	53	53	70	75	90	95	25	40	53	53	70	75	90	95	
Weight [kg]	0.06	0.16	0.21	0.29	0.44	0.47	1.17	1.22	0.06	0.17	0.19	0.34	0.58	0.6	1.17	1.22	
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4~1/2	3/4	3/4, 1	1	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4~1/2	3/4	3/4, 1	1	
Pressure gauge connection size	1/16	1/8			1/4				1/16	1/8							
Fluid	Air								Air								
Ambient and fluid temp. [°C]	-5~60 (No freezing)								-5~60 (No freezing)								
Proof pressure [MPa]	1.5								1.5								
Max. operating pressure [Mpa]	1.0								1.0								
Set pressure range [MPa]	0.05~0.7	0.05~0.85						0.05~0.7	0.05~0.85								
Relief pressure [MPa]	Set pressure +0.05 {Relief rate: 0.1 L/min (ANR)}								—								
Construction	Relief type								Relief type								
Pressure characteristics	$\Delta P2/\Delta P1 \approx 0.02$ (2%)								0.1	0.02							

Difference in specifications

Technical details: Regulator

Options


	Symbol	Existing series								New series							
		AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60	AR10-A	AR20-B	AR25-B	AR30-B	AR40-B	AR40-06-B	AR-50-B	AR-60-B
Bracket mounting	B	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Set nut for panel fixing	H	○	○	○	○	○	○	-	-	○	○	○	○	○	○	-	-
Square embedded pressure gauge	E	-	○	○	○	○	○	○	○	-	○	○	○	○	○	○	○
Round type pressure gauge	G	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Round type pressure (with colour zone)	M	-	○	○	○	○	○	○	○	-	○	○	○	○	○	○	○
Digital pressure switch	E1~E4	-	○	○	○	○	○	○	○	-	○	○	○	○	○	○	○
0.02~0.2MPa setting	1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non-relieving type	N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Flow direction right to left	R	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Knob upward	Y	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ : Available as standard model

Technical details: Lubricator

General specifications

Model	Existing series							New series						
	AL10	AL20	AL30	AL40	AL40-06	AL50	AL60	AL10-A	AL20-A	AL30-A	AL40-A	AL40-06	AL50-A	AL60-A
Face-to-face dimension [mm]	25	40	53	70	75	90	95	25	40	53	70	75	90	95
Weight [kg]	0.07	0.20	0.24	0.47	0.52	1.06	1.13	0.07	0.10	0.20	0.38	0.43	0.94	1.09
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4~1/2	3/4	3/4, 1	1	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4~1/2	3/4	3/4, 1	1
Fluid	Air							Air						
Ambient and fluid temp. [°C]	-5~60 (No freezing)							-5~60 (No freezing)						
Proof pressure [MPa]	1.5							1.5						
Max. operating pressure [MPa]	1.0							1.0						
Min. drop flow rate [L/min(ANR)]	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220
Oil capacity [cm ³]	7	25	55	135				7	25	55	135			
Bowl material	Polycarbonate							Polycarbonate						
Bowl guard	-	- Semi-standard: Steel band	Steel band				-	- Semi-standard; Steel band	Polycarbonate					

 Difference in specifications

Technical details: Lubricator

Options

	Symbol	Existing series							New series						
		AL10	AL20	AL30	AL40	AL40-06	AL50	AL60	AL10-A	AL20-A	AL30-A	AL40-A	AL40-06-A	AL50-A	AL60-A
Bracket mounting	B	-	○	○	○	○	○	○	-	○	○	○	○	○	○
Metal bowl	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nylon bowl	6	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Metal bowl with level gauge	8	-	-	○	○	○	○	○	-	-	○	○	○	○	○
With bowl guard	C	-	○	-	-	-	-	-	-	○	X	X	X	X	X
Nylon bowl with bowl guard	6C	-	○	-	-	-	-	-	-	○	X	X	X	X	X
With drain cock	3	○	○	○	○	○	○	○	○	○	○	○	○	○	○
With drain cock and barb fitting	3W	-	-	○	○	○	○	○	-	-	○	○	○	○	○
Flow direction right to left	R	○	○	○	○	○	○	○	○	○	○	○	○	○	○


○ : Available as standard model

X : A bowl guard is provided as standard element (polycarbonate for C, nylon for 6C)

Technical details: Filter-regulator

General specifications

Size	Existing series						New series						
	AW10	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06	AW60(K)	AW10-A	AW20(K)-B	AW30(K)-B	AW40(K)-B	AW40(K)-06-B	AW60(K)-B	
Face-to-face dimensions [mm]	25	40	53	70	75	95	25	40	53	70	75	95	
Weight [kg]	0.09	0.16	0.29	0.44	0.47	2.00	0.09	0.17	0.34	0.58	0.6	2.05	
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4~1/2	3/4	3/4, 1	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4~1/2	3/4	3/4, 1	
Pressure gauge connection size	1/16	1/8		1/4			1/16	1/8					
Fluid	Air						Air						
Ambient and fluid temp. [°C]	-5~60 (No freezing)						-5~60 (No freezing)						
Proof pressure [MPa]	1.5						1.5						
Max. operating pressure [MPa]	1.0						1.0						
Set pressure range [MPa]	0.05~0.7	0.05~0.85					0.05~0.7	0.05~0.85					
Relief pressure [MPa]	Set pressure +0.05 {Relief rate: 0.1 L/min (ANR)}						—						
Construction	Relief type						Relief type						
Pressure characteristics	$\Delta P_2/\Delta P_1 \approx 0.02$ (2%)						0.1	0.02					
Filtration [μm]	5						5						
Drain capacity [cm^3]	2.5	8	25	45			2.5	8	25	45			
Bowl material	Polycarbonate						Polycarbonate						
Bowl guard	-	- Semi-standard; Steel	Steel band				-	- Semi-standard; Steel band	Polycarbonate				

 Difference in specifications

Technical details: Filter-regulator

Options

	Symbol	Existing series						New series					
		AW-10	AW20	AW30	AW40	AW40-06	AW-60	AW10-A	AW20-B	AW30-B	AW40-B	AW40-06-B	AW60-B
Bracket mounting	B	○	○	○	○	○	○	○	○	○	○	○	○
Set nut for panel fixing	H	○	○	○	○	○	-	○	○	○	○	○	-
Square embedded pressure gauge	E	-	○	○	○	○	○	-	○	○	○	○	○
Round type pressure gauge	G	○	○	○	○	○	○	○	○	○	○	○	○
Round type pressure (with colour zone)	M	-	○	○	○	○	○	-	○	○	○	○	○
Digital pressure switch	E1~E4	-	○	○	○	○	○	-	○	○	○	○	○
0.02~0.2MPa setting	1	○	○	○	○	○	○	○	○	○	○	○	○
Non-relieving type	N		○	○	○	○	○	○	○	○	○	○	○
Float type auto-drain (N.C.)	C	○	○	○	○	○	○	○	○	○	○	○	○
Float type auto-drain (N.O.)	D	-	-	○	○	○	○	-	-	○	○	○	○
Metal bowl	2	○	○	○	○	○	○	○	○	○	○	○	○
Nylon bowl	6	○	○	○	○	○	○	○	○	○	○	○	○
Metal bowl with level gauge	8	-	-	○	○	○	○	-	-	○	○	○	○
With bowl guard	C	-	○	-	-	-	-	-	○	X	X	X	X
Nylon bowl with bowl guard	6C	-	○	-	-	-	-	-	○	X	X	X	X
With drain guide	J	-	○	○	○	○	○	-	○	○	○	○	○
With drain cock and barb fitting	W	-	-	○	○	○	○	-	-	○	○	○	○
Flow direction right to left	R	○	○	○	○	○	○	○	○	○	○	○	○

○ : Available as standard model

X : A bowl guard is provided as standard element (polycarbonate for C, nylon for 6C)

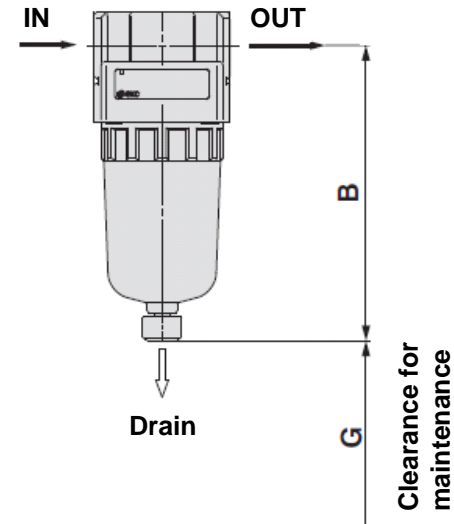
Technical details

■ Dimensional differences

1. Clearance for maintenance (AF)

Size	G	
	Existing series	New series
10	25	25
20	40	25
30	50	35
40	75	40
40-06	75	40
50	20	30
60	20	30

Different dimensions



Technical details

■ Dimensional differences

2. Semi-standard bowl (AF, AFM, AW, AC)

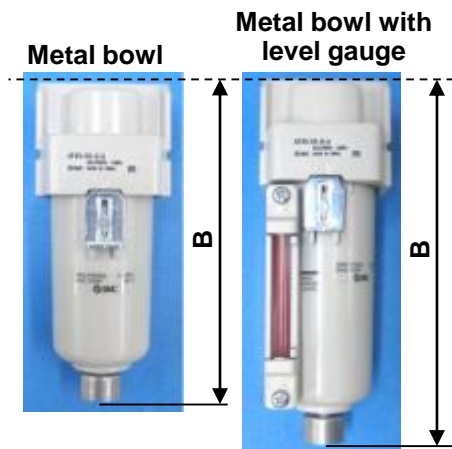
Body size	B											
	Metal bowl						Metal bowl with level gauge					
				With drain guide						With drain guide		
	AF*-A AW-A	AW-B	Old	AF*-A AW-A	AW-B	Old	AF*-A AW-A	AW-B	Old	AF*-A AW-A	AW-B	Old
10	59	-	59	-	-	-	-	-	-	-	-	-
20	87	87	87	94	94	94	-	-	-	-	-	-
30	118	118	128	122	122	122	138	138	148	142	142	142
40	150	150	160	154	154	154	170	170	180	174	174	174
40-06	152	152	162	156	156	156	172	172	182	176	176	176
50	223	-	234	227	-	228	243	-	254	247	-	248
60	237	237	247	241	241	241	257	257	267	261	261	261

Different dimensions

3. Semi-standard bowl (AL, AC)

Body size	B							
	Metal bowl				Metal bowl with level			
			With drain cock				With drain cock	
	New	Old	New	Old	New	Old	New	Old
10	56	56	59	59	-	-	-	-
20	85	85	88	88	-	-	-	-
30	104	104	118	128	124	124	138	148
40	136	136	150	160	156	156	170	180
40-06	138	138	152	162	158	158	172	182
50	209	209	22	233	229	229	246	253
60	223	223	237	247	243	243	257	267

Different dimensions



Technical details

■ Replacement parts

1. Series AF

Description	10		20		30		40 (40-06)		50		60	
	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old
Filter element	AF10P-060S		AF20P-060S		AF30P-060S		AF40P-060S		AF50P-060S		AF60P-060S	
Baffle	AF10P-040S	AF22P-040S	AF20P-040S	AF32P-040S	AF30P-040S	AF42P-040S	AF40P-040S	AF50P-040S	AF60P-040S			
Bowl seal	C1SFP-260S		C2SFP-260S		C32FP-260S	C3SFP-260S	C42FP-260S	C4SFP-260S	C42FP-260S	C4SFP-260S	C42FP-260S	C4SFP-260S
Bowl assembly	C1SF-A	C1SF	C2SF-A	C2SF	C3SF-A	C3SF	C4SF-A	C4SF	C4SF-A	C4SF	C4SF-A	C4SF

2. Series AL

Description	10		20		30		40 (40-06)		50		60	
	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old
Sight dome assembly	AL10P-080AS		AL20P-080AS									
Lubrication plug assembly	-	-	AL22P-060AS	AL20P-060AS	AL32P-060AS	AL30P-060AS	AL42P-060AS	AL40P-060AS	AL42P-060AS	AL40P-060AS	AL42P-060AS	AL40P-060AS
Damper retainer assembly	-	-	AL20P-030AS		AL30P-030AS		AL40P-030AS		AL50P-030AS		AL60P-030AS	
Damper (assembly)	-	-	AL20P-040S		AL30P-040S		AL40P-040S		AL50P-040AS		AL60P-040AS	
Bowl seal	C1SFP-260S		C2SFP-260S		C32FP-260S	C3SFP-260S	C42FP-260S	C4SFP-260S	C42FP-260S	C4SFP-260S	C42FP-260S	C4SFP-260S
Bowl assembly	C1SL-A	C1SL	C4SL-A	C2SL	C4SL-A	C3SL	C4SL-A	C4SL	C4SL-A	C4SL	C4SL-A	C4SL

3. Series AW

Description	10		20		30		40 (40-06)		60	
	New	Old	New	Old	New	Old	New	Old	New	Old
Valve	AR10P-090S		AW20P-340AS		AW30P-340AS		AW40P-340AS		AW60P-090AS	
Filter element	AF10P-060S		AF20P-060S		AF30P-060S		AF40P-060S		AW60P-060S	
Diaphragm assembly	AR10P-150AS		AR20P-150AS		AR30P-150AS		AR40P-150AS		AR50P-150AS	
Bowl seal	C1SFP-260S		C2SFP-260S		C32FP-260S	C3SFP-260S	C42FP-260S	C4SFP-260S	C42FP-260S	C4SFP-260S
Bowl assembly	C1SF-A	C1SF	C2SF-A	C2SF	C3SF-A	C3SF	C4SF-A	C4SF	C4SF-A	C4SF
Check valve assembly	-		AR23KP-020AS	AR20KP-020AS	AR23KP-020AS	AR20KP-020AS	AR23KP-020AS	AR20KP-020AS	AR23KP-020AS	AR20KP-020AS

 Different replacement parts

Technical details

Other components

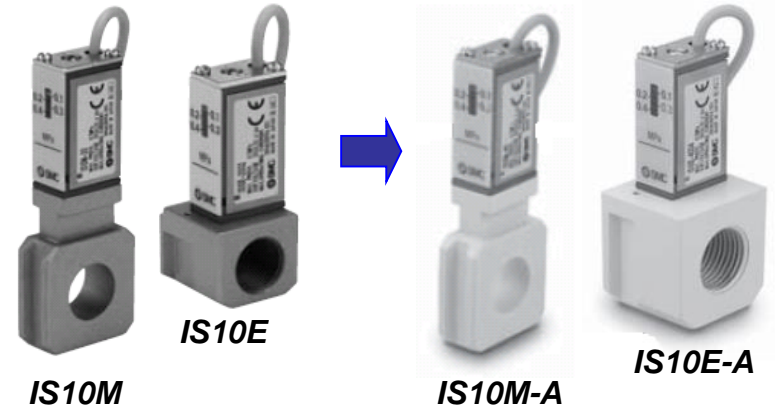
Check valve: AKM / AKM-A



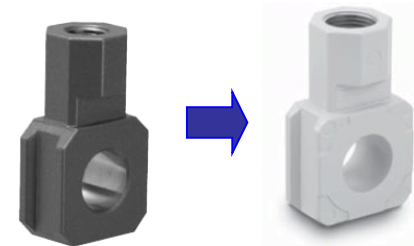
Pressure switch:

With spacer: IS10M / IS10M-A

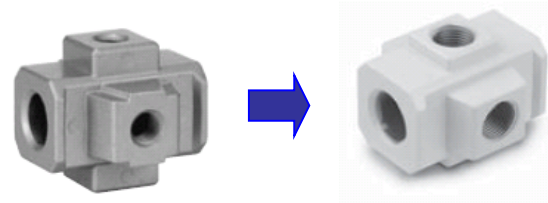
With piping adapter: IS10E / IS10E-A



T-shaped spacer: Y#10- □0# / Y#10- □0#-A
(Y110-M5-A)



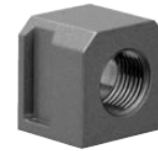
Cross-spacer: Y#4- □0# / Y#4-□0#-A
(Y14-M5-A)



Technical details

Other components

Piping adapter: E#00-□0# / E#00-□0#-A
(E100-M5-A)



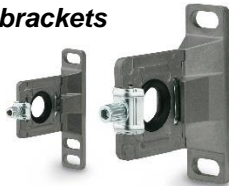
Residual Pressure Release 3 port valve

Please see dedicated switchover document for this product.



Interchangeability old / new brackets

New brackets



New FRL



Old FRL




Old brackets



Technical details

- Made-to-order options

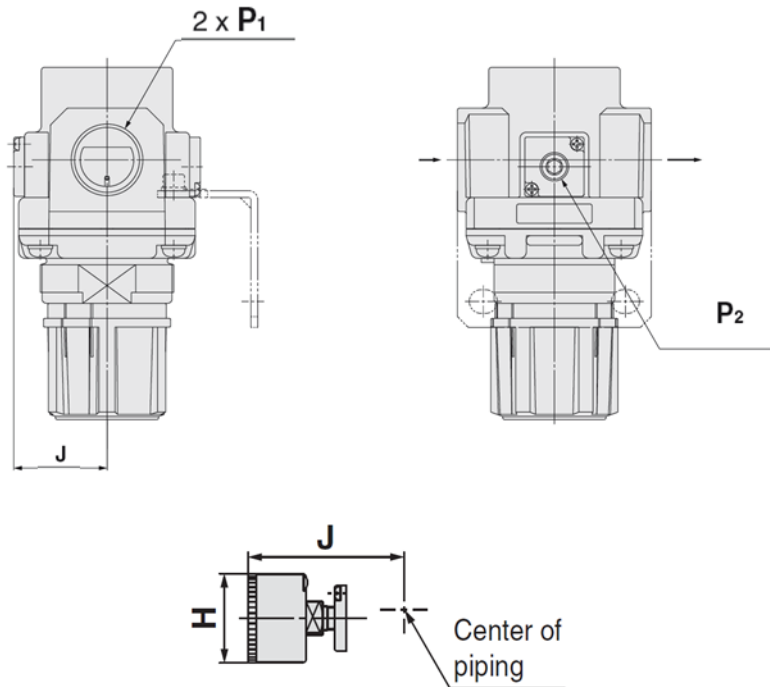
 Dimensional differences between new and old.

Made-to-Order		Series				
		AF	AFM/ AFD	AR	AL	AW
[-X64]	Long bowl	*	*	-	*	*
[-X406]	0,4 MPa setting	-	-	*	-	*
[-X2141]	With element service indicator	*	*	-	-	-
[-X425]	High Pressure 2.0 MPa	*	-	*	-	*
[-X430]	Low temperature -30 to 60 °C	*	-	*	-	*
[-X440]	High temperature -5 to 80 °C	*	-	*	-	*
[10-]	Clean Series	*	*	*	-	*
[21-]	Copper, fluorine and silicone-free + Low particle generation	*	*	*	-	*

Technical details

■ Dimensional differences

- [AR**-B-X425, AW**-B-X425]



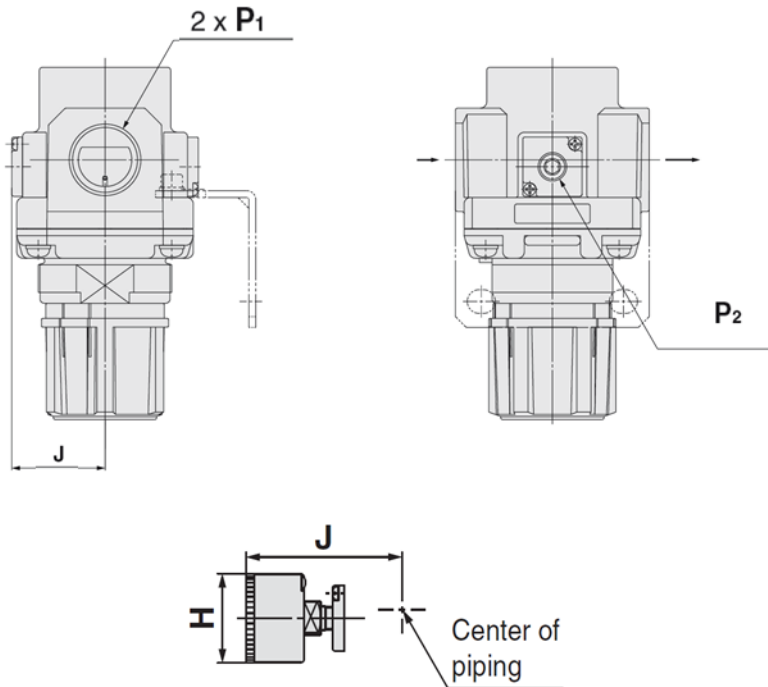
Model		Standard dimensions		
		P1	P2	
			New	Existing
AR20	AW20	1/8, 1/4	1/8	1/8
AR25	-	1/4, 3/8	1/8	1/8
AR30	AW30	1/4, 3/8	1/8	1/8
AR40	AW40	1/4, 3/8, 1/2	1/8	1/4
AR40-06	AW40-06	3/4	1/8	1/4
AR50	-	3/4, 1	1/8	1/4
AR60	AW60	1	1/8	1/4

Model		Round type pressure gauge		
		H	J	
			New	Existing
AR20	AW20	Ø 42,5	66	66
AR25	-	Ø 42,5	65	65
AR30	AW30	Ø 42,5	66,9	66,9
AR40	AW40	Ø 42,5	71,3	73
AR40-06	AW40-06	Ø 42,5	71,3	73
AR50	-	Ø 42,5	80,8	83
AR60	AW60	Ø 42,5	80,8	83

Technical details

■ Dimensional differences

- [AR**-B-X430, AW**-B-X430]
- [AR**-B-X440, AW**-B-X440]



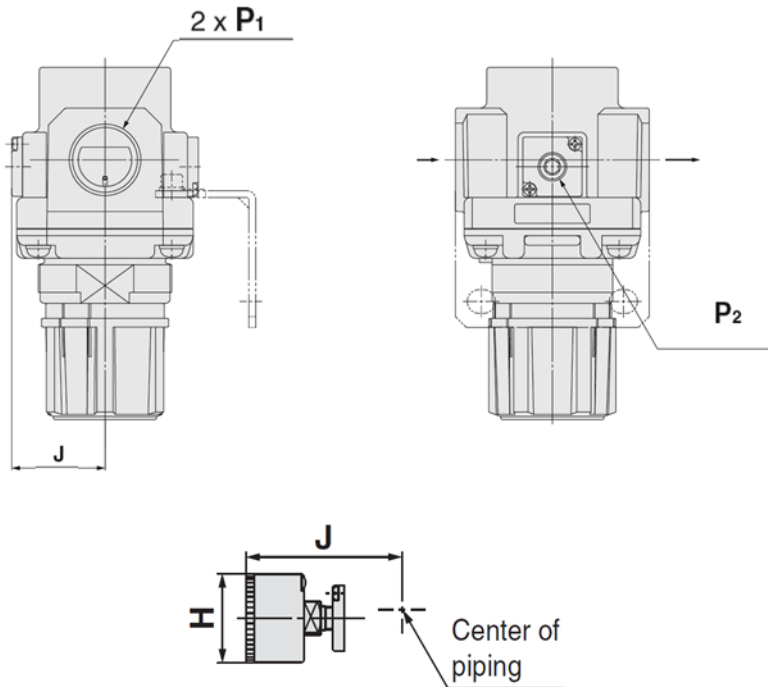
Model		Standard dimensions		
		P1	P2	
			New	Existing
AR25	-	1/4, 3/8	1/8	1/8
AR30	AW30	1/4, 3/8	1/8	1/8
AR40	AW40	1/4, 3/8, 1/2	1/8	1/4
AR40-06	AW40-06	3/4	1/8	1/4
AR50	-	3/4, 1	1/8	1/4
AR60	AW60	1	1/8	1/4

Model		Round type pressure gauge		
		H	J	
			New	Existing
AR25	-	∅ 43	65	65
AR30	AW30	∅ 43	64,9	64,9
AR40	AW40	∅ 43	69,3	71
AR40-06	AW40-06	∅ 43	69,3	71
AR50	-	∅ 43	78,8	81
AR60	AW60	∅ 43	78,8	81

Technical details

■ Dimensional differences

- [10-AR**-B, 10-AW**-B]
- [21-AR**-B, 21-AW**-B]



Model		Standard dimensions		
		New P1	P2	
			New	Existing
AR20	AW20	1/8, 1/4	1/8	1/8
AR25	-	1/4, 3/8	1/8	1/8
AR30	AW30	1/4, 3/8	1/8	1/8
AR40	AW40	1/4, 3/8, 1/2	1/8	1/4
AR40-06	AW40-06	3/4	1/8	1/4
AR50	-	3/4, 1	1/8	1/4
AR60	AW60	1	1/8	1/4

Model		Round type pressure gauge	
		H	J
AR20	AW20	Ø 44	65,5
AR25	-	Ø 44	64,5
AR30-	AW30	Ø 44	66,4
AR40	AW40	Ø 44	70,8
AR40-06	AW40-06	Ø 44	70,8
AR50	-	Ø 44	80,3
AR60	AW60	Ø 44	80,3