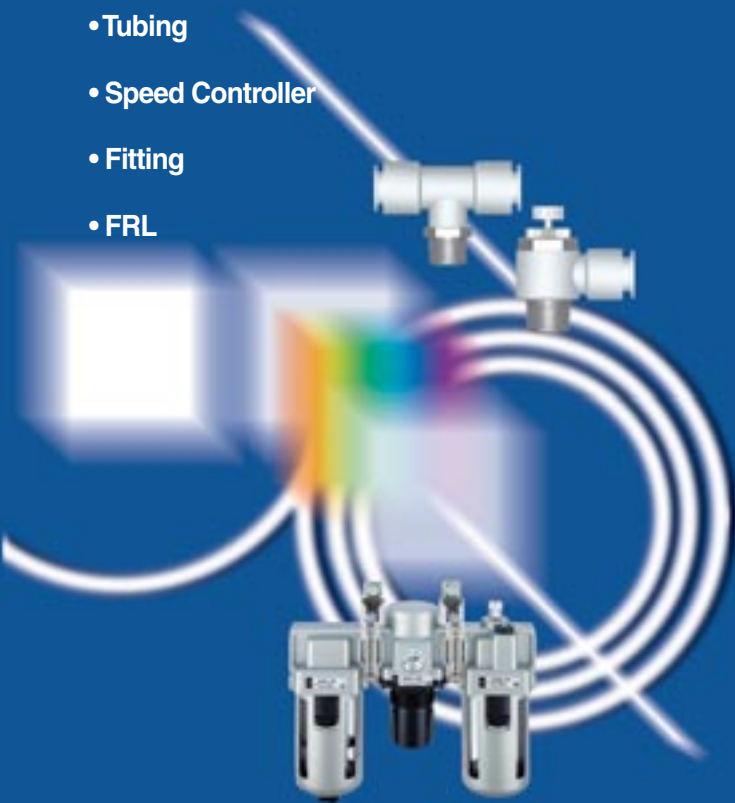


Air Line Components

- Tubing
- Speed Controller
- Fitting
- FRL



Air Line Components

Quick Reference

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F.R.L. Unit

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Safety Information

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Unit Conversions

Metric to English			English to Metric		
Multiply	By	To Obtain	Multiply	By	To Obtain
Length:			Length:		
μm	3.94 x 10 ⁻⁵	in	in	2.54 x 10 ⁴	μm
mm	0.0394	in	in	25.4	mm
cm	0.3937	in	in	2.54	cm
m	3.281	ft	ft	0.3048	m
Area:			Area:		
mm ²	0.0016	in ²	in ²	645.16	mm ²
cm ²	0.1550	in ²	in ²	6.4516	cm ²
m ²	10.764	ft ²	ft ²	0.0929	m ²
Volume:			Volume:		
mm ³	6.10 x 10 ⁻⁵	in ³	in ³	16387	mm ³
cm ³ (cc)	0.0610	in ³	in ³	16.387	cm ³ (cc)
m ³	35.320	ft ³	ft ³	0.0283	m ³
L	0.0353	ft ³	ft ³	28.329	L
L	0.2642	gal (US)	gal (US)	3.785	L
Weight:			Weight:		
g	0.0353	oz	oz	28.329	g
kg	2.2046	lb	lb	0.4536	kg
Force:			Force:		
gf	2.205 x 10 ⁻³	lbf	lbf	453.6	gf
kgf	2.205	lbf	lbf	0.4536	kgf
N	0.2248	lbf	lbf	4.448	N
Torque:			Torque:		
N•m	0.7375	ft•lb	ft•lb	1.3559	N•m
kg•m	7.223	ft•lb	ft•lb	0.1383	kg•m
Pressure:			Pressure:		
mm (H ₂ O)	0.00142	psi	in (H ₂ O)	2.54 x 10 ⁻³	kgf/cm ²
mm (Hg)	0.0193	psi	in (Hg)	0.0345	kgf/cm ²
torr	0.0193	psi	psi	6.895	kPa
kPa	0.145	psi	psi	0.06897	bar
bar	14.5	psi	psi	0.0703	kgf/cm ²
kgf/cm ²	14.22	psi	psi	.00689	MPa
MPa	145.0	psi	Energy:		
Energy:			ft•lb	1.356	N•m
N•m	0.7375	ft•lb	ft•lb	1.356	J
J	0.7375	ft•lb	kWh	3.600	MJ
MJ	0.2778	kWh	Power:		
Power:			ft•lb/s	1.356	W
W	0.7376	ft•lb/s	hp	0.7457	kW
kW	1.341	hp	Flow Rate:		
Flow Rate:			SCFM	28.32	NI/min
NI/min	0.035	SCFM	Temperature:		
Temperature:			°C = 5/9 (°F - 32)		
°F = (1.8 x °C) + 32					

Converted figures using upper table in the catalog

English/Metric Pressure Conversions

PSI ↔ BAR ↔ MPa			BAR ↔ PSI ↔ MPa			MPa ↔ PSI ↔ BAR		
PSI	BAR	MPa	BAR	PSI	MPa	MPa	PSI	BAR
-14.7	-1.01	-0.101	-1.01	-14.7	-0.101	-0.101	-14.7	-1.01
-12.0	-0.83	-0.083	-0.80	-11.6	-0.080	-0.090	-13.1	-0.90
-10.0	-0.69	-0.069	-0.60	-8.7	-0.060	-0.070	-10.2	-0.70
-8.0	-0.55	-0.055	-0.40	-5.8	-0.040	-0.050	-7.3	-0.50
-6	-0.41	-0.041	-0.20	-2.9	-0.020	-0.030	-4.4	-0.30
-3	-0.21	-0.021	-0.10	-1.5	-0.010	-0.01	-1.5	-0.10
0	0	0	0	0	0	0	0	0
20	1.38	0.14	1	14.50	0.10	0.10	14.52	1.00
30	2.07	0.21	2	29.00	0.20	0.20	29.04	2.00
40	2.76	0.28	3	43.50	0.30	0.30	43.56	3.00
50	3.45	0.34	4	58.00	0.40	0.40	58.08	4.01
60	4.14	0.41	5	72.50	0.50	0.50	72.60	5.01
70	4.83	0.48	6	86.99	0.60	0.60	87.12	6.01
80	5.52	0.55	7	101.49	0.70	0.70	101.64	7.01
90	6.21	0.62	8	115.99	0.80	0.80	116.16	8.01
100	6.90	0.69	9	130.49	0.90	0.90	130.68	9.01
200	13.79	1.38	10	144.99	1.00	1.00	145.20	10.01
300	20.69	2.07	15	217.49	1.50	1.50	217.80	15.02
400	27.59	2.75	20	289.98	2.00	2.00	290.40	20.03
500	34.49	3.44	25	362.48	2.50	2.50	363.00	25.04
600	41.38	4.13	30	434.97	3.00	3.00	435.60	30.04
700	48.28	4.82	35	507.47	3.49	3.50	508.20	35.05
800	55.18	5.51	40	579.96	3.99	4.00	580.80	40.06
900	62.07	6.20	45	652.46	4.49	4.50	653.40	45.06
1000	68.97	6.89	50	724.95	4.99	5.00	726.00	50.07
1100	75.87	7.58	55	797.45	5.49	5.50	798.60	55.08
1200	82.76	8.26	60	869.94	5.99	6.00	871.20	60.09
1300	89.66	8.95	65	942.44	6.49	6.50	943.80	65.09
1400	96.56	9.64	70	1,014.93	6.99	7.00	1,016.40	70.10
1500	103.46	10.33	75	1,067.43	7.49	7.50	1,089.00	75.11
1600	110.35	11.02	80	1,159.92	7.99	8.00	1,161.60	80.12
1700	117.25	11.71	85	1,232.42	8.49	8.50	1,234.20	85.12
1800	124.15	12.40	90	1,304.92	8.99	9.00	1,306.80	90.13
1900	131.04	13.09	95	1,377.41	9.49	9.50	1,379.40	95.14
2000	137.94	13.77	100	1,449.91	9.99	10.00	1,452.00	100.14
2250	155.18	15.50	150	2,174.86	14.98	15.00	2,178.00	150.22
2500	172.43	17.22	200	2,899.81	19.97	20.00	2,904.00	200.29
2750	189.67	18.94	250	3,624.76	24.96	25.00	3,630.00	250.36
3000	206.91	20.66	300	4,349.72	29.96	30.00	4,356.00	300.43

Special Product Classifications

Special Product Classifications

Here are the most common prefixes along with what they mean. A prefix generally is assigned when many series of products are modified for a particular market.

Prefix	Description
10-	Clean room series, dual rod seal with drain port
11-	Clean room series, vacuum port on rod seal
12-	Clean room series, 10- with special surface treatment
13-	Clean room series, 11- with special surface treatment
20-	Copper free for cathode ray tube production
30-	CSA approved (Canada) – will often be co-certified for UL
50-	Explosion proof
80-	Ozone compatible (Now standard on Z valves)

Formulas

Value	Formulas
Area (in ²)	$\pi r^2 = \text{Diameter}^2 \times 0.7854$
Circumference	$\pi D = 2\pi r$
Pressure (psi)	Force ÷ Area
Force	Pressure x Area
Cylinder volume (Head end) (in ³)	Piston area x Stroke
Cylinder volume (Rod end) (in ³)	(Piston area - Rod area) x Stroke
Compression ratio (C.R.)	(Pressure + 14.7) ÷ 14.7
Consumption per a stroke (ft ³)	Area x Stroke x C.R. + 1728
Piston speed (in/s)	Stroke ÷ Time
Air demand (scfm)	60 x Area x Piston speed x C.R. + 1728
Peak air flow (Q)	Volume ÷ Time x C.R.
Torque	Force x Perpendicular distance from shaft
Water weight (lbs)	Pounds = Gallons x 8.3453

$\pi = 3.14$, D = Diameter, r = Radius

NEMA Ratings (electrical enclosures)

An enclosure is a surrounding case constructed to provide a degree of protection to personnel against accidental contact with the enclosed equipment and to provide a degree of protection to the enclosed equipment against specified environmental conditions. These are the more common classifications as they pertain to pneumatic components such as valves.

- NEMA 1** — Intended for Indoor use primarily to provide a degree of protection against contact with enclosed equipment.
- NEMA 2** — intended for indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.
- NEMA 3** — Intended for outdoor use to provide a degree of protection against windblown dust, rain, sleet and external ice formation.
- NEMA 3R** — Intended for outdoor use to provide a degree of protection against falling rain, sleet and external ice formation.
- NEMA 3S** — Intended for outdoor use to provide a degree of protection against windblown dust, rain, sleet and provide for operation of external mechanisms when ice laden.
- NEMA 4** — Intended for indoor and outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water and hose directed water.
- NEMA 4X** — Intended for indoor and outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water and hose directed water.
- NEMA 6** — Intended for indoor and outdoor use primarily to provide a degree of protection against entry of water during occasional submersion to a limited depth.

IP Rating (electrical enclosures)

1st Numeral: Degree of protection with respect to persons and solid objects.	2nd Numeral: Degree of protection with respect to harmful ingress of water								
	Non protected	Dripping water	Dripping water $\pm 15^\circ$	Spraying water $\pm 60^\circ$	Splashing water 360°	Water jets	Heavy seas	Immersion	Submersion
Not protected	0	IP00	IP01	IP02					
Solid objects > $\phi 50\text{mm}$	1	IP10	IP11	IP12	IP13				
Solid objects > $\phi 12\text{mm}$	2	IP20	IP21	IP22	IP23				
Solid objects > $\phi 2.5\text{mm}$	3	IP30	IP31	IP32	IP33	IP34			
Solid objects > $\phi 1.0\text{mm}$	4	IP40	IP41	IP42	IP43	IP44	IP45	IP46	
Dust protected	5					IP54	IP55	IP56	
Dust tight	6						IP65	IP66	IP67 IP68

Note: Find IP rating and follow across and up to find degree of combined protection. IP65 and NEMA 4 are roughly equivalent.



Customers selling machinery into the European Community will often ask for "CE approved" products. CE includes four *directives* that refer to *standards* that spell out safety guidelines for different products. We have many products that conform to these standards. Some are standard products, and others have been modified to conform to these standards. These modified products bear a "-Q" suffix, which indicates conformance to the TUV standards. While we do not affix the CE label to our product, there is a CD-ROM in the tech-center, which will allow you to search for and print out all of the documents your customer will need to show compliance with the CE directives. The four main directives that apply to our business are as follows:

Machinery Directive:

The machinery directive applies to most machinery shipped into the European Community. It requires that these machines conform to a wide variety of health and safety standards. The essential requirements are as follows:

- Design the machine so there is no risk of injury.
- If this is not possible, use technical protective means to reduce risk.
- If this is not possible, issue warnings in the users manual and on the machine in the form of graphical symbols.

This directive went into effect January 1, 1995.

EMC Directive:

The EMC (Electro Magnetic Compatibility) directive applies to the limitation of electromagnetic radiation and immunity to electromagnetic radiation by electrical and electronic apparatus. This directive went into effect January 1, 1996.

Low Voltage Directive:

The low voltage directive applies to electrical apparatus operating in the voltage range of 50 to 1000VAC and 75 to 1500VDC. This directive covers all aspects of equipment safety including protection against hazards of mechanical origin. This directive went into effect January 1, 1997.

Simple Pressure Vessel Directive:

The simple pressure vessel directive applies to any vessel used to store pressurized gases. It covers all aspects of equipment safety. This directive went into effect July 1, 1992. (Air cylinders do not fall under this directive.)



Bore size	Equivalent metric nominal bore size	Piston area (in ²)
1/4"	6mm	0.04
5/16"	8mm	0.08
3/8"	10mm	0.12
1/2"	12mm	0.18
9/16"	15mm	0.27
5/8"	16mm	0.31
3/4"	20mm	0.49
7/8"	—	0.60
1"	25mm	0.76
1-1/16"	—	0.89
1-1/8"	30mm	1.10
1-1/4"	32mm	1.25
1-1/2"	40mm	1.95
1-3/4"	—	2.41

Bore size	Equivalent metric nominal bore size	Piston area (in ²)
2"	50mm	3.04
2-1/2"	63mm	4.83
3"	—	7.07
3-1/4"	80mm	7.79
4"	100mm	12.17
4-1/2"	—	15.90
5"	125mm	19.02
—	140mm	23.86
6"	—	28.27
—	160mm	31.16
7"	180mm	39.44
8"	200mm	48.69
10"	250mm	76.09
12"	300mm	109.56

Note: The nominal bore sizes shown in metrics are not the exact equivalent of the bore sizes shown in inches. The piston area was not calculated directly from inches, instead, the piston area was calculated from the equivalent metric nominal bore size and converted to inches, unless metric valves were not available.



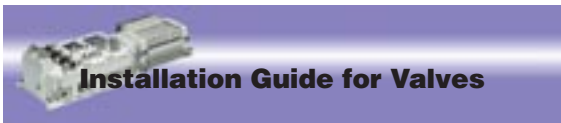
Valve Sizing

Use the formula below with the cylinder force chart above and the compression and pressure drop factor chart below to calculate the required Cv for a valve.

$$Cv = \frac{\text{Piston Area (in}^2\text{) x Stroke (in) x Compression Factor}}{\text{Pressure Drop Factor x Cycle Time (sec.) x 29}}$$

Insert pressure	Compression factor	Pressure drop factors for various pressure drops				
		2psi	5psi	10psi	15psi	20psi
10	1.7	6.5				
20	2.4	7.8	11.8			
30	3.0	8.9	13.6	18.0		
40	3.7	9.9	15.3	20.5	23.6	
50	4.4	10.8	16.7	22.6	26.4	29.0
60	5.1	11.7	18.1	24.6	29.0	32.0
70	5.8	12.5	19.3	26.5	31.3	34.8
80	6.4	13.2	20.5	28.2	33.5	37.4
90	7.1	13.9	21.6	29.8	35.5	39.9
100	7.8	14.5	22.7	31.3	37.4	42.1
110	8.5	15.2	23.7	32.8	39.3	44.3
120	9.2	15.8	24.7	34.2	41.0	46.4
130	9.8	16.4	25.6	35.5	42.7	48.4
140	10.5	16.9	26.5	36.8	44.3	50.3

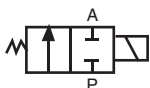
Note: Pressure drop factor is based on the inlet pressure of the valve and the allowable pressure drop across the valve. For average conditions use a **70psi inlet pressure** and a **10psi pressure drop**.



Port ID	Description of Function
P	Inlet - Supply pressure
A	Output - Normally Closed at rest (Unless specified in a 2 or 3 port valve) (A ⇒ EA)
B	Output - Normally Open at rest (P ⇒ B)
EA & EB	Exhaust ports
X	External Pilot Supply (Used to supply pilot for low pressure or vacuum applications, and also for fail safe or to hold product [valve] in position if main-line fluctuates.)
EX	Pilot Exhaust (Never plug. Leave open or use a silencer)

Supply	N.C. Output	N.O. Output	Exhaust of N.C.	Exhaust of N.O.	Pilot for N.C.	Pilot for N.O.
P	A	B	R	S	Z	Y
P	A	B	R1	R2	Z	Y
P	A	B	EA	EB	PA	PB
P	A	B	EA	EB	X	X2
1	2	4	3	5	12	14

From time to time different manufactures use different call outs listed is the most recognized call outs. (Read across)



2-port/2-position
Normally Closed



3-port/2-position



5-port/2-position

Each square represents a position or state that the valve will perform. The square that has the call outs will always show the valve at rest.

At Rest Action

2-port N.C.	P ⇒ Blocked	A ⇒ Blocked
2-port N.O.	P ⇒ A	
3-port N.C.	P ⇒ Blocked	A ⇒ E
3-port N.O.	P ⇒ A	E ⇒ Blocked
5-port/2-position	P ⇒ B	A ⇒ EA EB ⇒ Blocked
5-port/3-pos. - Closed	P, B & A ⇒ Blocked	EA & EB ⇒ Blocked
5-port/3-pos. - Exhaust	P ⇒ Blocked	B ⇒ EB A ⇒ EA
5-port/3-pos. - Open	P ⇒ B & A	EA & EB ⇒ Blocked



5-port Valve Selection

Valve Series

Cv	VQC		SQ		VQ		VQZ		VQD
	Rubber seal	Metal seal	Rubber seal	Metal seal	Rubber seal	Metal seal	Rubber seal	Metal seal	Poppet
0.07									1000
0.12									
0.13					0000				
0.14							1000		
0.15			1000			0000			
0.17									
0.18	1000							1000	
0.19				1000					
0.21					1000				
0.25		1000				1000			
0.28									
0.29									
0.35							2000		
0.45								2000	
0.48									
0.57									
0.58					2000				
0.59									
0.60	2000						3000		
0.68						2000			
0.71				2000					
0.74									
0.75			2000						
0.80		2000						3000	
0.90									
0.93									
1.40									
1.60									
1.70	4000				4000				
2.00		4000				4000			
2.50									
3.40					5000				
4.70						5000			



5-port Valve Selection

Valve Series

Cv	SV	SZ	SY	SYJ	SX
	Rubber	Rubber	Rubber	Rubber	Rubber
0.07				3000	
0.12					
0.13					
0.14					
0.15					
0.17					3000
0.18					
0.19		3000			
0.21				5000	
0.25					
0.28	1000				
0.29			3000		
0.35					
0.45					
0.48	2000				
0.57					5000
0.58					
0.59					7000
0.60					
0.68					
0.71					
0.74				7000	
0.75					
0.80					
0.90			5000		
0.93	3000				
1.40					
1.60	4000				
1.70			7000		
2.00					
2.50			9000		
3.40					
4.70					

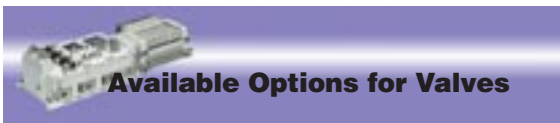


3-port Valve Selection

Valve Series

Cv	V	SY	SYJ	VK	VZ	VP	VG	S
	Rubber	Rubber	Rubber	Rubber	Rubber	Rubber	Poppet	Rubber
0.008	100	100						
0.011								
0.021								070
0.042					100			
0.09			300					
0.13				300				
0.18					300			
0.22								
0.25								
0.32			500					
0.45								
0.69					500			
0.72			700					
0.8								
0.88						300		
1								
1.38								
2.4						500		
3.8						700		
7						3145		
9.8							342	
18.33						3165		
37.22						3185		

Cv	VQ	VKF	VQZ		VZ	VS	VFN	
	Poppet	Poppet	Poppet	Metal	Rubber	Metal	Metal	NAMUR
0.008								
0.011	100							
0.021								
0.042		300						
0.09								
0.13								
0.18								
0.22						200		
0.25			100					
0.32								
0.45				200				
0.69								
0.72								
0.8				300	200			
0.88							3000	
1					300			200N
1.38								
2.4								
3.8								
7								
9.8								
18.33								
37.22								



Available Options for Valves

Valve Series

Series	Bar stock	Stacking	Plug-in	Din rail	Fit. cart.	Fit. press	D-sub	Ribbon	Terminal	Circular connector	Serial	Speed controller	Regulators	Ext. pilot	Port plugs	Name plate	Exh. block	Sup. block	Silencer	Vac. ejector
SY	●	●	●	●	●	●	●	●	●		●		●	●	●		●	●		●
SYJ	●					●		●				●	●	●			●	●		
SX	●	●	●	●	●	●	●	●	●		●		●	●	●		●	●		●
SZ		●	●	●	●	●	●	●			●			●	●	●				
VQZ	●			●	●	●						●		●	●	●	●	●		
VQD	●				●	●											●	●		
VQ	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●
VQC			●	●	●	●	●	●		●				●	●	●	●	●	●	
SV			●	●	●	●	●	●		●	●			●	●	●		●	●	

Note: Not all options will be compatible with each other nor with every size within a series.

Direct Replacement Valves

New style	Old style	
SY100	VJ100	
SYJ300	VJ300	
SYJ500	VJ500	VZ300
SYJ700	VJ700	VZ500
SYJ3000	VJ3000	
SYJ5000	VJ5000	VZ3000
SYJ7000	VJ7000	VZ5000
VQZ200	VZ200	
VQZ300	VZ400	
VQZ2000	VZ2000	
VQZ3000	VZ4000	

Vacuum Cup Sizing

Use the theoretical lift force (F_t) table below to determine what size vacuum cup to use for an application. Practical lift force (F_p) should be calculated with the following formula. Use the safety factors (t) from the table.

$$F_p = F_t \times 1/t$$

Plane of cup contact	Static load	Dynamic load
Horizontal	$t = 2$	$t = 4$
Vertical	$t = 4$	$t = 8$

Theoretical Lift Force

Ft (lbf)		Vacuum pressure (InHg)								
Pad bore (mm)	Area (cm ²)	26"	24"	22"	20"	18"	16"	14"	12"	
2	.031	.062	.057	.05	.049	.042	.037	.033	0.29	
4	.126	.245	.225	.207	.187	.170	.150	.132	.112	
6	.283	.551	.509	.465	.423	.381	.340	.298	.254	
8	.503	.979	.904	.829	.754	.677	.602	.527	.452	
10	.785	1.53	1.41	1.29	1.18	1.06	.941	.825	.705	
13	1.33	2.58	2.38	2.18	1.98	1.79	1.59	1.39	1.19	
16	2.01	3.90	3.62	3.31	3.02	2.71	2.40	2.12	1.81	
20	3.14	6.13	5.64	5.16	4.70	4.23	3.77	3.31	2.82	
25	4.91	9.57	8.82	8.09	7.36	6.61	5.89	5.14	4.41	
32	8.04	15.7	14.5	13.3	12.1	10.8	9.63	8.44	7.23	
40	12.6	24.5	22.5	20.6	18.8	16.9	15.1	13.2	11.3	
50	19.6	38.1	35.3	32.4	29.3	26.5	23.6	20.6	17.7	

Note: If several pads are used simply add up the forces for each pad.

Ejector Sizing (No Leakage)

Once you have your pads sized, you can start to figure out what size ejector you will need in order to adsorb the part in the amount of time required by the application. In applications where there is a good seal between to work and the pad, and the material is non-porous, you can assume no leakage. Use the formula below to determine the needed ejector flow:

$$Q_1 = V \times 60/T_1$$

Q_1 = mean suction flow (Nl/min).

T_1 = time to reach 63% of target vacuum level (seconds).

V = volume of tubing to pads (liters)
(need inside ϕ and length of tube).

(time to reach 95% adsorption
= 3 times T_1 .)

Note: Size ejector for 2 to 3 times the mean suction flow.

* For more details or for applications with leakage, refer to N400 vacuum catalog.

Vacuum Pad Assemblies

Vertical Style (ZP)

How to Order

ZP 10 U N -X19

Pad diameter
(mm)

2004	2 x 4
3507	3.5 x 7
4010	4 x 10
02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

Lock ring

Nil	With lock ring
-X11	For use on ZC (D) UK $\frac{D}{R}$ 10
-X19	Without lock ring (Ø10 or larger)

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluorine rubber
GN	Conductive NBR
GS	Conductive silicon rubber
E	EPR

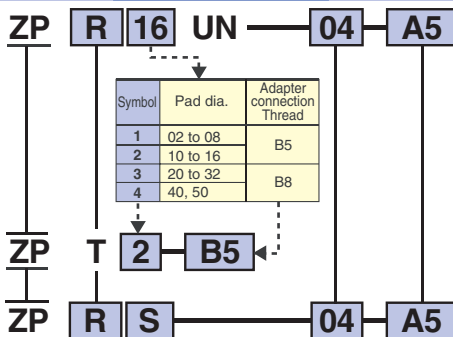
Pad style

U	Flat
C	Flat with ribs
D	Deep
B	Bellows
UT	Compact
CT	Compact with ribs
H	Heavy duty pad
HB	Large size bellows
F	15° swivel (Ball joint)

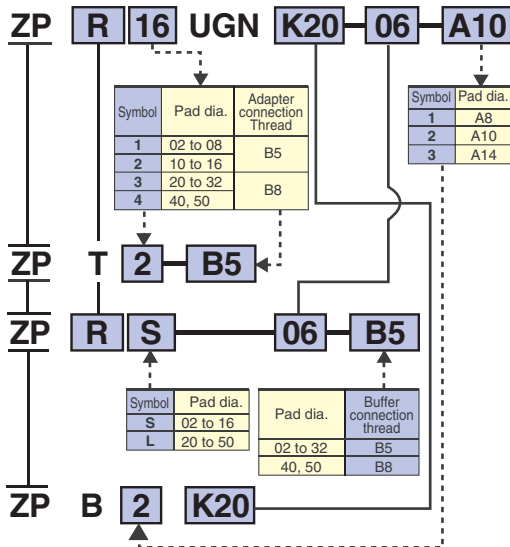
Vacuum Pad Assemblies

Vertical Style (ZPR)

How to Order (without buffer)



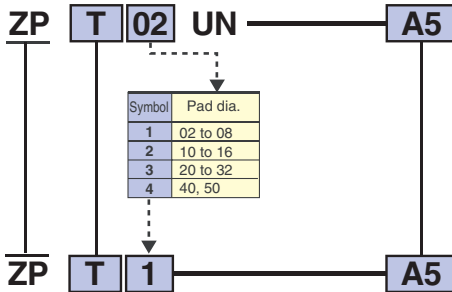
How to Order (with buffer)



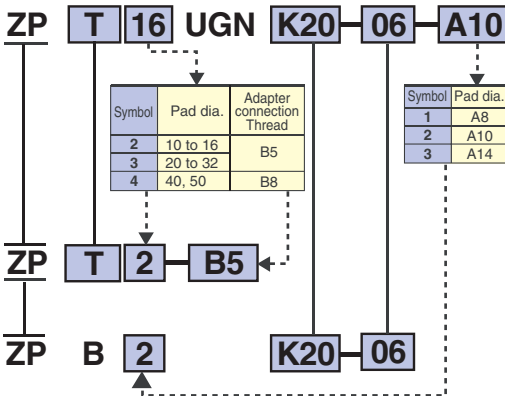
Vacuum Pad Assemblies

Vertical Style (ZPT)

How to Order (without buffer)



How to Order (with buffer)



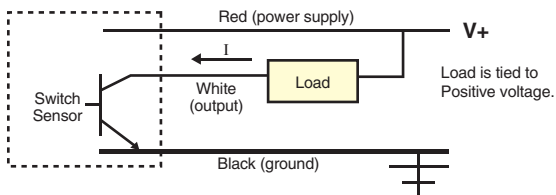


Auto Switches

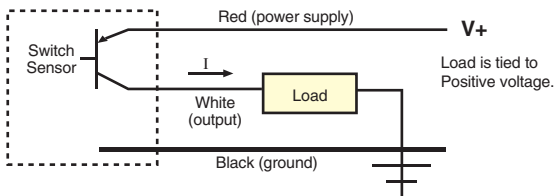
REED SWITCHES: A thin metal contact is drawn closed by the magnetic field of the piston magnet. Since this is a mechanical switch it will wear out over time and is susceptible to vibration and shock. The advantage is that they are inexpensive and can be used with AC voltages.

SOLID-STATE SWITCHES: The magnetic field generated by the piston magnet causes a current flow inside the switch. Since there are no moving parts, the switch life is much longer than a reed switch and they are less prone to vibration and shock. They are more expensive, can only be used with DC voltages and you need to know whether you need a sinking or sourcing switch.

Current Sinking (NPN) – The switch sensor "sinks" current from the load through the sensor ground. The load is connected between the positive voltage supply and the output lead of the sensor.



Current Sourcing (PNP) – The output circuit which becomes a "source" of current to the load. The load is connected between the output lead of the sensor and the negative "ground" lead of the supply.



Three wire DC sensors include one wire that provides current to the sensor, an output signal wire and a ground wire. most electro-mechanical loads (relays, counters, solenoids, etc.) can use either a sink or source type switch provided it is wired properly. The proper sensor type must be chosen when used with solid-state loads and programmable controllers due to the fact that some of these loads must be grounded.

Wire Colors: SMC has changed the wire colors on all of our switch products. This was done to conform to European standards that are being adopted being adopted worldwide.

	Old colors	New colors
Positive	Red	Brown
Negative	Black	Blue
Output	White	Black



Pipe Thread Quick Reference

Tapered pipe threads seal at the points where the crests of the threads meet the roots of the mating threads. Standard pipe threads, NPT, R, and Rc require sealant to prevent the development of a spiral leak path. NPTF threads are designed to crush the points of the crests into the roots of the mating threads to achieve the same purpose, however, use of a lubricant or sealant to prevent galling of the threads is preferred where not functionally prohibited.

R — Taper external threads, ISO 7-1

Rc — Taper internal threads, ISO 7-1

NPT — American National Standard Taper Pipe Threads

***All of the above are designed to be used with sealant to provide a pressure tight joint.**

NPTF — American National Standard Dryseal Pipe Threads

***Designed to provide a pressure tight joint without the use of sealant.**

G — Parallel Pipe Threads, ISO 228-1

***Straight threads use a gasket or O-ring to produce a pressure tight joint.**

NPT and **NPTF** interchange, **R** and **Rc** are used together. Although **R** will fit into an **NPT** female thread from 1/8" & up, this will not be a leak-free connection. **R** will connect to a female **G** port and seal properly. SMC offers a uni-thread connection that will work in a **Rc**, **NPT**, and **G** female port. No other interchanges are possible.

Miniature threads, **M5 x 0.8** and **10/32UNF**, will only mate as follows: **10/32** male will fit into and **M5** female, **M5** male will NOT fit into a **10/32** female. Both of these threads use a gasket to produce a pressure tight fit.

Basic Dimensions

Port size	R & Rc			
	Thread per Inch	Pitch	Major diameter	Thread form angle
1/16	28	.03571	.304	55°
1/8	28	.03571	.383	55°
1/4	19	.05262	.518	55°
3/8	19	.05262	.656	55°
1/2	14	.07142	.825	55°
3/4	14	.07142	1.041	55°

Port size	NPT & NPTF			
	Thread per Inch	Pitch	Major diameter	Thread form angle
1/16	27	.030704	.313	60°
1/8	27	.030704	.404	60°
1/4	18	.05556	.540	60°
3/8	18	.05556	.675	60°
1/2	14	.07143	.840	60°
3/4	14	.07143	1.050	60°



Fitting X-Options

Here is a list of the more common modifications to one-touch fittings. Dimensional changes are considered specials and need to be submitted as such.

Suffix	Description
X2	Copper free/nickel plated
X12	Vaseline; grease free
X13	Stainless steel stud end and/or guide (SUS303), except for KG (NPT only with metric hex)
X16	Nickel plating with special grease (-X2 & -X12)
X17	No grease, packing coated with fluorine
X22	Stainless steel stud end and/or guide & Viton seals
X23	Stainless steel stud end and/or guide (SUS303) & NBR (NPT only with inch hex)
X24	Fire resistant cover or spatter cover (KR-°C) & std KQ (metric)
X31	Stainless steel stud end & EPR seals
X32	Stainless steel stud end (SUS316) & EPR seals
X34	23 to 140°F (-5 to 60°C); viton seals

Fitting Pull-Out Strength

Tube size	Pull-out strength (kgf)		
	Nylon	Soft nylon	Polyurethane
1/8" (2.5mm)	10	8	5
4mm (5/32")	20	15	10
3/16"	11	8	6
6mm	20	15	10
1/4"	20	15	11
8mm (5/16")	30	20	17
3/8"	52	32	22
10mm	55	35	25
12mm	80	45	35
1/2"	90	50	40
16mm	120	89	N/A

Fitting Colors

	KQ's		KQ2's	
	Collar	Body	Collar	Body
Inch	Red	Black	Orange	White
Metric	Blue	Black	Gray	White

Fittings with Sealant: The sealant that is applied to the threaded porting is a Fluoro resin.

KJ Series: Nickel plating is standard.

IQ Series: This series has changed to KQ2's.

KJ's and KQ2's can be used for industrial water application.

Thread size	Standard thread torque lbs-in
1/16 or 1/8	62 to 80 (7 to 9 N•m)
1/4	106 to 124 (12 to 14 N•m)
3/8	195 to 212 (22 to 24 N•m)
1/2	248 to 265 (28 to 30 N•m)

M3: First tighten by hand and then give it an addition 1/4 turn with a wrench.

M5: First tighten by hand and the give it an addition 1/6 turn with a wrench.

Flow Control X-Options

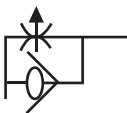
Here is a list of the more common flow control options. Keep in mind that there are also many standard options such as low speed, stainless steel, quick exhaust, pilot operated check valves, pressure relief, dual flow control etc.

Suffix	Description
X12	White Vaseline; AS-F type
X23	FPU U-packing; AS-F type
X214	AS-F type, needle valve (no reverse flow check)
X201	AS1200-M3-X201, meter-in type
X201	NASV*-X201, Inch sizes
X202	AQ*40F*-X202, Inch sizes
X225	AS1200-U10/32-X225 with hose nipple
X240	AS1200-U10/32-03-X240, tamper proof type (use standard suffix "D")
X241	AS1200-U10/32-X241, large sized metal handle
X245	NAS1200-U10/32-X245, flow rate preset
X250	AS1201F-M5-04-*X250, flow rate preset
X258	NAS2201F-N02-07S-X258, flow rate preset

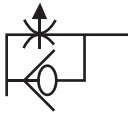
Flow Control General

Meter-in: Controls the airflow that is sent into the cylinder.

Meter-out: Controls the exhaust from a cylinder. (Most common)



Meter-in



Meter-out

Locking ring	
Meter-in	Black Zinc Chromate
Meter-out	Nickel Plated



FRL X-Options

Here are some of the most common options available for FRL products. Many of them require an RFS if they are not in the system and some have been replaced with standard US part numbers . They are listed in case you run across them.

Suffix	Model	Description
X33US	AC10 to 60, AR10 to 60, AR111, AW10 to 60, AWD20 to 60, AWM20 to 60 AP100, ARX20 to 21	Tamper proof regulator
X34US	AP100, AR111, AR10 to 60, AW20 to 40, AWD20 to 40, AWM20 to 40AR	Restricted regulator
X64	AW20 to 40	Long bowl
X110US	AR/AW/AWD/AWM20 to 40	Metal panel mount nut
X124	AR/AW10	M5 Gauge ports
X125	AR20 to 30	1/4 Gauge port
X155	AF20-N01 to N02C(B)-CZ(6,R) AR20 to 40-N**(B, E, G, H)-(1, N, R)Z	All rubber material is viton.
X211	AL40-06(B)-(6, R)	-X211 Bowl
X401	AF10 to 60	No drain cock
X406	AR/AW20/25/30/40/50P-180S	60psi spring (spring only by itself)
X406	AR10 to 60(K), AW20 to 60, AWD20 to 40, AWM20 to 40	60psi spring installed
X425	AF20 to 60 AR20 to 40-**(B, G, P)-(N, R) AR50 to 60-**(B, G)-(N, R) AW20 to 40-N**(B, G, P)-2(N, R) AW30 to 40-N**(B, G, P)-8(N, R)	High pressure - 450psi proof, 300psi input, 15to 250psi set
X430	AF40-(F, N)02 to 04A-7- AW30 to -N**(B, G, H)-2(1, J, N, R)Z	Low temperature - Ambient: -30 to 60°C (-22 to 140°F), Fluid: -5 to 60°C (23 to 140°F), see drawing for AW specifications.
X440	AF30 to 60-n**(B)-27(J, R)Z-*	High temperature -Ambient: -5 to 80°C (23 to 176°F), Fluid: -5 to 60°C (23 to 140°F)
X441	AF10 to 60	Bronze filter element (5m only)
X445	AW20 to 40, NAD43, NAD44, NAD53, NAD54, NAF, NAFD, NAFM, NAW, NAWD, NAWM	1/4 pipe thread drain
X465	AW30 to 40	ISE30 pressure switch installed
X470	AR20 to 40-N**(B, G, H)-2, 8(1, N, R)Z	External parts metal
X480	AC, AF, AL, AR, AW AFM30 to 40, AFD30 to 40	Corrosion resistant to salt water wash down, epoxy coated, stainless steel fasteners, like X48, except T-handle on regulators.
X688	AW	6mm one-touch auto drain
X2005	AC30B-N02 to N03(C, D)(E, G)-(1, 6, N, R)Z AR20-(N)01 to 02(B, E, G, H)-(1, N, R)Z AR30-N02 to N03(B, E, G, H)-(1, N, R)Z AW20-01 to 02(B, E, G, H)-(1, 6, C, N, R) AW40-(N)Z02 to 04(C, D)(B, E, G, H)-(1, 6, N, R)Z	2 Gauge ports



Actuator X-Options

Here is a list of the more common actuator options. Consult the price book for availability of these options with different series. Price book also contains a detailed description of the codes for different rod threads, rod extensions and port relocations.

Suffix	Description	Suffix	Description
XA□□	Special rod end configuration*	XC14	Trunnion bracket location*
XT□□	Rod thread length - inch*	XC15	Tie-rod length*
XH□□	Rod thread length - mm*	XC17	Piston rod quenched
XE□□	Rod extension - inch*	XC18	NPT porting
XG□□	Rod extension - mm*	XC20	Head cover axial port
XB5	Oversize rod	XC22	Fluorine rubber seals
XB6	High temperature	XC24	Magnet shielding plate
XB7	Low temperature	XC25	No fixed throttle port
XB9	Low speed 10 to 50mm/s	XC27	Double knuckle -SUS
XB10	Intermediate stroke no spacer	XC29	Double knuckle with spring clip
XB11	Long stroke	XC30	Front trunnion
XB12	External stainless steel	XC34	Rod doesn't exceed plate
XB13	Low speed 5 to 50mm/s	XC35	Coil scraper
XB14	High temp. with auto switch	XC36	Front guide boss
XB18	Low friction cylinder	XC37	Enlarged throttle port
XC3	Special port location	XC38	Vacuum through rod
XC4	Heavy duty scraper	XC42	Built-in rear shock
XC5	Heat resistant: 230°F (110°C)	XC51	With hose nipple
XC6	Rod and nut - SUS	XC52	Mounting nut with screw
XC7	Tie rod, cushion, nut - SUS	XC56	With knock pin hole
XC8	Adjustable extend stroke	XC57	Rodless with floating joint
XC9	Adjustable retract stroke	XC79	Tapped, drilled, pinned hole machined additionally*
XC10	Dual stroke - Dual rod	X1US	CLA inch version
XC11	Dual stroke - Single rod	X46US	Special trunnion location CA2/NCA1/C95
XC12	Tandem cylinder - Force	X142US	Long stroke
XC13	Auto switch rail mounting		

* "Simple Special" options

Dowel Pin Descriptions

Example: 6H9^{+0.03}₀ 6 deep

Suffix	Description
6	Dimension of hole
H9	ISO call out for free running fit.
+0.03/0	Tolerance of hole
6 deep	Depth of hole



Table of Contents - Tubing

■ Tubing Page TUB-1 to 22

TIA	Nylon Tubing—Inch	TUB-1
T	Nylon Tubing—Metric	TUB-2
TISA	Soft Nylon Tubing—Inch	TUB-3
TS	Soft Nylon Tubing—Metric	TUB-4
TIUB	Polyurethane Tubing—Inch	TUB-5
TU	Polyurethane Tubing—Metric	TUB-6
TUS	Soft Polyurethane Tubing—Metric	TUB-7
TUH	Hard Polyurethane Tubing— Metric	TUB-8
TCU	Polyurethane Coil Tubing—Metric	TUB-10
TFU	Polyurethane Flat Tubing—Metric	TUB-12
TPH	Clean Tubing: Polyolefin Tubing	TUB-13
TPS	Clean Tubing: Soft Polyolefin Tubing	TUB-14
TAS	Antistatic Nylon Tubing	TUB-15
TAU	Antistatic Polyurethane Tubing	TUB-16
TIRS	Flame Resistant Soft Nylon Tubing—Inch	TUB-17
TRS	Flame Resistant Nylon Tubing—Metric	TUB-18
TRB	Flame Resistant Double Layer Tubing—Metric....	TUB-19
TRBU	Flame Resistant Double Layer Polyurethane Tubing—Metric ...	TUB-20
PEAPP	Polyurethane Tubing—Inch/Metric	TUB-21
Related Equipment	TUB-22

Nylon Tubing (Inch)

Series TIA

For general use



How to Order

TIA 07 B 33

Tube size

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

Length per roll

Symbol	Length
33	100ft
153	500ft
305	1000ft

• Longer lengths available upon request

Model	TIA01	T0425	TIA05	TIA07	T0806	TIA11	TIA13
O.D. inch	1/8	5/32 (4mm)	3/16	1/4	5/16 (8mm)	3/8	1/2
I.D. inch	0.086	0.098 (2.5mm)	0.137	0.18	0.236 (6mm)	0.275	0.378
Min. bending radius inch	0.59	0.51 (13mm)	0.79	1.18	1.89 (48mm)	2.36	2.95

Length

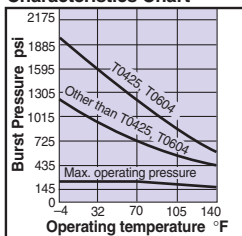
Length	TIA01	T0425	TIA05	TIA07	T0806	TIA11	TIA13
100ft (33m)	Roll		Roll	Roll		Roll	Roll
20m		Roll			Roll		
100m		Roll			Roll		
500ft (153m)	Roll		Roll	Roll		Reel	Reel
1000ft (305m)	Reel		Reel	Reel		Reel	Reel

Roll Reel

Specifications

Operating fluid	Air, Water
Max. operating pressure	218psi (1.5MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C) Water: 32° to 105°F (0° to 40°C) (With no freezing)
Material	Nylon 12
Hardness	Shore D 70

Burst Pressure Characteristics Chart



Nylon Tubing (Metric)

Series T

How to Order

For general use



T 04 25 B 20

Tube O.D.
Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m (Black & White only)

• Longer lengths available upon request

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

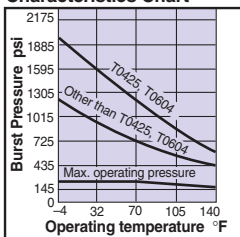
Model	T0425	T0403	T0604	T0645	T0806	T1075	T1209	T1613
O.D. mm	4	4	6	6	8	10	12	16
I.D. mm	2.5	3	4	4.5	6	7.5	9	13
Min. bending radius mm	13	25	24	36	48	60	75	100
Length								
20m	□	□	□	□	□	□	□	□
100m	□	□	□	□	□	□	□	●

□ Roll ● Reel

Specifications

Operating fluid	Air, Water
Max. operating pressure	218psi (1.5MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C) Water: 32° to 105°F (0° to 40°C) (With no freezing)
Material	Nylon 12
Hardness	Shore D 70

Burst Pressure Characteristics Chart



Soft Nylon Tubing (Inch)

Series TISA

All-purpose tubing using Soft Nylon compound for added flexibility



How to Order

TISA 07 B 20

Tube size

Length per roll

Symbol	Length
20	20m
100	100m (Black & White only)

• Longer lengths available upon request

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

Model	TISA01	TS0425	TISA05	TISA07	TS0806	TISA11	TISA13
O.D. inch	1/8	5/32 (4mm)	3/16	1/4	5/16 (8mm)	3/8	1/2
I.D. inch	0.086	0.098 (2.5mm)	0.137	0.18	0.236 (6mm)	0.275	0.378
Min. bending radius inch	0.47	0.47 (12mm)	0.59	0.91	0.91 (23mm)	1.18	1.57

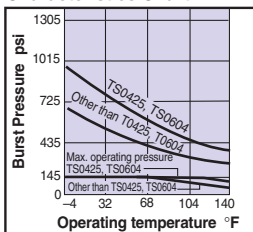
Length	TISA01	TS0425	TISA05	TISA07	TS0806	TISA11	TISA13
20m	□	□	□	□	□	□	□
100m	●	□	●	●	□	●	●
200m		●			●		
500m		●					

□ Roll ● Reel

Specifications

Operating fluid	Air
Max. operating pressure	145 psi (1MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	-4° to 140°F (-20° to 60°C) (With no condensation)
Material	Nylon 11, Nylon 12
Hardness	Shore D 70

Burst Pressure Characteristics Chart



Soft Nylon Tubing (Metric)

Series TS

All-purpose tubing using Soft Nylon compound for added flexibility



How to Order

TS 04 25 B 20

Tube I.D. Tube O.D.

Length per roll

Symbol	Length
20	20m
100	100m (Black & White only)

• Longer lengths available upon request

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

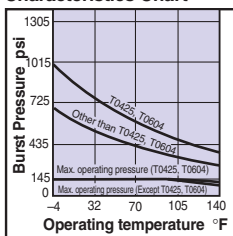
Model	TS0425	TS0604	TS0806	TS1075	TS1209	TS1612
O.D. mm	4	6	8	10	12	16
I.D. mm	2.5	4	6	7.5	9	12
Min. bending radius mm	12	15	23	27	31	60
Length						
20m	□	□	□	□	□	□
100m	□	□	□	□	□	●
150m				●		
200m			●			
500m	●	●				

□ Roll ● Reel

Specifications

Operating fluid	Air
Max. operating pressure	145psi (1MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	-4° to 140°F (-20° to 60°C) (With no condensation)
Material	Nylon 11, Nylon 12
Hardness	Shore D 70

Burst Pressure Characteristics Chart



Polyurethane Tubing (Inch)

Series TIUB

How to Order



TIUB 05 BU 20

Tube size

Length per roll

Symbol	Length
20	66ft
33	100ft
153	500ft
305	1000ft

Colors indication

Symbol	Color	Symbol	Color
B	Black	Y	Yellow
W	White	G	Green
R	Red	C	Clear
BU	Blue	YR	Orange

Refer to Catalog N500-T for other 21 available colors.

- Longer lengths available upon request
- 33, 153 and 305 are stocked item.

Model	TIUB01	TU0425	TIUB05	TIUB07	TU0805	TIUB11	TIUB13
O.D. inch	1/8	5/32 (4mm)	3/16	1/4	5/16 (8mm)	3/8	1/2
I.D. inch	0.08	0.1 (2.5mm)	0.13	0.17	0.2 (5mm)	0.25	0.33
Min. bending radius inch	0.39	0.39 (10mm)	0.6	0.91	0.79 (20mm)	1.06	1.38

Length

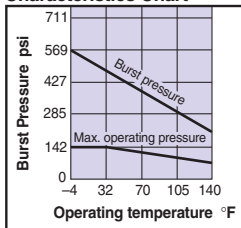
Length	TIUB01	TU0425	TIUB05	TIUB07	TU0805	TIUB11	TIUB13
66ft (20m)	□	□	□	□	□	□	□
100ft (33m)	□	□	□	□	□	□	□
500ft (153m)	□	□	□	□	●	●	●
1000ft (305m)	●	●	●	●	●	●	●
500m		●			●		

□ Roll ● Reel

Specifications

Operating fluid	Air, Water
Max. operating pressure	116psi (0.8MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C) Water: 32° to 105°F (0° to 40°C) (With no freezing)
Material	Polyurethane
Hardness	Shore A95

Burst Pressure Characteristics Chart



Polyurethane Tubing (Metric)

Series TU

How to Order



TU 04 25 BU 20

Tube O.D. ↓

Tube I.D. ↓

Length per roll ↓

Symbol	Length
20	20m
33	33m
100	100m
153	153m
305	305m
500	500m

Colors indication ↓

Symbol	Color	Symbol	Color
B	Black	Y	Yellow
W	White	G	Green
R	Red	C	Clear
BU	Blue	YR	Orange

- Longer lengths available upon request
- 20m and 100m are stocked item.

Refer to Catalog N500-T for other 21 available colors.

Model	TU0425	TU0604	TU0805	TU1065	TU1208
O.D. mm	4 (5/32 inch)	6	8 (5/16inch)	10	12
I.D. mm	2.5	4	5	6.5	8
Min. bending radius mm	10	15	20	27	35

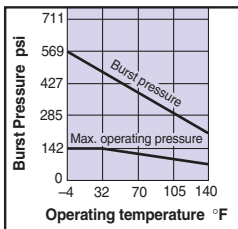
Length	TU0425	TU0604	TU0805	TU1065	TU1208
20m	□	□	□	□	□
33m	□		□		□
100m	□	□	□	□	□
153m	□		□		□
305m	●		●		●
500m	●	●	●		

□ Roll ● Reel

Specifications

Operating fluid	Air, Water
Max. operating pressure	116psi (0.8MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C) Water: 32° to 105°F (0° to 40°C) (With no freezing)
Material	Polyurethane
Hardness	Shore A95

Burst Pressure Characteristics Chart



Made to Order

Reel			X3
100m roll			
O.D.	I.D.	Model	
4	2.5	TU0425□-100-X3	□ B (Black)
6	4	TU0604□-100-X3	W (White)
8	5	TU0805□-100-X3	R (Red)
10	6.5	TU1065□-100-X3	BU (Blue)
12	8	TU1208□-100-X3	Y (Yellow)
			G (Green)
			C (Transparent)
			YR (Orange)

Clean Series 10-

Only available in 20m rolls. (Example) 10-TU0425W-20



How to Order

Suitable for environments where extreme flexibility is required



TUS 10 65 B-100

Tube O.D.

Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m (Black and Blue only)

Color indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green
N	Transparent
YB	Yellow brown

• Longer lengths available upon request.

Note 1) Not transparent but translucent owing to the material.

Model	TUS0425	TUS0604	TUS0805	TUS1065	TUS1208
O.D. mm	4	6	8	10	12
I.D. mm	2.5	4	5	6.5	8
Min. bending radius mm	8	15	15	22	29

Length

20m

100m

□ Roll ● Reel

Specifications

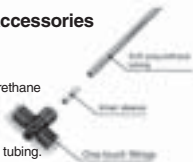
Operating fluid	Air					
Max. operating pressure	87psi (0.6MPa) at 68°F (20°C)					
Burst pressure	Refer to burst pressure characteristics curve					
Applicable fitting	One-touch fitting, insert fittings, hose nipple					
Operating temperature	-4° to 140°F (-20° to 60°C) (With no condensation)					
Material	Polyurethane					
Tubing drawing strength N (with one-touch fitting)	Without inner sleeve	15	60	60	85	110
	With inner sleeve	80	230	250	300	480

TUS Related Accessories

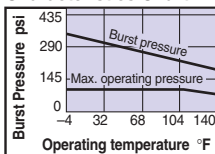
Inner Sleeve

Series TJ

Reinforces soft polyurethane tubing connected to One-touch fitting. Insert an inner sleeve into soft polyurethane tubing.



Burst Pressure Characteristics Chart



Model

Model	Applicable tubing model	Length mm
TJ-0425	TUS0425	18
TJ-0604	TUS0604	19
TJ-0805	TUS0805	20.5
TJ-1065	TUS1065	23
TJ-1208	TUS1208	24

Specifications

Material	C2700T (Electroless nickel plating)
Wall thickness	0.2mm

Standard



Increased flow capability as compared to SMC's standard polyurethane tubing

(Compared with polyurethane tubing TU0805: O.D. 8mm, length 1m)

How to Order

TUH 06 04 B 20

Tube O.D.

Tube I.D.

Length per roll

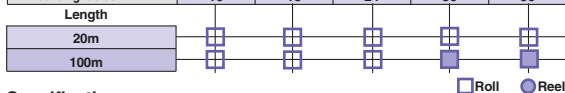
Symbol	Length
20	20m
100	100m

Color indication

Symbol	Color
B	Black
W	White
BU	Blue
N	Translucent

• Longer lengths available upon request.

Model	TUH0428	TUH0644	TUH0858	TUH1073	TUH1288
O.D. mm	4	6	8	10	12
I.D. mm	2.8	4.4	5.8	7.3	8.8
Min. bending radius mm <small>Note 3)</small>	10	18	24	30	36



Specifications

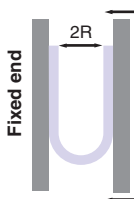
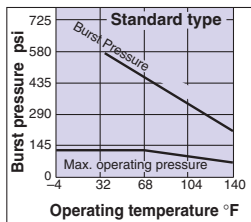
Operating fluid	Air <small>Note 1)</small>
Max. operating pressure	116psi (0.8MPa) at 68°F (20°C) <small>Note 2)</small>
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	-4° to 140°F (-20° to 60°C)
Material	Polyurethane
Hardness	Shore D 57

Note 1) Consult SMC regarding other fluids. Can not be used for water due to occurrence of hydrolysis.

Note 2) The maximum operating pressure is the value at 68°F (20°C). Refer to the burst pressure characteristics and operating pressure curve for other temperatures. Abnormal temperature rises due to adiabatic compression can cause tubing to burst.

Note 3) The minimum bending radius is measured at 68°F (20°C) based on the method shown in the figure below. At higher temperatures, breakage or flattening may occur even with a value larger than the minimum bending radius.

Burst Pressure Characteristics Chart



Bend the tube into U-form temperature of 68°F. Fix one end and close loop gradually. Measure 2R when the tubing starts to kink.

High pressure



How to Order

TUH 06 04 B 20

Tube O.D.

Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m

Color indication

Symbol	Color
B	Black
W	White
BU	Blue
N	Translucent

Operating pressure is 25% higher than standard TUH Tubing

(Has the same operating pressure as series TS soft nylon tubing, and a bending strength equivalent to that of series TU polyurethane tubing.)

Model	TUH0425	TUH0604	TUH0805	TUH1065	TUH1208
O.D. mm	4	6	8	10	12
I.D. mm	2.5	4	5	6.5	8
Min. bending radius mm <small>Note 3)</small>	10	15	20	27	35

Length	TUH0425	TUH0604	TUH0805	TUH1065	TUH1208
20m	□	□	□	□	□
100m	□	□	□	■	■

□ Roll ● Reel

Specifications

Operating fluid	Air <small>Note 1)</small>
Max. operating pressure	145 psi (1.0MPa) at 68°F (20°C) <small>Note 2)</small>
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	-4° to 140°F (-20° to 60°C) (With no condensation)
Material	Polyurethane
Hardness	Shore D 57

Note 1) Consult SMC regarding other fluids.

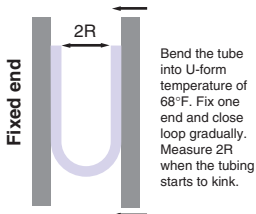
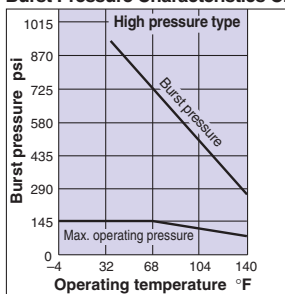
Can not be used for water due to occurrence of hydrolysis.

Note 2) Refer to the burst pressure characteristics and operating pressure curve for other temperatures.

Abnormal temperature rises due to adiabatic compression can cause tubing to burst.

Note 3) The minimum bending radius is measured at 68°F (20°C) based on the method shown in the figure below. At higher temperatures, breakage or flattening may occur even with a value larger than the minimum bending radius.

Burst Pressure Characteristics Chart



Ideal for use robotics
and pneumatic pick
and place
applications



How to Order

TCU 04 25 B 2

Tube O.D.

Tube I.D.

Number of tubes

Symbol	Number of tubes
1	1
2	2
3	3

Colors indication

Symbol	Color	Symbol	Color
B	Black	Y	Yellow
C	Clear	R	Red
BU	Blue	G	Green
W	White	YR	Orange

* Only black available for standard tubing color.

Specifications

Model	TCU 0425B-1	TCU 0425B-2	TCU 0425B-3	TCU 0604B-1	TCU 0604B-2	TCU 0604B-3	TCU 0805B-1
Number of tubes	1	2	3	1	2	3	1
Tube O.D. mm	4			6			8
Tube I.D. mm	2.5			4			5
Operating fluid	Air (Note 1)						
Max. operating pressure	116psi (0.8MPa) at 68°F (20°C) (Note2)						
Burst pressure	Refer to burst pressure characteristics chart						
Operating temperature	-4° to 140°F (-20° to 60°C) (With no condensation)						
Material	Polyurethane						
Hardness	Shore A 95						

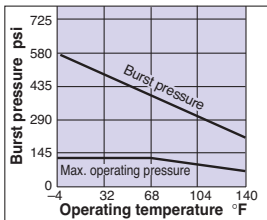
Note 1) Consult SMC regarding other fluids.

Note 2) Refer to the burst pressure characteristics and operating pressure curve for other temperatures. Avoid abnormal temperature rises due to adiabatic compression.

Coil Dimensions

Part No.	Tube size		Dimension of coil (mm)		Number of tubes	Number of coil windings per tube length	Max. operating length (m)
	O.D.	I.D.	L	øD			
TCU0425B-1	4	2.5	210	18	1	52	1.5
TCU0425B-2			280	28	2	35	
TCU0425B-3			265		3	22	
TCU0604B-1	6	4	325	24	1	54	2
TCU0604B-2			37	305	2	27	1.5
TCU0604B-3				3	17	1	
TCU0805B-1	8	5	330	31	1	41	2

Burst Pressure Characteristics Chart





Made to Order

Change in the Number of Coil Windings and Color

X6

Consult SMC for detailed specification, dimensions and delivery

Part No.	Tube size		Dimension of coil (mm)		Number of tubes	Number of coil windings per tube length	Max. operating length (m)
	O.D.	I.D.	L*	øD			
TCU0425□-1N-X6	4	2.5	N x 4	18	1	3 to 90	LX5.9 + 200
TCU0425□-2N-X6			N x 8	28	2	3 to 90	LX4.4 + 200
TCU0425□-3N-X6	6	4	N x 12	28	3	3 to 63	LX2.9 + 200
TCU0604□-1-N-X6			N x 6	24	1	3 to 90	LX5.3 + 200
TCU0604□-2-N-X6			N x 12	37	2	3 to 66	LX3.8 + 200
TCU0604□-3-N-X6	8	5	N x 18	37	3	3 to 44	LX2.5 + 200
TCU0805□-1-N-X6			N x 8	31	1	3 to 90	LX5.2 + 200
TCU0805□-2-N-X6	10	6.5	N x 16	42	2	3 to 40	LX3 + 200
TCU1065□-1-N-X6			N x 10	52	1	3 to 45	LX5 + 200
TCU1065□-2-N-X6	12	8	N x 20	52	2	3 to 35	LX3 + 200
TCU1208□-1-N-X6			N x 12	67	1	3 to 35	LX5 + 200
TCU1208□-2-N-X6			N x 24	67	2	3 to 30	LX3 + 200

□ — B (Black), W (White), R (Red), BU (Blue), Y (Yellow), G (Green), C (Transparent), YR (Orange)

L* is calculated by the number of coils (N) x O.D.

Clean Series

10-

(Example) 10-TCU0425B-1

Polyurethane Flat Tubing (Metric)

Series TFU

How to Order

Eliminates the need for jacketing or spiral wrapping of multiple tubes



TFU 04 25 B-2

Tube O.D.

Tube I.D.

Number of rolls

Symbol	Number of rolls
2	2
3	3

Color indication

Symbol	Color
B	Black

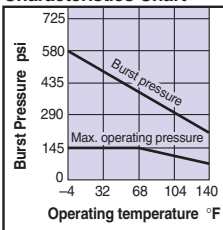
Specifications

Note 1) Consult SMC regarding other fluids.

Note 2) Avoid abnormal temperature rises due to adiabatic compression.

Model	TFU 0425B-2	TFU 0425B-3	TFU 0604B-2	TFU 0604B-3	TFU 0805B-2	TFU 0805B-3
Length per roll	2	3	2	3	2	3
Tube O.D. mm	4		6		8	
Tube I.D. mm	2.5		4		5	
Min. bending radius mm	10		15		20	
Operating fluid	Air (Note 1)					
Max. operating pressure	116psi (0.8MPa) at 68°F (20°C)					
Burst pressure	Refer to burst pressure characteristics curve.					
Operating temperature	-4° to 140°F (-20° to 60°C) (With no condensation)					
Material	Polyurethane					
Color	Black					
Tube length per roll (m)	10					
Hardness	Shore A 95					

Burst Pressure Characteristics Chart



Clean Series 10-

(Example) 10-TFU0425B-2



Made to Order

Change in the Number of Rolls and Color X4

10m roll

O.D.	I.D.	Number	Model
4	2.5	2 to 8	TFU0425□-2-Length per roll-10-X4
6	4	2 to 8	TFU0604□-2-Length per roll-10-X4
8	5	2 to 6	TFU0805□-2-Length per roll-10-X4
10	6.5	2 to 3	TFU1065□-2-Length per roll-10-X4
12	8	2 to 3	TFU1208□-2-Length per roll-10-X4

□ — W (White), R (Red), BU (Blue), Y (Yellow), G (Green), C (Transparent), YR (Orange)

Reel X3

50m & 100m roll

O.D.	I.D.	Number	Model
4	2.5	2	TFU0425□-2-50 (100)-X3
		3	TFU0425□-3-50 (100)-X3
6	4	2	TFU0604□-2-50 (100)-X3
		3	TFU0604□-3-50 (100)-X3
8	5	2	TFU0805□-2-50 (100)-X3
		3	TFU0805□-3-50 (100)-X3

50m or 100m roll □

□ — B (Black), W (White), R (Red), BU (Blue), Y (Yellow), G (Green), C (Transparent), YR (Orange)

How to Order

Designed to be used for blow-off and washing lines in clean room environments



TPH 06 04 B 20

Tube O.D.

Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m

Color indication

Symbol	Color
W	White
B	Black
R	Red
BU	Blue
Y	Yellow
G	Green

Caution

Series TP has less resistance to lithium grease and is not suitable for piping of pneumatic equipment using lithium grease.

Roll Reel

Model	TPH0425	TPH0604	TPH0806	TPH1075	TPH1209
O.D. mm	4	6	8	10	12
I.D. mm	2.5	4	6	7.5	9
Min. bending radius mm ^{Note 3)}	15	25	35	45	55

Length

20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100m	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Specifications

Operating fluid	Air, Nitrogen gas, Water (Pure water) ^{Note 1)}				
Max. operating pressure ^{Note 2)}	145psi (1.0MPa) at 68°F (20°C)		102psi (0.7MPa) at 68°F (20°C)		
Burst pressure	Refer to burst pressure characteristics chart				
Operating temperature	Air: -4° to 176°F (-20° to 80°C), Water: 32° to 176°F (0° to 80°C)				
Material	Polyolefin resin				
Hardness	Shore D 59				

Note 1) Contact SMC regarding other fluids.

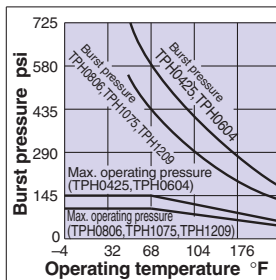
Note 2) Refer to the burst pressure characteristics and operating pressure curve for other temperatures.

Abnormal temperature rises due to adiabatic compression can cause tubing to burst.

Note 3) The minimum bending radius is measured at 20°C based on the method shown in the figure at the right.

At higher temperatures, breakage or flattening may occur even with a value larger than the minimum bending radius.

Burst Pressure Characteristics Chart



How to Order



TPS 06 04 B-20

Tube O.D. ↓

Tube I.D. ↓

Length per roll

Symbol	Length
20	20m
100	100m

Color indication

Symbol	Color
W	White
B	Black
R	Red
BU	Blue
Y	Yellow
G	Green

⚠ Caution

Series TP has less resistance to lithium grease and is not suitable for piping of pneumatic equipment using lithium grease.

Roll Reel

Model	TPH0425	TPH0604	TPH0806	TPH1075	TPH1209
O.D. mm	4	6	8	10	12
I.D. mm	2.5	4	6	7.5	9
Min. bending radius mm <small>Note 3)</small>	10	20	25	30	40

Length

Length	TPH0425	TPH0604	TPH0806	TPH1075	TPH1209
20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Specifications

Operating fluid	Air, Nitrogen gas, Water (Pure water) <small>Note 1)</small>
Max. operating pressure	102psi (0.7MPa) at 68°F (20°C) <small>Note 2)</small>
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 176°F (-20° to 80°C), Water: 32° to 176°F (0° to 80°C)
Material	Polyolefin resin
Hardness	Shore D 54

Note 1) Contact SMC regarding other fluids.

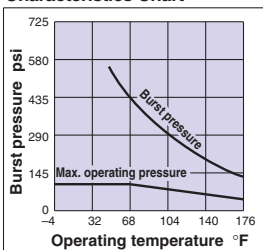
Note 2) Refer to the burst pressure characteristics and operating pressure curve for other temperatures.

Abnormal temperature rises due to adiabatic compression can cause tubing to burst.

Note 3) The minimum bending radius is measured at 68°F (20°C) based on the method shown in the figure at the right.

At higher temperatures, breakage or flattening may occur even with a value larger than the minimum bending radius.

Burst Pressure Characteristics Chart



Antistatic Soft Nylon Tubing

Series TAS

Flame resistant
conductive tubing
to minimize
problems
associated with
static electricity



Antistatic Measures

How to Order

TAS 10 65 B — 100

Tube O.D.

Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m

Color indication

Symbol	Color
B	Black

• Longer lengths
available upon
request.



Model	TAS3222	TAS0425	TAS0604	TAS0805	TAS1065	TAS1208
O.D. mm	3.2	4	6	8	10	12
I.D. mm	2.2	2.5	4	5	6.5	8
Min. bending radius mm ^{Note 2)}	12	12	15	19	27	32

Length

Length	TAS3222	TAS0425	TAS0604	TAS0805	TAS1065	TAS1208
20m	□	□	□	□	□	□
100m	●	●	●	●	●	●

□ Roll ● Reel

Specifications

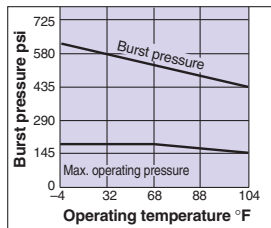
Operating fluid	Air
Max. operating pressure	174psi (1.2MPa) at 68°F (20°C) ^{Note 1)}
Burst pressure	Refer to burst pressure characteristics curve.
Operating temperature	32° to 104°F (0° to 40°C)
Material	Conductive nylon + Flame resistant nylon (Equivalent to UL-94 Standards V-0)
Surface resistance	10 ⁴ to 10 ⁷ Ω
Hardness	Shore D 48

Note 1) Refer to the burst pressure characteristics and operating pressure curve for other temperatures.

Avoid abnormal temperature rises due to adiabatic compression.

Note 2) The value at a temperature of 68°F (20°C), with a 10% or less O.D. variable rate.

Burst Pressure Characteristics Chart





Antistatic Measures

Conductive tubing minimizes problem associated with static electricity

How to Order

TAU 10 65 B - 100

Tube O.D.

Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m

Color indication

Symbol	Color
B	Black



Model	TAU3220	TAU0425	TAU0604	TAU0805	TAU1065	TAU1208
O.D. mm	3.2	4	6	8	10	12
I.D. mm	2	2.5	4	5	6.5	8
Min. bending radius mm ^{Note2)}	10	10	15	20	27	35
Length						
20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100m	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Roll Reel

Specifications

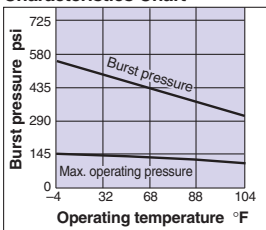
Operating fluid	Air
Max. operating pressure	131psi (0.9MPa) at 68°F (20°C) ^{Note1)}
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	32° to 104°F (0° to 40°C)
Material	Conductive polyurethane
Surface resistance	10 ⁴ to 10 ⁷ Ω
Hardness	Shore A95

Note 1) Refer to the burst pressure characteristics and operating pressure curve for other temperatures.

Avoid abnormal temperature rises due to adiabatic compression.

Note 2) The value at a temperature of 68°F (20°C).

Burst Pressure Characteristics Chart





Flame resistant tubing for use in spot welding environments



How to Order

TIRS 07 B 20

Tube size

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

Length per roll

Symbol	Length
20	20m
100	100m

• Longer lengths available upon request

Roll Reel

Model	TIRS07	TRS0805	TIRS11	TIRS13
O.D. inch	1/4	5/16 (8mm)	3/8	1/2
I.D. inch	0.167	0.2 (5mm)	0.25	0.35
Min. bending radius inch	0.91	0.75 (19mm)	1.06	1.38

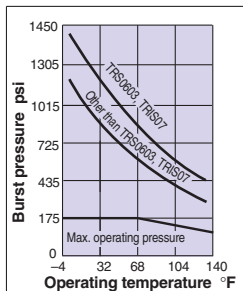
Length

Length	TIRS07	TRS0805	TIRS11	TIRS13
20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>
100m	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Specifications

Operating fluid	Air, Water
Max. operating pressure	174psi (1.2MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C), Water: 32° to 140°F (0° to 60°C)
Material	Flame resistant Nylon (UL-94 standard V-O)
Hardness	Shore D 48

Burst Pressure Characteristics Chart



FR Soft Nylon Tubing (Metric)

Series TRS

Spatter Resistant

Flame resistant tubing for use in spot welding environments



How to Order

TRS 10 65 B 20

Tube O.D.

Tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
G	Green

- Longer lengths available upon request

Roll Reel

Model	TRS0603	TRS0805	TRS1065	TRS1208
O.D. mm	6	8	10	12
I.D. mm	3	5	6.5	8
Min. bending radius inch	17	19	27	32

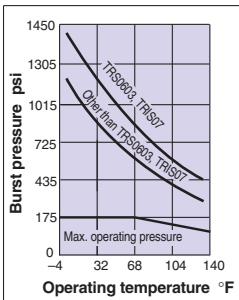
Length

Length	TRS0603	TRS0805	TRS1065	TRS1208
20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Specifications

Operating fluid	Air, Water
Max. operating pressure	174psi (1.2MPa) at 68°F (20°C)
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C), Water: 32° to 140°F (0° to 60°C)
Material	Flame resistant Nylon (UL-94 standard V-0)
Hardness	Shore D 48

Burst Pressure Characteristics Chart



Spatter Resistant

Nylon

Weld spatter resistant
double layer tubing
uses flame resistant
resin for outer layer

How to Order

TRB 10 75 B 20

Inner tube O.D.
Inner tube I.D.

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

Length per roll

Symbol	Length
20	20m
100	100m

• Longer lengths available upon request

• The inner tubing are all black.



Roll Reel

Model	TRB0604	TRB0806	TRB1075	TRB1209
Inner O.D. mm	6	8	10	12
Inner I.D. mm	4	6	7.5	9
Outer layer tube thickness mm	1	1	1	1
Min. bending radius mm <small>Note 3)</small>	15	28	35	45

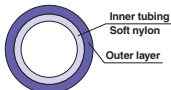
Length

Length	TRB0604	TRB0806	TRB1075	TRB1209
20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100m	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Specifications

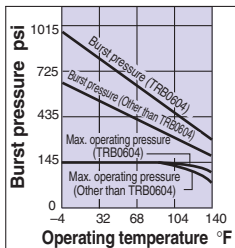
Operating fluid	Air, Water <small>Note 1)</small>
Max. operating pressure	145psi (1MPa) at 68°F (20°C) <small>Note 2)</small>
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C), Water: 32° to 140°F (0° to 60°C)
Material inner tube	Nylon 11
Material	PVC (Equivalent to UL-94, standard V-O)
Hardness	Shore D 53

- Note 1) Applicable to general industrial water. Consult SMC if using other fluids. Surge pressure must be under the maximum operating temperature.
- Note 2) Refer to the burst pressure characteristics and operating pressure curve for other temperatures. Avoid abnormal temperature rises due to adiabatic compression.
- Note 3) The value at a temperature of 20°C, with a 10% or less O.D. variable rate.



FR double layer polyurethane tubing
(Sectional view)

Burst Pressure Characteristics Chart



FR Double Layer Polyurethane Tubing (Metric)

Series TRBU

Spatter Resistant

Polyurethane

Weld spatter resistant double layer tubing uses flame resistant resin for outer layer



How to Order

TRBU 10 65 B 20

Inner tube O.D.

Inner tube I.D.

Length per roll

Symbol	Length
20	20m
100	100m

• Longer lengths available upon request

Color indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

• The inner tubing are all black.

Roll Reel

Model	TRBU0604	TRBU0805	TRBU1065	TRBU1208
Inner O.D. mm	6	8	10	12
Inner I.D. mm	4	5	6.5	8
Outer layer tube thickness mm	1	1	1	1
Min. bending radius mm <small>(Note 1)</small>	15	20	27	35

Length

Length	TRBU0604	TRBU0805	TRBU1065	TRBU1208
20m	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100m	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Specifications

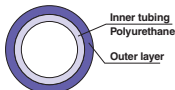
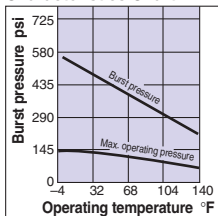
Operating fluid	Air, Water <small>Note 1)</small>
Max. operating pressure	116psi (0.8MPa) at 68°F (20°C) <small>Note 2)</small>
Burst pressure	Refer to burst pressure characteristics chart
Operating temperature	Air: -4° to 140°F (-20° to 60°C), Water: 32° to 105°F (0° to 40°C)
Material inner tube	Polyurethane
Material outer tube	Polyolefin resin (Equivalent to UL-94, standard V-O)
Hardness	Shore A 95

Note 1) Applicable to general industrial water. Consult SMC for use of other types of fluids. Keep the surge pressure below the maximum operating temperature.

Note 2) Refer to the burst pressure characteristics and operating pressure curve for other temperatures. Avoid abnormal temperature rises due to adiabatic compression.

Note 3) The value at a temperature of 20°C.

Burst Pressure Characteristics Chart



FR double layer polyurethane tubing (Sectional view)

Related Accessories

Tubing Cutter

Series TKS

Tool to peel off outer layer tubing.



Refer to TUB-22 for more information.



Linear low density polyethylene tubing, Industrial grade

How to Order

PEAPP 07 BU 153

Tube O.D.

Inch Sizes		Metric Sizes	
0.7	ø1/4"	04*	ø4mm (ø5/32)
11	ø3/8"	06	ø6mm
13	ø1/2"	08*	ø8mm (ø5/16)
15	ø5/8"	10	ø10mm
		12	ø12mm

* Coming soon

Note: 4mm tubing is suitable for use with 5/32" SMC One-Touch fittings as are 8mm tubing and 5/16" fittings

Length per roll

Symbol	Length
33	100' (33m)
100	250' (100m)
153	500' (153m)
305	1000' (305m)

Colors

Symbol	Color	Symbol	Color
B	Black	R	Red
BU	Blue	W	White
G	Green	Y	Yellow
N	Natural		

Model	PEAPP04	PEAPP66	PEAPP08	PEAPP10	PEAPP12
O.D. mm	4 (5/32")	6	8 (5/16")	10	12
I.D. mm	2.5	4	5	5	9
Min. bending radius mm	25.4	31.8	38	51	63.5

Length

100 ft (33m)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
250 ft (100m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
500 ft (153m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1000ft (305m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Model	PEAPP07	PEAPP11	PEAPP13	PEAPP15
O.D. mm	4 (5/32")	6	8 (5/16")	10
I.D. mm	2.5	4	5	5
Min. bending radius mm	25.4	31.8	38	51

Length

100 ft (33m)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
250ft (100m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
500 ft (153m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1000ft (305m)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Roll Reel

Specifications

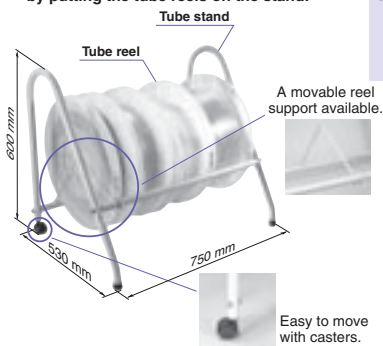
Operating fluid	Air, Water, Compatible chemicals
Operating temperature	-50 to 140°F (-45 to 60°C)
Material	Low linear density polyethylene
Hardness	Shore A A93, Shore D 45D

Tube Stand & Reel

Series TB/TBR

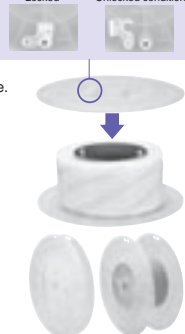
- Compact size with a small footprint.
- Installation can be easily completed by putting the tube reels on the stand.

- Easy replacement of tube



One-touch snap fit operation

Locked Unlocked condition



TB-3VS Vertical Stand



Tube Stand: TB-2



Tube Reel

Applicable tube size mm	Model
4, 6	TBR-1
8	TBR-2
10	TBR-3
12	TBR-4

TB-3VS Vertical Stand

Dimension:

37 1/4" W x 27 9/16" D x 68 11/16" H

Designed for high capacity and reel size flexibility. This stand comes with two cross bars. A third cross bar can be ordered separately (TB-3CB)

Tube Cutter

Series TK

TK-1

Applicable tube O.D.:
13mm or less



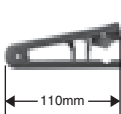
TK-2

Applicable tube O.D.:
18mm or less



TK-3 (Simple type)

Applicable tube O.D.:
12mm or less



Note) Do not use the cutter to cut metal such as wires.

Multiple Tube Holder

Series **TM**

Can be separated at any position depending on the number of tube.
Adopts flame resistant resin (Equivalent to UL-94 Standards V-0).

How to Use

⚠ Caution

- ① The multiple tube holder can be cut apart according to the number of tube to be connected.

<Cutting method>
Align the cutter with the cutting groove and cut the holder.

- ② Cut the multiple tube holder at a desired position and mount it on the equipment with the attached phillips countersunk tapping screws.

- ③ Align the tube with the holding position and push down to fit it into the holding part.

- ④ Pull up a tube to remove it from the holder.

Model

Applicable tube O.D.	Model	Number of tube (Max.)			Accessory: Phillips countersunk tapping screw	
		6	8	12	Size: nominal size X length	Number of pieces
4	TM-04			●	2 X 6	4
6	TM-06			●	2.6 X 8	
8	TM-08		●			
10	TM-10	●			3 X 8	
12	TM-12	●				

Tube Release Tool

Series **TG**

To remove tube in a confined space or from manifolded one-touch fittings.



Model	TG-1	TG-2
Applicable tube size	ø4, ø6	ø1/8", ø1/4"
Applicable tube material	Nylon, Soft nylon, Polyurethane	Nylon, Soft nylon, Polyurethane
Handle color	Blue	Red
Weight	33g	33g

Double Layer Tube Stripper

Series **TKS**

The outer layer of double layer tube is peeled off easily.



Variations

Model	Tip color	Applicable tube*
TKS-06	Orange	TRB0604, TRBU0604
TKS-08	Yellow	TRB0806, TRBU0805
TKS-10	Blue	TRB1075, TRBU1065
TKS-12	Green	TRB1209, TRBU1208

* Inner tube material

TRB: soft nylon, TRBU: polyurethane



Table of Content – Speed Controller

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AS□□□□E	Speed Controller with Residual Pressure Release Valve.....	SPC-32
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AS□2□0-T	Tamper Proof Speed Controller Standard Type	SPC-42
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ASD□□□F-D	Flat Head Screw Driver Adjustable Dual Speed Controller ...	SPC-46
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AQ	Quick Exhaust Valve	SPC-52
AK	Check Valve.....	SPC-53
ASS	Safety Speed Control Valve.....	SPC-54
Related Equipment	SPC-55

Speed Controller with One-touch Fittings

Elbow Type/Universal Type

Series AS

How to Order

AS 2 2 1 1F — 01 — 06 S — —

Body size

1	M3, M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With one-touch fitting

Thread type

Nil	Metric thread (M3, M5)
	Unified thread (10-23UNF)
	R
N	NPT

Port size

M3	M3 X 0.5
M5	M5 X 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Elbow type



Universal type



Applicable tube O.D.

Inch		Metric	
01	ø1/8	02	ø2
03	ø5/32	23	ø3.2*
05	ø3/16	04	ø4
07	ø1/4	06	ø6
09	ø5/16	08	ø8
11	ø3/8	10	ø10
13	ø1/2	12	ø12

* Use ø1/8 tubing.

Sealant

Nil	—
S	With sealant

* M3, M5, and 10-32UNF type ports are not available with sealant. Gaskets are standardized instead.

Electroless nickel plated specifications

Nil	Partly unplated
N	All plated

* Electroless nickel plating is standardized for some items. Please refer to models and types for more information.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Speed Controller with One-touch Fittings

Series AS

Elbow Type/Universal Type

Model

● indicates that electroless nickel plated model (N specification) is the standardized.

Port size	Applicable tube O.D.												Applicable cylinder bore size mm	Elbow type	Universal type		
	Inch						Metric										
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	2	3.2	4	6	8				10	12
M3 X 0.5	●	●						●	●	●					2.5, 4, 6	AS12□1F-M3	AS13□1F-M3
M5 X 0.8	●	●						●	●	●					6, 10, 16, 20	AS12□1F-M5	AS13□1F-M5
10-32UNF	●	●	●	●				●	●	●					6, 10, 16, 20	AS12□1F-U10/32	AS13□1F-U10/32
R1/8	●	●	●					●	●	●	●	●	●	20, 25, 32	AS22□1F-F01	AS23□1F-F01	
R1/4		●	●	●	●	●		●	●	●	●	●	●	20, 25, 32, 40	AS22□1F-F02	AS23□1F-F02	
R1/4				●	●	●		●	●	●	●	●	●	40, 50, 63	AS32□1F-F02	AS33□1F-F02	
R3/8				●	●	●		●	●	●	●	●	●	40, 50, 63	AS32□1F-F03	AS33□1F-F03	
R1/2						●	●					●	●	63, 80, 100	AS42□1F-F04	AS43□1F-F04	

Note 1) *Elbow type only

Note 2) The meter-out and meter-in types are visually distinguished by the lock nut. The lock nut of the meter-out type is electroless nickel plated while that of the meter-in type is black zinc chromate plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations ^{Note 1)})
Applicable tube material ¹ ^{Note 2)}	Nylon, Soft nylon, Polyurethane
Option	With seal ^{Note 3)} , Round knurled lock nut, Electroless nickel plated specifications ^{Note 4)}

Note 1) In case of types AS1201F-M5, AS1201F-U10/32, AS1211F-M5, AS1211F-U10/32, AS1301F-M5, AS1301F-U10/32, AS1311F-M5, and AS1311F-U10/32.

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used. (Refer to Best Pneumatics vol. 15 for more information.)

Note 3) M3, M5, and 10-32UNF type ports are not available with sealant.

Note 4) Brass parts are all electroless nickel plated.



Made to Order

Lubricant: Vaseline

X12

(Example) AS2201F-01-04S-X12

Throttle Valve (Without Check Valve)

X214

(Example) AS2201F-01-04S-X214

Note) Only items with meter-out part numbers are available in case of throttle valves.

Oil Free (Sealant: PTFE Coated) + Without Check Valve (Throttle Valve)

X21

(Example) AS2201F-01-04S-X21

Note 1) Not a non particle generation type.

Note 2) Only items with meter-out part numbers are available in case of throttle valves.

Clean Series

10-

Lubricant: Fluororesin grease
Double packaging

(Example) 10-AS2201F-01-04



SPC-2

Speed Controller with One-touch Fittings

In-line Type
Series AS

How to Order

AS 400 2F 12 □

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

With one-touch fitting



JIS symbol



Applicable tube O.D.

Inch size		Metric size	
01	ø1/8	02	ø2
03	ø5/32	23	ø3.2*
07	ø1/4	04	ø4
09	ø5/16	06	ø6
11	ø3/8	08	ø8
13	ø1/2	10	ø10
		12	ø12

* Use ø1/8 tube.

Model

Model	Applicable tube O.D.												Applicable cylinder bore size mm	
	Inch						Metric							
	1/8	5/32	3/16	1/4	3/8	1/2	2	3.2	4	6	8	10		12
AS1002F	●	●	◎	●			●	●	●	●				6, 10, 16, 20
AS2002F		●	◎	●					●	●				20, 25, 32
AS2052F			◎	●					●	●				20, 25, 32, 40
AS3002F				●	◎				●	●	●	●		40, 50, 63
AS4002F					◎	◎						●	●	63, 80, 100

* Electroless nickel plated model is standardized on all metric size and some inch size brass parts.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane
Option	Round knurled lock nut

Note 1) In case of AS1002F (Except for AS1002F-02)

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Mounting brackets available, please see catalog NAS20-215B for details.

How to Order

Lurch Prevention

ASD **3** **30**F **01** **06** S

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Type

3	Universal
---	-----------

With one-touch fitting

Thread type

Nil	Metric system thread (M5)
	Unified thread (10-32UNF)
	R
N	NPT

Port size

M5	M5 X 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Applicable tube O.D.

Inch

01	ø 1/8
03	ø 5/32
05	ø 3/16
07	ø 1/4
09	ø 5/16
11	ø 3/8

Metric

04	ø 4
06	ø 6
08	ø 8
10	ø 10
12	ø 12

With sealant

* M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized instead.

Lock nut configuration

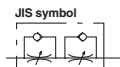
Nil	Standard (Hexagon)
J	Round knurled

Dual Speed Controller with One-touch Fittings

Series ASD

Universal Type

Meter-in and meter-out control
Lurch prevention
Speed control of single acting
cylinder



Model

Model	Port size	Applicable tube O.D.												
		Inch					Metric							
		ø1/8	ø5/32	ø3/16	ø1/4	ø5/16	ø3/8	ø4	ø6	ø8	ø10	ø12		
ASD230F-U10/32	10-32NUF	●	●	●										
ASD330F-N01	NPT1/8			●	●	●								
ASD430F-N02	NPT1/4				●	●	●							
ASD530F-N02	NPT1/4				●	●	●							
ASD530F-N03	NPT3/8				●	●	●							
ASD630F-N04	NPT1/2						●							
ASD230F-M5	M5 X 0.8							●	●					
ASD330F-01	R1/8								●	●				
ASD430F-02	R1/4								●	●	●			
ASD530F-02	R1/4								●	●	●	●		
ASD530F-03	R3/8								●	●	●	●		
ASD630F-04	R1/2										●	●		

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane
Option	Round knurled lock nut

Note 1) In case of ASD230F

Note 2) Pay attention to the maximum operating pressure when soft nylon, or polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

(Example) ASD230F-M5-04-X12

Clean Series

10-

Lubricant: Fluororesin grease, Double packaging

(Example) 10-ASD230F-M5-04

Speed Controller with Uni One-touch Fittings

Series AS

How to Order

AS **2** **2** **1** **1F** - **U02** - **06** **N** - **□**

Body size

2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With one-touch fitting

Port size

U01	1/8
U02	1/4
U03	3/8
U04	1/2

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Electroless nickel plated specifications

Nil	Partly unplated
N	All plated

* Electroless nickel plating is standardized for some items. Please refer to models and types for more information.

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2*
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16	10	ø10
11	ø3/8	12	ø12
13	ø1/2		

* Use ø1/8 tube.

Model

● indicates that electroless nickel plated model (N specification) is the standardized.

Port size Uni-thread	Applicable tube O.D.												Elbow type	Universal type	
	Inch						Metric								
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8	10			12
1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	AS22□1F-U01	AS23□1F-U01
1/4		●	●	●	●	●	●		●	●	●	●	●	AS22□1FM-U02	AS23□1F-U02
1/4				●	●	●	●			●	●	●	●	AS32□1FM-U02	AS23□1F-U02
3/8				●	●	●	●			●	●	●	●	AS32□1FM-U03	AS33□1F-U03
1/2						●	●					●	●	AS42□1FM-U04	AS43□1F-U04

Note 1) *Elbow type only

Specifications

Operating fluid	Air
Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations
Applicable tube material ^{Note 1)}	Nylon, Soft nylon, Polyurethane
Mounting thread	Uni-thread
Seal	Gasket
Option	Round knurled lock nut , Electroless nickel plated ^{Note 2)}

Note 1) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.

Note 2) Brass parts are all electroless nickel plated.

Patents: US 5,433,489 and US 5,165,731



SPC-6

Speed Controller: Standard Type

Elbow Type (Metal Body)

Series AS

Minimizes installation time and cost

Fittings and tubing are not necessary because this type screws directly into the actuator. Thus, piping labor and cost can be eliminated.

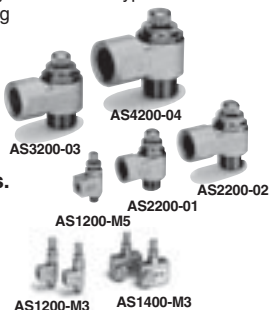
Body swivels 360°

Swivel type allows free setting of piping.

Speed may be accurately controlled even at low speeds.

Able to control and set a constant speed easily.

Retainer prevents accidental loss of needle.



JIS Symbol



How to Order

AS 2 2 0 0 - [] 01 - S - []

Body size

1	M3, M5 standard 10-32UNF
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Direct cylinder elbow type
4	Direct cylinder flat elbow type

Control type

0	Meter-out
1	Meter-in

Thread type

Symbol	Cylinder side	Tube side
	Nil	R
Metric thread (M3, M5)		
Unified thread (10-32UNF)		
N	NPT	
F	G *	

* Male thread comes with R thread.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Option

Nil	None
S	With sealant
N	Electroless nickel plated

* If more than one option is required, write option part numbers in the order of "S", "N".

Bore size

Symbol	Bore size	Applicable series
M3	M3 x 0.5	AS1200-M3 AS1400-M3
M5	M5 x 0.8	AS12□0-M5
U10/32	10-32UNF	AS12□0-U10/32
01	1/8	AS22□0-01
02	1/4	AS22□0-02
03	3/8	AS32□0-03
04	1/2	AS42□0-04

Speed Controller: Standard Type

Series AS

Elbow Type (Metal Body)

Model/Specifications

Specifications	Model			
	AS1200-M3 AS1400-M3	AS12□0-M5 AS12□0-U10/32	AS22□0-01 AS22□0-02	AS32□0-03 AS42□0-04
Proof pressure	152psi (1.05MPa)	218psi (1.5MPa)		
Max. operating pressure	102psi (0.7MPa)	145psi (1MPa)		
Min. operating pressure	15psi (0.1MPa)	15psi (0.1MPa)		
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (No freezing)			
Number of needle rotation	10 turns	8 turns	10 turns	
Option	—	Round knurled lock nut	With seal, Round knurled lock nut, Nickel plated	

Note 1) Flow rate values are measured at 73psi (0.5 MPa) and 68°F (20°C).

Note 2) Meter-in type is not available on AS1200-M3, AS1400-M3.

Note 3) Distinction between meter-out/meter-in types by appearance

Those are distinguished by the lock nut. The meter-out type is electroless nickel plated, while the meter-in type is black zinc chromate plated.

Note 4) AS1200, AS1400, AS22□0 are electroless nickel plated as standard. (N specifications)

Model

Model	Port size							Applicable cylinder bore size (mm)
	Inch size							
	M3 x 0.5	M5 x 0.8	10-32UNF	1/8"	1/4"	3/8"	1/2"	
AS1200-M3	●							2.5, 4, 6
AS1400-M3	●							
AS12□0-M5		●						6, 10, 15, 20, 25
AS12□0-U10/32			●					
AS22□0-01				●				20, 25, 32, 40
AS22□0-02					●			
AS32□0-03						●		32, 40, 50, 63
AS42□0-04							●	80, 100

Flow Rate and Effective Area

Model	Controlled flow (Free flow)		Weight oz (g)
	Flow rate (ℓ/min (ANR))	Effective area (mm ²)	
AS1200-M3	20	0.3	0.1 (3)
AS1400-M3	20	0.3	0.2 (6)
AS12□0-M5	105	1.6	0.4 (10)
AS12□0-U10/32	105	1.6	0.4 (10)
AS22□0-01	230	3.5	1.0 (29)
AS22□0-02	460	7	2.2 (64)
AS32□0-03	920	14	3.7 (106)
AS42□0-04	1700	26	6.4 (181)

Speed Controller: Standard Type

In-line Type
Series AS

Compact size saves space.

Speed may be accurately controlled even at low speeds.

Constant speed easily set.

Retainer prevents an accidental loss of needle.

JIS Symbol



How to Order

AS **1** **000** — **M5** —

Body size

1	M3, M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard
5	1/2 standard

Thread type

Nil	Metric thread (M3, M5)
	Rc
N	NPT
F	G

Option

H (1)	High temperature 23 to 176°F (-5 to 80°C)
L (2)	Low temperature -54 to 140°F (-30 to 60°C)

Note 1) AS5000 is available as special. AS1000 is not applicable.

Note 2) AS1000 and AS2000 are not applicable.

Bore size

Bore size	Applicable series
M3	M3 x 0.5 AS1000
M5	M5 x 0.8 AS1000
01	Rc1/8 AS2000
02	Rc1/4 AS2000/3000/4000/5000
03	Rc3/8 AS3000/4000/5000
04	Rc1/2 AS4000/5000

Speed Controller: Standard Type

Series AS

In-line Type

Specifications

Operating Fluid	Air
Proof pressure ^{Note)}	1.5 MPa (1.05MPa)
Max. operating pressure ^{Note)}	1 MPa (0.7MPa)
Min. operating pressure ^{Note)}	0.05 MPa (0.1MPa)
Ambient and fluid temperature	23 to 14 °F (-5 to 60°C) (No freezing)
Number of needle rotations ^{Note)}	8 turns (10 turns)

Note) (): Values for AS1000

Accessory

Description	Part no.	Applicable model
Nipple	M-5N	AS1000

Note) AS1000 with nipple: AS1000-M5-N

Model

Model	Port size						Applicable cylinder bore size (mm)
	Inch size						
	M3 x 0.5	M5 x 0.8	1/8"	1/4"	3/8"	1/2"	
AS1000-M3	●						2.5, 4, 6
AS1000-M5		●					6, 10, 16, 20, 25
AS2000-01			●				20, 25, 32, 40
AS2000-02				●			20, 25, 32, 40
AS3000-02				●			32, 40, 50, 63
AS3000-03					●		32, 40, 50, 63
AS4000-02				●			40, 50, 63, 80, 100
AS4000-03					●		40, 50, 63, 80, 100
AS4000-04						●	40, 50, 63, 80, 100
AS5000-02				●			40, 50, 63, 80, 100
AS5000-03					●		40, 50, 63, 80, 100
AS5000-04						●	40, 50, 63, 80, 100

Flow Rate and Effective Area

Model	Free flow		Controlled flow		Weight oz (g)
	Flow rate (ℓ/min (ANR))	Effective area (mm ²)	Flow rate (ℓ/min (ANR))	Effective area (mm ²)	
AS1000-M3	20	0.3	20	0.3	0.2 (4.7)
AS1000-M5	90	1.4	80	1.2	1.2 (33)
AS2000-01	340	5.2	250	3.8	3.2 (90)
AS2000-02	340	5.2	250	3.8	4.1 (115)
AS3000-02	810	12.3	810	12.3	4.6 (130)
AS3000-03	810	12.3	810	12.3	4.4 (124)
AS4000-02	1,670	25.5	1,670	25.5	7.8 (221)
AS4000-03	1,670	25.5	1,670	25.5	7.6 (214)
AS4000-04	1,670	25.5	1,670	25.5	7.2 (205)
AS5000-02	2,840	44	2,840	44	8.5 (242)
AS5000-03	4,270	66	4,270	66	8.2 (233)
AS5000-04	4,270	66	4,270	66	7.9 (224)

Note) Flow rate values are measured at 73psi (0.5MPa) and 68°F (20°C).

Speed Controller: Standard Type

Large Flow In-line Type

Series AS

Able to control and set a constant speed easily

Speed may be accurately controlled even at low speed.

Retainer prevents accidental loss of needle.

JIS Symbol



How to Order

AS **42** 0 — **02** —

Body size

42	1/2 standard
50	3/4 standard
60	1 standard
80	1 1/4 standard
90	1 1/2 standard

Thread type

Nil	Rc
N	NPT
F	G

Bore size

Bore size	Applicable series
02	1/4
03	3/8
04	1/2
06	3/4
10	1
12	1 1/4
14	1 1/2
20	2

Option

Nil	None
H (1)	High temperature 23 to 176°F (-5 to 80°C)
L (2)	Low temperature -54 to 140°F (-30 to 60°C)

Note 1) AS800 is available as special.
Note 2) AS900 is available as special.

Specifications

Operating fluid	Air
Proof pressure	218psi (1.5Mpa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	7.3psi (0.05MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (No freezing)
Number of needle rotations	10 turns [12 turns Note)]

Note) [] : Values for AS800 and AS900

Model/Flow Rate and Effective Area

Model	Port size	Free flow		Controlled flow		Applicable cylinder bore size (mm)	Weight oz (g)
		Flow rate (ℓ/min (ANR))	Effective area (mm ²)	Flow rate (ℓ/min (ANR))	Effective area (mm ²)		
AS420-02	1/4"	2,500	38	3,600	55		0.01 (0.34)
AS420-03	3/8"	5,000	77	4,800	74	63, 80, 100, 125	0.01 (0.33)
AS420-04	1/2"	6,600	100	6,700	102		0.01 (0.32)
AS500-06	3/4"	10,100	154	8,100	123	140, 160, 180, 200	0.01 (0.36)
AS600-10	1"	15,100	230	16,900	258	160, 180, 200, 250	0.02 (0.7)
AS800-12	1 1/4"	35,400	540	38,500	586		0.05 (1.4)
AS900-14	1 1/2"	52,000	792	47,500	724	300	0.12 (3.3)
AS900-20	2"	57,800	880	60,800	926		0.12 (3.3)

Note) Flow rate values are measured at 73psi (0.5MPa) and 68°F (20°C).

Speed Controller: Standard Type

In-line Push Locking Type

Series AS

Lock speed setting, with the touch of a button

It can be locked only by pushing the handle after adjustment.

Convenient opening indication scale

The opening indication scale for the needle valve is provided on the handle to facilitate speed adjustments.

Easy speed control at low flow volume ranges

Possible to control the mass velocity

Constant handle constructed of metal to withstand heavy usage

In addition to the standard handle made of resin, a heavy-duty metal handle is also available.

Retainer prevents an accidental loss of needle.



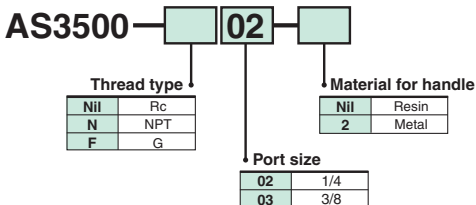
Resin handle

Metal handle

JIS Symbol



How to Order



Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	7.25psi (0.05MPa)
Ambient and fluid temperature	23° to 140°F (−5° to 60°C) [No freezing]
Number of needle rotation	8 turns
Weight	4.5oz (130g) Metallic handle: 4.9oz (140g)

Model/Flow Rate and Effective Area

Model	Free flow		Controlled flow		Port size 1/4" 3/8"	Applicable cylinder bore size (mm)
	Flow rate (ℓ/min (ANR))	Effective area (mm ²)	Flow rate (ℓ/min (ANR))	Effective area (mm ²)		
Resin handle	AS3500-02	810	12.3	810	12.3	40, 50 63
	AS3500-02-2	810	12.3	810	12.3	
Metal handle	AS3500-03	810	12.3	810	12.3	
	AS3500-03-2	810	12.3	810	12.3	

(Note) Flow rate values are measured at 73psi (0.5MPa) and 68°F (20°C).

Speed Controller for Low Speed Operation

Standard Type (Metal Body)

Series AS-M

How to Order

AS **2** **2** **0** **0**M — **01** — —

Body size

1	M5, 10/32UNF standard
2	1/8, 1/4 standard

Type

2	Direct cylinder elbow type
---	----------------------------

For low speed control

Control type

0	Meter-out
1	Meter-in

Thread type

Symbol	Cylinder side		Tube side
	R		Rc
Nil	Metric thread (M5)		
	Unified thread (10-32UNF)		
N	NPT		

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Option

Nil	None
S	With sealant

* M5 and U10/32 are not available with seal.

Port size

Symbol	Port size	Applicable series
M5	M5 x 0.8	AS12□0M-M5
U10/32	10-32UNF	AS12□0M-U10/32
01	1/8	AS22□0M-01
02	1/4	AS22□0M-02

JIS Symbol

Specifications

Model	AS12□0M	AS22□0M-□01	AS22□□0M-□02
Proof pressure	218psi (1.5MPa)		
Max. operating pressure	145psi (1MPa)		
Min. operating pressure	14.5psi (0.1MPa)		
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) [No freezing]		
Number of needle rotation	20 turns	10 turns	
Option	—	With sealant	

Note) Brass parts are all electroless nickel plated. The handle on all types and the lock nut on the meter-in type are black zinc chromate plated.

Model

Model	Cylinder side Tubing side	Port size						Applicable cylinder bore size (mm)
		M5 x 0.8	10-32UNF	R ¹ / ₈ Rc ¹ / ₈	NPT ¹ / ₈	R ¹ / ₄ Rc ¹ / ₄	NPT ¹ / ₄	
AS12□0M		●	●					6, 10, 15, 20, 25
AS22□0M-□01				●	●			20, 25, 32, 40
AS22□□0M-□02						●	●	

Flow Rate

Model	Free flow		Controlled flow		Weight oz (g)
	Flow rate (μ /min (ANR))	Effective area (mm ²)	Flow rate (μ /min (ANR))	Effective area (mm ²)	
AS12□0M	105	1.6	7	0.1	0.4 (11.5)
AS22□0M-□01	280	4.3	12	0.2	1.3 (36)
AS22□□0M-□02	420	6.5	38	0.6	2.6 (74)

Note 1) Flow rate values are measured at 73 psi (0.5 MPa) and 68°F (20°C).

Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body. Meter-out type is electroless nickel plated, while meter-in type is black zinc chromate plated.

**Speed Controller
for Low Speed Operation
with One-touch Fittings**

Elbow Type/Universal Type

Series AS-FM

Low Speed Operation

How to Order

AS 2 2 1 1 F M — [] **01** — **06** **S** — []

Body size

1	M5 standard
2	1/8, 1/4 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With one-touch fitting

For low speed control

Thread type

Nil	Metric system thread (M5)
	Unified thread (10-32UNF)
	R
N	NPT

Port size

M5	M5 X 0.8
U10/32	10-32UNF
01	1/8
02	1/4

Applicable tubing O.D.

Inch

01	ø1/8
03	ø5/32
05	ø3/16
07	ø1/4
09	ø5/16
11	ø3/8

Metric

23	ø3.2*
04	ø4
06	ø6
08	ø8
10	ø10

* Use a ø1/8 tubing.

Sealant

Nil	—
S	With sealant

* M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized instead.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Speed Controller for Low Speed Operation with One-touch Fittings

Series AS-FM

Elbow Type/Universal Type

Speed control in the range of 10 to 50mm/s

Elbow type



Universal type



Model

Port size	Applicable tube O.D.										Elbow type	Universal type	
	Inch					Metric							
	1/8	5/32	3/16	1/4	5/16	3/8	3.2	4	6	8			10
10-32UNF	●	●	●	●								AS12□1FM-M5	AS13□1FM-M5
NPT1/8	●	●	●	●	●							AS22□1FM-01	AS23□1FM-01
NPT1/4		●	●	●	●	●						AS22□1FM-02	AS23□1FM-02
M5 X 0.8							●	●	●			AS12□1FM-U10/32	AS23□1FM-U10/32
R1/8							●	●	●	●		AS22□1FM-N01	AS23□1FM-N01
R1/4								●	●	●	●	AS22□1FM-N02	AS23□1FM-N02

- Brass parts are all electroless nickel plated.
- The knob of the M5 type and the lock nut of the meter-in type are black zinc chromate plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (20 rotations ^{Note 1)})
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane
Option ^{Note 3)}	With sealant

Note 1) In case of AS1201FM, AS1211FM, AS1301FM, AS1311FM

Note 2) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.

Note 3) M5 port size is not available with sealant.



Made to Order

Lubricant: Vaseline

X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1201FM-M5-23-X12

(Example) AS1201FM-M5-23-X21

Note 1) Not a non particle generation type
Note 2) Only items with meter-out part numbers are available in case of throttle valves.

Throttle Valve (Without Check Valve)

X214

Clean Series

10-

(Example) AS1201FM-M5-23-X214

Lubricant: Fluororesin grease, Double packaging

Note) Only items with meter-out part numbers are available in case of throttle valves.

(Example) 10-AS1201FM-M5-23

Speed Controller for Low Speed Operation

In-line Type
Series AS-FM

Low Speed Operation

How to Order

AS **200** 1 F M - **06** - []

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard

With one-touch fitting

Low speed control

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2*
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16		

* Use ø1/8 tubing.

Speed control in the range
of 10 to 50 mm/s



JIS symbol



Model

Model	Applicable tube O.D.								Applicable cylinder bore size mm	
	Inch				Metric					
	1/8	5/32	3/16	1/4	5/16	3.2	4	6		8
AS1001FM	●	●	●	●		●	●	●		6, 10, 16, 20
AS2001FM		●	●	●			●	●		20, 25, 32
AS2051FM			●	●	●			●	●	20, 25, 32, 40

- Brass parts are all electroless nickel plated.
- The knob of the M5 type are black zinc chromate plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (20 rotations Note 1))
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) In case of AS1001FM

Note 2) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS2001FM-04-X12

(Example) AS2001FM-04-X21

Note 1) Not a non particle generation type

Throttle Valve (Without Check Valve)

X214

Clean Series

10-

(Example) AS2001FM-04-X214

Lubricant: Fluororesin grease, Double packaging

(Example) 10-AS2001FM-04



SPC-16

Dual Speed Controller for Low Speed Operation

Universal Type Series ASD-FM

Low Speed Operation

Lurch Prevention

How to Order

ASD **3** **3** **0** **F** **M** - **01** - **06** **S** -

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard

Type

3	Universal
---	-----------

With one-touch fitting

Low speed control

Thread type

Nil	Metric system thread (M5)
	Unified thread (10-32UNF)
N	R
	NPT

Port size

M5	M5 X 0.8
U10/32	10-32UNF
01	1/8
02	1/4

Applicable tube O.D.

Inch		Metric	
01	ø1/8	04	ø4
03	ø5/32	06	ø6
05	ø3/16	08	ø8
07	ø1/4	10	ø10
09	ø5/16		
11	ø3/8		

With sealant

* M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized instead.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Dual Speed Controller for Low Speed Operation

Series ASD-FM

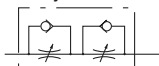
Universal Type

Speed control and lurch prevention in the range of 10 to 50 mm/s

Low speed control of single acting cylinder

Speed control of small bore cylinder

JIS symbol



Model

Model	Port size	Applicable tube O.D.									
		Inch						Metric			
		1/8	5/32	3/16	1/4	5/16	3/8	4	6	8	10
ASD230FM-U10/32	10/32UNF	●	●	●	●						
ASD330FM-N01	NPT1/8			●	●	●					
ASD430FM-N02	NPT1/4				●	●	●				
ASD230FM-M5	M5 X 0.8							●	●		
ASD330FM-01	R1/8								●	●	
ASD430FM-02	R1/4								●	●	●

• Brass parts are all electroless nickel plated.

• The knob of the M5 type and the lock nut on the meter-in side are black zinc chromate plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (20 rotations ^{Note 1)})
Applicable tubing material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) In case of ASD230FM

Note 2) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

(Example) ASD230FM-M5-X12

Clean Series

10-

Lubricant: Fluororesin grease, Double packaging

(Example) 10-ASD230FM-M5



Speed Controller with One-touch Fittings Panel Mount Type

In-line Type

Series AS□□□1F-3

How to Order

AS **200** 1 F - **06** - **3** -

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With One-touch fittings

Applicable tubing O.D.

Metric size		Inch size	
23	ø3.2*	01	ø1/8"
04	ø4	03	ø5/32"
06	ø6	05	ø3/16"
08	ø8	07	ø1/4"
10	ø10	09	ø5/16"
12	ø12	11	ø3/8"
		13	ø1/2"

* Use ø1/8" tube.

Panel mount type

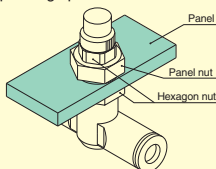
Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

**Panel mount thickness:
35 mm at the maximum**

Easy installation and removal

Installation of hexagon nuts on panel nuts up and down in two locations enables user to mount or remove it depending upon the situation.



JIS Symbol



Specifications

Operating fluid	Air
Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	14.5psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) [with no condensation] ^{Note 1)}
Number of needle rotations ^{Note 2)}	10 turns (8 turns)
Applicable tubing material	Nylon, Soft nylon, Polyurethane

Note 1) In the case of AS1001F type

Note 2) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.

Speed Controller with One-touch Fittings Panel Mount Type

Series AS□□□1F-3

In-line Type

Model

Model	Applicable tubing O.D.														Applicable cylinder bore size (mm)
	Metric size							Inch size							
	3.2	4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"		
AS1001F	●	●	●				●	●	●	●				6, 10, 16, 20	
AS2001F		●	●					●	●	●				20, 25, 32	
AS2051F			●	●					●	●	●			20, 25, 32, 40	
AS3001F			●	●	●	●				●	●	●		40, 50, 63	
AS4001F					●	●						●	●	63, 80, 100	

Flow Rate and Effective Area

Model		AS1001F	AS2001F	AS2051F	AS3001F	AS4001F					
Tubing O.D.	Metric size	ø3.2, ø4, ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10, ø12	ø10	ø12
	Inch size	ø1/8" ø5/32" ø3/16", ø1/4"	ø5/32"	ø3/16" ø1/4"	ø3/16"	ø1/4" ø5/16"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"
Controlled flow (Free flow)	Flow rate (L/min (ANR))	100	130	230	290	460	420	660	920	1050	1390
	Effective area (mm ²)	1.5	2	3.5	4.5	7	6.5	10	14	16	21

Note) Flow rate values are measured at 73psi (0.5 MPa) and 68°F (20°C).

Stainless Steel Series Speed Controller with One-touch Fittings

Elbow Type/Universal Type Series AS-FG

Corrosion Resistance

How to Order

AS **2** **3** **1** **1** **F** **G** **01** **06** **S**

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control type

0	Meter-out
1	Meter-in

With one-touch fitting

Stainless steel specifications (SUS303)

Thread type

Nil	Metric system thread (M5)
	Unified thread (10-32UNF)
	R
N	NPT

Port size

M5	M5 X 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2*
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16	10	ø10
11	ø3/8	12	ø12
13	ø1/2		

* Use ø1/8 tubing.

Sealant

Nil	—
S	With sealant

* M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized instead.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Elbow Type/Universal Type

Use of SUS303 for metal parts

Elbow type



Universal type



JIS symbol



Model

Port size	Applicable tube O.D.												Applicable cylinder bore size mm	Elbow type	Universal type	
	Inch						Metric									
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8	10				12
10-32UNF	●	●	●	●										6, 10, 16, 20	AS12□1FG-U10/32	AS13□1FG-U10/32
NPT1/8	●	●	●	●										20, 25, 32	AS22□1FG-N01	AS23□1FG-N01
NPT1/4		●	●	●	●									20, 25, 32, 40	AS22□1FG-N02	AS23□1FG-N02
NPT1/4				●	●	●								40, 50, 63	AS32□1FG-N02	AS33□1FG-N02
NPT3/8				●	●	●								40, 50, 63	AS32□1FG-N03	AS33□1FG-N03
NPT1/2						●	●							63, 80, 100	AS42□1FG-N04	AS43□1FG-N04
M5 X 0.8							●	●	●					6, 10, 16, 20	AS12□1FG-M5	AS13□1FG-M5
R1/8							●	●	●	●	●			20, 25, 32	AS22□1FG-01	AS23□1FG-01
R1/4								●	●	●	●			20, 25, 32, 40	AS22□1FG-02	AS23□1FG-02
R1/4									●	●	●	●		40, 50, 63	AS32□1FG-02	AS33□1FG-02
R3/8									●	●	●	●		40, 50, 63	AS32□1FG-03	AS33□1FG-03
R1/2											●	●		63, 80, 100	AS42□1FG-04	AS43□1FG-04

Note 1) The meter-in and meter-out types are visually distinguished by the flow direction symbol on the resin body.

Note 2) *Elbow type only

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) In case of AS1201FG, AS1211FG, AS1301FG, AS1311FG

Note 2) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

Throttle Valve (Without Check Valve)

X214

(Example) AS1201FG-M5-23-X12

(Example) AS1201FG-M5-23-X214

Note) Only items with meter-out part numbers are available in case of throttle valves.

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1201FG-M5-23-X21

Clean Series

10-

Note 1) Not a non particle generation type
Note 2) Only items with meter-out part numbers are available in case of throttle valves.

Lubricant: Fluororesin grease, Double packaging
(Example) 10-AS1201FG-M5-23



Stainless Steel Series Speed Controller with One-touch Fittings

In-line Type Series AS-FG

Corrosion Resistance

How to Order

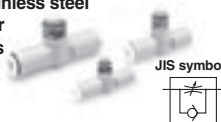
AS **200** 1 F G - **06** -

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With one-touch fitting
Stainless steel specifications
(SUS303)

Use of Stainless steel
SUS303 for
metal parts



JIS symbol



Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2 *
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16	10	ø10
11	ø3/8	12	ø12
13	ø1/2		

* Use ø1/8 tubing.

Model

Model	Applicable tube O.D.												Applicable cylinder bore size mm	
	Inch						Metric							
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8	10		12
AS1001FG	●	●	●	●				●	●	●				6, 10, 16, 20
AS2001FG		●	●	●					●	●				20, 25, 32
AS2051FG			●	●	●					●	●			20, 25, 32, 40
AS3001FG				●	●	●				●	●	●	●	40, 50, 63
AS4001FG						●	●					●	●	63, 80, 100

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) In case of AS1001FG

Note 2) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.

Made to Order

Made to Order

Lubricant: Vaseline

X12

(Example) AS1001FG-04-X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1001FG-04-X21

Note 1) Not a non particle generation type

Throttle Valve (Without Check Valve)

X214

(Example) AS1001FG-04-X214

Clean Series

10-

Lubricant: Fluororesin grease, Double packaging

(Example) 10-AS1001FG-04

Stainless Steel Series Dual Speed Controller with One-touch Fittings

Universal Type

Series ASD-FG

Corrosion Resistance

Lurch Prevention

How to Order

ASD **3** 30 FG — **01** — **06** S —

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Type

3	Universal
---	-----------

With one-touch fitting

Stainless steel specifications
(SUS303)

Thread type

Nil	Metric system thread (M5)
	Unified thread (10-32UNF)
	R
N	NPT

Port size

M5	M5 X 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Applicable tube O.D.

Inch		Metric	
01	ø1/8	04	ø4
03	ø5/32	06	ø6
05	ø3/16	08	ø8
07	ø1/4	10	ø10
09	ø5/16	12	ø12
11	ø3/8		

With sealant

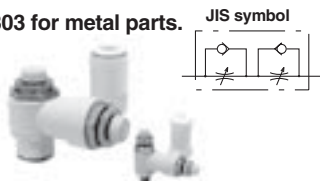
* M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized instead.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Use of Stainless steel 303 for metal parts.

Lurch prevention
Speed control of
single acting cylinder



Model

Model	Port size	Applicable tube O.D.													
		Inch					Metric								
		1/8	5/32	3/16	1/4	5/16	3/8	4	6	8	10	12			
ASD230FG-U10/32	10-32 UNF	●	●	●	●										
ASD330FG-N01	NPT1/8			●	●	●									
ASD430FG-N02	NPT1/4				●	●	●								
ASD530FG-N02	NPT1/4				●	●	●								
ASD530FG-N03	NPT3/8				●	●	●								
ASD630FG-N04	NPT1/2						●								
ASD230FG-M5	M5 X 0.8							●	●						
ASD330FG-01	R1/8								●	●					
ASD430FG-02	R1/4								●	●	●				
ASD530FG-02	R1/4								●	●	●	●			
ASD530FG-03	R3/8								●	●	●	●			
ASD630FG-04	R1/2											●	●		

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material ^{Note 2)}	Nylon, Soft nylon, Polyurethane, Soft polyurethane

Note 1) In case of ASD230FG

Note 2) Pay attention to the maximum operating pressure when soft nylon, polyurethane or soft polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

(Example) ASD230FG-M5-04-X12

Clean Series

10-

Lubricant: Fluororesin grease, Double packaging

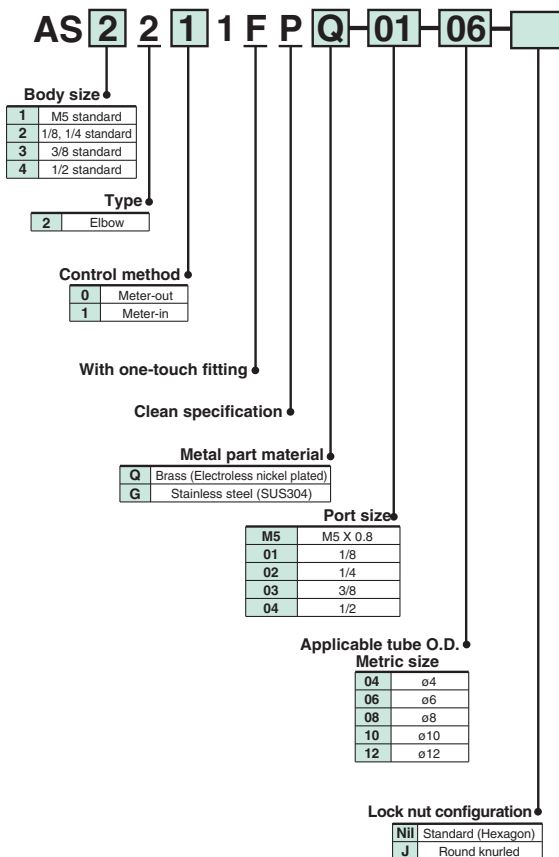
(Example) 10-ASD230FG-M5-04

Speed Controller for Clean Room

Elbow Type
Series AS-FPQ/FPG

Clean

How to Order



Speed Controller for Clean Room

Series AS-FPQ/FPG

Elbow Type

AS-FPQ/Brass (Electroless nickel plated)

Release button color: Light grey

AS-FPQ/Stainless steel (SUS304)

Release button color: Light blue



JIS symbol



Model

Port size	Applicable tube O.D.					Applicable cylinder bore size mm	Elbow type
	Metric size						
	4	6	8	10	12		
M5 X 0.8	●	●				6, 10, 16, 20	AS12□1FP□-M5
R1/8	●	●	●			20, 25, 32	AS22□1FP□-01
R1/4	●	●	●	●		20, 25, 32, 40	AS22□1FP□-02
R3/8		●	●	●	●	40, 50, 63	AS32□1FP□-03
R1/2				●	●	63, 80, 100	AS42□1FP□-04

Specifications

Particle generation grade	Grade 1 ^{Note 1)}
Proof pressure 68°F (20°C)	218psi (1.5MPa)
Max. operating pressure 68°F (20°C)	145psi (1MPa ^{Note 2)})
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no freezing)
Number of needle rotations	10 rotations (8 rotations ^{Note 3)})

Note 1) Refer to the particle generation grading chart.

Note 2) The max. operating pressure is one at 20°C.

Note 3) In case of AS12□1FP□

Recommended Applicable Tubing

Tube material	Clean series polyurethane tubing: Series 10-
Tube O.D.	ø4, ø6, ø8, ø10, ø12

Polyurethane tubing: Series TU, Nylon tubing: Series T,

Soft nylon tubing: Series TS can also be used though with lower degree of cleanliness.

**Metal Elbow
Speed Controller with
Built-in One-touch Fittings**

Elbow Type (Metal Body)

Series AS

Spatter Resistant

How to Order

AS 3 2 0 1-03-F 10 S [] [] []

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Elbow type

Control method

0	Meter-out
1	Meter-in

Port size

M5	M5 X 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

With one-touch fitting

Applicable tube I.D.

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

With sealant

* M5 port size is not available with sealant. Gaskets are standardized instead.

Lock nut configuration

Nil	Standard (Round)
K	Hexagon lock nut

Electroless nickel plated specifications

Nil	Partly unplated
N	All plated

* Electroless nickel plating is standardized for some items. Refer to models and types for more information.

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Elbow Type

**Use of flame resistant resin
for one-touch fittings.**
(Equivalent to UL-94 Standards V-0)

Elbow type

JIS symbol



Model

● indicates that electroless nickel plated model (N specification) is the standardized.

Port size	Applicable tube O.D.					Applicable cylinder bore size mm	Elbow Type
	Metric size						
	4	6	8	10	12		
M5 X 0.8	●	●				6, 10, 16, 20	AS12□1-M5
R1/8		●	●			20, 25, 32	AS22□1-01
R1/4		●	●			20, 25, 32, 40	AS22□1-02
1/4			●	●		40, 50, 63	AS32□1-02
R3/8			◎	◎		40, 50, 63	AS32□1-03
R1/2				◎	◎	63, 80, 100	AS42□1-04

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material	Nylon, Soft nylon, Polyurethane
Option	Round knurled lock nut, Electroless nickel plated specifications ^{Note 2)}

The meter-in and meter-out types are visually distinguished by the lock nut.

The lock nut of the meter-out type is electroless nickel plated while that of the meter-in type is black zinc chromate plated.

Note 1) In case of size M5

Note 2) Brass parts are all electroless nickel plated.



Made to Order

Lubricant: Vaseline

X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1201-M5-F04-X12

(Example) AS1201-M5-F04-X21

Note 1) Not a non particle generation type

Note 2) Only items with meter-out part numbers are available in case of throttle valves.

Throttle Valve (Without Check Valve)

X214

Clean Series

10-

(Example) AS1201-M5-F04-X214

Lubricant: Fluororesin grease,
Double packaging

(Example) 10-AS1201-M5-F04

Note) Only items with meter-out part numbers are available in case of throttle valves.

How to Order

AS 2 2 1 1 F E 01 - 06 SK

Body size

2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With one-touch fitting

With residual pressure exhaust valve

Port size

01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tube O.D.

Metric size

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

With sealant

Round knurled lock nut

Speed Controller with Residual Pressure Exhaust Valve

Series AS□□□□FE

Elbow Type/Universal Type

Residual pressure exhaust from cylinder

Residual pressure easily exhausted with one push



Elbow type

Universal type



Model

Port size	Applicable tube O.D.					Applicable cylinder tube I.D. mm	Elbow type	Universal type
	Metric							
	4	6	8	10	12			
R1/8	●	●	●	●*		20, 25, 32	AS22□1FE-01	AS23□1FE-01
R1/4	●	●	●	●		20, 25, 32, 40	AS22□1FE-02	AS23□1FE-02
R3/8		●	●	●	●	40, 50, 63	AS32□1FE-03	AS33□1FE-03
R1/2				●	●	63, 80, 100	AS42□1FE-04	AS43□1FE-04

Note 1) * Elbow type only

- Visual distinction between meter-out and meter-in types

The meter-out and meter-in types can be visually distinguished by the lock nut.

The lock nut of the meter-out type is electroless nickel plated while that of the meter-in type is black zinc chromate plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations
Effective sectional area of residual pressure exhaust valve	0.0128in ² (0.8mm ²)
Applicable tube material	Nylon, Soft nylon, Polyurethane



Made to Order

Lubricant: Vaseline

X12

(Example) AS2201FE-01-04SK-X12

Throttle Valve (Without Check Valve)

X214

(Example) AS2201FE-01-04SK-X214

Note) Only items with meter-out part numbers are available in case of throttle valves.

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS2201FE-01-04SK-X21

Note 1) Not a non particle generation type

Note 2) Only items with meter-out part numbers are available in case of throttle valves.

**Speed Controller with
Residual Pressure Release Valve:
Standard Type**

In-line Type (Metal Body)
Series AS *E*

Residual pressure can be easily released with one push of button. Eye-catching red color release button

JIS Symbol



How to Order

AS 2 **000E** — — 01

Body size

2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

With residual pressure release valve

Port size

Port size	Applicable series
01	1/8 AS2000E
02	1/4 AS2000E/3000E/4000E
03	3/8 AS3000E/4000E
04	1/2 AS4000E

Thread type

Nil	Rc
N	NPT
F	G

Specifications

Operating fluid	Air
Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1.0MPa)
Min. operating pressure	7.3psi (0.05MPa)
Ambient and fluid temperature	23° to 140°F (−5° to 60°C) (With no condensation)
Number of needle rotations	8 turns
Effective area of residual exhaust valve	0.0128in ² (0.8 mm ²)

Model/Flow Rate and Effective Area

Model	Port size	Free flow		Controlled flow		Applicable cylinder bore size (mm)	Weight oz (g)
		Flow rate (ℓ/min (ANR))	Flow rate (ℓ/min (ANR))	Effective area (mm ²)	Flow rate (ℓ/min (ANR))		
AS2000E-01	1/8"	340	5.2	250	3.8	20, 25	3.2 (90)
AS2000E-02	1/4"					32, 40	
AS3000E-02	1/4"	810	12.3	810	12.3	32, 40	4.6 (130)
AS3000E-03	3/8"					50, 63	
AS4000E-02	1/4"	1670	25.5	1670	25.5	40, 50, 63 80, 100	7.9 (225)
AS4000E-03	3/8"						
AS4000E-04	1/2"						

(Note) Flow rate values are measured at 73psi (0.5MPa) and 68°F (20°C).

Speed Exhaust Controller

Elbow Type/Tee Type

Series ASV

Quick Exhaust 

How to Order

ASV **3** **1** 0 F — **01** — **06** S

Body size

1	M3 standard
2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard

Type

1	Union tee
2	Elbow ^{Note 1)}

Note 1) Only M3 and M5 are available.

With one-touch fitting

Port size

M3	M3 X 0.5
M5	M5 X 0.8
U10/32	10-32UNF
01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tube O.D.

Inch	Metric
03	ø5/32
07	ø1/4
09	ø5/16
11	ø3/8
13	ø1/2
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Sealant

Symbol	Sealant	Applicable model
Nil	Without sealant	ASV120F, 220F
S	With sealant	ASV310F, 410F, 510F

Spatter cover

Nil	—
C	With spatter cover*

* Only available to ASV310F, 410F and 510F

Lock nut configuration

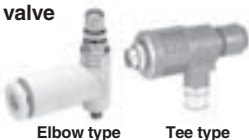
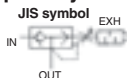
Nil	Standard (Hexagon)
J	Round knurled

Speed Exhaust Controller

Series ASV

Elbow Type/Tee Type

Integration of a quick exhaust valve and an exhaust restrictor
Permits high-speed cylinder operation.



Model

Model	Port size	Applicable tube O.D.												
		Inch					Metric							
		5/32	1/4	5/16	3/8	1/2	4	6	8	10	12			
ASV220F-U10/32	10-32UNF	●	●											
ASV310F-N01	NPT1/8		●	●										
ASV310F-N02	NPT1/4		●	●										
ASV410F-N01	NPT1/8			●	●									
ASV410F-N02	NPT1/4			●	●									
ASV410F-N03	NPT3/8			●	●									
ASV510F-N02	NPT1/4				●	●								
ASV510F-N03	NPT3/8				●	●								
ASV510F-N04	NPT1/2				●	●								
ASV120F-M3	M3 X 0.5						●							
ASV220F-M5	M5 X 0.8						●	●						
ASV310F-01	R1/8							●	●					
ASV310F-02	R1/4							●	●					
ASV410F-01	R1/8								●	●				
ASV410F-02	R1/4								●	●				
ASV410F-03	R3/8								●	●				
ASV510F-02	R1/4									●	●			
ASV510F-03	R3/8									●	●			
ASV510F-04	R1/2									●	●			

Specifications

Series	ASV120F	ASV220F	ASV310F, 410F	ASV510F
Proof pressure	218psi (1.5MPa)			
Max. operating pressure	145psi (1MPa)			
Min. operating pressure	15psi (0.1MPa)			
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)			
Number of needle rotations	10 rotations	8 rotations	12 rotations	15 rotations
Applicable tube material	Nylon, Soft nylon, Polyurethane ^{Note 1)}			
Option	Round knurled lock nut		With spatter cover, Round knurled lock nut	

Note 1) Pay attention to the maximum operating pressure when soft nylon, polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

(Example) ASV120F-M3-04-X12



SPC-34

Speed Controller with Pilot Check Valve

Universal Type
Series ASP

Drop Prevention

How to Order

ASP **3** **30** **F** **01** **06** **S** **—** **□**

Pilot check valve

Body size

3	1/8 Standard
4	1/4 Standard
5	3/8 Standard
6	1/2 Standard

Type

3	Universal
---	-----------

With one-touch fitting

Applicable tube O.D.

Inch		Metric	
07	ø1/4	06	ø6
09	ø5/16	08	ø8
11	ø3/8	10	ø10
13	ø1/2	12	ø12

With sealant

Port size

Symbol	Cylinder side	Pilot port
N01	NPT1/8	10-23UNF
N02	NPT1/4	NPT1/8
N03	NPT3/8	NPT1/8
N04	NPT1/2	NPT1/4
01	R1/8	M5 X 0.8
02	R1/4	Rc1/8
03	R3/8	Rc1/8
04	R1/2	Rc1/4
F02	G1/4	G1/8
F03	G3/8	G1/8
F04	G1/2	G1/4

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Model

Model	Port size	Applicable tube O.D.								Pilot port
		Inch				Metric				
		1/4	5/16	3/8	1/2	6	8	10	12	
ASP330F-N01	NPT1/8	●	●							10-32UNF
ASP430F-N02	NPT1/4	●	●							NPT1/8
ASP530F-N03	NPT3/8		●	●						NPT1/8
ASP630F-N04	NPT1/2			●	●					NPT1/4
ASP330F-01	R1/8					●	●			M5 X 0.8
ASP430F-02	R1/4					●	●			Rc1/8
ASP530F-03	R3/8						●	●		Rc1/8
ASP630F-04	R1/2							●	●	Rc1/4
ASP430F-F02	G1/4					●	●			G1/8
ASP530F-F03	G3/8						●	●		G1/8
ASP630F-F04	G1/2							●	●	G1/4

Specifications

• Brass parts are all electroless nickel plated.

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Pilot check valve operating pressure	50% or more the operating pressure
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations
Applicable tube material	Nylon, Soft nylon, Polyurethane

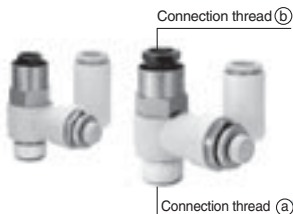
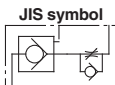
Note) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Speed Controller with Pilot Check valve

Series ASP

Universal Type

**Built-in pilot check valve
to prevent drop down
Temporary intermediate stop
Emergency stop**



Made to
Order

Made to Order

Lubricant: Vaseline

X12

(Example) ASP330F-01-06S-X12

W/Residual Pressure Exhaust

X352

(Example) ASP 430F-U02-07-X352

Also includes uni-fit thread and G threaded pilot port

Tamper Proof Speed Controller

Elbow Type/Universal type
Series AS□□□IF-T

How to Order

AS **2** **2** **1** **1** F — **01** — **06** S T

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With one-touch fitting

Port size

U10/32	10-32UNF
N01	NPT1/8
N02	NPT1/4
N03	NPT3/8
N04	NPT1/2
M5	M5 X 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2 *
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16	10	ø10
11	ø3/8	12	ø12
13	ø1/2		

* Use ø1/8 tube.

With sealant

Note) M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized.

Tamper proof type

Note) Flow control requires special tools, which must be ordered separately (Model number: AS-T-1).

Tamper Proof Speed Controller

Series AS□□□IF-T

Elbow Type/Universal Type

Flow rate control with special tools
for safety measures

JIS symbol



Elbow type



Universal type



Special tool
(AS-T-1)

Model

Port size	Applicable tube O.D.												Applicable cylinder bore size mm	Elbow type	Universal type	
	Inch						Metric									
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8	10				12
10-32UNF	●	●	●	●										6, 10, 16, 20	AS12□1F-U10/32	AS13□1F-U10/32
NPT1/8	●	●	●	●	●									20, 25, 32	AS22□1F-N01	AS23□1F-N01
NPT1/4		●	●	●	●	●								20, 25, 32, 40	AS22□1F-N02	AS23□1F-N02
NPT1/4				●	●	●								40, 50, 63	AS32□1F-N02	AS33□1F-N02
NPT3/8				●	●	●								40, 50, 63	AS32□1F-N03	AS33□1F-N03
NPT1/2						●	●							63, 80, 100	AS42□1F-N04	AS43□1F-N04
M5 X 0.8							●	●	●					6, 10, 16, 20	AS12□1F-M5	AS13□1F-M5
R1/8							●	●	●	●	●	●	●	20, 25, 32	AS22□1F-01	AS23□1F-01
R1/4								●	●	●	●	●	●	20, 25, 32, 40	AS22□1F-02	AS23□1F-02
R1/4									●	●	●	●	●	40, 50, 63	AS32□1F-02	AS33□1F-02
R3/8										●	●	●	●	40, 50, 63	AS32□1F-03	AS33□1F-03
R1/2											●	●	●	63, 80, 100	AS42□1F-04	AS43□1F-04

Note 1) *Elbow type only

- The meter-in and meter-out types are visually distinguished by the flow direction symbol on the resin body.
- Brass parts of standard products are all electroless nickel plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note1))
Applicable tube material	Nylon, Soft nylon, Polyurethane Note 2)

Note1) In case of AS1201F-M5 and AS1211F-M5 types

In case of AS1301F-M5 and AS1311F-M5 types

Note2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Made to Order

Made to Order

Lubricant: Vaseline

X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1201F-M5-23T-X12

(Example) AS1201F-M5-23T-X21

Note 1) Not a non particle generation type

Note 2) Only items with meter-out part numbers are available in case of throttle valves.

Throttle Valve (Without Check Valve)

X214

Clean Series

10-

(Example) AS1201F-M5-23T-X214

Lubricant: Fluororesin grease, Double packaging

Note) Only items with meter-out part numbers are available in case of throttle valves.

(Example) 10-AS1201F-M5-23T



SPC-38

Tamper Proof Speed Controller

In-line Type
Series AS□□□IF-T

How to Order

AS **200** 1F - **06** T

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With one-touch fitting

Tamper proof type

Note) Flow control requires special tools, which must be ordered separately (Model number: AS-T-1).

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2 *
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16	10	ø10
11	ø3/8	12	ø12
13	ø1/2		

*Use ø1/8 tube.

Flow control with special tools
For safety measures



JIS symbol



Model

Special tool (AS-T-1)

Model	Applicable tube O.D.												Applicable cylinder bore size mm		
	Inch						Metric								
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8	10		12	
AS1001F	●	●	●	●				●	●	●					6, 10, 16, 20
AS2001F		●	●	●					●	●					20, 25, 32
AS2051F			●	●	●					●	●				20, 25, 32, 40
AS3001F				●	●	●				●	●	●	●		40, 50, 63
AS4001F						●	●					●	●		63, 80, 100

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations ^{Note 1)})
Applicable tube material	Nylon, Soft nylon, Polyurethane ^{Note 2)}

Note 1) In case of type AS1001F

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Lurch Prevention

How to Order

ASD **3** **3** **0** **F** - **01** - **06** **S** **T**

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Universal type

With one-touch fitting

Port size

U10/32	10-32UNF
N01	NPT1/8
N02	NPT1/4
N03	NPT3/8
N04	NPT1/2
M5	M5 X 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tube O.D.

Inch		Metric	
01	ø1/8	04	ø4
03	ø5/32	06	ø6
05	ø3/16	08	ø8
07	ø1/4	10	ø10
09	ø5/16	12	ø12
11	ø3/8		

With sealant

Note) M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized.

Tamper proof type

Note) Flow control requires special tools, which must be ordered separately (Model number: AS-T-1).

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations ^{Note 1)})
Applicable tube material	Nylon, Soft nylon, Polyurethane ^{Note 2)}

Note 1) In case of ASD230F

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Tamper Proof Dual Speed Controller

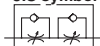
Series ASD□□□F-T

In-line Type

Lurch prevention
Speed control of single acting
cylinder
Flow rate control with special
tools for safety measures



JIS symbol



Model

Model	Port size	Applicable tube O.D.												
		Inch						Metric						
		1/8	5/32	3/16	1/4	5/16	3/8	4	6	8	10	12		
ASD230F-U10/32	10-32UNF	●	●	●	●									
ASD330F-N01	NPT1/8			●	●	●								
ASD430F-N02	NPT1/4				●	●	●							
ASD530F-N02	NPT1/4				●	●	●							
ASD530F-N03	NPT3/8				●	●	●							
ASD630F-N04	NPT1/2						●							
ASD230F-M5	M5 X 0.8							●	●					
ASD330F-01	R1/8								●	●				
ASD430F-02	R1/4								●	●	●			
ASD530F-02	R1/4								●	●	●	●		
ASD530F-03	R3/8								●	●	●	●	●	
ASD630F-04	R1/2											●	●	

* Brass parts of standard products are all electroless nickel plated.



Made to Order

lubricant: Vaseline

X12

(Example) ASD230F-M5-04T-X12

Clean Series

10-

Lubricant: Fluororesin grease, Double packaging

(Example) 10-ASD230F-M5-04T

Tamper Proof Speed Controller Standard Type

Elbow Type (Metal Body)

Series AS□2□0-T

How to Order

AS **2** **2** **0** **0** - **01** - **S** **T**

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
---	-------

Control

0	Meter-out
1	Meter-in

Tamper proof

Note) Speed controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

With seal

Note) When connecting port is either M5 or 10-32UNF thread, it is not available with seal. With gasket is provided as standard.

Port size

Symbol	Cylinder side (male)	Valve side (female)
M5	M5 x 0.8	M5 x 0.8
01	R1/8	Rc1/8
02	R1/4	AS22°0: Rc 1/4
		AS32°0: Rc 3/8
03	R3/8	Rc3/8
04	R1/2	Rc1/2
F01	R1/8	G1/8
F02	R1/4	AS22°0: G1/4
		AS32°0: G3/8
F03	R3/8	G3/8
F04	R1/2	G1/2
U10/32	10-32UNF	10-32UNF
N01	NPT1/8	NPT1/8
N02	NPT1/4	AS22°0: NPT1/4
		AS32°0: NPT3/8
N03	NPT3/8	NPT3/8
N04	NPT1/2	NPT1/2



JIS Symbol



Specifications

Operating fluid	Air
Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	14.5psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) [With no condensation]
Number of needle rotations	10 turns (8 turns for AS12□0-M5 and AS12□0-U10/32)

Note) Brass parts are all electroless nickel plated, provided as standard.

Model

Model	Port size						Applicable cylinder bore size (mm)	Controlled flow (Free flow)	
	Inch size							Flow rate (l/min (ANR))	Effective area (mm ²)
	M5 x 0.8	10-32 UNF	1/8"	1/4"	3/8"	1/2"			
AS12□0-M5	●						6, 10, 16 20, 25,	105	1.6
AS12□0-U10/32		●							
AS22□0-□01			●				20, 25, 32, 40	230	3.5
AS22□0-□02				●				460	7
AS32□0-□02				●			32, 40, 50, 63	920	14
AS32□0-□03					●				
AS42□0-□04						●	80, 100	1700	26

Note 1) Flow rate values are measured at 73psi (0.5MPa) and 68°F (20°C).

Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

How to Order

AS 2 2 1 1 **F** - 01 - 06 **S** **D**

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
3	Universal

Control method

0	Meter-out
1	Meter-in

With one-touch fitting

Port size

U10/32	10-32UNF
N01	NPT1/8
N02	NPT1/4
N03	NPT3/8
N04	NPT1/2
M5	M5 X 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tube O.D.

Inch		Metric	
01	ø1/8	23	ø3.2*
03	ø5/32	04	ø4
05	ø3/16	06	ø6
07	ø1/4	08	ø8
09	ø5/16	10	ø10
11	ø3/8	12	ø12
13	ø1/2		

*Use ø1/8 tubing.

With sealant

Note) M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized.

Flat head screw driver adjustment type

Flat Head Screw Driver Adjustable Speed Controller

Series AS□□□IF-D

Elbow Type/Universal Type

Flow adjustment with flat head screw driver

JIS symbol

For safety measures

Elbow type

Universal type



Model

Port size	Applicable tube O.D.											Applicable cylinder bore size mm	Elbow type	Universal type		
	Inch						Metric									
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8				10	12
10-32UNF	●	●	●	●	●	●								6, 10, 16, 20	AS12□1F-U10/32	AS13□1F-U10/32
NPT1/8	●	●	●	●	●									20, 25, 32	AS22□1F-N01	AS23□1F-N01
NPT1/4		●	●	●	●	●								20, 25, 32, 40	AS22□1F-N02	AS23□1F-N02
NPT1/4				●	●	●								40, 50, 63	AS32□1F-N03	AS33□1F-N03
NPT3/8				●	●	●								40, 50, 63	AS32□1F-N03	AS33□1F-N03
NPT1/2						●	●							63, 80, 100	AS42□1F-N04	AS43□1F-N04
M5 X 0.8							●	●	●					6, 10, 16, 20	AS12□1F-M5	AS13□1F-M5
R1/8							●	●	●	●	●	● ⁽¹⁾		20, 25, 32	AS22□1F-01	AS23□1F-01
R1/4								●	●	●	●	●		20, 25, 32, 40	AS22□1F-02	AS23□1F-02
R1/4									●	●	●	●		40, 50, 63	AS32□1F-02	AS33□1F-02
R3/8									●	●	●	●		40, 50, 63	AS32□1F-03	AS33□1F-03
R1/2											●	●		63, 80, 100	AS42□1F-04	AS43□1F-04

Note 1) ⁽¹⁾Elbow type only

- The meter-out and meter-in types can be visually determined by the flow direction symbol on the resin body.
- Brass parts of standard products are all electroless nickel plated.

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations ^{Note 1)})
Applicable tube material	Nylon, Soft nylon, Polyurethane ^{Note 2)}

Note 1) In case of types AS1201F-M5 and AS1211F-M5

In case of types AS1301F-M5 and AS1311F-M5

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.



Made to Order

Lubricant: Vaseline

X12

(Example) AS1201F-M5-23D-X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1201F-M5-23D-X21

Note 1) Not a non particle generation type
Note 2) Only items with meter-out part numbers are available in case of throttle valves.

Throttle Valve (Without Check Valve)

X214

(Example) AS1201F-M5-23D-X214

Note) Only items with meter-out part numbers are available in case of throttle valves.

Clean Series

10-

Lubricant: Fluororesin grease, Double packaging

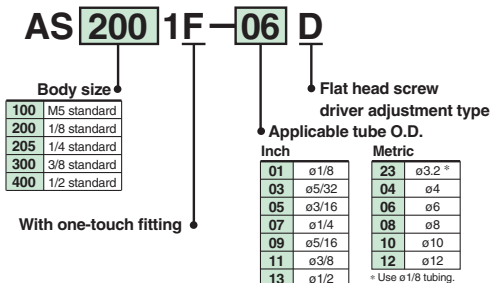
(Example) 10-AS1201F-M5-23D



Flat Head Screw Driver Adjustable Speed Controller

In-line Type
Series AS□□□IF-D

How to Order



Model

Model	Applicable tube O.D.												Applicable cylinder bore size mm	
	Inch						Metric							
	1/8	5/32	3/16	1/4	5/16	3/8	1/2	3.2	4	6	8	10		12
AS1001F	●	●	●	●				●	●	●				6, 10, 16, 20
AS2001F		●	●	●					●	●				20, 25, 32
AS2051F			●	●	●					●	●			20, 25, 32, 40
AS3001F				●	●	●				●	●	●	●	40, 50, 63
AS4001F						●	●					●	●	63, 80, 100

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 40°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations Note 1))
Applicable tube material	Nylon, Soft nylon, Polyurethane Note 2)

Note 1) In case of type AS1001F

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Flow adjustment with flat head screw driver

For safety measures

JIS symbol



Made to Order

Made to Order

Lubricant: Vaseline

X12

Oil Free (Sealant: PTFE Coated)
+ Without Check Valve (Throttle Valve)

X21

(Example) AS1001F-23D-X12

(Example) AS1001F-23D-X21

Note 1) Not a non particle generation type

Throttle Valve (Without Check Valve)

X214

Clean Series

10-

(Example) AS1001F-23D-X214

Lubricant: Fluororesin grease, Double package

(Example) 10-AS1001F-23D

Flat Head Screw Driver Adjustable Dual Speed Controller

Universal Type

Series ASD□□□F-D

Lurch Prevention

How to Order

ASD **3** 3 0 F - **01** - **06** S D

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Universal type

With one-touch fitting

Port size

U10/32	10-32UNF
N01	NPT1/8
N02	NPT1/4
N03	NPT3/8
N04	NPT1/2
M5	M5 X 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tube O.D.

Inch

01	ø1/8
03	ø5/32
05	ø3/16
07	ø1/4
09	ø5/16
11	ø3/8

Metric

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

With sealant

Note) M5 and U10/32 port sizes are not available with sealant. Gaskets are standardized.

Flat head screw driver adjustment type

Specifications

Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	15psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Number of needle rotations	10 rotations (8 rotations ^{Note 1)})
Applicable tube material	Nylon, Soft nylon, Polyurethane ^{Note 2)}

Note 1) In case of type ASD230F

Note 2) Pay attention to the maximum operating pressure when soft nylon or polyurethane is used.

Flat Head Screw Driver Adjustable Dual Speed Controller

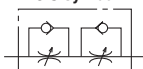
Series ASD□□□F-D

Universal Type

Lurch prevention
Speed control of single acting cylinder
Flow adjustment with flat head screw driver
For safety measures



JIS symbol



Model

Model	Port size	Applicable tube O.D.														
		Inch					Metric									
		1/8	5/32	3/16	1/4	5/16	3/8	4	6	8	10	12				
ASD230F-U10/32	10-32UNF	●	●	●	●											
ASD330F-N01	NPT1/8			●	●	●										
ASD430F-N02	NPT1/4				●	●	●									
ASD530F-N02	NPT1/4				●	●	●									
ASD530F-N03	NPT3/8				●	●	●									
ASD630F-N04	NPT1/2						●									
ASD230F-M5	M5 X 0.8							●	●							
ASD330F-01	R1/8								●	●						
ASD430F-02	R1/4								●	●	●					
ASD530F-02	R1/4								●	●	●	●				
ASD530F-03	R3/8								●	●	●	●				
ASD630F-04	R1/2												●	●		

• Brass parts of standard products are all electroless nickel plated.



Made to Order

Lubricant: Vaseline

X12

(Example) ASD230F-M5-04D-X12

Clean Series

10-

Lubricant: Fluororesin grease, Double package

(Example) 10-ASD230F-M5-04D

Flat Head Screw Driver Adjustable Speed Controller

Elbow Type (Metal Body)
Series AS□2□0-D

How to Order

AS 2 2 0 0 - 01 - S D

Body size

1	M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard

Type

2	Elbow
---	-------

Control

0	Meter-out
1	Meter-in



JIS Symbol



Type adjustable by flat head screwdriver

With sealant

Note) In case that connecting port is either M5 or 10-32 UNF thread, it is not available with sealant. With gasket is provided as standard.

Port size

Symbol	Cylinder side (male)	Valve side (female)
M5	M5 x 0.8	M5 x 0.8
01	R1/8	Rc1/8
02	R1/4	AS22°0: Rc 1/4
		AS32°0: Rc 3/8
03	R3/8	Rc3/8
04	R1/2	Rc1/2
F01	R1/8	G1/8
F02	R1/4	AS22°0: G1/4
		AS32°0: G3/8
F03	R3/8	G3/8
F04	R1/2	G1/2
U10/32	10-32UNF	10-32UNF
N01	NPT1/8	NPT1/8
N02	NPT1/4	AS22°0: NPT1/4
		AS32°0: NPT3/8
N03	NPT3/8	NPT3/8
N04	NPT1/2	NPT1/2

Specifications

Operating fluid	Air
Proof pressure	218psi (1.5MPa)
Max. operating pressure	145psi (1MPa)
Min. operating pressure	14.5psi (0.1MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) [With no condensation]
Number of needle rotations	10 turns (8 turns for AS12□0-M5 and AS12□0-U10/32)

Note 3) Brass parts are all electroless nickel plated, and provided as standard.

Model/Flow Rate

Model	Port size						Applicable cylinder bore size (mm)	Controlled flow (Free flow)	
	Inch size							Flow rate (ℓ/min (ANR))	Effective area (mm²)
	M5 x 0.8	10-32 UNF	1/8"	1/4"	3/8"	1/2"			
AS12□0-M5	●						6, 10, 16, 20, 25,	105	1.6
AS12□0-U10/32		●							
AS22□0-□01			●				20, 25, 32, 40	230	3.5
AS22□0-□02				●				460	7
AS32□0-□02				●				920	14
AS32□0-□03					●				
AS42□0-□04						●	80, 100	1700	26

Note 1) Flow rate values are measured at 0.5 MPa and 20°C.

Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

Speed Controller with One-touch Fittings

Related Equipment

Residual Pressure Exhaust Valve with One-touch Fitting

Series KE□

Residual pressure inside the cylinder is released to the atmosphere by pressing the button.

Residual Pressure Exhaust

JIS symbol

Without push button guard
With one-touch fitting



With push button guard
With one-touch fitting



With push button guard
Rc screw



Applicable tube O.D. mm	Model
6	KEA06
8	KEA08
10	KEA10
12	KEA12

Applicable tube O.D. mm	Model
6	KEB06
8	KEB08
10	KEB10
12	KEB12

Port size	Model
Rc1/4	KEC-02
Rc3/8	KEC-03

Holder

Series TMH

Holder to secure an in-line type speed controller with one-touch fitting



In-line speed controllers and applicable holders

Body size	Tube size	Applicable tube					
		23 ø3.2	04 ø4	06 ø6	08 ø8	10 ø10	12 ø12
AS1001F	TMH-23J						
AS2001F			TMH-04J	TMH-06J			
AS2051F							
AS3001F				TMH-06	TMH-08		
AS4001F						TMH-10	TMH-12

Multiple Fitting Holder

Series TMA

To secure series KE□ exhaust valves

To secure union tee KQT, union elbow KQL, and straight union KQH

Model



Model	Stations	Applicable exhaust valve	Applicable one-touch fittings		
			Union tee	Union elbow	Straight union
TMA-06	8	KEA06	KQ2T06-00	KQ2L06-00	KQ2H06-00
		KEB06	KQT06-00	KQL06-00	KQH06-00
TMA-08	8	KEA08	KQ2T08-00	KQ2L08-00	KQ2H08-00
		KEB08	KQT08-00	KQL08-00	KQH08-00
		KEC-02			
TMA-10	6	KEA-10	KQ2T10-00	KQ2L10-00	KQ2H10-00
		KEB-10	KQT10-00	KQL10-00	KQH10-00
TMA-12	6	KEA-12	KQ2T12-00	KQ2L12-00	KQ2H12-00
		KEB-12	KQT12-00	KQL12-00	KQH12-00
		KEC-03			

Check Valve with One-touch Fitting

Series **AKH/AKB**

Drop Prevention



Straight type: AKH



Applicable tubing O.D. mm	Model
4	AKH04-00
6	AKH06-00
8	AKH08-00
10	AKH10-00
12	AKH12-00



Male connector type: AKH



Applicable tube O.D. mm	Port size	Model	
			
4	M5 X 0.8	AKH04A-M5	AKH04B-M5
	R1/8	-01S	-01S
6	M5 X 0.8	AKH06A-M5	AKH06B-M5
	R1/8	-01S	-01S
	R1/4	-02S	-02S
8	R1/8	AKH08A-01S	AKH08B-01S
	R1/4	-02S	-02S
	R3/8	-03S	-03S
10	R1/4	AKH10A-02S	AKH10B-02S
	R3/8	-03S	-03S
	R1/2	-04S	-04S
12	R3/8	AKH12A-03S	AKH12B-03S
	R1/2	-04S	-04S

Bushing type: AKB



Port size		Model	
(a)	(b)		
Rc1/8	R1/8	AKB01A-01S	AKB01B-01S
Rc1/4	R1/4	AKB02A-02S	AKB02B-02S
Rc3/8	R3/8	AKB03A-03S	AKB03B-03S
Rc1/2	R1/2	AKB04A-04S	AKB04B-04S

Quick Exhaust Valve with Built-in One-touch Fitting

Series **AQ□40F**

Space savings: Rectilinear IN-OUT tubing connections

Quick Exhaust 

JIS symbol



With silencer



With exhaust port fitting



Applicable tube O.D. mm	Model
4	AQ240F-04-00
6	AQ240F-06-00
6	AQ340F-06-00

Applicable tube O.D. mm	Model
4	AQ240F-04-04
6	AQ240F-06-06
6	AQ340F-06-06

Metering Valve with Silencer

Series ASN2

How to Order

Superior sound reducing performance

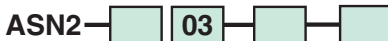
Over 20 dB at max. flow rate

Cylinder speed easily set

Shape of needle is the same as that of speed controller

Retainer prevents accidental loss of needle.

JIS Symbol



Option

Nil	None
S	With seal

Port size

M5	M5 x 0.8
U10/32	10-32 UNF
01	1/8
02	1/4
03	3/8
04	1/2

Thread type

Nil	Metric thread (M5)
	Unified thread (10-32 UNF)
N	R
	NPT

Lock nut configuration

Nil	Standard (Hexagon)
J	Round knurled

Model

Model	Port size	Effective area (mm ²)	Weight oz (g)
ASN2-M5	M5 x 0.8	1.8	0.18 (5)
ASN2-U10/32	10-32UNF	1.8	0.18 (5)
ASN2-01	1/8	3.6	0.6 (17)
ASN2-02	1/4	6.5	1.2 (34)
ASN2-03	3/8	16.6	1.94 (55)
ASN2-04	1/2	24.5	3.78 (107)

Specifications

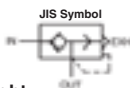
Proof pressure	218psi (1.5 MPa)
Operating pressure range	0 to 145psi (0 to 1 MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (No freezing)
Number of needle rotations	10 turns (8 turns ^{Note)})

Note) Specification shown in parentheses applies to ASN2-M5 and ASN2-U10/32.

Quick Exhaust Valve

Series AQ

- Excellent exhaust characteristics
- Large flow capacity
- Compact and lightweight
- A wide selection of models



How to Order

AQ 2 0 0 0 - 02

Standard size

1	1/8
2	1/4
3	3/8
5	3/4

Type

Symbol	Type	Applicable model
0	Diaphragm	AQ2 to AQ5
5	Lip	AQ1 Only

Standard

0	M5 x 0.8
1	1/8

Note) "AQ15□0" only

Thread type

Nil	Metric thread (M5)
	Rc
N	NPT
F	G

Option

H	High temperature 23 to 140°F (-5 to 80°C)
L	Low temperature -22 to 110°F (-30 to 60°C)

Note) AQ1500 and AQ1510 are not available.

Port size

Port size	Applicable series
M5	M5 x 0.8 AQ1500
01	1/8 AQ1510/2000
02	1/4 AQ2000/3000
03	3/8 AQ3000
04	1/2 AQ5000
06	3/4 AQ5000

Specifications

Operating fluid		Air
Proof pressure		218psi (1.5MPa)
Max. operating pressure	AQ15□0	102psi (0.7MPa)
	AQ2000 to 5000	145psi (1MPa)
Min. operating pressure	AQ15□0	15psi (0.1MPa)
	AQ2000 to 5000	7psi (0.05MPa)
Ambient and fluid temperature		23° to 140°F (-5° to 60°C) (With no condensation)

Model

Model	Port size	Effective area (mm ²)		Weight oz (g)
		IN → OUT	OUT → EXH	
AQ1500-M5	M5 x 0.8		2.8	0.88 (25)
AQ1510-01	1/8		5.8	1.58 (45)
AQ2000-01	1/8		25	3.89 (110)
AQ2000-02	1/4		40	3.71 (105)
AQ3000-02	1/4		42	7.59 (215)
AQ3000-03	3/8		70	7.24 (205)
AQ5000-04	1/2		115	24.4 (690)
AQ5000-06	3/4		180	22.9 (650)

Check Valve

Series AK

Large flow capacity

Low cracking pressure:

3psi (0.02 MPa)

A wide variation of models

JIS Symbol



How to Order

AK **2** 000 — **02**

Standard size

2	1/4
4	1/2
6	1

Thread type

Nil	Rc
N	NPT
F	G

Port size

Port size	Applicable series
01	1/8 AK2000
02	1/4 AK2000/4000
03	3/8 AK4000
04	1/2 AK4000
06	3/4 AK6000
10	1 AK6000

Specifications

Operating fluid	Air
Proof pressure	218psi (1.5MPa)
Maximum operating pressure	145psi (1MPa)
Minimum operating pressure	3psi (0.02MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)

Model

Model	Port size	Effective area (mm ²)	Weight oz (g)
AK2000-01	1/8	25	3.7 (105)
AK2000-02	1/4	27.5	3.5 (100)
AK4000-02	1/4	47	5.5 (155)
AK4000-03	3/8	85	5.3 (150)
AK4000-04	1/2	95	4.9 (140)
AK6000-06	3/4	200	12.2 (345)
AK6000-10	1	230	11.1 (315)

Safety Speed Control Valve (SSC Valve)

Series ASS

Meter-out control type:

A control valve with cylinder speed control function, fixed throttle, and rapid air supply function

Meter-in control type:

A control valve with cylinder speed control function and rapid air supply function

JIS Symbol



Meter-out control



Meter-in control



PAT.PEND

How to Order

ASS 3 00 [] 02 B

Body size

1	1/8
3	3/8
5	3/4
6	1

Type

00	Meter-out control type
10	Meter-in control type

* Meter-in type is available only for ASS110 and ASS310.

Accessory

Nil	None
B	With bracket

Port size

Port size	Applicable series
01	1/8 ASS100/110
02	1/4 ASS300/310
03	3/8 ASS300/310
04	1/2 ASS500
06	3/4 ASS500/600
10	1 ASS600

Thread type

Nil	Rc
N	NPT
F	G

Model

Style	Model	Port size	Effective area (mm ²)		Weight oz (g)
			Controlled flow	Free flow	
Meter-out control	ASS100	1/8	2.4	9.5	3.4 (97)
	ASS300	1/4, 3/8	14.5	22.0	7.8 (220)
	ASS500	1/2, 3/4	52.0	55.0	20.5 (580)
	ASS600	3/4, 1	80.0	90.0	33.5 (950)
Meter-in control	ASS110	1/8	2.4	5.4	3.4 (97)
	ASS310	1/4, 3/8	16.5	23.0	7.80 (220)

Specifications

Operating fluid	Air
Max. operating pressure	102psi (0.7MPa)
Ambient and fluid temperature	23° to 110°F (-5° to 60°C) (With no condensation)
Set pressure	15 to 73psi (0.1 to 0.5MPa)

Related Equipment Speed Controller with One-touch Fitting

Air Saving Valve PFC Valve/QFC Valve



PFC valve/ASR

QFC valve/ASQ

Air consumption reduced by 25%.

The system with PFC and QFC valves cuts down consumption by 25% and drastically reduces running costs.

Reduces piping processes and saves space.

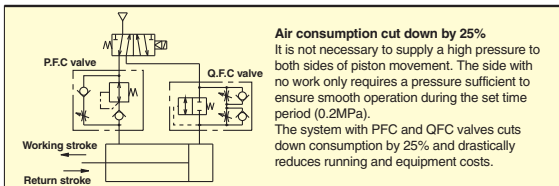
The PFC valve drastically cuts down piping man hours and reduces installation space by integrating the regulator and the check valve while accommodating a built-in one-touch fitting.

Simplified 2-pressure control circuit.

The pressure regulating function of the PFC valve provides the proper pressure in the proper place.

Improved cylinder response.

Installation of a QFC valve in the secondary pressure circuit reduces lurching, delay in pressure transmission and delay in return.

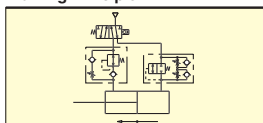


Air consumption cut down by 25%

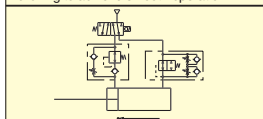
It is not necessary to supply a high pressure to both sides of piston movement. The side with no work only requires a pressure sufficient to ensure smooth operation during the set time period (0.2MPa).

The system with PFC and QFC valves cuts down consumption by 25% and drastically reduces running and equipment costs.

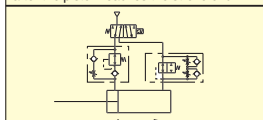
Working Principle



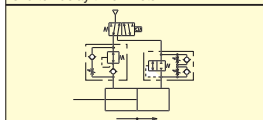
Meter-in and meter-out operation prevents lurching to achieve smooth operation.



The necessary pressure is supplied quickly after the piston reaches the stroke end.



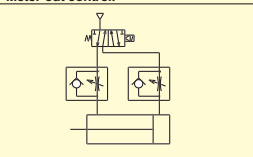
Exhausts the primary pressure quickly to shorten delay time in return.



Operates at a low pressure necessary for return.

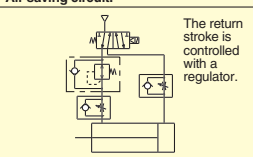
Example of Circuit Using Conventional Models

Meter-out control.



Large air consumption.

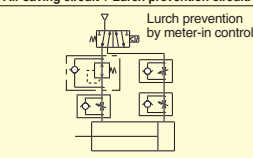
Air saving circuit.



The return stroke is controlled with a regulator.

Lurch in working stroke and delay in return.

Air saving circuit + Lurch prevention circuit.



Lurch prevention by meter-in control

Delay in pressure rise and delay in return at the stroke end.

Related Equipment

Speed Controller with One-touch Fitting

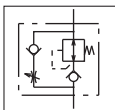
Energy Saving Valve PFC Valve/QFC Valve

Series **ASR/ASQ**

PFC Valve: ASR

PFC valve

A regulator with check valve and a flow control valve are integrated in one body.



Variable Set Pressure Type

Applicable tube O.D. mm	Port size	Model
6	R1/4	ASR430F-02-06S
	R1/4	ASR530F-02-06S
	R3/8	-03-06S
8	R1/4	ASR430F-02-08S
	R1/4	ASR530F-02-08S
	R3/8	-03-08S
10	R1/4	ASR430F-02-10S
	R1/4	ASR530F-02-10S
	R3/8	-03-10S
	R3/8	ASR630F-03-10S
	R1/2	-04-10S
12	R1/4	ASR530F-02-12S
	R3/8	-03-12S
	R3/8	ASR630F-03-12S
	R1/2	-04-12S

Fixed Set Pressure Type

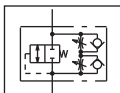
Applicable tube O.D. mm	Port size	Model
6	R1/4	ASR430F-02-06S-F20
	R1/4	ASR530F-02-06S-F20
	R3/8	-03-06S-F20
8	R1/4	ASR430F-02-08S-F20
	R1/4	ASR530F-02-08S-F20
	R3/8	-03-08S-F20
10	R1/4	ASR430F-02-10S-F20
	R1/4	ASR530F-02-10S-F20
	R3/8	-03-10S-F20
	R3/8	ASR630F-03-10S-F20
	R1/2	-04-10S-F20
12	R1/4	ASR530F-02-12S-F20
	R3/8	-03-12S-F20
	R3/8	ASR630F-03-12S-F20
	R1/2	-04-12S-F20

Series **ASR/ASQ**

QFC Valve: ASQ

QFC valve

A pilot type switching valve and 2-direction flow control valve are integrated in one body.



Variable Set Pressure Type

Applicable tube O.D. mm	Port size	Model
6	R1/4	ASQ430F-02-06S
	R1/4	ASQ530F-02-06S
	R3/8	-03-06S
8	R1/4	ASQ430F-02-08S
	R1/4	ASQ530F-02-08S
	R3/8	-03-08S
10	R1/4	ASQ430F-02-10S
	R1/4	ASQ530F-02-10S
	R3/8	-03-10S
	R3/8	ASQ630F-03-10S
	R1/2	-04-10S
12	R1/4	ASQ530F-02-12S
	R3/8	-03-12S
	R3/8	ASQ630F-03-12S
	R1/2	-04-12S

Fixed Set Pressure Type

Applicable tube O.D. mm	Port Size	Model
6	R1/4	ASQ430F-02-06S-F20
	R1/4	ASQ530F-02-06S-F20
	R3/8	-03-06S-F20
8	R1/4	ASQ430F-02-08S-F20
	R1/4	ASQ530F-02-08S-F20
	R3/8	-03-08S-F20
10	R1/4	ASQ430F-02-10S-F20
	R1/4	ASQ530F-02-10S-F20
	R3/8	-03-10S-F20
	R3/8	ASQ630F-03-10S-F20
	R1/2	-04-10S-F20
12	R1/4	ASQ530F-02-12S-F20
	R3/8	-03-12S-F20
	R3/8	ASQ630F-03-12S-F20
	R1/2	-04-12S-F20



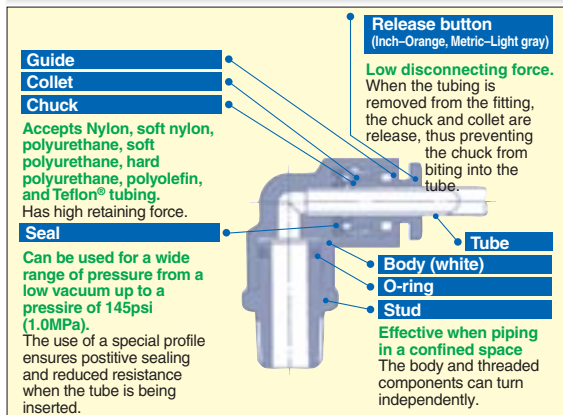
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One-touch Fittings

Series KQ2



One-touch "in" – One-touch "out" tube connection

Vacuum to -1.3kPa (absolute) (10 Torr)

Application to inch or metric size tube

Applicable tube material – Nylon, soft nylon, polyurethane, soft polyurethane, hard polyurethane, polyolefin, and Teflon® tubing.

"Teflon® is a registered trademark of DuPont."

Principal Element Material

Body	C3604BD, PBT, PP
Stud	C3604BD (Thread portion)
Chuck	Stainless Steel (SUS304)
Guide	Stainless Steel (SUS304) C3604 BD, POM
Collet	POM
Release button	POM
Seal, O-ring	NBR

Applicable Tube

Tube material	Nylon, Soft nylon, Polyurethane, Soft polyurethane, Hard polyurethane, Polyolefin, and Teflon®	
Tube O.D.	Inch	ø1/8, ø5/32, ø3/16, ø1/4, ø5/16, ø3/8, ø1/2
	Metric	ø3.2, ø4, ø6, ø8, ø10, ø12, ø16

Specifications

Operating fluid		Air, Water ^{Note 1)}	
Max. operating pressure		145psi (1.0MPa)	
Operating vacuum pressure		-15psi (0.1MPa)	
Proof pressure		435psi (3.0MPa)	
Ambient and fluid temperature		23 to 140°F (-5 to 60°C), Water: 32 to 105°F (0 to 40°C) (With no freezing)	
Thread	Inch	Mounting	ANSI/ASME B1.20.1-1983, R1992 (NTP thread) JIS B0212 2A, Class 2B (UNF thread)
		Nut	JIS B0211, Class 2B (UNF thread)
	Metric	Mounting	JIS B0203 (Taper pipe thread) JIS B0209, Class 2 (Metric coarse thread)
		Nut	JIS B0211, Class 2 (Metric fine thread)
Sealant (Thread portion)		Inch	With sealant or none
		Metric	With sealant or none

Note 1) Applicable to general industry water. Consult SMC if using for other kinds of fluid. Surge pressure must be under the maximum operating pressure.

Male Connector

KQ2H



<M5, M6
10-32UNF>



<R, NPT>

Applicable tube O.D. inch	Port Size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2H			KQ2H
1/8	10-32UNF	KQ2H01-32	3.2	M5 X 0.8	KQ2H23-M5
	1/16	-33S		1/8	-01S
	1/8	-34S		1/4	-02S
	1/4	-35S			
5/32	10-32UNF	KQ2H03-32	4	M5 X 0.8	KQ2H04-M5
	1/16	-33S		M6 X 1	-M6
	1/8	-34S		1/8	-01S
	1/4	-35S		1/4	-02S
3/16	10-32UNF	KQ2H05-32	6	M5 X 0.8	KQ2H06-M5
	1/8	-34S		M6 X 1	-M6
	1/4	-35S		1/8	-01S
				1/4	-02S
1/4	10-32UNF	KQ2H07-32	8	3/8	-03S
	1/8	34S		1/8	KQ2H08-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
5/16	1/8	KQ2H09-34S	10	1/8	KQ2H10-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
				1/2	-04S
3/8	1/8	KQ2H11-34S	12	1/4	KQ2H12-02S
	1/4	-35S		3/8	-03S
	3/8	-36S		1/2	-04S
	1/2	-37S			
1/2	1/4	KQ2H13-35S	16	3/8	KQ2H16-03S
	3/8	-36S		1/2	-04S
	1/2	-37S			

Inch-size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size R	Model
		KQ2H
1/8	M5 X 0.8	KQ2H01-M5
	1/8	-01S
	1/4	-02S
3/16	M5 X 0.8	KQ2H05-M5
	1/8	-01S
	1/4	-02S
1/4	M5 X 0.8	KQ2H07-M5
	1/8	-01S
	1/4	-02S
	3/8	-03S
5/16	1/8	KQ2H09-01S
	1/4	-02S
	3/8	-03S
3/8	1/4	KQ2H11-02S
	3/8	-03S
	1/2	-04S
1/2	1/4	KQ2H13-02S
	3/8	-03S
	1/2	-04S

Tubing





Female
thread hole

One-touch Fittings
Series **KQ2**

Male Elbow

KQ2L


Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2L			KQ2L
 <M5, 10-32UNF>	1/8	10-32UNF	3.2	M5 X 0.8	KQ2L23-M5
		-33S		1/8	-01S
		-34S		1/4	-02S
		-35S			
5/32	10-32UNF	KQ2L03-32	4	M5 X 0.8	KQ2L04-M5
		-33S		M6 X 1	-M6
		-34S		1/8	-01S
		-35S		1/4	-02S
3/16	10-32UNF	KQ2L05-32	6	M5 X 0.8	KQ2L06-M5
		-34S		M6 X 1	-M6
		-35S		1/8	-01S
 <M6>	1/4	10-32UNF	8	1/4	-02S
		-34S		3/8	-03S
		-35S		1/8	KQ2L08-01S
		-36S		1/4	-02S
5/16	10-32UNF	KQ2L09-34S	10	3/8	-03S
		-35S		1/8	KQ2L10-01S
		-36S		1/4	-02S
3/8	10-32UNF	KQ2L11-34S	12	3/8	-03S
		-35S		1/2	-04S
		-36S		1/4	KQ2L12-02S
		-37S		3/8	-03S
1/2	10-32UNF	KQ2L13-35S	16	1/2	-04S
		-36S		3/8	KQ2L16-03S
		-37S		1/2	-04S

Inch-size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size R	Model
		KQ2L
3/16	M5 X 0.8	KQ2L01-M5
	1/8	KQ2L05-01S
	1/4	-02S
1/4	M5 X 0.8	KQ2L07-M5
	1/8	KQ2L07-01S
	1/4	-02S
	3/8	-03S
5/16	1/8	KQ2L09-01S
	1/4	-02S
	3/8	-03S
3/8	1/4	KQ2L11-02S
	3/8	-03S
	1/2	-04S
1/2	1/4	KQ2L13-02S
	3/8	-03S
	1/2	-04S


Hexagon Socket Head Male Connector

KQ2S

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model	
		KQ2S			KQ2S	
 <M5, M6 10-32UNF>	1/8	10-32UNF	4	M5 X 0.8	KQ2S04-M5	
	5/32	10-32UNF		M6 X 1	-M6	
		1/8		-34S	1/8	-01S
	3/16	1/8	KQ2S05-34S	6	M5 X 0.8	KQ2S06-M5
	1/4	10-32UNF	KQ2S07-32		M6 X 1	-M6
		1/8	-34S		1/8	-01S
		1/4	-35S		1/4	-02S
	5/16	3/8	-36S	1/8	KQ2S08-01S	
		1/8	KQ2S09-34S	1/4	-02S	
		1/4	-35S	3/8	-03S	
3/8		-36S	10	1/8	KQ2S10-01S	
3/8	1/8	KQ2S11-34S		1/4	-02S	
	1/4	-35S		3/8	-03S	
	3/8	-36S		1/2	-04S	
1/2	1/2	-37S	1/4	KQ2S12-02S		
	1/4	KQ2S13-35S	3/8	-03S		
	3/8	-36S	1/2	-04S		
	1/2	-37S	16	3/8	KQ2S16-03S	
		1/2		-04S		

45° Male Elbow

KQ2K

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model	
		KQ2K			KQ2K	
 <M5, M6 10-32UNF>	1/8	10-32UNF	4	M5 X 0.8	KQ2K04-M5	
	5/32	10-32UNF		KQ2K03-32	M6 X 1	-M6
		1/8		-34S	1/8	-01S
	3/16	1/8	KQ2K05-34S	6	1/4	-02S
	1/4	10-32UNF	KQ2K07-32		M5 X 0.8	KQ2K06-M5
		1/8	-34S		M6 X 1	-M6
		1/4	-35S		1/8	-01S
	5/16	3/8	-36S	1/4	-02S	
		1/8	KQ2K09-34S	3/8	-03S	
		1/4	-35S	1/8	KQ2K08-01S	
3/8		-36S	1/4	-02S		
3/8	1/2	-37S	3/8	-03S		
	1/8	KQ2K11-34S	10	1/8	KQ2K10-01S	
	1/4	-35S		1/4	-02S	
	3/8	-36S		3/8	-03S	
1/2	-37S	1/2		-04S		
1/2	1/4	KQ2K13-35S	1/4	KQ2K12-02S		
	3/8	-36S	3/8	-03S		
	1/2	-37S	1/2	-04S		
			16	3/8	KQ2K16-03S	
		1/2		-04S		



Extended Male Elbow

KQ2W

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2W			KQ2W
1/8	1/8	KQ2W01-34S	3.2	M5 X 0.8	KQ2W23-M5
	1/4	-35S		1/8	-01S
5/32	1/8	KQ2W03-34S	4	1/4	-02S
	1/4	-35S		M5 X 0.8	KQ2W04-M5
3/16	1/8	KQ2W05-34S	6	1/8	-01S
	1/4	-35S		1/4	-02S
1/4	1/8	KQ2W07-34S	8	M5 X 0.8	KQ2W06-M5
	1/4	-35S		1/8	-01S
	3/8	-36S		1/4	-02S
5/16	1/8	KQ2W09-34S	10	3/8	-03S
	1/4	-35S		1/8	KQ2W08-01S
	3/8	-36S		1/4	-02S
3/8	1/4	KQ2W11-35S	12	3/8	-03S
	3/8	-36S		1/4	KQ2W10-02S
	1/2	-37S		3/8	-03S
1/2	1/4	KQ2W13-35S	16	1/2	-04S
	3/8	-36S		1/4	KQ2W12-02S
	1/2	-37S		3/8	-03S
				1/2	-04S
				3/8	KQ2W16-03S
				1/2	-04S



<M5>



<R, NPT>



Inch-size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size R	Model
		KQ2W
3/16	1/8	KQ2W05-01S
	1/4	-02S
1/4	1/8	KQ2W07-01S
	1/4	-02S
	3/8	-03S
5/16	1/8	KQ2W09-01S
	1/4	-02S
	3/8	-03S
3/8	1/4	KQ2W11-02S
	3/8	-03S
	1/2	-04S
1/2	1/4	KQ2W13-02S
	3/8	-03S
	1/2	-04S





Universal Male Elbow

KQ2V

	Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
			KQ2V			KQ2V
 <M5, 10-32UNF>	1/8	10-32UNF	KQ2V01-32	4	M5 X 0.8	KQ2V04-M5
		1/8	-34S		1/8	-01S
	5/32	10-32UNF	KQ2V03-32	6	M5 X 0.8	KQ2V06-M5
		1/8	-34S		1/8	-01S
	3/16	1/8	KQ2V05-34S	1/4	-02S	
	1/4	10-32UNF	KQ2V07-32	8	1/8	KQ2V08-01S
1/8		-34S	1/4		-02S	
1/4		-35S	3/8		-03S	
 <R, NPT>	5/16	1/8	KQ2V09-34S	10	1/4	KQ2V10-02S
		1/4	-35S		3/8	-03S
	3/8	3/8	-36S	12	3/8	KQ2V12-03S
3/8	1/4	KQ2V11-35S	1/2		-04S	
	3/8	-36S	16	3/8	KQ2V16-03S	
1/2	3/8	KQ2V13-36S		1/2	-04S	
	1/2	1/2	-37S			

Hexagon Socket Head Universal Male Elbow

KQ2VS

	Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
			KQ2VS			KQ2VS
 <M5, 10-32UNF>	1/8	10-32UNF	KQ2VS01-32	4	M5 X 0.8	KQ2VS04-M5
		1/8	-34S		1/8	-01S
	5/32	10-32UNF	KQ2VS03-32	6	M5 X 0.8	KQ2VS06-M5
		1/8	-34S		1/8	-01S
	3/16	1/8	KQ2VS05-34S	1/4	-02S	
	1/4	10-32UNF	KQ2VS07-32	8	1/8	KQ2VS08-01S
1/8		-34S	1/4		-02S	
1/4		-35S	3/8		-03S	
 <R, NPT>	5/16	1/8	KQ2VS09-34S	10	1/4	KQ2VS10-02S
		1/4	-35S		3/8	-03S
	3/8	3/8	-36S	12	3/8	KQ2VS12-03S
3/8	1/4	KQ2VS11-35S	1/2		-04S	
	3/8	-36S	16	3/8	KQ2VS16-03S	
1/2	3/8	KQ2VS13-36S		1/2	-04S	
	1/2	1/2	-37S			

Tubing




Female
thread hole

One-touch Fittings
Series **KQ2**

Male Branch Tee

KQ2T

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model	
		KQ2T			KQ2T	
 <M5, 10-32UNF>	1/8	10-32UNF	3.2	M5 X 0.8	KQ2T23-M5	
		1/16		-33S	1/8	-01S
		1/8		-34S	1/4	-02S
		1/4		-35S		
5/32	10-32UNF	KQ2T03-32	4	M5 X 0.8	KQ2T04-M5	
		1/16		-33S	M6 X 1	-M6
		1/8		-34S	1/8	-01S
		1/4		-35S	1/4	-02S
3/16	1/8	KQ2T05-34S	6	M5 X 0.8	KQ2T06-M5	
		1/4		-35S	M6 X 1	-M6
1/4	10-32UNF	KQ2T07-32		1/8	-01S	
		1/8		-34S	1/4	-02S
		1/4	-35S	3/8	-03S	
		3/8	-36S			
5/16	1/8	KQ2T09-34S	8	1/8	KQ2T08-01S	
		1/4		-35S	1/4	-02S
		3/8		-36S	3/8	-03S
3/8	1/8	KQ2T11-34S	10	1/8	KQ2T10-01S	
		1/4		-35S	1/4	-02S
		3/8		-36S	3/8	-03S
		1/2		-37S	1/2	-04S
1/2	1/4	KQ2T13-35S	12	1/4	KQ2T12-02S	
		3/8		-36S	3/8	-03S
		1/2		-37S	1/2	-04S
1/2	3/8	-36S	16	3/8	KQ2T16-03S	
		1/2		-37S	1/2	-04S


Inch-size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size R	Model
		KQ2T
3/16	1/8	KQ2T05-01S
	1/4	-02S
1/4	1/8	KQ2T07-01S
	1/4	-02S
	3/8	-03S
5/16	1/8	KQ2T09-01S
	1/4	-02S
	3/8	-03S
3/8	1/4	KQ2T11-02S
	3/8	-03S
	1/2	-04S
1/2	1/4	KQ2T13-02S
	3/8	-03S
	1/2	-04S



Male Run Tee

KQ2Y

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2Y			KQ2Y
 <M5, M6>	1/8	KQ2Y01-33S	3.2	M5 X 0.8	KQ2Y23-M5
	1/8	-34S		1/8	-01S
	1/4	-35S		1/4	-02S
5/32	1/16	KQ2Y03-33S	4	M5 X 0.8	KQ2Y04-M5
	1/8	-34S		M6 X 1	-M6
	1/4	-35S		1/8	-01S
1/8	KQ2Y05-34S	1/4		-02S	
3/16	1/4	-35S	6	M5 X 0.8	KQ2Y06-M5
	1/8	KQ2Y07-34S		M6 X 1	-M6
1/4	1/4	35S		1/8	-01S
	3/8	-36S		1/4	-02S
	1/8	KQ2Y09-34S	3/8	-03S	
5/16	1/4	-35S	8	1/8	KQ2Y08-01S
	3/8	-36S		1/4	-02S
	1/4	KQ2Y11-35S		3/8	-03S
3/8	3/8	-36S		10	1/8
	1/2	-37S	1/4		-02S
	1/4	KQ2Y13-35S	3/8		-03S
1/2	3/8	-36S	12		1/2
	1/2	-37S		1/4	KQ2Y12-02S
	1/2	-37S		3/8	-03S
				16	1/2
			3/8		KQ2Y16-03S
			1/2		-04S

KQ2Y Inch size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size R	Model
		KQ2Y
3/16	1/8	KQ2Y05-01S
	1/4	-02S
1/4	1/8	KQ2Y07-01S
	1/4	-02S
	3/8	-03S
5/16	1/8	KQ2Y09-01S
	1/4	-02S
	3/8	-03S
3/8	1/4	KQ2Y11-02S
	3/8	-03S
	1/2	-04S
1/2	1/4	KQ2Y13-02S
	3/8	-03S
	1/2	-04S

Tubing



Female
thread hole

One-touch Fittings
Series **KQ2**

Double Universal Male Elbow

KQ2VD



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model	
		KQ2VD			KQ2VD	
1/8	10-32UNF	KQ2VD01-32	4	1/8	KQ2VD04-01S	
	1/8	-34S		1/4	-02S	
5/32	10-32UNF	KQ2VD03-32		3/8	-03S	
	1/8	-34S		6	1/8	KQ2VD06-01S
3/16	1/8	KQ2VD05-34S			1/4	-02S
	10-32UNF	KQ2VD07-32			3/8	-03S
1/4	1/8	-34S	8	1/8	KQ2VD08-01S	
	1/4	-35S		1/4	-02S	
	3/8	-36S		3/8	-03S	
	1/4	KQ2VD09-35S		1/2	-04S	
5/16	3/8	-36S		10	1/4	KQ2VD10-02S
	1/2	-37S			3/8	-03S
3/8	1/4	KQ2VD11-35S	1/2		-04S	
	3/8	-36S	12		1/4	KQ2VD12-02S
	1/2	-37S		3/8	-03S	
1/2	3/8	KQ2VD13-36S		1/2	-04S	
1/2	1/2	-37S				

Triple Universal Male Elbow

KQ2VT



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model	
		KQ2VT			KQ2VT	
1/8	10-32UNF	KQ2VT01-32	4	1/8	KQ2VT04-01S	
	1/8	-34S		1/4	-02S	
5/32	10-32UNF	KQ2VT03-32		3/8	-03S	
	1/8	-34S		6	1/8	KQ2VT06-01S
3/16	1/8	KQ2VT05-34S			1/4	-02S
	10-32UNF	KQ2VT07-32			3/8	-03S
1/4	1/8	-34S	8	1/8	KQ2VT08-01S	
	1/4	-35S		1/4	-02S	
	3/8	-36S		3/8	-03S	
	1/4	KQ2VT09-35S		1/2	-04S	
5/16	3/8	-36S		10	1/4	KQ2VT10-02S
	1/2	-37S			3/8	-03S
3/8	1/4	KQ2VT11-35S	1/2		-04S	
	3/8	-36S	12		1/4	KQ2VT12-02S
	1/2	-37S		3/8	-03S	
1/2	3/8	KQ2VT13-36S		1/2	-04S	
1/2	1/2	-37S				

Branch Union Elbow

KQ2LU



<M5, M6>



<R, NPT>

Applicable tube O.D. mm	Port size R	Model
		KQ2LU
4	M5 X 0.8	KQ2LU04-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
6	M5 X 0.8	KQ2LU06-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
	3/8	-03S
8	1/8	KQ2LU08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KQ2LU10-02S
	3/8	-03S
	1/2	-04S
12	1/4	KQ2LU12-02S
	3/8	-03S
	1/2	-04S

Branch Universal Male Elbow

KQ2Z



<M5
10-32UNF>



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2Z			KQ2Z
1/8	10-32UNF	KQ2Z01-32	4	M5 X 0.8	KQ2Z04-M5
	1/8	-34S		1/8	-01S
5/32	10-32UNF	KQ2Z03-32	6	1/8	KQ2Z06-01S
	1/8	-34S		1/4	-02S
3/16	1/8	KQ2Z05-34S		3/8	-03S
1/4	10-32UNF	KQ2Z07-32	8	1/8	KQ2Z08-01S
	1/8	-34S		1/4	-02S
	1/4	-35S		3/8	-03S
5/16	1/8	KQ2Z09-34S	10	1/4	KQ2Z10-02S
	1/4	-35S		3/8	-03S
	3/8	-36S	12	3/8	KQ2Z12-03S
1/4	KQ2Z11-35S	1/2		-04S	
3/8	3/8	-36S			
	3/8	KQ2Z13-36S			
1/2	3/8	-37S			
	1/2	-37S			

Tubing



Female
thread hole

One-touch Fittings
Series **KQ2**

Double Branch Universal Male Elbow

KQ2ZD



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2ZD			KQ2ZD
1/8	1/8	KQ2ZD01-34S	4	1/8	KQ2ZD04-01S
5/32	1/8	KQ2ZD03-34S		1/4	-02S
3/16	1/8	KQ2ZD05-34S		3/8	-03S
1/4	1/8	KQ2ZD07-34S	6	1/8	KQ2ZD06-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
5/16	1/4	KQ2ZD09-35S	8	1/8	KQ2ZD08-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
3/8	1/4	KQ2ZD11-35S	10	1/2	-04S
	3/8	-36S		1/4	KQ2ZD10-02S
	1/2	-37S		3/8	-03S
1/2	3/8	KQ2ZD13-36S	12	1/2	-04S
	1/2	-37S		1/4	KQ2ZD12-02S
				3/8	-03S
				1/2	-04S

Triple Branch Universal Male Elbow

KQ2ZT



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2ZT			KQ2ZT
1/8	1/8	KQ2ZT01-34S	4	1/8	KQ2ZT04-01S
5/32	1/8	KQ2ZT03-34S		1/4	-02S
3/16	1/8	KQ2ZT05-34S		3/8	-03S
1/4	1/8	KQ2ZT07-34S	6	1/8	KQ2ZT06-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
5/16	1/4	KQ2ZT09-35S	8	1/8	KQ2ZT08-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
3/8	1/4	KQ2ZT11-35S	10	1/2	-04S
	3/8	-36S		1/4	KQ2ZT10-02S
	1/2	-37S		3/8	-03S
1/2	3/8	KQ2ZT13-36S	12	1/2	-04S
	1/2	-37S		1/4	KQ2ZT12-02S
				3/8	-03S
				1/2	-04S

Branch Male "Y"

KQ2U



<M5, M6>



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KQ2U			KQ2U (White)
1/8	1/8	KQ2U01-34S	3.2	M5 X 0.8	KQ2U23-M5
	1/4	-35S		1/8	-01S
5/32	1/8	KQ2U03-34S		1/4	-02S
	1/4	-35S		4	M5 X 0.8
3/16	1/8	KQ2U05-34S	M6 X 1		-M6
	1/4	-35S	1/8		-01S
1/4	1/8	KQ2U07-34S	1/4		-02S
	1/4	35S	6	M5 X 0.8	KQ2U06-M5
	3/8	-36S		M6 X 1	-M6
1/8	KQ2U09-34S	1/8		-01S	
5/16	1/4	-35S		1/4	-02S
	3/8	-36S	3/8	-03S	
	1/4	KQ2U11-35S	8	1/8	KQ2U08-01S
3/8	-36S	1/4		-02S	
1/2	-37S	3/8		-03S	
1/2	1/4	KQ2U13-35S	10	1/4	KQ2U10-02S
	3/8	-36S		3/8	-03S
	1/2	-37S	1/2	-04S	
12			16	1/4	KQ2U12-02S
				3/8	-03S
				1/2	-04S
				3/8	KQ2U16-03S
				1/2	-04S

KQ2U Inch size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size R	Model
		KQ2U
3/16	1/8	KQ2U05-01S
	1/4	-02S
1/4	1/8	KQ2U07-01S
	1/4	-02S
	3/8	-03S
5/16	1/8	KQ2U09-01S
	1/4	-02S
	3/8	-03S
3/8	1/4	KQ2U11-02S
	3/8	-03S
	1/2	-04S
1/2	1/4	KQ2U13-02S
	3/8	-03S
	1/2	-04S

Tubing  Female thread hole

One-touch Fittings
Series **KQ2**

Double Male Union "Y"

KQ2UD



<R, NPT>

Applicable tube O.D. mm	Port size R	Model
		KQ2UD
4	1/8	KQ2UD04-01S
	1/4	-02S
6	1/8	KQ2UD06-01S
	1/4	-02S

Delta Male Union

KQ2D



<M5, M6>



<R, NPT>

Applicable tube O.D. mm	Port size R	Model
		KQ2D
4	M5 X 0.8	KQ2D04-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
6	M5 X 0.8	KQ2D06-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
	3/8	-03S
8	1/8	KQ2D08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KQ2D10-02S
	3/8	-03S
	1/2	-04S
12	1/4	KQ2D12-02S
	3/8	-03S
	1/2	-04S

Straight Union

KQ2H



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2H		KQ2H
1/8	KQ2H01-00	3.2	KQ2H23-00
5/32	KQ2H03-00	4	KQ2H04-00
3/16	KQ2H05-00	6	KQ2H06-00
1/4	KQ2H07-00	8	KQ2H08-00
5/16	KQ2H09-00	10	KQ2H10-00
3/8	KQ2H11-00	12	KQ2H12-00
1/2	KQ2H13-00	16	KQ2H16-00

Bulkhead Union

KQ2E



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model	Inch-size Tube/Metric Thread	
	KQ2E		KQ2E	Applicable tube O.D. mm	KQ2E
1/8	KQ2E01-00	3.2	KQ2E23-00	3/16	KQ2E05-00M
5/32	KQ2E03-00	4	KQ2E04-00	1/4	KQ2E07-00M
3/16	KQ2E05-00	6	KQ2E06-00	5/16	KQ2E09-00M
1/4	KQ2E07-00	8	KQ2E08-00	3/8	KQ2E11-00M
5/16	KQ2E09-00	10	KQ2E10-00	1/2	KQ2E13-00M
3/8	KQ2E11-00	12	KQ2E12-00		
1/2	KQ2E13-00	16	KQ2E16-00		

Union Elbow

KQ2L



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2L		KQ2L
1/8	KQ2L01-00	3.2	KQ2L23-00
5/32	KQ2L03-00	4	KQ2L04-00
3/16	KQ2L05-00	6	KQ2L06-00
1/4	KQ2L07-00	8	KQ2L08-00
5/16	KQ2L09-00	10	KQ2L10-00
3/8	KQ2L11-00	12	KQ2L12-00
1/2	KQ2L13-00	16	KQ2L16-00

Bulkhead Union Elbow

KQ2LE



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2LE		KQ2LE
1/8	KQ2LE01-00	4	KQ2LE04-00
5/32	KQ2LE03-00	6	KQ2LE06-00
3/16	KQ2LE05-00	8	KQ2LE08-00
1/4	KQ2LE07-00	10	KQ2LE10-00
5/16	KQ2LE09-00	12	KQ2LE12-00
3/8	KQ2LE11-00		
1/2	KQ2LE13-00		

Union Tee

KQ2T



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2T		KQ2T
1/8	KQ2T01-00	3.2	KQ2T23-00
5/32	KQ2T03-00	4	KQ2T04-00
3/16	KQ2T05-00	6	KQ2T06-00
1/4	KQ2T07-00	8	KQ2T08-00
5/16	KQ2T09-00	10	KQ2T10-00
3/8	KQ2T11-00	12	KQ2T12-00
1/2	KQ2T13-00	16	KQ2T16-00

Union "Y"

KQ2U



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2U		KQ2U
1/8	KQ2U01-00	3.2	KQ2U23-00
5/32	KQ2U03-00	4	KQ2U04-00
3/16	KQ2U05-00	6	KQ2U06-00
1/4	KQ2U07-00	8	KQ2U08-00
5/16	KQ2U09-00	10	KQ2U10-00
3/8	KQ2U11-00	12	KQ2U12-00
		16	KQ2U16-00

Different Dia. Straight

KQ2H



Applicable tube O.D. inch			Model	Applicable tube O.D. mm		Model
(a)	(b)	KQ2H	(a)	(b)	KQ2H	
1/8	5/32	KQ2H01-03	3.2	4	KQ2H23-04	
	1/4	-07	4	6	KQ2H04-06	
5/32	3/16	KQ2H03-05	6	8	KQ2H06-08	
	1/4	-07	8	10	KQ2H08-10	
3/16	1/4	KQ2H05-07	10	12	KQ2H10-12	
1/4	5/16	KQ2H07-09	12	16	KQ2H12-16	
	3/8	-11				
5/16	3/8	KQ2H09-11				
	1/2	-13				
3/8	1/2	KQ2H11-13				

Different Dia. Double Union "Y"

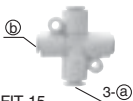
KQ2UD



Applicable tube O.D. mm		Model
(a)	(b)	KQ2UD
4	6	KQ2UD04-06
6	8	KQ2UD06-08

Different Diameter Cross

KQ2TY



Applicable tube O.D. mm		Model
(a)	(b)	KQ2TY
6	8	KQ2TY06-08
8	10	KQ2TY08-10
10	12	KQ2TY10-12

Different Diameter Tee

KQ2T



Applicable tube O.D. inch		Model	Applicable tube O.D. mm		Model
(a)	(b)	KQ2T	(a)	(b)	KQ2T
1/8	5/32	KQ2T01-03	3.2	4	KQ2T23-04
	1/4	-07	4	6	KQ2T04-06
5/32	3/16	KQ2T03-05	6	8	KQ2T06-08
	1/4	-07	8	10	KQ2T08-10
3/16	1/4	KQ2T05-07	10	12	KQ2T10-12
	5/16	KQ2T07-09	12	16	KQ2T12-16
1/4	3/8	-11	6	4	KQ2T06-04
	3/8	KQ2T09-11	8	6	KQ2T08-06
5/16	1/2	-13	10	8	KQ2T10-08
	3/8	KQ2T11-13	12	10	KQ2T12-10

Different Diameter Union "Y"

KQ2U



Applicable tube O.D. inch		Model	Applicable tube O.D. mm		Model
(a)	(b)	KQ2U	(a)	(b)	KQ2U
1/8	5/32	KQ2U01-03	3.2	4	KQ2U23-04
	1/4	-07	4	6	KQ2U04-06
5/32	3/16	KQ2U03-05	6	8	KQ2U06-08
	1/4	-07	8	10	KQ2U08-10
3/16	1/4	KQ2U05-07	10	12	KQ2U10-12
	5/16	KQ2U07-09	12	16	KQ2U12-16
1/4	3/8	-11			
	3/8	KQ2U09-11			
5/16	1/2	-13			
	3/8	KQ2U11-13			

Cross Union

KQ2TW



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2TW		KQ2TW
5/32	KQ2TW03-00	4	KQ2TW04-00
1/4	KQ2TW07-00	6	KQ2TW06-00
5/16	KQ2TW09-00	8	KQ2TW08-00
3/8	KQ2TW11-00	10	KQ2TW10-00
1/2	KQ2TW13-00	12	KQ2TW12-00

Branch Union Elbow **KQ2LU**

Delta Union **KQ2D**



Applicable tube O.D. mm	Model
	KQ2LU
4	KQ2LU04-00
6	KQ2LU06-00
8	KQ2LU08-00
10	KQ2LU10-00
12	KQ2LU12-00



Applicable tube O.D. mm	Model
	KQ2D
4	KQ2D04-00
6	KQ2D06-00
8	KQ2D08-00
10	KQ2D10-00
12	KQ2D12-00

Tubing



One-touch fittings

One-touch Fittings
Series **KQ2**

Plug-in Reducer Elbow

KQ2L



Applicable tube O.D. inch	Applicable Fitting size	Model	Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2L			KQ2L
1/8	1/8	KQ2L01-99	3.2	3.2	KQ2L23-99
5/32	5/32	KQ2L03-99	4	4	KQ2L04-99
3/16	3/16	KQ2L05-99	6	6	KQ2L06-99
1/4	1/4	KQ2L07-99	8	8	KQ2L08-99
5/16	5/16	KQ2L09-99	10	10	KQ2L10-99
3/8	3/8	KQ2L11-99	12	12	KQ2L12-99
1/2	1/2	KQ2L13-99	16	16	KQ2L16-99

Plug-in Reducer

KQ2R



Applicable tube O.D. inch	Applicable Fitting size	Model	Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2R			KQ2R
1/8	5/32	KQ2R01-03	3.2	4	KQ2R23-04
	3/16	-05	4	6	KQ2R04-06
	1/4	-07		8	-08
5/32	3/16	KQ2R03-05		10	-10
3/16	1/4	KQ2R05-07	6	4	KQ2R06-04
	5/16	-09		8	-08
	1/4	5/16		KQ2R07-09	10
1/4	3/8	-11	8	12	-12
	5/16	3/8		KQ2R09-11	10
5/16	1/2	-13	10	12	-12
	3/8	1/2		KQ2R11-13	12
3/8	1/2	KQ2R11-13	12	16	KQ2R10-12
			12	16	KQ2R12-16

Extended Plug-in Elbow

KQ2W



Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2W
3.2	3.2	KQ2W23-99
4	4	KQ2W04-99
6	6	KQ2W06-99
8	8	KQ2W08-99
10	10	KQ2W10-99
12	12	KQ2W12-99

Tubing



One-touch fittings

One-touch Fittings
Series **KQ2**

Plug-in Reducer Elbow

KQ2L



Applicable tube O.D. inch	Applicable Fitting size	Model	Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2R			KQ2
1/8	5/32	KQ2L01-03	3.2	4	KQ2L23-04
	3/16	-05		6	KQ2L04-06
5/32	3/16	KQ2L03-05	4	8	-08
	1/4	-07		8	KQ2L06-08
3/16	1/4	KQ2L05-07	6	10	-10
	5/16	-09		10	KQ2L08-10
1/4	5/16	KQ2L07-09	8	12	-12
	3/8	-11		12	KQ2L10-12
5/16	3/8	KQ2L09-11	10	16	KQ2L12-16
	1/2	-13		16	
3/8	1/2	KQ2L11-13	12		

Plug-in "Y"

KQ2U



Applicable tube O.D. inch	Applicable Fitting size	Model	Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2U			KQ2U
1/8	1/8	KQ2U01-99	3.2	3.2	KQ2U23-99
5/32	5/32	KQ2U03-99	4	4	KQ2U04-99
3/16	3/16	KQ2U05-99	6	6	KQ2U06-99
1/4	1/4	KQ2U07-99	8	8	KQ2U08-99
5/16	5/16	KQ2U09-99	10	10	KQ2U10-99
			12	12	KQ2U12-99
			16	16	KQ2U16-99

Different Dia. Plug-in "Y"

KQ2X



Applicable tube O.D. inch	Applicable Fitting size	Model	Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2X			KQ2X
1/8	5/32	KQ2X01-03	4	6	KQ2X04-06
5/32	3/16	KQ2X03-05	6	8	KQ2X06-08
3/16	1/4	KQ2X05-07	8	10	KQ2X08-10
1/4	5/16	KQ2X07-09	10	12	KQ2X10-12

Double Plug-in "Y"

KQ2XD



Applicable tube O.D. mm	Applicable Fitting size	Model
		KQ2XD
4	6	KQ2XD04-06
6	8	KQ2XD06-08

Tubing



Male
thread

One-touch Fittings
Series **KQ2**

Female Connector

KQ2F



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size Rc	Model
		KQ2F			KQ2F
1/8	1/8	KQ2F01-34	4	1/8	KQ2F04-01
	1/4	-35		1/4	-02
5/32	1/8	KQ2F03-34	6	1/8	KQ2F06-01
	1/4	-35		1/4	-02
1/4	1/8	KQ2F07-34	8	3/8	-03
	1/4	-35		1/8	KQ2F08-01
	3/8	-36		1/4	-02
5/16	1/8	KQ2F09-34	10	3/8	-03
	1/4	-35		1/4	KQ2F10-02
	3/8	-36		3/8	-03
3/8	1/4	KQ2F11-35	12	1/4	KQ2F12-02
	3/8	-36		1/2	-04
	1/2	-37		3/8	KQ2F16-03
1/2	3/8	KQ2F13-36	16	1/2	-04
	1/2	-37			

Bulkhead Female Connector

KQ2E



<R, NPT>

Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size Rc	Model
		KQ2E			KQ2E
1/8	1/4	KQ2E01-35	3.2	1/4	KQ2E23-02
5/32	1/4	KQ2E03-35	4	1/8	KQ2E04-01
3/16	1/8	KQ2E05-34		1/4	-02
1/4	1/4	KQ2E07-35	6	1/8	KQ2E06-01
5/16	3/8	KQ2E09-36		1/4	-02
3/8	3/8	KQ2E11-36	8	3/8	-03
	3/8	KQ2E13-36		1/8	KQ2E08-01
1/2	1/2	-37	10	1/4	-02
				3/8	-03
1/2			12	3/8	KQ2E12-03
				1/2	-04
1/2			16	3/8	KQ2E16-03
				1/2	-04

KQ2E Inch size Tube/Metric Thread (formerly IQ)

Applicable tube O.D. inch	Port size Rc	Model
		KQ2E
3/16	1/8	KQ2E05-01
1/4	1/4	KQ2E07-02
5/16	3/8	KQ2E09-03
3/8	3/8	KQ2E11-03
1/2	3/8	KQ2E13-03
	1/2	KQ2E13-04

Tubing





Male
thread

One-touch Fittings
Series **KQ2**


Female Elbow

KQ2LF

	Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size Rc	Model	
			KQ2LF			KQ2LF	
 <M5, M6>	1/8	1/8	KQ2LF01-34	4	M5 X 0.8	KQ2LF04-M5	
		1/4	-35		M6 X 1	-M6	
	5/32	1/8	KQ2LF03-34		1/8	-01	
		1/4	-35		1/4	-02	
	1/4	1/8	KQ2LF07-34		6	M5 X 0.8	KQ2LF06-M5
		1/4	-35			M6 X 1	-M6
3/8		-36	1/8	-01			
3/8	1/4	KQ2LF11-35	1/4	-02			
	3/8	-36	3/8	-03			
	1/2	-37	1/8	KQ2LF08-01			
 <Rc, NPT>	1/2	3/8	KQ2LF13-36	8	1/4	-02	
		1/2	-37		3/8	-03	
	10	1/4	KQ2LF10-02	1/4	KQ2LF10-02		
				3/8	-03		
				1/2	-04		
	12	1/4	KQ2LF12-02	1/4	KQ2LF12-02		
3/8				-03			
			1/2	-04			

Universal Female Elbow

KQ2VF

	Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R Rc	Model	
			KQ2VF			KQ2VF	
 <M5, 10-32UNF>	1/8	10-32 UNF	KQ2VF01-32	4	M5 X 0.8	KQ2VF04-M5	
		1/8	-34S		1/8	-01S	
	5/32	10-32 UNF	KQ2VF03-32		6	M5 X 0.8	KQ2VF06-M5
		1/8	-34S			1/8	-01S
3/16	1/8	KQ2VF05-34S	1/4	-02S			
	1/4	10-32 UNF	KQ2VF07-32	8		1/8	KQ2VF08-01S
1/8		-34S	1/4		-02S		
1/4		-35S	3/8		-03S		
5/16	1/8	KQ2VF09-34S	10		1/4	KQ2VF10-02S	
	1/4	-35S		3/8	-03S		
	3/8	-36S		12	3/8	KQ2VF12-03S	
3/8	1/4	KQ2VF11-35S	1/2		-04S		
		3/8	-36S				
1/2	3/8	KQ2VF13-36S					
	1/2	-37S					

Tubing



Male
thread

One-touch Fittings
Series **KQ2**

Branch Universal Female Elbow

KQ2ZF



<M5>





<R, Rc>


Applicable tube O.D. mm	Thread R Rc	Model
		KQ2ZF
4	M5 X 0.8	KQ2ZF04-M5
	1/8	-01S
6	1/8	KQ2ZF06-01S
	1/4	-02S
8	1/8	KQ2ZF08-01S
	1/4	-02S
10	1/4	KQ2ZF10-02S
	3/8	-03S
12	3/8	KQ2ZF12-03S
	1/2	-04S


Accessories

One-touch Fittings Series **KQ2**

Plug			KQ2P	
	Applicable fitting O.D.	Model	Applicable fitting size mm	Model
	inch	KQ2P		KQ2P
	1/8	KQ2P-01	3.2	KQ2P-23
	5/32	KQ2P-03	4	KQ2P-04
	3/16	KQ2P-05	6	KQ2P-06
	1/4	KQ2P-07	8	KQ2P-08
	5/16	KQ2P-09	10	KQ2P-10
	3/8	KQ2P-11	12	KQ2P-12
	1/2	KQ2P-13	16	KQ2P-16

Nipple			KQ2N	
	Applicable fitting O.D.	Model	Applicable fitting size mm	Model
	inch	KQ2N		KQ2N
	1/8	KQ2N01-99	4	KQ2N04-99
	3/16	KQ2N05-99	6	KQ2N06-99
	1/4	KQ2N07-99	8	KQ2N08-99
	3/8	KQ2N11-99	10	KQ2N10-99
	1/2	KQ2N13-99	12	KQ2N12-99
			16	KQ2N16-99

Different Dia. Nipple				KQ2N		
	Applicable fitting size inch		Model	Applicable fitting size mm		Model
	(a)	(b)	KQ2N	(a)	(b)	KQ2N
	1/8	5/32	KQ2N01-03	4	6	KQ2N04-06
		3/16	-05	6	8	KQ2N06-08
5/32	3/16	KQ2N03-05	8	10	KQ2N08-10	
	1/4	-07	10	12	KQ2N10-12	
3/16	1/4	KQ2N05-07	12	16	KQ2N12-16	
	5/16	-09				
1/4	5/16	KQ2N07-09				
	3/8	-11				
5/16	3/8	KQ2N09-11				
	1/2	-13				
3/8	1/2	KQ2N11-13				

Male Adapter		KQ2N		
	Applicable fitting size mm	Port size R	Model	
			KQ2N	
	4	M5 X 0.8	KQ2N04-M5	
		1/8	-01S	
6	6	M5 X 0.8	KQ2N06-M5	
		1/8	-01S	
		1/4	-02S	
8	8	1/4	KQ2N08-02S	
		3/8	-03S	
10	10	3/8	KQ2N10-03S	

Accessories

One-touch Fittings Series *KQ2*

Tube Cap

KQ2C



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQ2C		KQ2C
5/32	KQ2C03-00	4	KQ2C04-00
1/4	KQ2C07-00	6	KQ2C06-00
5/16	KQ2C09-00	8	KQ2C08-00
3/8	KQ2C11-00	10	KQ2C10-00
		12	KQ2C12-00
		16	KQ2C16-00

Color Cap

KQ2C



Applicable tube O.D. mm	Model	Application
3.2	KQ2C-01□	
	KQ2C-01A-□	KQH, KQ2H23-M5 KQS, KQ2S01-32
	KQ2C-01B-□	KQL, KQ2L23-M5 KQT, KQ2T23-M5 KQY, KQ2Y23-M5
4	KQ2C-04□	
	KQ2C-04A-□	KQH, KQ2H04-M5, M6 KQS, KQ2S04-M5, M6
	KQ2C-04B-□	KQL, KQ2L04-M5, M6 KQT, KQ2T04-M5, M6 KQY, KQ2Y04-M5, M6
6	KQ2C-06□	
	KQ2C-06A-□	KQH, KQ2H06-M5, M6 KQS, KQ2S06-M5, M6
	KQ2C-06B-□	KQL, KQ2L06-M5, M6 KQT, KQ2T06-M5, M6 KQY, KQ2Y06-M5, M6
8	KQ2C-08□	
10	KQ2C-10□	
12	KQ2C-12□	
16	KQ2C-16□	

B (Black), R (Red), YR (Orange), BR (Brown), Y (Yellow), G (Green), CB (Sky blue), GR (Gray), W (White), BU (Blue)



Made to Order

Electroless Nickel Plated on Brass Parts **X2**

(Example) KQ2H06-02S-X2

Electroless Nickel Plating on Brass Parts (X2)
Seal, O-ring: Fluoro-resin Rubber **X47**

(Example) KQ2H06-02S-X47

No Lubrication **X57**

(Example) KQ2H06-02S-X57

Lubricant: Vaseline **X12**

(Example) KQ2H06-02S-X12

Seal: Fluoro-resin Coating
Oil Free: No Lubrication **X17**

(Example) KQ2H06-02S-X17

FIT-23

Electroless Nickel Plating on Brass Parts (X2)
Seal: Fluoro-resin Coating
Oil Free: No Lubrication (X17) **X29**

(Example) KQ2H06-02S-X29

Electroless Nickel Plating on Brass Parts (X2)
Lubricant: Vaseline (X12) **X16**

(Example) KQ2H06-02S-X16

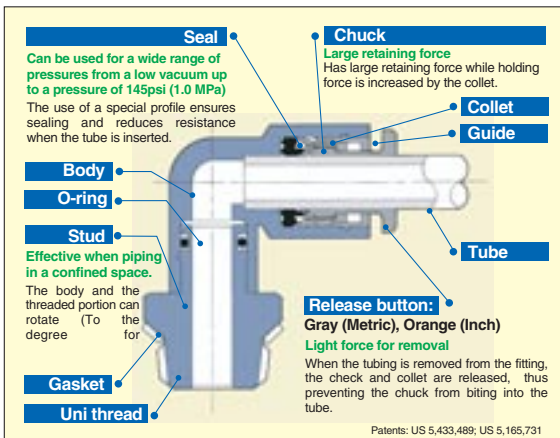
Clean Series **10-**

Electroless nickel plating on brass parts (X2)
Lubricant: Fluoro-resin grease
Double packaging
Resin body release button: White

(Example) 10-KQH06-02S

Note) Only available for a part of the models
Contact SMC for more details.





A ridge shape has been created as a Uni thread for common applications for Rc, G, NPT and NPTF.

The male thread for piping drastically cuts piping man-hours.

Principal Element Material

Body	C3604BD, PBT
Stud	C3604BD (Thread portion)
Chuck	Stainless Steel (SUS304)
Guide	Stainless Steel (SUS304) C3604 BD, POM
Collet, Release button	POM
Seal, O-ring	NBR
Gasket	Stainless Steel (SUS304)



Applicable Tube

Tube material	Nylon, Soft nylon, Polyurethane	
Tube O.D.	Inch	ø1/8, ø5/32, ø3/16, ø1/4, ø5/16, ø3/8, ø1/2
	Metric	ø4, ø6, ø8, ø10, ø12, ø16

Specifications

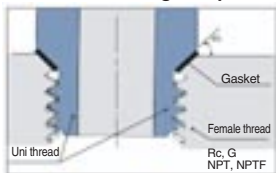
Operating fluid	Air, Water ^{Note 1)}
Max. operating pressure	145psi (1.0MPa)
Operating vacuum pressure	-15psi (-100kPa)
Proof pressure	435psi (3.0MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C), Water: 32 to 105°F (0 to 40°C) (With no freezing)

Note 1) Applicable to general industrial water. Consult with SMC if using for other kinds of fluid. Also, the surge pressure must be under the maximum operating pressure.



New-stand male thread for piping that reduces the screw-in time by 1/3

Uni thread ridge shape



A gasket made of a stainless sheet covered with laminated NBR on both sides is seated on the chamfer of a female thread for a perfect sealing construction irrespective of the difference in thread diameters due to the difference in the types of female threads, variation in tolerance, or

difference in the size of chamfer. (It is applicable to any female thread with an ordinary chamfer.)

How to Order

KQ 2 H 06 U01

One-touch fittings

Product's color

Symbol	Body	Release button
2	White	Light gray
Nil	Black	Blue

Model

H	Male connector
S*	Hex. socket head male connector
L	Male elbow
K*	45° male elbow
V*	Universal male elbow
W	Extended male elbow
T	Male branch tee
Y	Male run tee
U	Branch "Y"

* Metric only

Applicable tubing O.D.
Inch

01	1/8
03	5/32
05	3/16
07	1/4
09	5/16
11	3/8
13	1/2

Metric

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
16	ø16

Port size

U01	Uni 1/8
U02	Uni 1/4
U03	Uni 3/8
U04	Uni 1/2

How to Order Gasket

KQG U01

Gasket for Uni One-touch fittings

Applicable port size

U01	Uni 1/8
U02	Uni 1/4
U03	Uni 3/8
U04	Uni 1/2

Uni One-touch Fittings

One-touch Fittings Series *KQ2*

Male Connector

KQ2H



Applicable tube O.D. inch	Connecting thread Uni thread	Model	Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2H			KQ2H
1/8	1/8	KQ2H01-U01	4	1/8	KQ2H04-U01
	1/4	-U02		1/4	-U02
5/32	1/8	KQ2H03-U01	6	1/8	KQ2H06-U01
	1/4	-U02		1/4	-U2
3/16	1/8	KQ2H05-U01	8	3/8	-U3
	1/4	-U02		1/8	KQ2H08-U01
1/4	1/8	KQ2H07-U01	10	1/4	-U2
	1/4	-U02		3/8	-U3
	3/8	-U03		1/8	KQ2H10-U01
5/16	1/8	KQ2H09-U01	12	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/2	-U04
3/8	1/4	KQ2H11-U02	16	1/4	KQ2H12-U02
	3/8	-U03		3/8	-U03
	1/2	-U04		1/2	-U04
1/2	1/4	KQ2H13-U02	16	3/8	KQ2H16-U03
	3/8	-U03		1/2	-U04
	1/2	-U04			

* Reference dimensions after Uni thread installation

Male Elbow

KQ2L



Applicable tube O.D. inch	Connecting thread Uni thread	Model	Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2L			KQ2L
1/8	1/8	KQ2L01-U01	4	1/8	KQ2L04-U01
	1/4	-U02		1/4	-U02
5/32	1/8	KQ2L03-U01	6	1/8	KQ2L06-U01
	1/4	-U02		1/4	-U02
3/16	1/8	KQ2L05-U01	8	3/8	-U03
	1/4	-U02		1/8	KQ2L08-U01
1/4	1/8	KQ2L07-U01	10	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/8	KQ2L10-U01
5/16	1/8	KQ2L09-U01	12	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/2	-U04
3/8	1/4	KQ2L11-U02	16	1/4	KQ2L12-U02
	3/8	-U03		3/8	-U03
	1/2	-U04		1/2	-U04
1/2	1/4	KQ2L13-U02	16	3/8	KQ2L16-U03
	3/8	-U03		1/2	-U04
	1/2	-U04			

* Reference dimensions after Uni thread installation

Uni One-touch Fittings

One-touch Fittings Series *KQ2*

Male Branch Tee

KQ2T

Applicable tube O.D. inch	Connecting thread Uni thread	Model	Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2T			KQ2T
1/8	1/8	KQ2T01-U01	4	1/8	KQ2T04-U01
	1/4	-U02		1/4	-U02
5/32	1/8	KQ2T03-U01	6	1/8	KQ2T06-U01
	1/4	-U02		1/4	-U2
3/16	1/8	KQ2T05-U01	8	3/8	-U3
	1/4	-U02		1/8	KQ2T08-U01
1/4	1/8	KQ2T07-U01	10	1/4	-U2
	1/4	-U02		3/8	-U3
	3/8	-U03		1/8	KQ2T10-U01
5/16	1/8	KQ2T09-U01	12	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/2	-U04
3/8	1/4	KQ2T11-U02	16	1/4	KQ2T12-U02
	3/8	-U03		3/8	-U03
	1/2	-U04		1/2	-U04
1/2	1/4	KQ2T13-U02	16	3/8	KQ2T16-U03
	3/8	-U03		1/2	-U04
	1/2	-U04			

* Reference dimensions after Uni thread installation

Male Run Tee

KQ2Y

Applicable tube O.D. inch	Connecting thread Uni thread	Model	Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2Y			KQ2Y
1/8	1/8	KQ2Y01-U01	4	1/8	KQ2Y04-U01
	1/4	-U02		1/4	-U02
5/32	1/8	KQ2Y03-U01	6	1/8	KQ2Y06-U01
	1/4	-U02		1/4	-U02
3/16	1/8	KQ2Y05-U01	8	3/8	-U03
	1/4	-U02		1/8	KQ2Y08-U01
1/4	1/8	KQ2Y07-U01	10	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/8	KQ2Y10-U01
5/16	1/8	KQ2Y09-U01	12	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/2	-U04
3/8	1/4	KQ2Y11-U02	16	1/4	KQ2Y12-U02
	3/8	-U03		3/8	-U03
	1/2	-U04		1/2	-U04
1/2	1/4	KQ2Y13-U02	16	3/8	KQ2Y16-U03
	3/8	-U03		1/2	-U04
	1/2	-U04			

* Reference dimensions after Uni thread installation

Uni One-touch Fittings

One-touch Fittings Series *KQ2*

Branch "Y"

KQ2U



Applicable tube O.D. inch	Connecting thread Uni thread	Model	Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2U			KQ2U
1/8	1/8	KQ2U01-U01	4	1/8	KQ2U04-U01
	1/4	-U02		1/4	-U02
5/32	1/8	KQ2U03-U01	6	1/8	KQ2U06-U01
	1/4	-U02		1/4	-U2
3/16	1/8	KQ2U05-U01	8	3/8	-U3
	1/4	-U02		1/8	KQ2U08-U01
1/4	1/8	KQ2U07-U01	10	1/4	-U2
	1/4	-U02		3/8	-U3
	3/8	-U03		1/4	KQ2U10-U02
5/16	1/8	KQ2U09-U01	12	3/8	-U03
	1/4	-U02		1/2	-U04
	3/8	-U03		1/4	KQ2U12-U02
3/8	1/4	KQ2U11-U02	12	3/8	-U04
	3/8	-U03		1/2	-U03
	1/2	-U04			
1/2	1/4	KQ2U13-U02			
	3/8	-U03			
	1/2	-U04			

* Reference dimensions after Uni thread installation

Extended Male Elbow

KQ2W



Applicable tube O.D. inch	Connecting thread Uni thread	Model	Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2W			KQ2W
1/8	1/8	KQ2W01-U01	4	1/8	KQ2W04-U01
	1/4	-U02		1/4	-U02
5/32	1/8	KQ2W03-U01	6	1/8	KQ2W06-U01
	1/4	-U02		1/4	-U02
3/16	1/8	KQ2W05-U01	8	3/8	-U03
	1/4	-U02		1/8	KQ2W08-U01
1/4	1/8	KQ2W07-U01	10	1/4	-U02
	1/4	-U02		3/8	-U03
	3/8	-U03		1/4	KQ2W10-U02
5/16	1/8	KQ2W09-U01	12	3/8	-U03
	1/4	-U02		1/2	-U04
	3/8	-U03		1/4	KQ2W12-U02
3/8	1/4	KQ2W11-U02	12	3/8	-U03
	3/8	-U03		1/2	-U04
	1/2	-U04			
1/2	1/4	KQ2W13-U02			
	3/8	-U03			
	1/2	-U04			

* Reference dimensions after Uni thread installation

Uni One-touch Fittings

One-touch Fittings Series *KQ2*

Hexagon Socket Head Male Connector

KQ2S



Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2S
4	1/8	KQ2S04-U01
	1/4	-U02
6	1/8	KQ2S06-U01
	1/4	-U02
8	1/8	KQ2S08-U01
	1/4	-U02
	3/8	-U03
10	1/8	KQ2S10-U01
	1/4	-U02
	3/8	-U03
	1/2	-U04
12	1/4	KQ2S12-U02
	3/8	-U03
	1/2	-U04

45° Male Elbow

KQ2K



Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model
		KQ2K
4	1/8	KQ2K04-U01
	1/4	-U02
6	1/8	KQ2K06-U01
	1/4	-U02
	3/8	-U03
8	1/8	KQ2K08-U01
	1/4	-U02
	3/8	-U03
10	1/8	KQ2K10-U01
	1/4	-U02
	3/8	-U03
	1/2	-U04
12	1/4	KQ2K12-U02
	3/8	-U03
	1/2	-U04

Universal Male Elbow

KQ2V

Gasket

KQ2G



Applicable tube O.D. mm	Connecting thread Uni On-touch fittings	Model	Connecting thread Uni On-touch fittings	Model
		KQ2V		KQ2G
4	1/8	KQ2V04-U01	1/8	KQG-U01
	1/4	-U02	1/4	KQG-U02
6	1/8	KQ2V06-U01	3/8	KQG-U03
	1/4	-U02	1/2	KQG-U04
	3/8	-U03		
8	1/8	KQ2V08-U01		
	1/4	-U02		
10	3/8	-U03		
	1/4	KQ2V10-U02		
	3/8	-U03		
12	3/8	KQ2V12-U03		
	1/2	-U04		

* Reference dimensions after Uni thread installation

One-touch Mini

Series KJ

Accepts nylon, soft nylon, polyurethane, soft polyurethane, hard polyurethane, polyolefin, and Teflon® tubing.

Has large retaining force.

Guide 1
Guide 2
Chuck

Release button
(Inch-Orange, Metric-Light gray)

Low disconnecting force.

When the tubing is removed from the fitting, the chuck and collet are released, thus preventing the chuck from

biting into the tube. The unique shape allows easy tube release.

Seal

Can be used for a wide range of pressure from a low vacuum up to a pressure of 145psi (1.0MPa).

The use of a special profile ensures positive sealing and reduced resistance when the tube is being inserted.

Gasket

Tube

Body (White)

O-ring

Stud

Possible to insert tube in narrower space

- The body and threaded portion can turn independently.
- Stud has electroless nickel plating.
- Standard pre-applied thread sealant. (Except 10-32UNF, M3, M5)

PAT. US 5,722,696

Teflon® is a registered trademark of DuPont.

- Optimum piping in less space with 20% miniaturization of the outside diameter
- Standard with thread sealant
- Can be used in applications where copper-free material is required.
- Possible to use in vacuum up to -1.3kPa (10 Torr)

Principal Element Material

Body	SUS303, C3604BD, PBT
Stud	C3604BD (Thread portion)
Chuck, Guide2	Stainless Steel (SUS304)
Gasket	Stainless steel (SUS304), NBR
Release button, Guide1	POM
Seal, O-ring	NBR

Applicable Tube

Tube material		Nylon, Soft nylon, Polyurethane
Tube O.D.	Inch	ø1/8, ø5/32, ø1/4,
	Metric	ø3.2, ø4, ø6



Specifications

Operating fluid		Air, Water ^{Note 1)}	
Max. operating pressure		145psi (1.0MPa)	
Operating vacuum pressure		-15psi (-0.1MPa)	
Proof pressure		435psi (3.0MPa)	
Ambient and fluid temperature		23° to 140°F (-5° to 60°C), Water: 32° to 105°F (0° to 40°C) (With no freezing)	
Thread	Inch	Mounting taper	ANSI/ASME B.20.1-1983, R1992 (NPT - Male and male thread) ANSI/ASME B.20.1-1983, R1992 (NPT - Male and female thread)
		Mounting parallel	JIS B 0208 - 1973, Class 2A (UNF- fine male thread), (ISO263) JIS B 0208 - 1973, Class 2B (UNF- fine female thread), (ISO263)
		Nut parallel	JIS B 0208 - 1973, Class 2B (UNF- fine female thread), (ISO263)
	Metric	Mounting taper	JIS B 0203 - 1982, (R - Taper pipe thread)
		Mounting parallel	JIS B 0205 - 1997, (M - Metric coarse thread)
		Nut parallel	JIS B 0207 - 1982, (M - Metric fine female thread)
Sealant (Thread portion)		Inch	With sealant or none
		Metric	With sealant or none

Note 1) Applicable to general industrial water. Consult SMC if using for other kinds of fluid. Surge pressure must be under the maximum operating pressure.



Male Connector

KJH

 <M3, M5, 10-32UNF>	Applicable tube O.D.	Port size NPT	Model	 <R1/8, NPT>	Applicable tube O.D.	Port size R	Model
	Inch				mm		
1/8	10-32UNF	1/16	KJH01-32	2	3.2	M3 X 0.5	KJH02-M3
		1/8	-33S			M5 X 0.8	-M5
		1/8	-34S			M3 X 0.5	KJH23-M3
5/32	10-32UNF	1/16	KJH03-32	4	6	M5 X 0.8	-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			M3 X 0.5	KJH04-M3
1/4	10-32UNF	1/16	KJH07-32	6	6	M5 X 0.8	-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			M5 X 0.8	KJH06-M5
						1/8	-01S



Hexagon Socket Head Male Connector

KJS

 <M3, M5, 10-32UNF>	Applicable tube O.D.	Port size NPT	Model	 <R1/8, NPT>	Applicable tube O.D.	Port size R	Model
	Inch				mm		
1/8	10-32UNF	1/16	KJS01-32	2	3.2	M3 X 0.5	KJS02-M3
		1/8	-33S			M3 X 0.5	KJS23-M3
		1/8	-34S			M5 X 0.8	-M5
5/32	10-32UNF	1/16	KJS03-32	4	6	M3 X 0.5	KJS04-M3
		1/8	-33S			M5 X 0.8	-M5
		1/8	-34S			1/8	-01S
1/4	10-32UNF	1/16	KJS07-32	6	6	M5 X 0.8	KJS06-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			1/8	-01S



Male Elbow

KJL

 <M3, M5, 10-32UNF>	Applicable tube O.D.	Port size NPT	Model	 <R1/8, NPT>	Applicable tube O.D.	Port size R	Model
	Inch				mm		
1/8	10-32UNF	1/16	KJL01-32	2	3.2	M3 X 0.5	KJL02-M3
		1/8	-33S			M5 X 0.8	-M5
		1/8	-34S			M3 X 0.5	KJL23-M3
5/32	10-32UNF	1/16	KJL03-32	4	6	M5 X 0.8	-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			M3 X 0.5	KJL04-M3
1/4	10-32UNF	1/16	KJL07-32	6	6	M5 X 0.8	-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			M5 X 0.8	KJL06-M5
						1/8	-01S

Extended Male Elbow

KJW

 <M3, M5>	Applicable tube O.D.	Port size NPT	Model	 <R1/8>	Applicable tube O.D.	Port size R	Model
	Inch				mm		
1/8	10-32UNF	1/16	KJW01-32	2	3.2	M3 X 0.5	KJW02-M3
		1/8	-33S			M5 X 0.8	-M5
		1/8	-34S			M3 X 0.5	KJW23-M3
5/32	10-32UNF	1/16	KJW03-32	4	6	M5 X 0.8	-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			M3 X 0.5	KJW04-M3
1/4	10-32UNF	1/16	KJW07-32	6	6	M5 X 0.8	-M5
		1/8	-33S			1/8	-01S
		1/8	-34S			M5 X 0.8	KJW06-M5
						1/8	-01S

Tubing




Female
thread hole

Miniature One-touch
Series *KJ*

Male Branch Tee

KJT


Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
5/32	10-32UNF	KJT03-32 1/16 -33S 1/8 -34S	3.2	M3 X 0.5 KJT23-M3 M5 X 0.8 -M5 1/8 -01S	
				1/4	10-32UNF KJT07-32 1/16 -33S 1/8 -34S
1/4	10-32UNF	KJT07-32 1/16 -33S 1/8 -34S	6	M5 X 0.8 KJT06-M5 1/8 -01S	

<M3, M5, 10-32UNF>

<R1/8, NPT>

Male Run Tee

KJY


Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
5/32	10-32UNF	KJY03-32 1/16 -33S 1/8 -34S	3.2	M3 X 0.5 KJY23-M3 M5 X 0.8 -M5 1/8 -01S	
				1/4	10-32UNF KJY07-32 1/16 -33S 1/8 -34S
1/4	10-32UNF	KJY07-32 1/16 -33S 1/8 -34S	6	M5 X 0.8 KJY06-M5 1/8 -01S	

<M3, M5, 10-32UNF>

<R1/8, NPT>

Branch "Y"

KJU

Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
5/32	10-32UNF	KJU03-32 1/16 -33S 1/8 -34S	4	M5 X 0.8 KJU04-M5 1/8 -01S	
				1/4	10-32UNF KJU07-32 1/16 -33S 1/8 -34S
1/4	10-32UNF	KJU07-32 1/16 -33S 1/8 -34S			

<M5, 10-32UNF>

<R1/8, NPT>

Straight Union

KJH



Applicable tube O.D. Inch	Model	Applicable tube O.D. mm	Model
1/8	KJH01-00	2	KJH02-00
5/32	KJH03-00	3.2	KJH23-00
1/4	KJH07-00	4	KJH04-00
		6	KJH06-00

Bulkhead Union

KJE



Applicable tube O.D. Inch	Model	Applicable tube O.D. mm	Model
1/8	KJE01-00	2	KJE02-00
5/32	KJE03-00	3.2	KJE23-00
1/4	KJE07-00	4	KJE04-00
		6	KJE06-00

Union Elbow

KJL



Applicable tube O.D. Inch	Model	Applicable tube O.D. mm	Model
1/8	KJL01-00	3.2	KJL23-00
5/32	KJL03-00	4	KJL04-00
1/4	KJL07-00	6	KJL06-00

Union Tee

KJT



Applicable tube O.D. Inch	Model	Applicable tube O.D. mm	Model
1/8	KJT01-00	2	KJT02-00
5/32	KJT03-00	3.2	KJT23-00
1/4	KJT07-00	4	KJT04-00
		6	KJT06-00

Tubing  Tubing

Miniature One-touch
Series *KJ*

Union "Y"

KJU



Applicable tube O.D. Inch		Model	Applicable tube O.D. mm		Model
(a)	(b)		(a)	(b)	
1/8	5/32	KJU01-00	2	3.2	KJU02-00
5/32	1/4	KJU03-00	3.2	4	KJU23-00
1/4		KJU07-00	4	6	KJU04-00
			6		KJU06-00

Different Dia. Straight

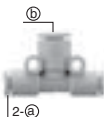
KJH



Applicable tube O.D. Inch			Model	Applicable tube O.D. mm		Model
(a)	(b)	(a)		(b)		
1/8	5/32	KJH01-03	2	3.2	KJH02-23	
	1/4	-07		4	-04	
5/32	1/4	KJH03-07	3.2	4	KJH23-04	
				6	-06	
			4	6	KJH04-06	

Different Dia. Tee

KJT



Applicable tube O.D. Inch			Model	Applicable tube O.D. mm		Model
(a)	(b)	(a)		(b)		
1/8	5/32	KJT01-03	3.2	4	KJT23-04	
5/32	1/4	KJT03-07	4	6	KJT04-06	

Different Dia. Union "Y"

KJU



Applicable tube O.D. Inch			Model	Applicable tube O.D. mm		Model
(a)	(b)	(a)		(b)		
1/8	5/32	KJU01-03	2	3.2	KJU23-23	
5/32	1/4	KJU03-07		4	-04	
			3.2	4	KJU23-04	
			4	6	KJU04-06	

Tubing



One-touch fittings

Miniature One-touch
Series *KJ*

Plug-in Elbow

KJL



Applicable tube O.D. Inch	Applicable fitting size inch	Model	Applicable tube O.D. mm	Applicable fitting size mm	Model
1/8	1/8	KJL01-99	3.2	3.2	KJL23-99
5/32	5/32	KJL03-99	4	4	KJL04-99
1/4	1/4	KJL07-99	6	6	KJL06-99

Plug-in Reducer

KJR



Applicable tube O.D. Inch	Applicable fitting size inch	Model	Applicable tube O.D. mm	Applicable fitting size mm	Model
1/8	5/32	KJR01-03	3.2	4	KJR02-04
	1/4	-07		4	KJR23-04
5/32	1/4	KJR03-07	4	6	-06
				6	KJR04-06

Reducer Elbow

KJL



Applicable tube O.D. Inch	Applicable fitting size inch	Model	Applicable tube O.D. mm	Applicable fitting size mm	Model
1/8	5/32	KJL01-03	3.2	4	KJL23-04
	1/4	-07		6	-06
5/32	1/4	KJL03-07	4	6	KJL04-06

Plug-in "Y"

KJU



Applicable tube O.D. Inch	Applicable fitting size inch	Model	Applicable tube O.D. mm	Applicable fitting size mm	Model
1/8	1/8	KJU01-99	3.2	3.2	KJU23-99
5/32	5/32	KJU03-99	4	4	KJU04-99
1/4	1/4	KJU07-99	6	6	KJU06-99

Different Dia. Union Plug-in "Y"

KJX



Applicable tube O.D. Inch	Applicable fitting size inch	Model	Applicable tube O.D. mm	Applicable fitting size mm	Model
1/8	5/32	KJX01-03	3.2	4	KJX23-04
5/32	1/4	KJX03-07	4	6	KJX04-06

Tubing



Male
thread

Miniature One-touch
Series *KJ*

Female Connector

KJF



Applicable tube O.D. Inch	Port size	Model
1/8	10-32UNF	KJF01-32
5/32	10-32UNF	KJF03-32
1/4	10-32UNF	KJF07-32

Applicable tube O.D. mm	Port size	Model
3.2	M3 X 0.5	KJF23-M3
	M5 X 0.8	-M5
4	M3 X 0.5	KJF04-M3
	M5 X 0.8	-M5
6	M5 X 0.8	KJF06-M5



Made to Order

Seal, O-ring: Fluororesin Coating Oil Free: No Lubrication ^{Note)} **X17**

(Example) KJH06-01S-X17

Lubricant: Vaseline **X12**

(Example) KJH06-01S-X12

No Lubrication **X57**

(Example) KJH06-01S-X57

Clean Series ^{Note)} **10-**

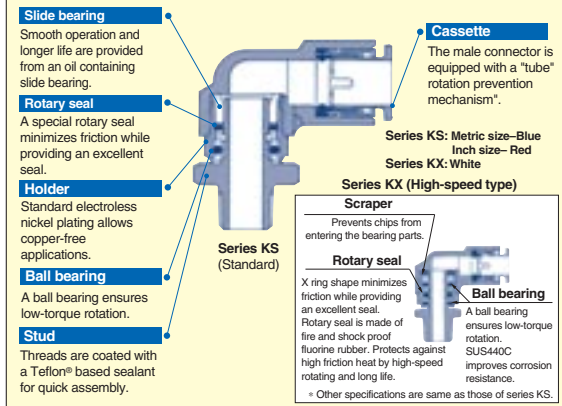
Lubricant: Fluororesin grease
Double packaging

(Example) **10-KJH06-01S**

Note) Not including inch sizes

Rotary One-touch Fittings

Series KS/KX



Specifications

Operating fluid	Air
Max. operating pressure	145psi (1.0MPa)
Operating vacuum pressure	-15psi (-0.1MPa)
Proof pressure	435psi (3.0MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Thread	JIS B0203 (Taper pipe thread) JIS B0209, Class 2 (Metric coarse thread)

Applicable Tube

Tube material ^{Note1)}	Nylon, Soft nylon, Polyurethane
Tube O.D.	ø4, ø6, ø8, ø10, ø12

Note1) Take precautions regarding the maximum operating pressure with soft nylon and polyurethane.

Principal Element Material

Principal Element	Series KS	Series KX
Body	PBT	
Stud, Holder, Guide	C3604BD (With electroless nickel plating), SUS304	
Chuck, Retainer	Stainless Steel (SUS304) ^{Note)}	
Collet, Release button, Snap ring	Polyacetal	
O-ring, Seal	NBR	
Rotary seal	NBR	FPM
Slide bearing	Oil-containing polyacetal	-
Scaper	-	NBR
Ball bearing	Bearing steel	Stainless steel (SUS440C)
Gasket	Stainless steel (SUS304), NBR	

Note) Retainer (C) of KX series: C3604 BD (with electroless nickel plating)

Rotating Torque / Allowable Number of Rotations

Applicable tube O.D. (", mm)	ø5/32, ø4	ø1/4, ø6	ø5/16, ø8	ø3/8, ø10	ø12	
Rotating torque in-lbf (N·m) ^{Note1)}	0.053 (0.006)	0.106 (0.012)	0.124 (0.014)	0.177 (0.020)	0.195 (0.022)	
Allowable number of rotations	Series KS	500	500	400	300	250
	Series KX	1500	1200	1200	1000	1000

Note1) Value under pressure 73psi (0.5 MPa)

Rotary One-touch Fittings

Standard
Series *K*S

Male Connector (Standard)

KSH



Applicable tube O.D. Inch	Port size NPT	Model
5/32	10-32UNF	KSH03-32
	1/8	-34S
1/4	1/8	KSH07-34S
	1/4	-35S
5/16	1/8	KSH09-34S
	1/4	-35S
3/8	1/4	KSH11-35S
	3/8	-36S

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KSH04-M5
	M6 X 1	-M6
	1/8	-01S
6	M5 X 0.8	KSH06-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
8	1/8	KSH08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KSH10-02S
	3/8	-03S
	1/2	-04S
12	3/8	KSH12-03S
	1/2	-04S

Male Elbow (Standard)

KSL



Applicable tube O.D. Inch	Port size NPT	Model
5/32	10-32UNF	KSL03-32
	1/8	-34S
1/4	1/8	KSL07-34S
	1/4	-35S
5/16	1/8	KSL09-34S
	1/4	-35S
3/8	1/4	KSL11-35S
	3/8	-36S

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KSL04-M5
	M6 X 1	-M6
	1/8	-01S
6	M5 X 0.8	KSL06-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
8	1/8	KSL08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KSL10-02S
	3/8	-03S
	1/2	-04S
12	3/8	KSL12-03S
	1/2	-04S

Rotary One-touch Fittings

High-Speed Type Series *KX*

Male Connector

KXH



Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KXH04-M5
	M6 X 1	-M6
	1/8	-01S
6	M5 X 0.8	KXH06-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
8	1/8	KXH08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KXH10-02S
	3/8	-03S
	1/2	-04S
12	3/8	KXH12-03S
	1/2	-04S

Male Elbow

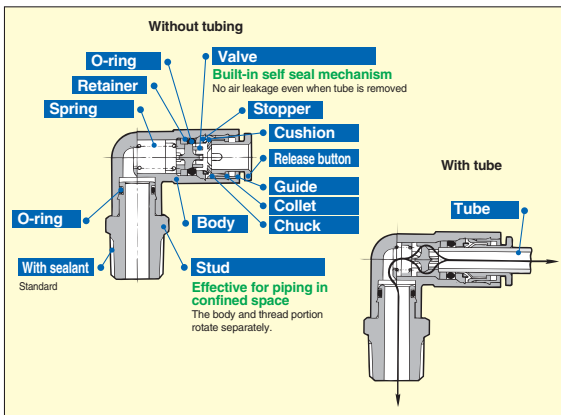
KXL



Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KXL04-M5
	M6 X 1	-M6
	1/8	-01S
6	M5 X 0.8	KXL06-M5
	M6 X 1	-M6
	1/8	-01S
	1/4	-02S
8	1/8	KXL08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KXL10-02S
	3/8	-03S
	1/2	-04S
12	3/8	KXL12-03S
	1/2	-04S

Self-sealing One-touch Tube Connector

Series KC



- One-touch fitting with built-in self seal mechanism to prevent air exhaust when removing tube
- Best for multiple use areas when pressure cannot be shut down
- 10 types are available.
- Electroless nickel plated for copper-free applications

■ Principal Element Material

Body	C3604BD, PBT
Stud	C3604BD (Thread portion)
Chuck, Spring	Stainless Steel (SUS304)
Guide	C3604BD, Polyacetal (POM)
Collet Release button	Polyacetal (POM)
Valve, Retainer	Polyacetal (POM)
Stopper	C3604BD, Polyacetal (POM)
Seal, O-ring	NBR



■ Applicable Tube

Tube material	Nylon, Soft nylon, Polyurethane
Tube O.D.	ø4, ø6, ø8, ø10, ø12

■ Specifications

Operating fluid	Air	
Max. operating pressure	145psi (1.0MPa)	
Proof pressure	435psi (3.0MPa)	
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)	
Thread	Mounting	JIS B0203 (Taper pipe thread)
	Nut	JIS B0211, Class 2 (Metric fine thread)
Sealant (Thread portion)	With sealant (Standard)	
Copper-free application	C3604BD parts with electroless nickel plating	

Self-sealing One-touch Tube Connector (Metric)

Series KC

Male Connector

KCH



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KCH04-M5
	1/8	-01S
6	M5 X 0.8	KCH06-M5
	1/8	-01S
	1/4	-02S
8	1/8	KCH08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KCH10-02S
	3/8	-03S
12	3/8	KCH12-03S
	1/2	-04S

Male Elbow

KCL



Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KCL04-M5
	1/8	-01S
6	M5 X 0.8	KCL06-M5
	1/8	-01S
	1/4	-02S
8	1/8	KCL08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KCL10-02S
	3/8	-03S
12	3/8	KCL12-03S
	1/2	-04S

Straight Union

KCH



Applicable tube O.D. mm	Model
4	KCH04-00
6	KCH06-00
8	KCH08-00
10	KCH10-00
12	KCH12-00

Self-sealing One-touch Tube Connector (Metric)

Series KC

Bulkhead Union

KCE



Applicable tube O.D. mm	Model
4	KCE04-00
6	KCE06-00
8	KCE08-00
10	KCE10-00
12	KCE12-00

Union Tee

KCT



Applicable tube O.D. mm	Model
4	KCT04-00
6	KCT06-00
8	KCT08-00
10	KCT10-00
12	KCT12-00

Union "Y"

KCU



Applicable tube O.D. mm	Model
4	KCU04-00
6	KCU06-00
8	KCU08-00
10	KCU10-00
12	KCU12-00

Check Adapter

KCJ



Applicable tube O.D. mm	Model
4	KCJ04-99
6	KCJ06-99
8	KCJ08-99
10	KCJ10-99
12	KCJ12-99

Self-sealing One-touch Tube Connector (Metric)

Series KC

Straight Plug for Frequent Use

KCH



Applicable tube O.D. mm	Model
4	KCH04-99
6	KCH06-99
8	KCH08-99
10	KCH10-99
12	KCH12-99

Elbow Plug for Frequent Use

KCL



Applicable tube O.D. mm	Model
4	KCL04-99
6	KCL06-99
8	KCL08-99
10	KCL10-99
12	KCL12-99

Bulkhead Female Union

KCE



Applicable tube O.D. mm	Port Size Rc	Model
4	1/4	KCE04-02
6	1/4	KCE06-02
8	3/8	KCE08-03
10	3/8	KCE10-03
12	3/8	KCE12-03

One-touch Fittings Manifold

Series KM

Compact piping
Many varieties (40 types) available
One-touch fittings give the most efficient operation.



■ Applicable tube

Tube material	Nylon, Soft nylon, Polyurethane	
Tube O.D.	Inch	ø5/32, ø1/4, ø5/16, ø3/8, ø1/2
	Metric	ø4, ø6, ø8, ø10, ø12

■ Specifications

Model	KM11	KM12	KM13	KM14	KM15	KM16
Operating fluid	Air, Water ^{Note1)}					
Max. operating pressure	145psi (1.0MPa)					
Proof pressure	435psi (3.0MPa)					
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) Water: 32° to 104°F (0 to 40°C) (With no freezing)					
Thread	—	JIS B0203 (Taper pipe thread)	—	JIS B0203 (Taper pipe thread)	—	—
Accessory	None	Hexagon socket head blank plug with sealant: 1 pc	None	None	None	None

Note1) Applicable to general industrial water. Consult SMC if using for other fluids.
Surge pressure must be under the maximum operating pressure.

■ Principal Element Material

Model	KM11	KM12	KM13	KM14	KM15	KM16
Body	PBT					
Stud	—	C3604BD	—	C3604BD	C3604BD/PBT	—
Chuck	Stainless steel (SUS304)					
Guide	C3604BD					
Collet, Release button	Polyacetal (POM)					
Seal, O-ring	NBR					

■ Model

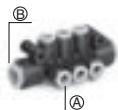
Model	Porting		Number of port A	B port size		A port size							
	Port A	Port B		Inch ■	Metric ●	ø5/32	ø4	ø1/4	ø6	ø5/16	ø8		
KM11	One-touch fitting	One-touch fitting	6, 10	ø5/16	ø8	■	●						
				ø3/8	ø10			■	●				
				ø1/2	ø12						■	●	
KM12	One-touch fitting	NPT thread Rc female thread	6, 10	NPT 1/4	Rc1/4	■	●	■	●				
				NPT 3/8	Rc3/8						■	●	
KM13	One-touch fitting	One-touch fitting	3	—	ø6				●				
				—	ø8					●			
				—	ø10						●		●
KM14	One-touch fitting	One-touch fitting, R male thread	3	—	ø6, R1/8				●				
				—	ø6, R1/4					●			
				—	ø6, R3/8						●		
				—	ø8, R1/8						●		
				—	ø8, R1/4							●	
				—	ø8, R3/8							●	
				—	ø10, R1/4								●
KM15	One-touch fitting	One-touch fitting rod	3	—	ø6					●			
				—	ø8					●			
				—	ø10						●		●
KM16	One-touch fitting	One-touch fitting rod	3	—	ø4					●			
				—	ø6						●		

One-touch Fittings Manifold

Series KM

KM11

Applicable tube O.D. Inch		Number of port A	Model	Applicable tube O.D. mm		Number of port A	Model
(A)	(B)			(A)	(B)		
5/32	5/16	6	KM11-03-09-6	4	8	6	KM11-04-08-6
		10	-10			10	-10
1/4	3/8	6	KM11-07-11-6	6	10	6	KM11-06-10-6
		10	-10			10	-10
5/16	1/2	6	KM11-09-13-6	8	12	6	KM11-08-12-6
		10	-10			10	-10



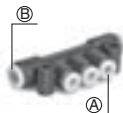
KM12

Applicable tube O.D. Inch	Port size NPT	Number of port A	Model	Applicable tube O.D. mm	Port size Rc	Number of port A	Model
5/32	1/4	6	KM12-03-35-6	4	1/4	6	KM12-04-02-6
		10	-10			10	-10
1/4	1/4	6	KM12-07-35-6	6	1/4	6	KM12-06-02-6
		10	-10			10	-10
5/16	3/8	6	KM12-09-36-6	8	3/8	6	KM12-08-03-6
		10	-10			10	-10



KM13

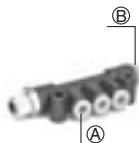
Applicable tube O.D. mm		Number of port A	Model
(A)	(B)		
4	6	3	KM13-04-06-3
	8	3	-08-3
6	8	3	KM13-06-08-3
	10	3	-10-3
8	10	3	KM13-08-10-3



One-touch Fittings Manifold

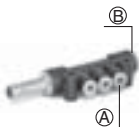
Series KM

KM14



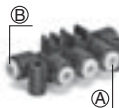
Applicable tube O.D. mm		Port size R	Number of port A	Model
(A)	(B)			
4	6	1/8	3	KM14-04-06-01S-3
		1/4	3	-02S-3
		3/8	3	-03S-3
4	8	1/8	3	KM14-04-08-01S-3
		1/4	3	-02S-3
		3/8	3	-03S-3
6	8	1/8	3	KM14-06-08-01S-3
		1/4	3	-02S-3
		3/8	3	-03S-3
6	10	1/4	3	KM14-06-10-02S-3
		3/8	3	-03S-3
		1/2	3	-04S-3
8	10	1/4	3	KM14-08-10-02S-3
		3/8	3	-03S-3
		1/2	3	-04S-3

KM15



Applicable tube O.D. mm		Applicable fitting size Od	Number of port A	Model
(A)	(B)			
4	6	6	3	KM15-04-06-3
	8	8	3	-08-3
6	8	8	3	KM15-06-08-3
	10	10	3	-10-3
8	10	10	3	KM15-08-10-3

KM16



Applicable tube O.D. mm		Number of port A	Model
(A)	(B)		
4	4	3	KM16-04-04-3
4	6	3	KM16-04-06-3
6	6	3	KM16-06-06-3

Made to Order

Made to Order

Electroless Nickel Plated on Brass Parts

X2

Lubricant: Vaseline

X12

(Example) KM12-04-02-6-X2

(Example) KM12-04-02-6-X12

No Lubrication

X57

Seal: Fluororesin Coating
Oil Free: No Lubrication

X17

(Example) KM12-04-02-6-X57

(Example) KM12-04-02-6-X17

One-touch Piping Module

Series KB

Suitable for centralized, distribution of supply air! Easy distribution utilizing One-touch fittings! One-touch fitting installation without the use of tools.

Locking system makes the use of tools unnecessary and piping more efficient.

Air output direction possible through 360°

Universal construction allows for changes in air output direction after connections are completed.

Principal Element Material

Body	C3604BD, PBT, POM
Stud	POM
Lock ring	POM
Spring	SUS304WPB
Spring guide	POM
Stopper	POM
Thread	C3604BD
Guide	SUS304, C3604BD, POM
Collet, Release button	POM
Seal, O-ring	NBR
Chuck	SUS304



Applicable Tube

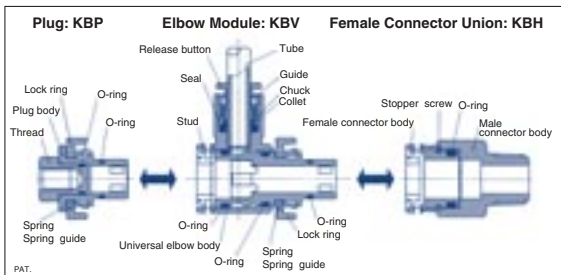
Tube material	Nylon, Soft nylon, Polyurethane
Tube O.D.	ø4, ø6, ø8, ø10, ø12, ø16

Applicable Thread Size

Male thread	R1/8, R1/4, R3/8, R1/2
Female thread	M5 X 0.8, M6 X 1, Rc1/8, Rc1/4, Rc3/8, Rc1/2

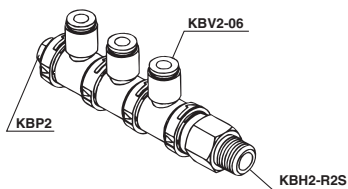
Specifications

Operating fluid	Air	
Max. operating pressure	145psi (1.0MPa)	
Operating vacuum pressure	-15psi (-0.1MPa)	
Proof pressure	435psi (3.0MPa)	
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)	
Thread	Mounting	JIS B0203 (Taper pipe thread)
	Nut	JIS B0211, Class 2 (Metric coarse thread)
		JIS B0211, Class 2 (Metric fine thread)
Sealant (Male thread)	With sealant (Standard)	
Copper-free specifications (Standard)	C3604BD parts with electroless nickel plating	

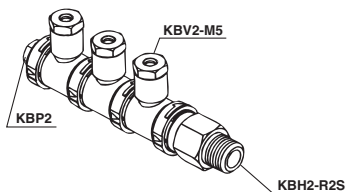


One-touch Piping Module

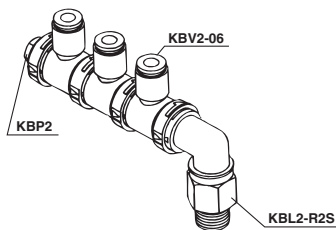
Combination Examples Series *KB*



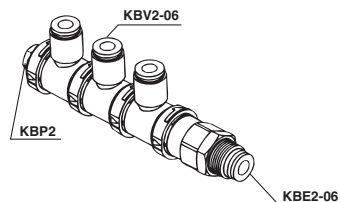
Component module	No. of modulus
KBV2-06	3 pcs.
KBH2-R2S	1 pc.
KBP2	1 pc.



Component module	No. of modulus
KBV2-M5	3 pcs.
KBH2-R2S	1 pc.
KBP2	1 pc.



Component module	No. of modulus
KBV2-06	3 pcs.
KBL2-R2S	1 pc.
KBP2	1 pc.

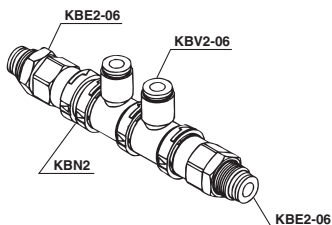


Component module	No. of modulus
KBV2-06	3 pcs.
KBE2-06	1 pc.
KBP2	1 pc.

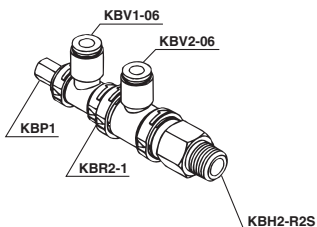
Modules can be combined if they are of the same body size. To combine modules of different body sizes, use a different diameter module KBR for size conversion.

One-touch Piping Module

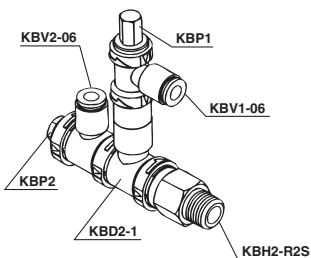
Combination Examples Series *KB*



Component module	No. of modulus
KBV2-06	2 pcs.
KBE2-06	2 pcs.
KBN2	1 pc.



Component module	No. of modulus
KBV2-06	1 pc.
KBV1-06	1 pc.
KBR2-1	1 pc.
KBH2-R2S	1 pc.
KBP1	1 pc.



Component module	No. of modulus
KBV2-06	1 pc.
KBV1-06	1 pc.
KBR2-1	1 pc.
KBH2-R2S	1 pc.
KBP2	1 pc.
KBP1	1 pc.

Modules can be combined if they are of the same body size. To combine modules of different body sizes, use a different diameter module KBR for size conversion.

One-touch Piping Module

Air Output Port
Series KB

Elbow Module

KBV



Body size	Applicable tube O.D. mm	Model
1	4	KBV1-04
1	6	-06
2	6	KBV2-06
2	8	-08
3	8	KBV3-08
3	10	-10
3	12	-12
4	12	KBV4-12
4	16	-16

Elbow Socket Module

KBV



Body size	Port size Rc	Model
1	M5 X 0.8	KBV1-M5
1	M6 X 1	-M6
2	M5 X 0.8	KBV2-M5
2	M6 X 1	-M6
2		-R1
3	1/8	KBV3-R1
3		-R2
4	1/4	KBV4-R2
4	3/8	-R3

Branch Elbow Module

KBZ



Body size	Applicable tube O.D. mm	Model
1	4	KBZ1-04
1	6	-06
2	8	KBZ2-08
3	10	KBZ3-10
3	12	-12
4	12	KBZ4-12

One-touch Piping Module

Air Supply Port Series *KB*

Female Connector Union

KBH



Body size	Port size R	Model
1		KBH1-R1S
2	1/8	KBH2-R1S
2	1/4	-R2S
2	3/8	-R3S
3	1/4	KBH3-R2S
3	3/8	-R3S
3	1/2	-R4S
4	3/8	KBH4-R3S
4	1/2	-R4S

Female Connector Elbow Union

KBL



Body size	Port size R	Model
1		KBL1-R1S
2	1/8	KBL2-R1S
2	1/4	-R2S
2	3/8	-R3S
3	1/4	KBL3-R2S
3	3/8	-R3S
3	1/2	-R4S
4	3/8	KBL4-R3S
4	1/2	-R4S

Bulkhead Female Connector

KBE



Body size	Applicable tube O.D. mm	Port size	Model
1	4	M12 X 1	KBE1-04
1			-06
2	6	M14 X 1	KBE2-06
2	8	M16 X 1	-08
2	10	M20 X 1	-10
3	8	M16 X 1	KBE3-08
3	10	M20 X 1	-10
3			-12
4	12	M22 X 1	KBE4-12

One-touch Piping Module

Air Supply Port
Series KB

Male Connector Socket

KBB



Body size	Port size Rc	Model
1	M5 X 0.8	KBB1-M5
2	M6 X 1	KBB2-M6
3	1/8	KBB3-R1
4	1/4	KBB4-R2

Female Connector Socket

KBS



Body size	Port size Rc	Model
1	1/8	KBS1-R1
2	1/4	KBS2-R2
3	3/8	KBS3-R3
4	1/2	KBS4-R4

One-touch Piping Module

Other Piping Material
Series KB

Nipple

KBN



Body size	Model
1	KBN1
2	KBN2
3	KBN3
4	KBN4

Elbow Different Diameter Female Connector Module

KBD



Body size	Size of branch body	Model
2	1	KBD2-1
3	2	KBD3-2
4	3	KBD4-3

Different Diameter Module

KBR



Body size	Size of branch body	Model
2	1	KBR2-1
3	2	KBR3-2
4	3	KBR4-3

Plug

KBP



Body size	Model
1	KBP1
2	KBP2
3	KBP3
4	KBP4

One-touch Piping Module

Other Piping Material
Series KB

Cap

KBC



Body size	Model
1	KBC1
2	KBC2
3	KBC3
4	KBC4

Bracket

KBX



Applicable part No.	Model
KBP, KBC	KBX6
KBE1-04	KBX12
KBE1-06, KBE2-06	KBX14
KBE2-08, KBE3-08	KBX16
KBE2-10, KBE3-10	KBX20
KBE3-12, KBE4-12	KBX22

* In case of KBX6, use the enclosed mounting screws designed for KBP (plug) and KBC (cap).
Screw size: Cross recessed round head screw
(M6 X 1 X 8) Black

Rectangular One-touch Multi-connector

Series KDM

Substantial reduction in mounting space

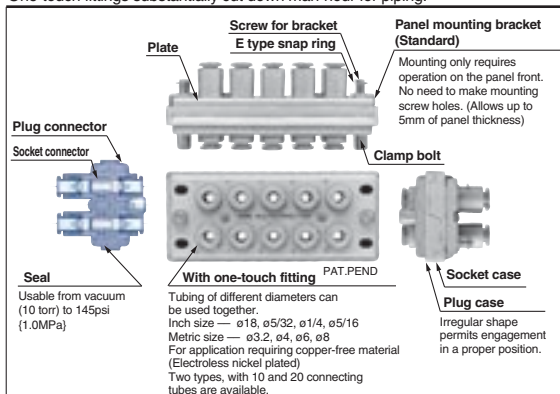
In comparison with model requiring many union joints for panels and partitions, this model needs only a small space.

One-touch connection/disconnection of tubing

Multiple pipes can be connected/disconnected in one-touch operation without connection error. Thus man-hours for connection/disconnection is cut down substantially.

One-touch tubing connection

One-touch fittings substantially cut down man-hour for piping.



Applicable Tube

Tube material		Nylon, Soft nylon, Polyurethane
Tube O.D.	Metric	$\phi 3.2$, $\phi 4$, $\phi 6$, $\phi 8$
	Inch	$\phi 1/8$, $\phi 5/32$, $\phi 1/4$, $\phi 5/16$

Specifications

Operating fluid	Air
Max. operating pressure	145psi (1.0MPa)
Operating vacuum pressure	-15psi (-0.1MPa)
Proof pressure	220psi (1.5MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)

Principal Element Material

Plug case, Socket case		POM
Plate, Bracket		SPCC Plated
Plug connector Socket connector	Body	PBT, C3604BD Electroless nickel plated ($\phi 5/16$, $\phi 8$)
	Chuck	Stainless steel (SUS304)
	Guide	C3604BD Electroless nickel plated, POM ($\phi 5/16$, $\phi 8$)
	Collet, Release button	POM
	Seal	NBR
Clamp bolt, Screw for bracket, Cross-recessed head machine screw		SWRM, Nickel plated
E type stop ring		Stainless steel (SUS304)

Rectangular One-touch Multi-connector

Series KDM

KDM10

No. of connecting tubes	Applicable tube O.D. Inch	Model		No. of connecting tubes	Applicable tube O.D. mm	Model	
		Plug	Socket			Plug	Socket
10	1/8	KDM10P-01	KDM10S-01	10	3.2	KDM10P-23	KDM10S-23
	5/32	-03	-03		4	-04	-04
	1/4	-07	-07		6	-06	-06
	5/16	-09	-09		8	-08	-08



KDM20

No. of connecting tubes	Applicable tube O.D. Inch	Model		No. of connecting tubes	Applicable tube O.D. mm	Model	
		Plug	Socket			Plug	Socket
20	1/8	KDM20P-01	KDM20S-01	20	3.2	KDM20P-23	KDM20S-23
	5/32	-03	-03		4	-04	-04
	1/4	-07	-07		6	-06	-06
	5/16	-09	-09		8	-08	-08



Made to Order

Electroless Nickel Plated on Brass Parts

X2

(Example) KDM10-23-X2

Clean Series

10-

Electroless nickel plating on brass parts (X2)

Lubricant: Fluororesin grease

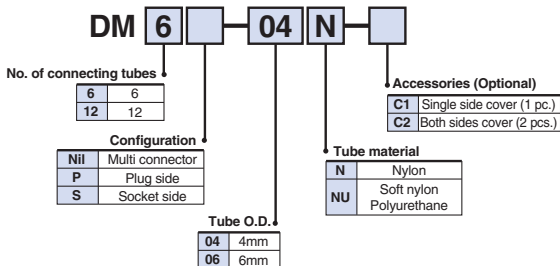
Double seal

(Example) 10-KDM10-23

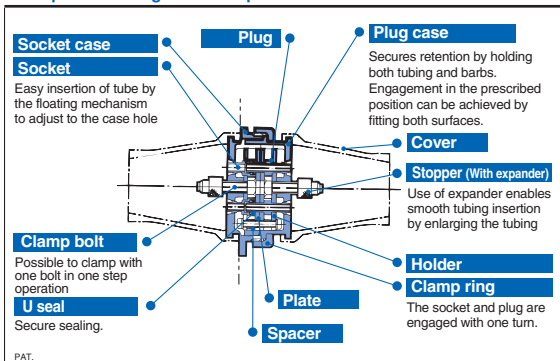
Other tube sizes

Applicable tube O.D. mm	Number of tubes	Part no.
10mm	6	IN-254-52
12mm	6	IN-254-53
3/8"	6	IN-254-116
3/8"	18	IN-254-117

How to Order



The use of the multi-connector enables panel mount connections with other apparatus and can provide the reliability of one-touch installation and removal of multi-tubes (nylon, soft nylon and polyurethane). As a result, separate transportation of panel and machinery equipment and backup unit exchange are made possible.



Specifications

Operating fluid	Air
Max. operating pressure	145psi (1.0MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)

Principal Element Material

Socket case, Plug case, Clamp ring	ADC12 Black anodized
Plate	SPCC, Uni-chromate
Holder	SPCC, Zinc-chromate
Socket, Plug, Stopper	C3604BD
U-ring	NBR
Cover	CR
Cross recessed head screw, Clamp bolt	SWRM Zinc-chromate
Spacer	SPC Zinc-chromate

Multi-connector

Series DM

DM6

No. of connecting tubes	Applicable tube O.D. mm	Model		
		Multi-connector	Plug side	Socket side
6	4	DM6-04N	DM6P-04N	DM6S-04N
		-04NU	-04NU	-04NU
	6	-06N	-06N	-06N
		-06NU	-06NU	-06NU



DM12

No. of connecting tubes	Applicable tube O.D. mm	Model		
		Multi-connector	Plug side	Socket side
12	4	DM12-04N	DM12P-04N	DM12S-04N
		-04NU	-04NU	-04NU
	6	-06N	-06N	-06N
		-06NU	-06NU	-06NU



Made to Order

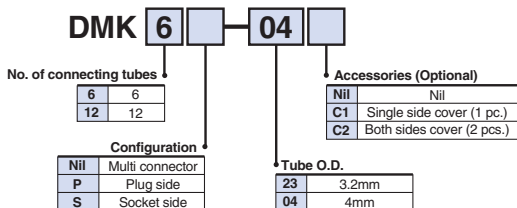
Made to Order

Electroless Nickel Plating on Brass Parts

X2

(Example) DM6-04N-X2

How to Order



With One-touch fitting

Applicable to nylon, soft nylon and polyurethane tube

Installation processes are considerably reduced.

Simple installation and less labor compared with use of numerous bulkhead unions for panel mounting.

Secures tube retention.

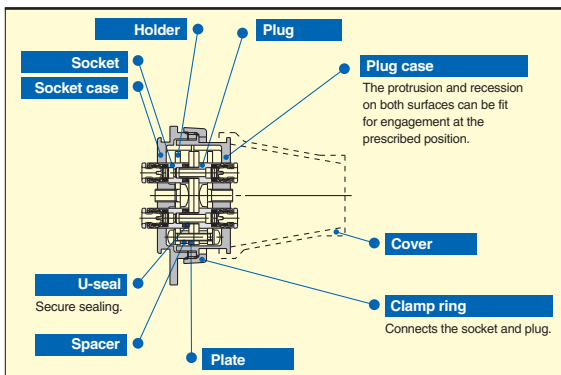
Tube can be firmly connected to the multi-connector in one-step operation (With one-touch fitting).

Number of connecting tubes

Two types, with 6 and 12-connecting tubes, are available.

Specifications

Applicable tube material	Nylon, Soft nylon, Polyurethane
Applicable tube O.D.	ø3.2, ø4
Operating fluid	Air
Max. operating pressure	145psi (1.0MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)



Multi-connector with One-touch Fittings

Series DMK

DMK6

No. of connectin tubes	Applicable tube O.D. mm	Model		
		Multi-connector	Plug side	Socket Side
6	3.2	DMK6-23	DMK6P-23	DMK6S-23
	4	DMK6-04	DMK6P-04	DMK6S-04



DMK12

No. of connecting tubes	Applicable tube O.D. mm	Model		
		Multi-connector	Plug side	Socket Side
12	3.2	DMK12-23	DMK12P-23	DMK12S-23
	4	DMK12-04	DMK12P-04	DMK12S-04



Stainless Steel 316 One-touch Fittings

Series KQG2

RoHS

Applicable tube

Tube material		FEP, PFA, Nylon, Soft nylon ^{Note 1)} , Polyurethane, Polyolefin
Tube O.D.	Inch	ø1/8", ø5/32", ø1/4", ø5/16", ø3/8", ø1/2"
	Metric	ø3.2, ø4, ø6, ø8, ø10, ø12, ø16

Specifications

Fluid	Air, Water, Steam ^{Note 2)} ^{Note 3)}
Operating pressure range ^{Note 4)}	-14.5 to 145 psi (-1.0 kPa to 1 MPa) ^{Note 5)}
Proof pressure	435 psi (3.0 MPa)
Ambient and fluid temperature ^{Note 6)}	23 to 302°F (-5 to 150°C) (No freezing) ^{Note 5)}
Lubricant	Grease-free specification
Seal on the threads	With sealant

Note 1) For soft nylon tube, water cannot be used.

Note 2) Consult with SMC regarding applicable tube separately.

Note 3) Using special FKM that is resistant even when steam is used.

Note 4) Avoid using in a vacuum holding application such as a leak tester, since there is leakage.

Note 5) Check the operating pressure range and operating temperature range of the tube.

Note 6) It is recommended that you use the inner sleeve in the following conditions (Except ø1/8"):

- When using in an environment where the fluid temperature changes drastically.
- When using at a high temperature.

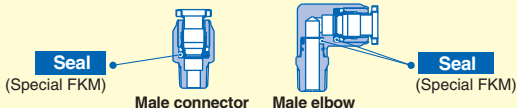
* Temperature Condition of Mounting the Inner Sleeve

Tube	Temperature
FEP tube/TH series	176°F (80°C) or more
PFA tube/TL series	248°F (120°C) or more



Tube O.D.	Tube material			Applicable inner sleeve	
	TUS (Soft polyurethane)	TH/TIH (FEP)	TL/TIL (PFA)	Part no.	Length (mm)
ø5/32"	—	TH0402	—	TJG-0402	18
	TUS0425	TH0425	—	TJG-0425	18
	—	—	TL0403	TJG-0403	18
ø1/4"	—	TIHB07	TIL07	TJG-0604	19
	—	TIHA07	—	TJG-0746	19
ø5/16"	—	TH0806	TL0806	TJG-0806	20.5
ø3/8"	—	TIHB11	TIL11	TJG-1065	23
	—	TIHA11	—	TJG-1107	23
ø1/2"	—	TIH13	TIL13	TJG-1395	24
	—	TH0402	—	TJG-0402	18
ø4	TUS0425	TH0425	—	TJG-0425	18
	—	—	TL0403	TJG-0403	18
	—	—	TL0604	TJG-0604	19
ø6	TUS0805	—	—	TJG-0805	20.5
	—	TH0806	TL0806	TJG-0806	20.5
ø10	TUS1065	—	—	TJG-1065	23
	—	TH1075	—	TJG-1075	23
	—	TH1008	TL1008	TJG-1008	23
ø12	TUS1208	—	—	TJG-1208	24
	—	TH1209	—	TJG-1209	24
	—	TH1210	TL1210	TJG-1210	24

All stainless steel 316 except seal parts



Stainless steel 316 One-touch Fittings

One-touch Fittings Series **KQG2**

Male Connector

KQG2H



Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQGH			KQG2H
5/32	10-32UNF	KQGH03-32	ø3.2	M5 x 0.8	KQG2H23-M5
	1/8	KQGH03-N01S		1/8	KQG2H23-01S
1/4	10-32UNF	KQGH07-32	ø4	1/4	KQG2H23-02S
	1/8	KQGH07-N01S		M5 x 0.8	KQG2H04-M5
	1/4	KQGH07-N02S		1/8	KQG2H04-01S
5/16	1/8	KQGH09-N01S	ø6	1/4	KQG2H04-02S
	1/4	KQGH09-N02S		M5 x 0.8	KQG2H06-M5
	3/8	KQGH09-N03S		1/8	KQG2H06-01S
3/8	1/4	KQGH11-N02S	ø8	1/4	KQG2H06-02S
	3/8	KQGH11-N03S		3/8	KQG2H06-03S
1/2	3/8	KQGH13-N03S	ø10	1/8	KQG2H08-01S
	1/2	KQGH13-N04S		1/4	KQG2H08-02S
1/2	1/2	KQGH13-N04S	ø16	3/8	KQG2H08-03S
				1/8	KQG2H10-01S
				1/4	KQG2H10-02S
				3/8	KQG2H10-03S
				1/2	KQG2H10-04S
1/2	1/2	KQGH13-N04S	ø12	1/4	KQG2H12-02S
				3/8	KQG2H12-03S
				1/2	KQG2H12-04S
1/2	1/2	KQGH13-N04S	ø16	3/8	KQG2H16-03S
				1/2	KQG2H16-04S

Hexagon Socket Head Male Connector

KQG2S



Applicable tube O.D. inch	Port size NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQGS			KQG2S
5/32	10-32UNF	KQGS03-32	ø3.2	M5 x 0.8	KQG2S23-M5
	1/8	KQGS03-N01S		ø4	1/8
1/4	10-32UNF	KQGS07-32	ø6		M5 x 0.8
	1/8	KQGS07-N01S		1/8	KQG2S06-M5
	1/4	KQGS07-N02S		1/4	KQG2S06-01S
5/16	1/8	KQGS09-N01S	ø8	1/4	KQG2S06-02S
	1/4	KQGS09-N02S		1/8	KQG2S08-01S
	3/8	KQGS09-N03S		1/4	KQG2S08-02S
3/8	1/4	KQGS11-N02S	ø10	3/8	KQG2S08-03S
	3/8	KQGS11-N03S		1/8	KQG2S10-01S
1/2	3/8	KQGS13-N03S	ø12	1/4	KQG2S10-02S
	1/2	KQGS13-N04S		3/8	KQG2S10-03S
	1/2	KQGS13-N04S		1/2	KQG2S10-04S
1/2	1/2	KQGS13-N04S	ø16	1/4	KQG2S12-02S
				3/8	KQG2S12-03S
				1/2	KQG2S12-04S
1/2	1/2	KQGS13-N04S	ø16	3/8	KQG2S16-03S
				1/2	KQG2S16-04S

Stainless steel 316 One-touch Fittings

One-touch Fittings Series **KQG2**

Male Elbow

KQG2L



Applicable tube O.D. inch	Connection thread UNF, NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQG2L			KQG2L
ø1/8"	10-32UNF	KQG2L01-32	ø3.2	M5 x 0.8	KQG2L23-M5
	1/8	KQG2L01-N01S		1/8	KQG2L23-01S
	1/4	KQG2L01-N02S		1/4	KQG2L23-02S
ø5/32"	10-32UNF	KQG2L03-32	ø4	M5 x 0.8	KQG2L04-M5
	1/8	KQG2L03-N01S		1/8	KQG2L04-01S
	1/4	KQG2L03-N02S		1/4	KQG2L04-02S
ø1/4"	10-32UNF	KQG2L07-32	ø6	M5 x 0.8	KQG2L06-M5
	1/8	KQG2L07-N01S		1/8	KQG2L06-01S
	1/4	KQG2L07-N02S		1/4	KQG2L06-02S
	3/8	KQG2L07-N03S		3/8	KQG2L06-03S
ø5/16"	1/8	KQG2L09-N01S	ø8	1/8	KQG2L08-01S
	1/4	KQG2L09-N02S		1/4	KQG2L08-02S
	3/8	KQG2L09-N03S		3/8	KQG2L08-03S
ø3/8"	1/8	KQG2L11-N01S	ø10	1/8	KQG2L10-01S
	1/4	KQG2L11-N02S		1/4	KQG2L10-02S
	3/8	KQG2L11-N03S		3/8	KQG2L10-03S
	1/2	KQG2L11-N04S		1/2	KQG2L10-04S
ø1/2"	1/4	KQG2L13-N02S	ø12	1/4	KQG2L12-02S
	3/8	KQG2L13-N03S		3/8	KQG2L12-03S
	1/2	KQG2L13-N04S		1/2	KQG2L12-04S
			ø16	3/8	KQG2L16-03S
				1/2	KQG2L16-04S

Male Branch Tee

KQG2T



Applicable tube O.D. inch	Connection thread UNF, NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQG2T			KQG2T
ø1/8"	10-32UNF	KQG2T01-32	ø3.2	M5 x 0.8	KQG2T23-M5
	1/8	KQG2T01-N01S		1/8	KQG2T23-01S
	1/4	KQG2T01-N02S		1/4	KQG2T23-02S
ø5/32"	10-32UNF	KQG2T03-32	ø4	M5 x 0.8	KQG2T04-M5
	1/8	KQG2T03-N01S		1/8	KQG2T04-01S
	1/4	KQG2T03-N02S		1/4	KQG2T04-02S
ø1/4"	10-32UNF	KQG2T07-32	ø6	M5 x 0.8	KQG2T06-M5
	1/8	KQG2T07-N01S		1/8	KQG2T06-01S
	1/4	KQG2T07-N02S		1/4	KQG2T06-02S
	3/8	KQG2T07-N03S		3/8	KQG2T06-03S
ø5/16"	1/8	KQG2T09-N01S	ø8	1/8	KQG2T08-01S
	1/4	KQG2T09-N02S		1/4	KQG2T08-02S
	3/8	KQG2T09-N03S		3/8	KQG2T08-03S
ø3/8"	1/8	KQG2T11-N01S	ø10	1/8	KQG2T10-01S
	1/4	KQG2T11-N02S		1/4	KQG2T10-02S
	3/8	KQG2T11-N03S		3/8	KQG2T10-03S
	1/2	KQG2T11-N04S		1/2	KQG2T10-04S
ø1/2"	1/4	KQG2T13-N02S	ø12	1/4	KQG2T12-02S
	3/8	KQG2T13-N03S		3/8	KQG2T12-03S
	1/2	KQG2T13-N04S		1/2	KQG2T12-04S
			ø16	3/8	KQG2T16-03S
				1/2	KQG2T16-04S

Stainless steel 316 One-touch Fittings

One-touch Fittings Series **KQG2**

Straight Union

KQG2H



Applicable tube O.D. inch	Model
	KQGH
ø1/8"	KQG2H01-00
ø5/32"	KQG2H03-00
ø1/4"	KQG2H07-00
ø5/16"	KQG2H09-00
ø3/8"	KQG2H11-00
ø1/2"	KQG2H13-00

Applicable tube O.D. mm	Model
	KQG2H
ø3.2	KQG2H23-00
ø4	KQG2H04-00
ø6	KQG2H06-00
ø8	KQG2H08-00
ø10	KQG2H10-00
ø12	KQG2H12-00
ø16	KQG2H16-00

Union Elbow

KQG2L



Applicable tube O.D. inch	Model
	KQG2L
ø1/8"	KQG2L01-00
ø5/32"	KQG2L03-00
ø1/4"	KQG2L07-00
ø5/16"	KQG2L09-00
ø3/8"	KQG2L11-00
ø1/2"	KQG2L13-00

Applicable tube O.D. mm	Model
	KQG2L
ø3.2	KQG2L23-00
ø4	KQG2L04-00
ø6	KQG2L06-00
ø8	KQG2L08-00
ø10	KQG2L10-00
ø12	KQG2L12-00
ø16	KQG2L16-00

Bulkhead Union

KQG2E



Applicable tube O.D. inch	Model
	KQG2E
ø1/8"	KQG2E01-00
ø5/32"	KQG2E03-00
ø1/4"	KQG2E07-00
ø5/16"	KQG2E09-00
ø3/8"	KQG2E11-00
ø1/2"	KQG2E13-00

Applicable tube O.D. mm	Model
	KQG2E
ø3.2	KQG2E23-00
ø4	KQG2E04-00
ø6	KQG2E06-00
ø8	KQG2E08-00
ø10	KQG2E10-00
ø12	KQG2E12-00
ø16	KQG2E16-00

Union Tee

KQG2T



Applicable tube O.D. inch	Model
	KQG2T
ø1/8"	KQG2T01-00
ø5/32"	KQG2T03-00
ø1/4"	KQG2T07-00
ø5/16"	KQG2T09-00
ø3/8"	KQG2T11-00
ø1/2"	KQG2T13-00

Applicable tube O.D. mm	Model
	KQG2H
ø3.2	KQG2T23-00
ø4	KQG2T04-00
ø6	KQG2T06-00
ø8	KQG2T08-00
ø10	KQG2T10-00
ø12	KQG2T12-00
ø16	KQG2T16-00

Stainless steel 316 One-touch Fittings

One-touch Fittings Series **KQG2**

Union "Y"

KQG2U



Applicable tube O.D. inch		Model	Applicable tube O.D. mm		Model
		KQG2U			KQG2U
ø1/8"		KQG2U01-00	ø3.2		KQG2U23-00
ø5/32"		KQG2U03-00	ø4		KQG2U04-00
ø1/4"		KQG2U07-00	ø6		KQG2U06-00
ø5/16"		KQG2U09-00	ø8		KQG2U08-00
ø3/8"		KQG2U11-00	ø10		KQG2U10-00
ø1/2"		KQG2U13-00	ø12		KQG2U12-00
			ø16		KQG2U16-00

Different Diameter Tee

KQG2T



Applicable tube O.D. inch			Model	Applicable tube O.D. mm		Model
Run	Branch		KQG2T	Run	Branch	KQG2T
ø1/8"	ø5/32"		KQG2T01-03	ø3.2	ø4	KQG2T23-04
ø5/32"	ø1/4"		KQG2T03-07	ø4	ø6	KQG2T04-06
ø1/4"	ø5/16"		KQG2T07-09	ø6	ø8	KQG2T06-08
ø5/16"	ø3/8"		KQG2T09-11	ø8	ø10	KQG2T08-10
ø3/8"	ø1/2"		KQG2T11-13	ø10	ø12	KQG2T10-12
				ø12	ø16	KQG2T12-16

Plug-in Reducer

KQG2R



Applicable tube O.D. inch	Applicable fitting size ød	Model	Applicable tube O.D. mm	Applicable fitting size ød	Model
		KQG2R			KQG2R
ø1/8"	ø5/32"	KQG2R01-03	ø3.2	ø4	KQG2R23-04
ø5/32"	ø1/4"	KQG2R03-07	ø4	ø6	KQG2R04-06
ø1/4"	ø5/16"	KQG2R07-09	ø6	ø8	KQG2R06-08
ø5/16"	ø3/8"	KQG2R09-11	ø8	ø10	KQG2R08-10
ø3/8"	ø1/2"	KQG2R11-13	ø10	ø12	KQG2R10-12
			ø12	ø16	KQG2R12-16

Different Diameter Straight

KQG2H



Applicable tube O.D. inch			Model	Applicable tube O.D. mm		Model
a	b		KQG2H	a	b	KQG2H
ø1/8"	ø5/32"		KQG2H01-03	ø3.2	ø4	KQG2H23-04
ø5/32"	ø1/4"		KQG2H03-07	ø4	ø6	KQG2H04-06
ø1/4"	ø5/16"		KQG2H07-09	ø6	ø8	KQG2H06-08
ø5/16"	ø3/8"		KQG2H09-11	ø8	ø10	KQG2H08-10
ø3/8"	ø1/2"		KQG2H11-13	ø10	ø12	KQG2H10-12
				ø12	ø16	KQG2H12-16

Stainless steel 316 One-touch Fittings

One-touch Fittings Series **KQG2**

Different Diameter Union "Y"

KQG2U



Applicable tube O.D. inch		Model
a	b	KQG2U
ø1/8"	ø5/32"	KQG2U01-03
ø5/32"	ø1/4"	KQG2U03-07
ø1/4"	ø5/16"	KQG2U07-09
ø5/16"	ø3/8"	KQG2U09-11
ø3/8"	ø1/2"	KQG2U11-13

Applicable tube O.D. mm		Model
a	b	KQG2U
ø3.2	ø4	KQG2U23-04
ø4	ø6	KQG2U04-06
ø6	ø8	KQG2U06-08
ø8	ø10	KQG2U08-10
ø10	ø12	KQG2U10-12
ø12	ø16	KQG2U12-16

Bulkhead Connector

KQG2E



Applicable tube O.D. inch	Connection thread NPT	Model
		KQG2E
ø1/8"	1/4	KQG2E01-N02
ø5/32"	1/4	KQG2E03-N02
ø1/4"	1/4	KQG2E07-N02
ø5/16"	3/8	KQG2E09-N03
ø3/8"	3/8	KQG2E11-N03
ø1/2"	3/8	KQG2E13-N03
	1/2	KQG2E13-N04

Applicable tube O.D. mm	Connection thread Rc	Model
		KQG2E
ø3.2	1/4	KQG2E23-02
	1/8	KQG2E04-01
ø4	1/4	KQG2E04-02
	1/8	KQG2E06-01
ø6	1/4	KQG2E06-02
	3/8	KQG2E06-03
	1/8	KQG2E08-01
ø8	1/4	KQG2E08-02
	3/8	KQG2E08-03
	1/4	KQG2E10-02
ø10	3/8	KQG2E10-03
	3/8	KQG2E12-03
ø12	1/2	KQG2E12-04
	3/8	KQG2E16-03
ø16	1/2	KQG2E16-04

Plug

KQG2P



Applicable fitting size ød	Model
	KQG2P
ø1/8"	KQG2P-01
ø5/32"	KQG2P-03
ø1/4"	KQG2P-07
ø5/16"	KQG2P-09
ø3/8"	KQG2P-11
ø1/2"	KQG2P-13

Applicable fitting size ød	Model
	KQG2P
ø3.2	KQG2P-23
ø4	KQG2P-04
ø6	KQG2P-06
ø8	KQG2P-08
ø10	KQG2P-10
ø12	KQG2P-12
ø16	KQG2P-16

Stainless steel 316 One-touch Fittings

One-touch Fittings Series **KQG2**

Extended Male Elbow

KQG2W



Applicable tube O.D. inch	Connection thread UNF, NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQG2W			KQG2W
ø1/8"	1/8	KQG2W01-N01S	ø3.2	M5 x 0.8	KQG2W23-M5
	1/4	KQG2W01-N02S		1/8	KQG2W23-01S
ø5/32"	1/8	KQG2W03-N01S	ø4	1/4	KQG2W23-02S
	1/4	KQG2W03-N02S		M5 x 0.8	KQG2W04-M5
ø1/4"	1/8	KQG2W07-N01S	ø6	1/8	KQG2W04-01S
	1/4	KQG2W07-N02S		1/4	KQG2W04-02S
	3/8	KQG2W07-N03S		M5 x 0.8	KQG2W06-M5
ø5/16"	1/8	KQG2W09-N01S	ø8	1/8	KQG2W06-01S
	1/4	KQG2W09-N02S		1/4	KQG2W06-02S
	3/8	KQG2W09-N03S		3/8	KQG2W06-03S
ø3/8"	1/4	KQG2W11-N02S	ø10	1/8	KQG2W08-01S
	3/8	KQG2W11-N03S		1/4	KQG2W08-02S
	1/2	KQG2W11-N04S		3/8	KQG2W08-03S
ø1/2"	1/4	KQG2W13-N02S	ø12	1/4	KQG2W10-02S
	3/8	KQG2W13-N03S		3/8	KQG2W10-03S
	1/2	KQG2W13-N04S		1/2	KQG2W10-04S
ø1/2"			ø16	1/4	KQG2W12-02S
				3/8	KQG2W12-03S
				1/2	KQG2W12-04S
ø1/2"			ø16	3/8	KQG2W16-03S
				1/2	KQG2W16-04S

Female Connector

KQG2F



Applicable tube O.D. inch	Connection thread NPT	Model	Applicable tube O.D. mm	Connection thread Rc	Model
		KQG2F			KQG2F
ø1/8"	1/8	KQG2F01-N01	ø3.2	1/8	KQG2F23-01
	1/4	KQG2F01-N02		1/8	KQG2F04-01
ø5/32"	1/8	KQG2F03-N01	ø4	1/4	KQG2F04-02
	1/4	KQG2F03-N02		1/8	KQG2F06-01
ø1/4"	1/8	KQG2F07-N01	ø6	1/4	KQG2F06-02
	1/4	KQG2F07-N02		3/8	KQG2F06-03
	3/8	KQG2F07-N03		1/8	KQG2F08-01
ø5/16"	1/8	KQG2F09-N01	ø8	1/4	KQG2F08-02
	1/4	KQG2F09-N02		3/8	KQG2F08-03
	3/8	KQG2F09-N03		1/4	KQG2F10-02
ø3/8"	1/4	KQG2F11-N02	ø10	3/8	KQG2F10-03
	3/8	KQG2F11-N03		1/4	KQG2F12-02
	1/2	KQG2F11-N04		3/8	KQG2F12-03
ø1/2"	3/8	KQG2F13-N03	ø12	1/2	KQG2F12-04
	1/2	KQG2F13-N04		3/8	KQG2F16-03
				1/2	KQG2F16-04

Stainless Steel One-touch Fittings

Series KG

Stainless steel specifications applicable to corrosive environments

SUS303 stainless steel adopted for metal elements.

Suitable for use in CRT production lines for copper-free environment, for food processing machines washing to endure water or salt water splashes and for use clean room to prevent particle generation resulting from corrosion

Corrosion Resistant



■ Applicable tube

Tube material	Nylon, Soft nylon, Polyurethane
Tube O.D.	ø4, ø6, ø8, ø10, ø12, ø16

■ Principal Element Material

Body	Stainless Steel (SUS303), PBT
Stud (Thread)	Stainless Steel (SUS303)
Chuck	Stainless Steel (SUS304)
Guide	Stainless Steel (SUS303, SUS304), POM
Collet, Release button	POM
Seal, O-ring	NBR

■ Specifications

Operating fluid		Air, Water ^{Note1)}
Max. operating pressure		145psi (1.0MPa)
Operating vacuum pressure		-15psi (-0.1MPa)
Proof pressure		435psi (3.0MPa)
Ambient and fluid temperature		23° to 140°F(-5° to 60°C) Water: 32° to 104°F (0° to 40°C) (With no freezing)
Thread	Mounting	JIS B0203 (Taper pipe thread)
	Nut	JIS B0211, Class 2 (Metric fine thread)
Sealant (Thread portion)		With / Without sealant ^{Note2)}

Note1) Applicable to general industrial water. Consult SMC if using for other fluids. Surge pressure must be under the maximum operating pressure.

Note2) Suffix "S" to one part number if sealant is desired.

Guide

Collet

Chuck

Applicable to nylon and polyurethane.
Large retaining force.
Secures engagement with chuck and large retaining force with collet.

Seal

Compatible with a wide range of pressure, from low vacuum to 145psi (1.0MPa)
The special shape ensures sealing and reduces resistance in tubing insertion.

Release button (White)

Requires little force for removal.
Releases the chuck collet to remove the tube as well as to prevent the chuck from biting too deeply into the tubing.

Tube

Body (White)

O-ring

Stud

Possible to mount in narrow space
The body and thread portion can be rotated.

PAT.

Stainless Steel One-touch Fittings

Series KG

Male Connector

KGH



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGH04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGH06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGH08-01
	1/4	-02
	3/8	-03
10	1/8	KGH10-01
	1/4	-02
	3/8	-03
	1/2	-04
12	1/4	KGH12-02
	3/8	-03
	1/2	-04
16	3/8	KGH16-03
	1/2	-04

Hexagon Socket Head Male Connector

KGS



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGS04-M5
	1/8	-01
6	M5 X 0.8	KGS06-M5
	1/8	-01
	1/4	-02
8	1/8	KGS08-01
	1/4	-02
	3/8	-03
10	1/8	KGS10-01
	1/4	-02
	3/8	-03
	1/2	-04
12	1/4	KGS12-02
	3/8	-03
	1/2	-04

Stainless Steel One-touch Fittings

Series KG

Male Elbow

KGL



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGL04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGL06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGL08-01
	1/4	-02
	3/8	-03
10	1/8	KGL10-01
	1/4	-02
	3/8	-03
	1/2	-04
12	1/4	KGL12-02
	3/8	-03
	1/2	-04
16	3/8	KGL16-03
	1/2	-04

Extended Male Elbow

KGW



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGW04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGW06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGW08-01
	1/4	-02
	3/8	-03
10	1/4	KGW10-02
	3/8	-03
	1/2	-04
12	1/4	KGW12-02
	3/8	-03
	1/2	-04

Stainless Steel One-touch Fittings

Series KG

Universal Male Elbow

KGV



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGV04-M5
	1/8	-01
6	M5 X 0.8	KGV06-M5
	1/8	-01
	1/4	-02
8	1/8	KGV08-01
	1/4	-02
	3/8	-03
10	1/4	KGV10-02
	3/8	-03
12	3/8	KGV12-03
	1/2	-04

Male Branch Tee

KGT



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGT04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGT06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGT08-01
	1/4	-02
	3/8	-03
10	1/8	KGT10-01
	1/4	-02
	3/8	-03
	1/2	-04
12	1/4	KGT12-02
	3/8	-03
	1/2	-04
16	3/8	KGT16-03
	1/2	-04

Stainless Steel One-touch Fittings

Series KG

Male Run Tee

KGY



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGY04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGY06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGY08-01
	1/4	-02
	3/8	-03
10	1/8	KGY10-01
	1/4	-02
	3/8	-03
	1/2	-04
12	1/4	KGY12-02
	3/8	-03
	1/2	-04
16	3/8	KGY16-03
	1/2	-04

Branch "Y"

KGU



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGU04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGU06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGU08-01
	1/4	-02
	3/8	-03
10	1/4	KGU10-02
	3/8	-03
	1/2	-04
12	1/4	KGU12-02
	3/8	-03
	1/2	-04

Stainless Steel One-touch Fittings

Series KG

Male Branch Connector

KGLU



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGLU04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGLU06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGLU08-01
	1/4	-02
	3/8	-03
10	1/4	KGLU10-02
	3/8	-03
	1/2	-04
12	1/4	KGLU12-02
	3/8	-03
	1/2	-04

Double Branch

KGUD



Applicable tube O.D. mm	Port size R	Model
4	1/8	KGUD04-01
	1/4	-02
6	1/8	KGUD06-01
	1/4	-02

Delta Union

KGD



<M5>



<R>

Applicable tube O.D. mm	Port size R	Model
4	M5 X 0.8	KGD04-M5
	1/8	-01
	1/4	-02
6	M5 X 0.8	KGD06-M5
	1/8	-01
	1/4	-02
	3/8	-03
8	1/8	KGD08-01
	1/4	-02
	3/8	-03
10	1/4	KGD10-02
	3/8	-03
	1/2	-04
12	1/4	KGD12-02
	3/8	-03
	1/2	-04

Stainless Steel One-touch Fittings

Series KG

Straight Union

KGH



Applicable tube O.D. mm	Model
4	KGH04-00
6	KGH06-00
8	KGH08-00
10	KGH10-00
12	KGH12-00

Bulkhead Union

KGE



Applicable tube O.D. mm	Model
4	KGE04-00
6	KGE06-00
8	KGE08-00
10	KGE10-00
12	KGE12-00
16	KGE16-00

Union Elbow

KGL



Applicable tube O.D. mm	Model
4	KGL04-00
6	KGL06-00
8	KGL08-00
10	KGL10-00
12	KGL12-00
16	KGL16-00

Union Tee

KGT



Applicable tube O.D. mm	Model
4	KGT04-00
6	KGT06-00
8	KGT08-00
10	KGT10-00
12	KGT12-00
16	KGT16-00

Union "Y"

KGU



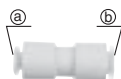
Applicable tube O.D. mm	Model
4	KGU04-00
6	KGU06-00
8	KGU08-00
10	KGU10-00
12	KGU12-00

Stainless Steel One-touch Fittings

Series KG

Different Dia. Straight

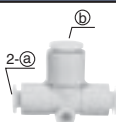
KGH



Applicable tube O.D. mm		Model
(a)	(b)	
4	6	KGH04-06
6	8	KGH06-08
8	10	KGH08-10
10	12	KGH10-12

Different Dia. Tee

KGT



Applicable tube O.D. mm		Model
(a)	(b)	
4	6	KGT04-06
6	8	KGT06-08
8	10	KGT08-10
10	12	KGT10-12

Different Dia. Union "Y"

KGU



Applicable tube O.D. mm		Model
(a)	(b)	
4	6	KGU04-06
6	8	KGU06-08
8	10	KGU08-10
10	12	KGU10-12

Different Dia. Double Union "Y"

KGUD



Applicable tube O.D. mm		Model
(a)	(b)	
4	6	KGUD04-06
6	8	KGUD06-08

Branch Union Elbow

KGLU



Applicable tube O.D. mm	Model
4	KGLU04-00
6	KGLU06-00
8	KGLU08-00
10	KGLU10-00
12	KGLU12-00

Stainless Steel One-touch Fittings

Series KG

Delta Union

KGD



Applicable tube O.D. mm	Model
4	KGD04-00
6	KGD06-00
8	KGD08-00
10	KGD10-00
12	KGD12-00

Plug-in Elbow

KGL



Applicable tube O.D. mm	Applicable Fitting size	Model
4	4	KGL04-99
6	6	KGL06-99
8	8	KGL08-99
10	10	KGL10-99
12	12	KGL12-99

Plug-in Reducer

KGR



Applicable tube O.D. mm	Applicable Fitting size	Model
4	6	KGR04-06
	8	-08
	10	-10
6	4	KGR06-04
	8	-08
	10	-10
	12	-12
8	10	KGR08-10
	12	-12
10	12	KGR10-12
	16	-16
12	16	KGR12-16

Tube Cap

KGC



Applicable tube O.D. mm	Model
4	KGC04-00
6	KGC06-00
8	KGC08-00
10	KGC10-00
12	KGC12-00
16	KGC16-00

Stainless Steel One-touch Fittings

Series KG

Female Connector

KGF



Applicable tube O.D. mm	Port size Rc	Model
4	1/8	KGF04-01
	1/4	-02
6	1/8	KGF06-01
	1/4	-02
	3/8	-03
8	1/8	KGF08-01
	1/4	-02
	3/8	-03
10	1/4	KGF10-02
	3/8	-03
12	1/4	KGF12-02
	3/8	-03
	1/2	-04

Bulkhead Female Connector

KGE



Applicable tube O.D. mm	Port size Rc	Model
4	1/8	KGE04-01
	1/4	-02
6	1/8	KGE06-01
	1/4	-02
	3/8	-03
8	1/8	KGE08-01
	1/4	-02
	3/8	-03
10	1/4	KGE10-02
	3/8	-03
12	3/8	KGE12-03
	1/2	-04
16	3/8	KGE16-03
	1/2	-04

Made to Order

Made to Order

Lubricant: Vaseline **X12**

(Example) KGH06-02-X12

Seal: Fluororesin Coating
Oil Free: No Lubrication **X17**

(Example) KGH06-02-X17

No Lubrication **X57**

(Example) KGH06-02-X57

Clean Series **10-**

Lubricant: Fluororesin grease
Double packaging

(Example) 10-KGH06-02

Stainless Steel 316 Insert Fittings

Series KFG2

Applicable Tube

Tube material ^{Note)}		FEP, PFA, Modified PTFE, Nylon, Soft nylon ^{Note)} , Polyurethane, Soft polyurethane, Polyolefin, Soft polyolefin, Antistatic soft nylon, Antistatic polyurethane, Hard polyurethane	
Tube size	Inch	ø1/8" x ø0.086", ø5/32" x 0.098", ø1/4" x ø5/32" ø5/16" x 0.236", ø3/8" x ø1/4", ø1/2" x ø3/8"	Threads: NPT 1/8" to 1/2"
	Metric	ø4 x ø2.5, ø4 x ø3, ø6 x ø4, ø8 x ø6, ø10 x ø7.5 ø10 x ø8, ø12 x ø9, ø12 x ø10, ø16 x ø13	Threads: R 1/8" to 1/2"

Note) For soft nylon tube, soft polyurethane tube, hard polyurethane tube, antistatic polyurethane tube, water cannot be used.

Series	Tube material	Tube O.D. x I.D. (mm)												
		inch	ø1/8" x ø0.086"	ø5/32" x ø0.098"	ø1/4" x ø5/32"	ø5/16" x ø0.236"	ø3/8" x ø1/4"	ø1/2" x ø3/8"						
		mm	ø4 x ø2.5	ø4 x ø3	ø6 x ø4	ø8 x ø6	ø10 x ø7.5	ø10 x ø8	ø12 x ø9	ø12 x ø10	ø16 x ø13			
TH/TH	FEP	●	●	●	●	●	●	—	●	●	●	●	●	—
TL/TIL	PFA	●	—	●	●	●	●	—	●	●	●	●	●	—
TD/TID	Modified PTFE	●	●	●	●	●	●	—	●	●	●	●	●	—
T/TIA	Nylon	●	●	—	●	—	●	●	●	●	—	●	—	●
TS/TISA	Soft nylon	●	●	—	—	—	●	—	●	●	—	●	—	—
TU/TIUB	Polyurethane	—	●	—	—	●	—	—	●	—	—	—	—	—
TPH	Polyolefin	—	●	—	●	—	—	—	●	●	—	●	—	—
TUS	Soft polyurethane	—	●	—	—	—	—	—	●	—	—	—	—	—
TUH	Hard polyurethane (High pressure)	—	●	—	—	—	—	—	●	—	—	—	—	—
TPS	Soft polyolefin	—	●	—	—	—	—	—	●	—	—	—	—	—
TAS	Antistatic soft nylon	—	●	—	—	—	—	—	●	—	—	—	—	—
TAU	Antistatic polyurethane	—	●	—	—	—	—	—	●	—	—	—	—	—

Specifications

Fluid	Air, Water, Steam ^{Note 2)} ^{Note 3)}
Operating pressure range ^{Note 1)}	-14.5 to 145 psi (-100 kPa to 1 MPa) ^{Note 4)}
Proof pressure	435 psi (3.0 MPa)
Ambient and fluid temperature	-85 to 500°F (-65 to 260°C) (No freezing) ^{Note 4)} [Swivel elbow and with sealant types: 23 to 302°F (-5 to 150°C)]
Lubricant	Grease-free specification
Seal on the threads	Without sealant (With sealant type compatible) ^{Note 5)}



Note 1) Avoid using in a vacuum holding application such as a leak tester, since there is leakage.

Note 2) Consult with SMC regarding applicable tube separately.

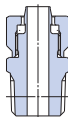
Note 3) Using special FKM that is resistant even when steam is used.

Note 4) Check the operating pressure range and operating temperature range of the tube.

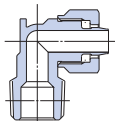
Note 5) With sealant: Suffix "S" to the end of part number.

Note 6) Union nut is shipped together.

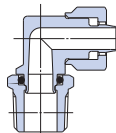
Construction All 316 Stainless Steel Components (except Seals [Special FKM])



Male connector



Male elbow



Swivel elbow



Stainless steel 316 Insert Fittings

Insert Fittings Series **KFG2**

Male Connector

KFG2H



Applicable tube size inch		Connection thread NPT	Model		Applicable tube size mm		Connection thread R	Model	
O.D.	I.D.		KFG2H		O.D.	I.D.		KFG2H	
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2H0122-N01		ø4	ø2.5	1/8	KFG2H0425-01	
		1/4	KFG2H0122-N02				1/4	KFG2H0425-02	
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2H0325-N01		ø4	ø3	1/8	KFG2H0403-01	
		1/4	KFG2H0325-N02				1/4	KFG2H0403-02	
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2H0704-N01		ø6	ø4	1/8	KFG2H0604-01	
		1/4	KFG2H0704-N02				1/4	KFG2H0604-02	
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2H0906-N01		ø8	ø6	1/8	KFG2H0806-01	
		1/4	KFG2H0906-N02				1/4	KFG2H0806-02	
		3/8	KFG2H0906-N03				3/8	KFG2H0806-03	
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2H1163-N02		ø10	ø7.5	1/4	KFG2H1075-02	
		3/8	KFG2H1163-N03				3/8	KFG2H1075-03	
		1/2	KFG2H1163-N04				1/2	KFG2H1075-04	
ø1/2" (ø12.7)	ø3/8" (ø9.53)	1/4	KFG2H1395-N02		ø10	ø8	1/4	KFG2H1008-02	
		3/8	KFG2H1395-N03				3/8	KFG2H1008-03	
		1/2	KFG2H1395-N04				1/2	KFG2H1008-04	
ø12	ø9	1/4	KFG2H1209-02		ø12	ø9	1/4	KFG2H1209-02	
		3/8	KFG2H1209-03				3/8	KFG2H1209-03	
		1/2	KFG2H1209-04				1/2	KFG2H1209-04	
ø12	ø10	1/4	KFG2H1210-02		ø12	ø10	1/4	KFG2H1210-02	
		3/8	KFG2H1210-03				3/8	KFG2H1210-03	
		1/2	KFG2H1210-04				1/2	KFG2H1210-04	
ø16	ø13	3/8	KFG2H1613-03		ø16	ø13	3/8	KFG2H1613-03	
		1/2	KFG2H1613-04				1/2	KFG2H1613-04	

Male Elbow

KFG2L



Applicable tube size inch		Connection thread NPT	Model		Applicable tube size mm		Connection thread R	Model	
O.D.	I.D.		KFG2L		O.D.	I.D.		KFG2L	
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2L0122-N01		ø4	ø2.5	1/8	KFG2L0425-01	
		1/4	KFG2L0122-N02				1/4	KFG2L0425-02	
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2L0325-N01		ø4	ø3	1/8	KFG2L0403-01	
		1/4	KFG2L0325-N02				1/4	KFG2L0403-02	
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2L0704-N01		ø6	ø4	1/8	KFG2L0604-01	
		1/4	KFG2L0704-N02				1/4	KFG2L0604-02	
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2L0906-N01		ø8	ø6	1/8	KFG2L0806-01	
		1/4	KFG2L0906-N02				1/4	KFG2L0806-02	
		3/8	KFG2L0906-N03				3/8	KFG2L0806-03	
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2L1163-N02		ø10	ø7.5	1/4	KFG2L1075-02	
		3/8	KFG2L1163-N03				3/8	KFG2L1075-03	
		1/2	KFG2L1163-N04				1/2	KFG2L1075-04	
ø1/2" (ø12.7)	ø3/8" (ø9.53)	1/4	KFG2L1395-N02		ø10	ø8	1/4	KFG2L1008-02	
		3/8	KFG2L1395-N03				3/8	KFG2L1008-03	
		1/2	KFG2L1395-N04				1/2	KFG2L1008-04	
ø12	ø9	1/4	KFG2L1209-02		ø12	ø9	1/4	KFG2L1209-02	
		3/8	KFG2L1209-03				3/8	KFG2L1209-03	
		1/2	KFG2L1209-04				1/2	KFG2L1209-04	
ø12	ø10	1/4	KFG2L1210-02		ø12	ø10	1/4	KFG2L1210-02	
		3/8	KFG2L1210-03				3/8	KFG2L1210-03	
		1/2	KFG2L1210-04				1/2	KFG2L1210-04	
ø16	ø13	3/8	KFG2L1613-03		ø16	ø13	3/8	KFG2L1613-03	
		1/2	KFG2L1613-04				1/2	KFG2L1613-04	

Stainless steel 316 Insert Fittings

Insert Fittings Series **KFG2**

Male Branch Tee

KFG2T



Applicable tube size inch		Connection thread NPT	Model
O.D.	I.D.		KFG2T
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2T0122-N01
		1/4	KFG2T0122-N02
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2T0325-N01
		1/4	KFG2T0325-N02
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2T0704-N01
		1/4	KFG2T0704-N02
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2T0906-N01
		1/4	KFG2T0906-N02
		3/8	KFG2T0906-N03
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2T1163-N02
		3/8	KFG2T1163-N03
		1/2	KFG2T1163-N04
ø1/2" (ø12.7)	ø3/8" (ø9.53)	1/4	KFG2T1395-N02
		3/8	KFG2T1395-N03
		1/2	KFG2T1395-N04

Applicable tube size mm		Connection thread R	Model
O.D.	I.D.		KFG2T
ø4	ø2.5	1/8	KFG2T0425-01
		1/4	KFG2T0425-02
ø4	ø3	1/8	KFG2T0403-01
		1/4	KFG2T0403-02
ø6	ø4	1/8	KFG2T0604-01
		1/4	KFG2T0604-02
ø8	ø6	1/8	KFG2T0806-01
		1/4	KFG2T0806-02
		3/8	KFG2T0806-03
ø10	ø7.5	1/4	KFG2T1075-02
		3/8	KFG2T1075-03
		1/2	KFG2T1075-04
ø10	ø8	1/4	KFG2T1008-02
		3/8	KFG2T1008-03
		1/2	KFG2T1008-04
ø12	ø9	1/4	KFG2T1209-02
		3/8	KFG2T1209-03
		1/2	KFG2T1209-04
ø12	ø10	1/4	KFG2T1210-02
		3/8	KFG2T1210-03
		1/2	KFG2T1210-04
ø16	ø13	3/8	KFG2T1613-03
		1/2	KFG2T1613-04

Straight Union

KFG2H



Applicable tube size inch		Model
O.D.	I.D.	KFG2H
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2H0122-00
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2H0325-00
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2H0704-00
ø5/16" (ø8)	ø0.236" (ø6)	KFG2H0906-00
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2H1163-00
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2H1395-00

Applicable tube size mm		Model
O.D.	I.D.	KFG2H
ø4	ø2.5	KFG2H0425-00
ø4	ø3	KFG2H0403-00
ø6	ø4	KFG2H0604-00
ø8	ø6	KFG2H0806-00
ø10	ø7.5	KFG2H1075-00
ø10	ø8	KFG2H1008-00
ø12	ø9	KFG2H1209-00
ø12	ø10	KFG2H1210-00
ø16	ø13	KFG2H1613-00

Stainless steel 316 Insert Fittings

Insert Fittings Series **KFG2**

Union Tee

KFG2T



Applicable tube size inch		Model	Applicable tube size mm		Model
O.D.	I.D.	KFG2T	O.D.	I.D.	KFG2T
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2T0122-00	ø4	ø2.5	KFG2T0425-00
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2T0325-00	ø4	ø3	KFG2T0403-00
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2T0704-00	ø6	ø4	KFG2T0604-00
ø5/16" (ø8)	ø0.236" (ø6)	KFG2T0906-00	ø8	ø6	KFG2T0806-00
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2T1163-00	ø10	ø7.5	KFG2T1075-00
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2T1395-00	ø10	ø8	KFG2T1008-00
			ø12	ø9	KFG2T1209-00
			ø12	ø10	KFG2T1210-00
			ø16	ø13	KFG2T1613-00

Bulkhead Union

KFG2E



Applicable tube size inch		Model	Applicable tube size mm		Model
O.D.	I.D.	KFG2E	O.D.	I.D.	KFG2E
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2E0122-00	ø4	ø2.5	KFG2E0425-00
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2E0325-00	ø4	ø3	KFG2E0403-00
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2E0704-00	ø6	ø4	KFG2E0604-00
ø5/16" (ø8)	ø0.236" (ø6)	KFG2E0906-00	ø8	ø6	KFG2E0806-00
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2E1163-00	ø10	ø7.5	KFG2E1075-00
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2E1395-00	ø10	ø8	KFG2E1008-00
			ø12	ø9	KFG2E1209-00
			ø12	ø10	KFG2E1210-00
			ø16	ø13	KFG2E1613-00

Union Elbow

KFG2L



Applicable tube size inch		Model	Applicable tube size mm		Model
O.D.	I.D.	KFG2L	O.D.	I.D.	KFG2L
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2L0122-00	ø4	ø2.5	KFG2L0425-00
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2L0325-00	ø4	ø3	KFG2L0403-00
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2L0704-00	ø6	ø4	KFG2L0604-00
ø5/16" (ø8)	ø0.236" (ø6)	KFG2L0906-00	ø8	ø6	KFG2L0806-00
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2L1163-00	ø10	ø7.5	KFG2L1075-00
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2L1395-00	ø10	ø8	KFG2L1008-00
			ø12	ø9	KFG2L1209-00
			ø12	ø10	KFG2L1210-00
			ø16	ø13	KFG2L1613-00

Stainless steel 316 Insert Fittings

Insert Fittings Series **KFG2**

Swivel Elbow

KFG2V



Applicable tube size inch		Connection thread NPT	Model	
O.D.	I.D.		KFG2V	
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2V0122-N01	
		1/4	KFG2V0122-N02	
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2V0325-N01	
		1/4	KFG2V0325-N02	
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2V0704-N01	
		1/4	KFG2V0704-N02	
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2V0906-N01	
		1/4	KFG2V0906-N02	
		3/8	KFG2V0906-N03	
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2V1163-N02	
		3/8	KFG2V1163-N03	
		1/2	KFG2V1163-N04	
ø1/2" (ø12.7)	ø3/8" (ø9.53)	1/4	KFG2V1395-N02	
		3/8	KFG2V1395-N03	
		1/2	KFG2V1395-N04	

Applicable tube size mm		Connection thread R	Model	
O.D.	I.D.		KFG2V	
ø4	ø2.5	1/8	KFG2V0425-01	
		1/4	KFG2V0425-02	
ø4	ø3	1/8	KFG2V0403-01	
		1/4	KFG2V0403-02	
ø6	ø4	1/8	KFG2V0604-01	
		1/4	KFG2V0604-02	
ø8	ø6	1/8	KFG2V0806-01	
		1/4	KFG2V0806-02	
		3/8	KFG2V0806-03	
ø10	ø7.5	1/4	KFG2V1075-02	
		3/8	KFG2V1075-03	
		1/2	KFG2V1075-04	
ø10	ø8	1/4	KFG2V1008-02	
		3/8	KFG2V1008-03	
		1/2	KFG2V1008-04	
ø12	ø9	1/4	KFG2V1209-02	
		3/8	KFG2V1209-03	
		1/2	KFG2V1209-04	
ø12	ø10	1/4	KFG2V1210-02	
		3/8	KFG2V1210-03	
		1/2	KFG2V1210-04	
ø16	ø13	3/8	KFG2V1613-03	
		1/2	KFG2V1613-04	

Female Connector

KFG2F



Applicable tube size inch		Connection thread NPT	Model	
O.D.	I.D.		KFG2F	
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/4	KFG2F0122-N02	
		1/4	KFG2F0325-N02	
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/4	KFG2F0704-N02	
		3/8	KFG2F0906-N03	
ø3/8" (ø9.53)	ø1/4" (ø6.35)	3/8	KFG2F1163-N03	
		3/8	KFG2F1395-N03	

Applicable tube size mm		Connection thread Rc	Model	
O.D.	I.D.		KFG2F	
ø4	ø2.5	1/4	KFG2F0425-02	
		1/4	KFG2F0403-02	
ø6	ø4	1/4	KFG2F0604-02	
		3/8	KFG2F0806-03	
ø10	ø7.5	3/8	KFG2F1075-03	
		3/8	KFG2F1008-03	
ø12	ø9	3/8	KFG2F1209-03	
		3/8	KFG2F1210-03	
ø16	ø13	1/2	KFG2F1613-04	

Stainless steel 316 Insert Fittings

Insert Fittings Series **KFG2**

Union Nut

KFG2N



Applicable tube O.D. inch	Model	Applicable tube size mm	Model
	KFG2N		KFG2N
ø1/8" (ø3.18)	KFG2N-01	ø4	KFG2N-04
ø5/32" (ø4)	KFG2N-03	ø6	KFG2N-06
ø1/4" (ø6.35)	KFG2N-07	ø8	KFG2N-08
ø5/16" (ø8)	KFG2N-09	ø10	KFG2N-10
ø3/8" (ø9.53)	KFG2N-11	ø12	KFG2N-12
ø1/2" (ø12.7)	KFG2N-13	ø16	KFG2N-16

Metal One-touch Fittings Series KQB2

RoHS

Applicable Tube

Tube material	FEP, PFA, Nylon, Soft nylon ^{Note 1)} , Polyurethane, Polyolefin		Applicable threads
Tube O.D.	Inch	ø1/8", ø5/32", ø1/4", ø5/16", ø3/8", ø1/2"	10-32 UNF, 1/8" to 1/2" NPT
	Metric	ø3.2, ø4, ø6, ø8, ø10, ø12, ø16	M5 X 0.8, R1/8" to 1/2", G1/8 to 1/2"

Specifications

Fluid	Air, Water
Operating pressure range ^{Note 2)}	-14.5 to 145 psi (-100 kPa to 1 MPa) ^{Note 3)}
Proof pressure	435 psi (3.0 MPa)
Ambient and fluid temperature ^{Note 4)}	23 to 302°F (-5 to 150°C) (No freezing) ^{Note 3)}
Lubricant	Grease-free specification
Seal on the threads	With sealant

Note 1) For soft nylon tube, water cannot be used.

Note 2) Avoid using in a vacuum holding application such as a leak tester, since there is leakage.

Note 3) Check the operating pressure range and operating temperature range of the tube.

Note 4) It is recommended that you use the inner sleeve in the following conditions (Except ø1/8"):

- When using in an environment where the fluid temperature changes drastically.
- When using at a high temperature.

* Temperature Condition of Mounting the Inner Sleeve

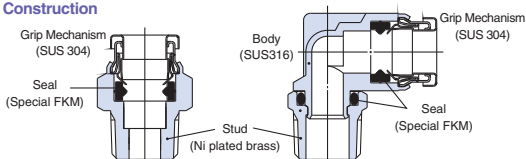
Tube	Temperature
FEP tube/TH series	176°F (80°C) or more
PFA tube/TL series	248°F (120°C) or more



Cross Reference Table of the Inner Sleeve

Tube O.D.	Tube material			Applicable inner sleeve	
	TUS (Soft polyurethane)	TH/TH (FEP)	TL/TIL (PFA)	Part no.	Length (mm)
ø5/32"	—	TH0402	—	TJ-0402	18
	TUS0425	TH0425	—	TJ-0425	18
	—	—	TL0403	TJ-0403	18
ø1/4"	—	THB07	TIL07	TJ-0604	19
	—	THA07	—	TJ-0746	19
ø5/16"	—	TH0806	TL0806	TJ-0806	20.5
ø3/8"	—	THB11	TIL11	TJ-1065	23
	—	THA11	—	TJ-1107	23
ø1/2"	—	TH13	TIL13	TJ-1395	24
ø4	—	TH0402	—	TJ-0402	18
	TUS0425	TH0425	—	TJ-0425	18
	—	—	TL0403	TJ-0403	18
ø6	TUS0604	TH0604	TL0604	TJ-0604	19
	TUS0805	—	—	TJ-0805	20.5
ø8	—	TH0806	TL0806	TJ-0806	20.5
	TUS1065	—	—	TJ-1065	23
	—	TH1075	—	TJ-1075	23
ø10	—	TH1008	TL1008	TJ-1008	23
	TUS1208	—	—	TJ-1208	24
	—	TH1209	—	TJ-1209	24
ø12	—	TH1210	TL1210	TJ-1210	24
	—	—	—	—	—

Construction



Male connector



Male elbow

Metal One-touch Fittings

Series KQB2

Male Connector

KQB2H



Applicable tube O.D. inch	Connection thread NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQB2H			KQB2H
ø1/8"	10-32UNF	KQB2H01-32	ø3.2	M5 x 0.8	KQB2H23-M5
	1/8	KQB2H01-N01S		1/8	KQB2H23-01S
	1/4	KQB2H01-N02S		1/4	KQB2H23-02S
ø5/32"	10-32UNF	KQB2H03-32	ø4	M5 x 0.8	KQB2H04-M5
	1/8	KQB2H03-N01S		1/8	KQB2H04-01S
	1/4	KQB2H03-N02S		1/4	KQB2H04-02S
ø1/4"	10-32UNF	KQB2H07-32	ø6	M5 x 0.8	KQB2H06-M5
	1/8	KQB2H07-N01S		1/8	KQB2H06-01S
	1/4	KQB2H07-N02S		1/4	KQB2H06-02S
	3/8	KQB2H07-N03S		3/8	KQB2H06-03S
ø5/16"	1/8	KQB2H09-N01S	ø8	1/8	KQB2H08-01S
	1/4	KQB2H09-N02S		1/4	KQB2H08-02S
	3/8	KQB2H09-N03S		3/8	KQB2H08-03S
ø3/8"	1/8	KQB2H11-N01S	ø10	1/8	KQB2H10-01S
	1/4	KQB2H11-N02S		1/4	KQB2H10-02S
	3/8	KQB2H11-N03S		3/8	KQB2H10-03S
	1/2	KQB2H11-N04S		1/2	KQB2H10-04S
ø1/2"	1/4	KQB2H13-N02S	ø12	1/4	KQB2H12-02S
	3/8	KQB2H13-N03S		3/8	KQB2H12-03S
	1/2	KQB2H13-N04S		1/2	KQB2H12-04S
	3/8	KQB2H16-03S		3/8	KQB2H16-03S
			ø16	1/2	KQB2H16-04S

Hexagon Socket Head Male Connector

KQB2S



Applicable tube O.D. inch	Connection thread UNF, NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQB2S			KQB2S
ø1/8"	10-32UNF	KQB2S01-32	ø3.2	M5 x 0.8	KQB2S23-M5
ø5/32"	10-32UNF	KQB2S03-32	ø4	M5 x 0.8	KQB2S04-M5
	1/8	KQB2S03-N01S		1/8	KQB2S04-01S
ø1/4"	10-32UNF	KQB2S07-32	ø6	M5 x 0.8	KQB2S06-M5
	1/8	KQB2S07-N01S		1/8	KQB2S06-01S
	1/4	KQB2S07-N02S		1/4	KQB2S06-02S
	3/8	KQB2S07-N03S		3/8	KQB2S06-03S
ø5/16"	1/8	KQB2S09-N01S	ø8	1/8	KQB2S08-01S
	1/4	KQB2S09-N02S		1/4	KQB2S08-02S
	3/8	KQB2S09-N03S		3/8	KQB2S08-03S
ø3/8"	1/8	KQB2S11-N01S	ø10	1/8	KQB2S10-01S
	1/4	KQB2S11-N02S		1/4	KQB2S10-02S
	3/8	KQB2S11-N03S		3/8	KQB2S10-03S
	1/2	KQB2S11-N04S		1/2	KQB2S10-04S
ø1/2"	1/4	KQB2S13-N02S	ø12	1/4	KQB2S12-02S
	3/8	KQB2S13-N03S		3/8	KQB2S12-03S
	1/2	KQB2S13-N04S		1/2	KQB2S12-04S
	3/8	KQB2S16-03S		3/8	KQB2S16-03S
			ø16	1/2	KQB2S16-04S

Metal One-touch Fittings

Series **KQB2**

Straight Union

KQB2H



Applicable tube O.D. inch	Model
	KQB2H
ø1/8"	KQB2H01-00
ø5/32"	KQB2H03-00
ø1/4"	KQB2H07-00
ø5/16"	KQB2H09-00
ø3/8"	KQB2H11-00
ø1/2"	KQB2H13-00

Applicable tube O.D. mm	Model
	KQB2H
ø3.2	KQB2H23-00
ø4	KQB2H04-00
ø6	KQB2H06-00
ø8	KQB2H08-00
ø10	KQB2H10-00
ø12	KQB2H12-00
ø16	KQB2H16-00

Male Elbow

KQB2L



Applicable tube O.D. inch	Connection thread UNF, NPT	Model
		KQB2L
ø1/8"	10-32UNF	KQB2L01-32
	1/8	KQB2L01-N01S
	1/4	KQB2L01-N02S
ø5/32"	10-32UNF	KQB2L03-32
	1/8	KQB2L03-N01S
	1/4	KQB2L03-N02S
ø1/4"	10-32UNF	KQB2L07-32
	1/8	KQB2L07-N01S
	1/4	KQB2L07-N02S
	3/8	KQB2L07-N03S
ø5/16"	1/8	KQB2L09-N01S
	1/4	KQB2L09-N02S
	3/8	KQB2L09-N03S
ø3/8"	1/8	KQB2L11-N01S
	1/4	KQB2L11-N02S
	3/8	KQB2L11-N03S
	1/2	KQB2L11-N04S
ø1/2"	1/4	KQB2L13-N02S
	3/8	KQB2L13-N03S
	1/2	KQB2L13-N04S

Applicable tube O.D. mm	Connection thread R, M	Model
		KQB2L
ø3.2	M5 x 0.8	KQB2L23-M5
	1/8	KQB2L23-01S
	1/4	KQB2L23-02S
ø4	M5 x 0.8	KQB2L04-M5
	1/8	KQB2L04-01S
	1/4	KQB2L04-02S
ø6	M5 x 0.8	KQB2L06-M5
	1/8	KQB2L06-01S
	1/4	KQB2L06-02S
	3/8	KQB2L06-03S
ø8	1/8	KQB2L08-01S
	1/4	KQB2L08-02S
	3/8	KQB2L08-03S
	1/2	KQB2L10-01S
ø10	1/8	KQB2L10-01S
	1/4	KQB2L10-02S
	3/8	KQB2L10-03S
	1/2	KQB2L10-04S
ø12	1/4	KQB2L12-02S
	3/8	KQB2L12-03S
	1/2	KQB2L12-04S
ø16	3/8	KQB2L16-03S
	1/2	KQB2L16-04S

Union Elbow

KQB2L



Applicable tube O.D. inch	Model
	KQB2L
ø1/8"	KQB2L01-00
ø5/32"	KQB2L03-00
ø1/4"	KQB2L07-00
ø5/16"	KQB2L09-00
ø3/8"	KQB2L11-00
ø1/2"	KQB2L13-00

Applicable tube O.D. mm	Model
	KQB2L
ø3.2	KQB2L23-00
ø4	KQB2L04-00
ø6	KQB2L06-00
ø8	KQB2L08-00
ø10	KQB2L10-00
ø12	KQB2L12-00
ø16	KQB2L16-00

Stainless steel 316 Insert Fittings

Insert Fittings Series **KQB2**

Male Branch Tee

KQB2T



Applicable tube O.D. inch	Connection thread UNF, NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQB2T			KQB2T
ø1/8"	10-32UNF	KQB2T01-32	ø3.2	M5 x 0.8	KQB2T23-M5
	1/8	KQB2T01-N01S		1/8	KQB2T23-01S
	1/4	KQB2T01-N02S		1/4	KQB2T23-02S
ø5/32"	10-32UNF	KQB2T03-32	ø4	M5 x 0.8	KQB2T04-M5
	1/8	KQB2T03-N01S		1/8	KQB2T04-01S
	1/4	KQB2T03-N02S		1/4	KQB2T04-02S
ø1/4"	10-32UNF	KQB2T07-32	ø6	M5 x 0.8	KQB2T06-M5
	1/8	KQB2T07-N01S		1/8	KQB2T06-01S
	1/4	KQB2T07-N02S		1/4	KQB2T06-02S
	3/8	KQB2T07-N03S		3/8	KQB2T06-03S
ø5/16"	1/8	KQB2T09-N01S	ø8	1/8	KQB2T08-01S
	1/4	KQB2T09-N02S		1/4	KQB2T08-02S
	3/8	KQB2T09-N03S		3/8	KQB2T08-03S
ø3/8"	1/8	KQB2T11-N01S	ø10	1/8	KQB2T10-01S
	1/4	KQB2T11-N02S		1/4	KQB2T10-02S
	3/8	KQB2T11-N03S		3/8	KQB2T10-03S
	1/2	KQB2T11-N04S		1/2	KQB2T10-04S
ø1/2"	1/4	KQB2T13-N02S	ø12	1/4	KQB2T12-02S
	3/8	KQB2T13-N03S		3/8	KQB2T12-03S
	1/2	KQB2T13-N04S		1/2	KQB2T12-04S
ø16"	3/8	KQB2T16-N03S	ø16	3/8	KQB2T16-03S
	1/2	KQB2T16-N04S		1/2	KQB2T16-04S

Bulkhead Union

KQB2E



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQB2E		KQB2E
ø1/8"	KQB2E01-00	ø3.2	KQB2E23-00
ø5/32"	KQB2E03-00	ø4	KQB2E04-00
ø1/4"	KQB2E07-00	ø6	KQB2E06-00
ø5/16"	KQB2E09-00	ø8	KQB2E08-00
ø3/8"	KQB2E11-00	ø10	KQB2E10-00
ø1/2"	KQB2E13-00	ø12	KQB2E12-00
		ø16	KQB2E16-00

Union Tee

KQB2T



Applicable tube O.D. inch	Model	Applicable tube O.D. mm	Model
	KQB2T		KQB2T
ø1/8"	KQB2T01-00	ø3.2	KQB2T23-00
ø5/32"	KQB2T03-00	ø4	KQB2T04-00
ø1/4"	KQB2T07-00	ø6	KQB2T06-00
ø5/16"	KQB2T09-00	ø8	KQB2T08-00
ø3/8"	KQB2T11-00	ø10	KQB2T10-00
ø1/2"	KQB2T13-00	ø12	KQB2T12-00
		ø16	KQB2T16-00

Stainless steel 316 Insert Fittings

Insert Fittings Series **KQB2**

Union "Y"

KQB2U



Applicable tube O.D. inch	Model	
	KQB2U	
ø1/8"	KQB2U01-00	
ø5/32"	KQB2U03-00	
ø1/4"	KQB2U07-00	
ø5/16"	KQB2U09-00	
ø3/8"	KQB2U11-00	
ø1/2"	KQB2U13-00	

Applicable tube O.D. mm	Model	
	KQB2U	
ø3.2	KQB2U23-00	
ø4	KQB2U04-00	
ø6	KQB2U06-00	
ø8	KQB2U08-00	
ø10	KQB2U10-00	
ø12	KQB2U12-00	
ø16	KQB2U16-00	

Different Diameter Tee

KQB2T



Applicable tube O.D. inch		Model
Run	Branch	
KQB2T		KQB2T
ø1/8"	ø5/32"	
ø5/32"	ø1/4"	KQB2T03-07
ø1/4"	ø5/16"	KQB2T07-09
ø5/16"	ø3/8"	KQB2T09-11
ø3/8"	ø1/2"	KQB2T11-13

Applicable tube O.D. mm		Model
Run	Branch	
KQB2T		KQB2T
ø3.2	ø4	
ø4	ø6	KQB2T04-06
ø6	ø8	KQB2T06-08
ø8	ø10	KQB2T08-10
ø10	ø12	KQB2T10-12
ø12	ø16	KQB2T12-16

Plug-in Reducer

KQB2R



Applicable tube O.D. inch		Model
a	b	
KQB2R		KQB2R
ø1/8"	ø5/32"	
ø5/32"	ø1/4"	KQB2R03-07
ø1/4"	ø5/16"	KQB2R07-09
ø5/16"	ø3/8"	KQB2R09-11
ø3/8"	ø1/2"	KQB2R11-13

Applicable tube O.D. mm	Applicable fitting size ød	Model
KQB2R		
KQB2R		KQB2R
ø3.2	ø4	
ø4	ø6	KQB2R04-06
ø6	ø8	KQB2R06-08
ø8	ø10	KQB2R08-10
ø10	ø12	KQB2R10-12
ø12	ø16	KQB2R12-16

Different Diameter Straight

KQB2H



Applicable tube O.D. inch		Model
a	b	
KQB2H		KQB2H
ø1/8"	ø5/32"	
ø5/32"	ø1/4"	KQB2H03-07
ø1/4"	ø5/16"	KQB2H07-09
ø5/16"	ø3/8"	KQB2H09-11
ø3/8"	ø1/2"	KQB2H11-13

Applicable tube O.D. mm		Model
a	b	
KQB2H		KQB2H
ø3.2	ø4	
ø4	ø6	KQB2H04-06
ø6	ø8	KQB2H06-08
ø8	ø10	KQB2H08-10
ø10	ø12	KQB2H10-12
ø12	ø16	KQB2H12-16

Bulkhead Connector

KQB2E



Applicable tube O.D. inch	Connection thread NPT	Model	Applicable tube O.D. mm	Connection thread Rc	Model
		KQB2E			KQB2E
ø1/8"	1/4	KQB2E01-N02	ø3.2	1/4	KQB2E23-02
ø5/32"	1/4	KQB2E03-N02	ø4	1/8	KQB2E04-01
ø1/4"	1/4	KQB2E07-N02		1/4	KQB2E04-02
ø5/16"	3/8	KQB2E09-N03	ø6	1/8	KQB2E06-01
ø3/8"	3/8	KQB2E11-N03		1/4	KQB2E06-02
ø1/2"	3/8	KQB2E13-N03	ø8	3/8	KQB2E06-03
	1/2	KQB2E13-N04		1/8	KQB2E08-01
			ø10	1/4	KQB2E08-02
				3/8	KQB2E08-03
			ø12	1/4	KQB2E10-02
				3/8	KQB2E10-03
			ø16	3/8	KQB2E12-03
				1/2	KQB2E12-04
				3/8	KQB2E16-03
				1/2	KQB2E16-04

Extended Male Elbow

KQB2W



Applicable tube O.D. inch	Connection thread NPT	Model	Applicable tube O.D. mm	Connection thread R, M	Model
		KQB2W			KQB2W
ø1/8"	1/8	KQB2W01-N01S	ø3.2	M5 x 0.8	KQB2W23-M5
	1/4	KQB2W01-N02S		1/8	KQB2W23-01S
ø5/32"	1/8	KQB2W03-N01S		1/4	KQB2W23-02S
	1/4	KQB2W03-N02S	ø4	M5 x 0.8	KQB2W04-M5
ø1/4"	1/8	KQB2W07-N01S		1/8	KQB2W04-01S
	1/4	KQB2W07-N02S	1/4	KQB2W04-02S	
ø5/16"	3/8	KQB2W07-N03S	ø6	M5 x 0.8	KQB2W06-M5
	1/8	KQB2W09-N01S		1/8	KQB2W06-01S
	1/4	KQB2W09-N02S		1/4	KQB2W06-02S
ø3/8"	3/8	KQB2W09-N03S	ø8	3/8	KQB2W06-03S
	1/4	KQB2W11-N02S		1/8	KQB2W08-01S
	3/8	KQB2W11-N03S		1/4	KQB2W08-02S
ø1/2"	1/2	KQB2W11-N04S	ø10	3/8	KQB2W08-03S
	1/4	KQB2W13-N02S		1/4	KQB2W10-02S
ø1/2"	3/8	KQB2W13-N03S	ø12	3/8	KQB2W10-03S
	1/2	KQB2W13-N04S		1/2	KQB2W10-04S
				1/4	KQB2W12-02S
			ø16	3/8	KQB2W12-03S
				1/2	KQB2W12-04S
				3/8	KQB2W16-03S
				1/2	KQB2W16-04S

Metal One-touch Fittings

Series **KQB2**

Different Diameter Union "Y"

KQB2U



Applicable tube O.D. inch		Model
a	b	KQB2U
ø1/8"	ø5/32"	KQB2U01-03
ø5/32"	ø1/4"	KQB2U03-07
ø1/4"	ø5/16"	KQB2U07-09
ø5/16"	ø3/8"	KQB2U09-11
ø3/8"	ø1/2"	KQB2U11-13

Applicable tube O.D. mm		Model
a	b	KQB2U
ø3.2	ø4	KQB2U23-04
ø4	ø6	KQB2U04-06
ø6	ø8	KQB2U06-08
ø8	ø10	KQB2U08-10
ø10	ø12	KQB2U10-12
ø12	ø16	KQB2U12-16

Female Connector

KQB2F



Applicable tube O.D. inch	Connection thread NPT	Model
		KQB2F
ø1/8"	1/8	KQB2F01-N01
	1/4	KQB2F01-N02
ø5/32"	1/8	KQB2F03-N01
	1/4	KQB2F03-N02
ø1/4"	1/8	KQB2F07-N01
	1/4	KQB2F07-N02
ø5/16"	3/8	KQB2F07-N03
	1/8	KQB2F09-N01
	1/4	KQB2F09-N02
ø3/8"	3/8	KQB2F09-N03
	1/4	KQB2F11-N02
ø1/2"	3/8	KQB2F11-N03
	1/2	KQB2F13-N04

Applicable tube O.D. mm	Connection thread Rc	Model
		KQB2F
ø3.2	1/8	KQB2F23-01
	1/4	KQB2F04-01
ø4	1/4	KQB2F04-02
	1/8	KQB2F06-01
ø6	1/4	KQB2F06-02
	3/8	KQB2F06-03
ø8	1/8	KQB2F08-01
	1/4	KQB2F08-02
ø10	3/8	KQB2F08-03
	1/4	KQB2F10-02
ø12	3/8	KQB2F10-03
	1/2	KQB2F10-04
ø16	1/4	KQB2F12-02
	3/8	KQB2F12-03
ø16	1/2	KQB2F12-04
	3/8	KQB2F16-03
ø16	1/2	KQB2F16-04

Plug

KQB2P



Applicable tube O.D. inch	Model
	KQB2P
ø1/8"	KQB2P-01
ø5/32"	KQB2P-03
ø1/4"	KQB2P-07
ø5/16"	KQB2P-09
ø3/8"	KQB2P-11
ø1/2"	KQB2P-13

Applicable fitting size ød	Model
	KQB2P
ø3.2	KQB2P-23
ø4	KQB2P-04
ø6	KQB2P-06
ø8	KQB2P-08
ø10	KQB2P-10
ø12	KQB2P-12
ø16	KQB2P-16

Clean One-touch Fittings (For Blow)

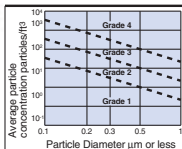
Series KP

Completely oil free
Liquid contact parts are non-metal.
Components are washed, assembled and double packed in a clean room.
Compatible with vacuum pressure -130 Torr (-100kPa)



Clean

Particle Generation Grade Classifications



Caution

Series KP is designed for clean blow and use in washing lines. Consult SMC for use in other applications.

Sealant material: EPDM does not have sufficient resistance to mineral oil and is not suitable for piping of general pneumatic equipment.

Note) For more information, refer to page 14 of Front Matter in SMC Clean Series Catalog.

Recommended Applicable Tube

Tube material	Polyolefin: Series TPH Soft polyolefine: Series TPS
Tube O.D.	ø4, ø6, ø8, ø10, ø12

Polyurethane tubing: Series TU, Nylon tubing: Series T, Soft nylon tubing: Series TS also can be used though with lower degree of cleanliness.

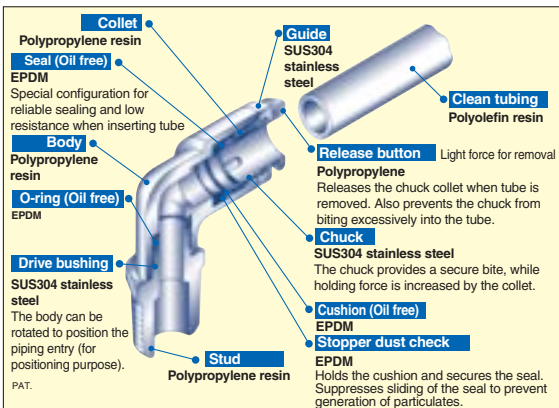
Specifications

Particle generation grade	Grade 1 ^{Note 1)}
Operating fluid	Air, Nitrogen gas, Water (Pure water) ^{Note 2)}
Max. operating pressure 68°F (20°C)	145psi (1MPa) ^{Note 3)}
Operating vacuum pressure	-15psi (-0.1MPa)
Proof pressure 68°F (20°C)	435psi (3MPa)
Ambient and fluid temperature	23° to 176°F (-5° to 80°C) (With no condensation)
Thread	JIS B0203 (Taper pipe thread)

Note 1) Refer to the particle generation grade classifications. Note 2) Contact SMC for other types of fluids.

Note 3) The max. operating pressure is one at 68°F (20°C).

• When water is used as the operating fluid, do not allow the surge pressure to exceed the max. operating pressure.



Clean One-touch Fittings

Series KP

Male Connector

KPH



Applicable tube O.D. mm	Port size R	Model
4	1/8	KPH04-01
	1/4	-02
6	1/8	KPH06-01
	1/4	-02
8	1/8	KPH08-01
	1/4	-02
10	1/4	KPH10-02
	3/8	-03
12	3/8	KPH12-03
	1/2	-04

Male Elbow

KPL



Applicable tube O.D. mm	Port size R	Model
4	1/8	KPL04-01
	1/4	-02
6	1/8	KPL06-01
	1/4	-02
8	1/8	KPL08-01
	1/4	-02
10	1/4	KPL10-02
	3/8	-03
12	3/8	KPL12-03
	1/2	-04

Male Branch Tee

KPT



Applicable tube O.D. mm	Port size R	Model
4	1/8	KPT04-01
	1/4	-02
6	1/8	KPT06-01
	1/4	-02
8	1/8	KPT08-01
	1/4	-02
10	1/4	KPT10-02
	3/8	-03
12	3/8	KPT12-03
	1/2	-04

Clean One-touch Fittings

Series KP

Male Run Tee

KPY



Applicable tube O.D. mm	Port size R	Model
4	1/8	KPY04-01
	1/4	-02
6	1/8	KPY06-01
	1/4	-02
8	1/8	KPY08-01
	1/4	-02
10	1/4	KPY10-02
	3/8	-03
12	3/8	KPY12-03
	1/2	-04

Union "Y"

KPU



Applicable tube O.D. mm	Port size R	Model
4	1/8	KPU04-01
	1/4	-02
6	1/8	KPU06-01
	1/4	-02
8	1/8	KPU08-01
	1/4	-02
10	1/4	KPU10-02
	3/8	-03
12	3/8	KPU12-03
	1/2	-04

Straight Union

KPH



Applicable tube O.D. mm	Model
4	KPH04-00
6	KPH06-00
8	KPH08-00
10	KPH10-00
12	KPH12-00

Clean One-touch Fittings

Series KP

Union Elbow

KPL



Applicable tube O.D. mm	Model
4	KPL04-00
6	KPL06-00
8	KPL08-00
10	KPL10-00
12	KPL12-00

Union Tee

KPT



Applicable tube O.D. mm	Model
4	KPT04-00
6	KPT06-00
8	KPT08-00
10	KPT10-00
12	KPT12-00

Union "Y"

KPU



Applicable tube O.D. mm	Model
4	KPU04-00
6	KPU06-00
8	KPU08-00
10	KPU10-00
12	KPU12-00

Plug-in Reducer

KPR



Applicable tube O.D. mm	Applicable fitting size	Model
4	6	KPR04-06
	8	-08
6	8	KPR06-08
	10	-10
8	10	KPR08-10
	12	-12
10	12	KPR10-12

Plug

KPP



Applicable fitting size	Model
4	KPP-04
6	KPP-06
8	KPP-08
10	KPP-10
12	KPP-12

Clean One-touch Fittings (For Driving System Air Piping)

Series KPQ/KPG

Size M5 is standardized.
Use of P.P (Polypropylene) for resin parts

Clean

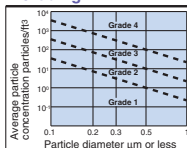


Series KPQ



Series KPG

Particle Generation Grading



Note) For more information, refer to page 14 of Front Matter in SMC Clean Series Catalog.

Recommended Applicable Tube

Tube material	Polyurethane: Series 10-
Tube O.D.	ø4, ø6, ø8, ø10, ø12

Nylon tubing: Series T and series TS soft nylon tubing can also be used though with lower degree of cleanliness.

Specifications

Particle generation grade	Grade 1 Note 1)
Operating fluid	Air
Max. operating pressure 68°F (20°C)	145psi (1MPa) Note 2)
Operating vacuum pressure	-15psi (-0.1MPa)
Proof pressure 68°F (20°C)	435psi (3MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) (With no condensation)
Thread	JIS B0203 (Taper pipe thread)

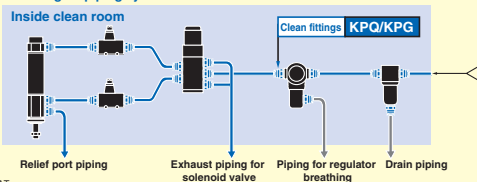
Note 1) Refer to the particle generation grading chart.

Internal parts are not included in the grading because of greasing on sealant.

Note 2) The max. operating pressure is one at 68°F (20°C).



Driving air piping system



Clean One-touch Fittings

Series **KPQ/KPG**

Male Connector

KPQH/KPGH



Applicable tube O.D. mm	Port size R	Model	
		KPQH	KPGH
4	M5 X 0.8	KPQH04-M5	KPGH04-M5
	1/8	-01	-01
	1/4	-02	-02
6	M5 X 0.8	KPQH06-M5	KPGH06-M5
	1/8	-01	-01
	1/4	-02	-02
8	1/8	KPQH08-01	KPGH08-01
	1/4	-02	-02
10	1/4	KPQH10-02	KPGH10-02
	3/8	-03	-03
12	3/8	KPQH12-03	KPGH12-03
	1/2	-04	-04

Male Elbow

KPQL/KPGL



Applicable tube O.D. mm	Port size R	Model	
		KPQL	KPGL
4	M5 X 0.8	KPQL04-M5	KPGL04-M5
	1/8	-01	-01
	1/4	-02	-02
6	M5 X 0.8	KPQL06-M5	KPGL06-M5
	1/8	-01	-01
	1/4	-02	-02
8	1/8	KPQL08-01	KPGL08-01
	1/4	-02	-02
10	1/4	KPQL10-02	KPGL10-02
	3/8	-03	-03
12	3/8	KPQL12-03	KPGL12-03
	1/2	-04	-04

Union Tee

KPQT/KPGT



Applicable tube O.D. mm	Port size R	Model	
		KPQT	KPGT
4	M5 X 0.8	KPQT04-M5	KPGT04-M5
	1/8	-01	-01
	1/4	-02	-02
6	M5 X 0.8	KPQT06-M5	KPGT06-M5
	1/8	-01	-01
	1/4	-02	-02
8	1/8	KPQT08-01	KPGT08-01
	1/4	-02	-02
10	1/4	KPQT10-02	KPGT10-02
	3/8	-03	-03
12	3/8	KPQT12-03	KPGT12-03
	1/2	-04	-04

Clean One-touch Fittings

Series **KPQ/KPG**

Male Run Tee

KPQY/KPGY



Applicable tube O.D. mm	Port size R	Model	
		KPQL	KPGL
4	M5 X 0.8	KPQY04-M5	KPGY04-M5
	1/8	-01	-01
	1/4	-02	-02
6	M5 X 0.8	KPQY06-M5	KPGY06-M5
	1/8	-01	-01
	1/4	-02	-02
8	1/8	KPQY08-01	KPGY08-01
	1/4	-02	-02
10	1/4	KPQY10-02	KPGY10-02
	3/8	-03	-03
12	3/8	KPQY12-03	KPGY12-03
	1/2	-04	-04

Union "Y"

KPQU/KPGU



Applicable tube O.D. mm	Port size R	Model	
		KPQU	KPGU
4	M5 X 0.8	KPQU04-M5	KPGU04-M5
	1/8	-01	-01
	1/4	-02	-02
6	M5 X 0.8	KPQU06-M5	KPGU06-M5
	1/8	-01	-01
	1/4	-02	-02
8	1/8	KPQU08-01	KPGU08-01
	1/4	-02	-02
10	1/4	KPQU10-02	KPGU10-02
	3/8	-03	-03
12	3/8	KPQU12-03	KPGU12-03
	1/2	-04	-04

Straight Union

KPQH/KPGH



Applicable tube O.D. mm	Model	
	KPQH	KPGH
4	KPQH04-00	KPGH04-00
6	KPQH06-00	KPGH06-00
8	KPQH08-00	KPGH08-00
10	KPQH10-00	KPGH10-00
12	KPQH12-00	KPGH12-00

Elbow

KPQL/KPGL



Applicable tube O.D. mm	Model	
	KPQL	KPGL
4	KPQL04-00	KPGL04-00
6	KPQL06-00	KPGL06-00
8	KPQL08-00	KPGL08-00
10	KPQL10-00	KPGL10-00
12	KPQL12-00	KPGL12-00

Clean One-touch Fittings

Series **KPQ/KPG**

Union Tee

KPQT/KPGT



Applicable tube O.D. mm	Model	
	KPQT	KPGT
4	KPQT04-00	KPGT04-00
6	KPQT06-00	KPGT06-00
8	KPQT08-00	KPGT08-00
10	KPQT10-00	KPGT10-00
12	KPQT12-00	KPGT12-00

Union "Y"

KPQU/KPGU



Applicable tube O.D. mm	Model	
	KPQU	KPGU
4	KPQU04-00	KPGU04-00
6	KPQU06-00	KPGU06-00
8	KPQU08-00	KPGU08-00
10	KPQU10-00	KPGU10-00
12	KPQU12-00	KPGU12-00

Plug-in Reducer

KPQR/KPGR



Applicable tube O.D. mm	Applicable fitting size	Model	
		KPQR	KPGR
4	6	KPQR04-06	KPGR04-06
	8	-08	-08
6	8	KPQR06-08	KPGR06-08
	10	-10	-10
8	10	KPQR08-10	KPGR08-10
	12	-12	-12
10	12	KPQR10-12	KPGR10-12

Plug

KPP



Applicable fitting size	Model
4	KPP-04
6	KPP-06
8	KPP-08
10	KPP-10
12	KPP-12

Antistatic One-touch Fittings

Series KA

One touch connection and release
Possible to use in vacuum Max. 100kPa
Can be used in copper-free application.
Flame resistance (Equivalent to UL-94 Standards V-0)
Surface resistance 10^4 to $10^7\Omega$
Conductive resin is used for body
and seals in fitting and tubing.

Splatter Resistant

Antistatic Measures



- C3604B is all electroless nickel plated.
- PBT parts have conductive (10^4 to $10^7\Omega$) and fire resistant applications. (UL-standard, V-0)
- Conductive NBR (10^4 to $10^7\Omega$) is used for packing.

Principal Element Material

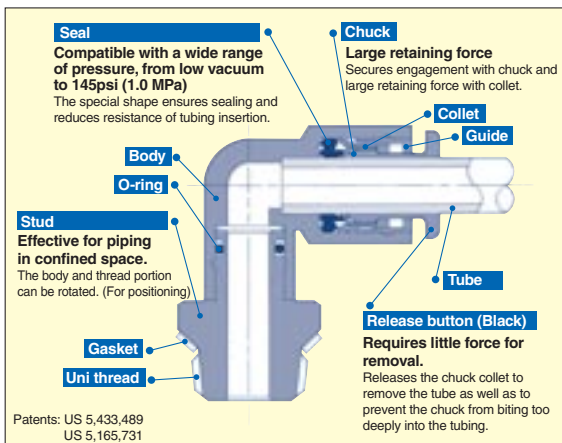
Body	C3604BD, PBT
Stud	C3604BD
Chuck	Stainless steel (SUS304)
Guide	C3604BD, PBT
Collet	PBT
Release button	PBT
Seal, O-ring	NBR

Applicable Tube

Tube material	Antistatic soft nylon, Antistatic polyurethane
Tube O.D.	$\phi 3.2$, $\phi 4$, $\phi 6$, $\phi 8$, $\phi 10$, $\phi 12$

Specifications

Operating fluid	Air
Max. operating pressure	145psi (1.0MPa)
Operating vacuum pressure	-15psi (-0.1MPa)
Proof pressure	435psi (3.0MPa)
Ambient and fluid temperature	32° to 104°F (0 to 40°C)
Mounting thread	Uni thread, Screw JIS B0209, Class 2 (Metric coarse thread)
Sealant (Thread portion)	Gasket
Copper-free application	C3604BD parts with electroless nickel plating
Surface resistance	10^4 to $10^7\Omega$



Antistatic Clean One-touch Fittings

Series KA

Male Connector

KAH

Applicable tube O.D. mm	Port size	Model
3.2	M5 X 0.8	KAH23-M5
	M6 X 1	-M6
	Uni 1/8	-U01
4	M5 X 0.8	KAH04-M5
	M6 X 1	-M6
	Uni 1/8	-U01
	Uni 1/4	-U02
6	M5 X 0.8	KAH06-M5
	M6 X 1	-M6
	Uni 1/8	-U01
	Uni 1/4	-U02
8	Uni 1/8	KAH08-U01
	Uni 1/4	-U02
	Uni 3/8	-U03
10	Uni 1/8	KAH10-U01
	Uni 1/4	-U02
	Uni 3/8	-U03
	Uni 1/2	-U04
12	Uni 1/4	KAH12-U02
	Uni 3/8	-U03
	Uni 1/2	-U04



<M5, M6>



<Uni thread>

Male Elbow

KAL

Applicable tube O.D. mm	Port size	Model
3.2	M5 X 0.8	KAL23-M5
	M6 X 1	-M6
	Uni 1/8	-U01
4	M5 X 0.8	KAL04-M5
	M6 X 1	-M6
	Uni 1/8	-U01
	Uni 1/4	-U02
6	M5 X 0.8	KAL06-M5
	M6 X 1	-M6
	Uni 1/8	-U01
	Uni 1/4	-U02
8	Uni 1/8	KAL08-U01
	Uni 1/4	-U02
	Uni 3/8	-U03
10	Uni 1/8	KAL10-U01
	Uni 1/4	-U02
	Uni 3/8	-U03
	Uni 1/2	-U04
12	Uni 1/4	KAL12-U02
	Uni 3/8	-U03
	Uni 1/2	-U04



<M5,M6>



<Uni thread>

Antistatic Clean One-touch Fittings

Series KA

Union "Y"

KAU



<M5, M6>



<Uni thread>

Applicable tube O.D. mm	Port size	Model
3.2	M5 X 0.8	KAU23-M5
	M6 X 1	-M6
	Uni 1/8	-U01
4	M5 X 0.8	KAU04-M5
	M6 X 1	-M6
	Uni 1/8	-U01
	Uni 1/4	-U02
6	M5 X 0.8	KAU06-M5
	M6 X 1	-M6
	Uni 1/8	-U01
	Uni 1/4	-U02
8	Uni 3/8	-U03
	Uni 1/8	KAU08-U01
	Uni 1/4	-U02
10	Uni 3/8	-U03
	Uni 1/4	KAU10-U02
	Uni 3/8	-U03
	Uni 1/2	-U04
12	Uni 1/4	KAU12-U02
	Uni 3/8	-U03
	Uni 1/2	-U04

Straight Union

KAH



Applicable tube O.D. mm	Model
3.2	KAH23-00
4	KAH04-00
6	KAH06-00
8	KAH08-00
10	KAH10-00
12	KAH12-00

Union Elbow

KAL



Applicable tube O.D. mm	Model
3.2	KAL23-00
4	KAL04-00
6	KAL06-00
8	KAL08-00
10	KAL10-00
12	KAL12-00

Antistatic Clean One-touch Fittings

Series KA

Branch Tee

KAT



Applicable tube O.D. mm	Model
3.2	KAT23-00
4	KAT04-00
6	KAT06-00
8	KAT08-00
10	KAT10-00
12	KAT12-00

Union "Y"

KAU



Applicable tube O.D. mm	Model
3.2	KAU23-00
4	KAU04-00
6	KAU06-00
8	KAU08-00
10	KAU10-00
12	KAU12-00

Different Dia. Straight

KAH



Applicable tube O.D. mm		Model
(a)	(b)	
3.2	4	KAH23-04
4	6	KAH04-06
6	8	KAH06-08
8	10	KAH08-10
10	12	KAH10-12

Plug-in Reducer

KAR



Applicable tube O.D. mm	Applicable fitting size	Model
3.2	4	KAR23-04
	6	KAR04-06
4	8	-08
	10	-10
	8	KAR06-08
6	10	-10
	12	-12
8	10	KAR08-10
	12	-12
10	12	KAR10-12

Antistatic Clean One-touch Fittings

Series KA

Branch Tee

KAT



Applicable tube O.D. mm	Model
3.2	KAT23-00
4	KAT04-00
6	KAT06-00
8	KAT08-00
10	KAT10-00
12	KAT12-00

Union "Y"

KAU



Applicable tube O.D. mm	Model
3.2	KAU23-00
4	KAU04-00
6	KAU06-00
8	KAU08-00
10	KAU10-00
12	KAU12-00

Different Dia. Straight

KAH



Applicable tube O.D. mm		Model
(a)	(b)	
3.2	4	KAH23-04
4	6	KAH04-06
6	8	KAH06-08
8	10	KAH08-10
10	12	KAH10-12

Plug-in Reducer

KAR



Applicable tube O.D. mm	Applicable fitting size	Model
3.2	4	KAR23-04
	6	KAR04-06
4	8	-08
	10	-10
	8	KAR06-08
6	10	-10
	12	-12
8	10	KAR08-10
	12	-12
10	12	KAR10-12

Flame Resistant One-touch Fittings

(Equivalent to UL-94 Standards V-0)

Series KR



Spatter Resistant

Applicable Tube

Tube material	FR double layer, FR soft nylon
Tube O.D.	ø6, ø8, ø10, ø12

Principal Element Material

Fitting are supplied without cover, order cover separately.

Two types of covers:

- Single layer tubing
Cap-KR□□C
Tubing-TRS
- Double layer tubing
Cap- KR□□C1
Tubing-TRB

Body	C3604BD, Flame resistance PBT (UL-94 standard V-0)
Stud (Thread)	C3604BD
Chuck	Stainless steel (SUS304)
Guide	C3604BD, Flame resistance PBT (UL-94 standard V-0)
Collet	Polyacetal (POM)
Release button	Flame resistance PBT (UL-94 standard V-0)
Seal, O-ring	NBR
Cover	Flame resistance CR (UL-94 standard V-0)

Specifications

Operating fluid	Air, Water ^{Note1)}	
Max. operating pressure	145psi (1.0MPa)	
Proof pressure	435psi (3.0MPa)	
Ambient and fluid temperature	Air: 23° to 140°F (-5° to 60°C) Water: 32° to 105°F (0° to 40°C) (With no freezing)	
Thread	Mounting	JIS B0203 (Taper pipe thread)
	Nut	JIS B0211, Class 2 (Metric fine thread)
Sealant (Thread portion)	With sealant (Standard)	

Note1) Applicable to general industrial water. Consult SMC if using other fluids.
Surge pressure must be under the maximum operating pressure.

Series KR: Black body.

Guide

Collet

Chuck

Accepts FR soft nylon.
Has high retaining force. Chuck certainly bites tube and collet increase retaining force.

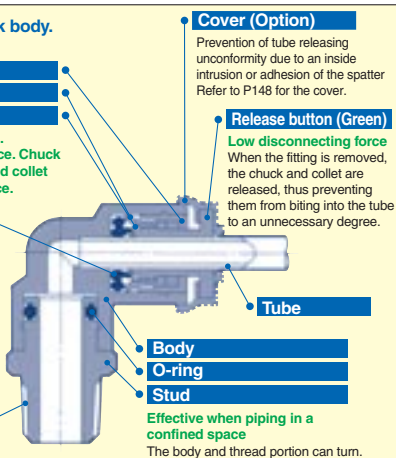
Seal

Can be used for a wide range of pressure from a low vacuum up to a pressure of 145psi (1.0MPa).

The Use of a special profile ensures positive sealing and reduced resistance when the tube is being inserted.

With sealant

Seal tape unnecessary



Cover (Option)

Prevention of tube releasing unconformity due to an inside intrusion or adhesion of the spatter
Refer to P148 for the cover.

Release button (Green)

Low disconnecting force
When the fitting is removed, the chuck and collet are released, thus preventing them from biting into the tube to an unnecessary degree.

Tube

Body

O-ring

Stud

Effective when piping in a confined space

The body and thread portion can turn.

Flame Resistant One-touch Fittings

Series KR

Male Connector

KRH



Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KRH			KRH
1/4	1/8	KRH07-34S	6	1/8	KRH06-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
3/8	1/4	KRH11-35S	8	1/8	KRH08-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
1/2	1/4	KRH13-35S	10	1/8	KRH10-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
			12	1/2	-04S
				1/4	KRH12-02S
				3/8	-03S
				1/2	-04S

Male Elbow

KRL



Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KRL			KRL
1/4	1/8	KRL07-34S	6	1/8	KRL06-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
3/8	1/4	KRL11-35S	8	1/8	KRL08-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
1/2	1/4	KRL13-35S	10	1/8	KRL10-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
			12	1/2	-04S
				1/4	KRL12-02S
				3/8	-03S
				1/2	-04S

45° Male Elbow

KRK



Applicable tube O.D. mm	Port size R	Model
		KRK
6	1/8	KRK06-01S
	1/4	-02S
	3/8	-03S
8	1/8	KRK08-01S
	1/4	-02S
	3/8	-03S
10	1/8	KRK10-01S
	1/4	-02S
	3/8	-03S
12	1/2	-04S
	1/4	KRK12-02S
	3/8	-03S
	1/2	-04S

Flame Resistant One-touch Fittings

Series KR

Universal Male Elbow

KRV



Applicable tube O.D. mm	Port size R	Model
		KRV
6	1/8	KRV06-01S
	1/4	-02S
8	1/8	KRV08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KRV10-02S
	3/8	-03S
12	3/8	KRV12-03S
	1/2	-04S

* Reference dimensions after R thread installation.

Branch "Y"

KRU



Applicable tube O.D. mm	Port size R	Model
		KRU
6	1/8	KRU06-01S
	1/4	-02S
	3/8	-03S
8	1/8	KRU08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KRU10-02S
	3/8	-03S
	1/2	-04S
12	1/4	KRU12-02S
	3/8	-03S
	1/2	-04S

* Reference dimensions after R thread installation.

Union "Y"

KRU



Applicable tube O.D. mm	Model
	KRU
6	KRU06-00
8	KRU08-00
10	KRU10-00
12	KRU12-00

Plug-in "Y"

KRU



Applicable tube O.D. mm	Applicable fitting size ød	Model
		KRU
6	6	KRU06-99
8	8	KRU08-99
10	10	KRU10-99
12	12	KRU12-99

Flame Resistant One-touch Fittings

Series KR

Extended Male Elbow

KRW



Applicable tube O.D. mm	Port size R	Model
		KRW
6	1/8	KRW06-01S
	1/4	-02S
	3/8	-03S
8	1/8	KRW08-01S
	1/4	-02S
	3/8	-03S
10	1/4	KRW10-02S
	3/8	-03S
	1/2	-04S
12	1/4	KRW12-02S
	3/8	-03S
	1/2	-04S

Branch Tee

KRT



Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KRT			KRT
1/4	1/8	KRT07-34S	6	1/8	KRT06-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
3/8	1/4	KRT11-35S	8	1/8	KRT08-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
1/2	1/4	KRT13-35S	10	1/8	KRT10-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
			12	1/2	-04S
				1/4	KRT12-02S
				3/8	-03S
				1/2	-04S

Male Run Tee

KRY



Applicable tube O.D. Inch	Port size NPT	Model	Applicable tube O.D. mm	Port size R	Model
		KRY			KRY
1/4	1/8	KRY07-34S	6	1/8	KRY06-01S
	1/4	-35S		1/4	-02S
	3/8	-36S		3/8	-03S
3/8	1/4	KRY11-35S	8	1/8	KRY08-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
1/2	1/4	KRY13-35S	10	1/8	KRY10-01S
	3/8	-36S		1/4	-02S
	1/2	-37S		3/8	-03S
			12	1/2	-04S
				1/4	KRY12-02S
				3/8	-03S
				1/2	-04S

Flame Resistant One-touch Fittings

Series KR

Straight Union

KRH



Applicable tube O.D. mm	Model
	KRH
6	KRH06-00
8	KRH08-00
10	KRH10-00
12	KRH12-00

Bulkhead Union

KRE



Applicable tube O.D. Inch	Port size UNF	Model KRE	Applicable tube O.D. mm	Model KRE
1/4	5/16-18	KRE07-00	6	KRE06-00
3/8	1/8-14	KRE11-00	8	KRE08-00
1/2	1-2	KRE13-00	10	KRE10-00
			12	KRE12-00

Union Elbow

KRL



Applicable tube O.D. Inch	Model KRL	Applicable tube O.D. mm	Model KRL
1/4	KRL07-00	6	KRL06-00
3/8	KRL11-00	8	KRL08-00
1/2	KRL13-00	10	KRL10-00
		12	KRL12-00

Union Tee

KRT



Applicable tube O.D. Inch	Model KRT	Applicable tube O.D. mm	Model KRT
1/4	KRT07-00	6	KRT06-00
3/8	KRT11-00	8	KRT08-00
1/2	KRT13-00	10	KRT10-00
		12	KRT12-00

Plug-in Reducer

KRR



Applicable tube O.D. Inch	Applicable fitting size	Model KRR	Applicable tube O.D. mm	Applicable fitting size	Model KRR
1/4	3/8	KRR07-11	6	8	KRR06-08
	1/2	-13		10	-10
3/8	1/2	KRR11-13	8	10	KRR08-10
				12	-12
			10	12	KRR10-12

Flame Resistant One-touch Fittings

Series KR

Plug

KRP



Applicable fitting size Inch	Model
1/4	KRP-07
3/8	KRP-11
1/2	KRP-13

Applicable fitting size mm	Model
6	KRP-06
8	KRP-08
10	KRP-10
12	KRP-12

Spatter cover 1

KR



TIRS Tubing	
Applicable fitting size Inch	Model
1/4	KR-07C
3/8	KR-11C
1/2	KR-13C

TRS Tubing	
Applicable fitting size mm	Model
6	KR-06C
8	KR-08C
10	KR-10C
12	KR-12C

Spatter cover 2 (TRB Tubing)

KR



Applicable fitting size mm	Model
6	KR-06C1
8	KR-08C1
10	KR-10C1
12	KR-12C1

Made to Order

Made to Order

Electroless Nickel Plated on Brass Parts

X2

(Example) KRH06-02S-X2

Flame Resistant One-touch Fittings Manifold

(Equivalent to UL-94 Standards V-0)

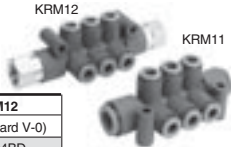
Series KRM

- Compact piping possible
- Manifold piping possible
- Many varieties (8 types) available
- One-touch mounting



KRM12

KRM11



Principal Element Material

	KRM11	KRM12
Body	Flame resistance PBT (UL standard V-0)	
Stud	—	C3604BD
Chuck	Stainless Steel (SUS304)	
Guide	C3604BD	
Collet	Polyacetal (POM)	
Release button	Flame resistance PBT (UL standard V-0)	
Seal	NBR	
Cover	Flame resistance CR (UL standard V-0)	

Model

Model	Porting		Number of port A	Port A	Port B
	Port A	Port B		Connection size	Connection size
KRM11	One-touch fitting	One-touch fitting	6, 10	ø6 tube	ø10 tube
				ø8 tube	ø12 tube
KRM12	One-touch fitting	Rc female thread	6, 10	ø6 tube	Rc1/4
				ø8 tube	Rc3/8

Applicable Tube

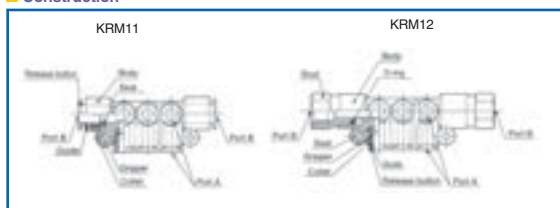
Tube material	FR double layer, FR soft nylon
Tube O.D.	ø6, ø8, ø10, ø12

Specifications

Model	KRM11	KRM12
Operating fluid	Air, Water ^{Note 1)}	
Max. operating pressure	145psi (1.0MPa)	
Proof pressure	435psi (3.0MPa)	
Ambient and fluid temperature	23° to 140°F (-5° to 60°C) Water: 32° to 105°F (0 to 40°C) (With no freezing)	
Thread	—	JIS B0203 (Taper pipe thread)
Accessory	None	Hexagon socket head blank plug with sealant: 1 pc

Note 1) Applicable to general industrial water. Consult SMC if using other fluids.
Surge pressure must be under the maximum operating pressure.

Construction

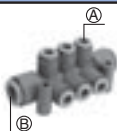


Flame Resistant One-touch Fittings Manifold

(Equivalent to UL-94 Standards V-0)

Series KRM

KRM11



Applicable tube O.D. mm		Number of port A	Model
(A)	(B)		
6	10	6	KRM11-06-10-6
		10	-10
8	12	6	KRM11-08-12-6
		10	-10

KRM12



Applicable tube O.D. mm	Port size Rc	Number of port A	Model
6	1/4	6	KRM12-06-02-6
		10	-10
8	3/8	6	KRM12-08-03-6
		10	-10

Spatter Cover 3

KRMC

KRMC (Applicable tubing: FR soft nylon)



Applicable tube O.D. mm	N	Model
6	6	KRMC-06-6
	10	-10
8	6	KRMC-08-6
	10	-10

Refer to KR-○ and page 148 for spatter covers 1 and 2.

Made to Order

Made to Order

Electroless Nickel Plated on Brass Parts

X2

(Example) KRM11-06-10-6-X2

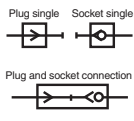
S Coupler

Series KK

Large effective sectional area.
Light weight.



JIS symbol



Specifications

Operating fluid	Air, Water (Standard industrial water)
Operating pressure range	0 to 145psi (0 to 1.0MPa)
Proof pressure	217psi (1.5MPa)
Ambient and fluid temperature	Air: 23° to 140°F (-5° to 60°C) Water: 41° to 104°F (5° to 40°C)
Plating, Seal	With electroless nickel plated (For copper-free application), With male thread seal

Note) See Best Pneumatics for more details.

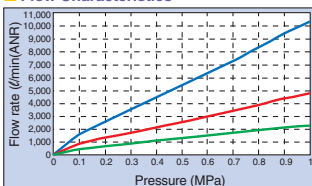
Performance

Plug and socket	One-touch connection and release
Check valve	Socket: Built-in check valve (Standard)
Sleeve lock mechanism	Manual locking type (Standard)

Effective Area

Body size	Plug	Socket	Effective area mm ²
1/8	KK3P-01MS	KK3S-01MS	20
1/4	KK4P-02MS	KK4S-02MS	39
1/2	KK6P-04MS	KK6S-04MS	82

Flow Characteristics



- KK6 series
(KK6S-04MS+KK6P-04MS)
- KK4 series
(KK4S-02MS—KK4P-02MS)
- KK3 series
(KK3S-01MS+KK3P-01MS)

Employs of a unique connection method
By eliminating the use of steel balls, a large effective sectional area is achieved on a compact body without constricting the passage.

The end of the check valve is shaped for a larger rectification effect.
Achieves a smooth fluid flow.

No spring located in the flow path
More effective sectional area is available because there are no valve springs blocking the passage.

Light weight
Not only the body is miniaturized but the weight is also reduced to the minimum by adoption of pressed parts and resin parts.

PAT.

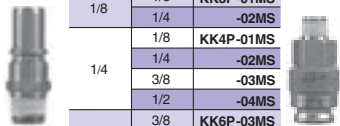
S Coupler

Series KK

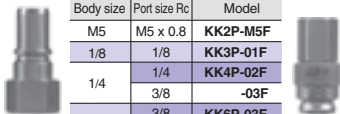
Plug (P)

Socket (S)

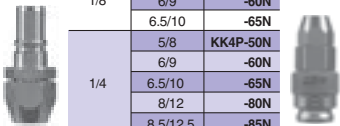
Male Thread Type

	Plug (P)				Socket (S)		
	Body size	Port size R	Model		Body size	Port size R	Model
	M5	M5 x 0.8	KK2P-M5M	M5	M5 x 0.8	KK2S-M5M	
		1/8	-01MS		1/8	-01MS	
	1/8	1/8	KK3P-01MS	1/8	1/8	KK3S-01MS	
		1/4	-02MS		1/4	-02MS	
	1/4	1/8	KK4P-01MS	1/4	1/8	KK4S-01MS	
		1/4	-02MS		1/4	-02MS	
		3/8	-03MS		3/8	-03MS	
		1/2	-04MS		1/2	-04MS	
	1/2	3/8	KK6P-03MS	1/2	3/8	KK6S-03MS	
		1/2	-04MS		1/2	-04MS	
		3/4	-06MS		3/4	-06MS	

Female Thread Type

	Plug (P)				Socket (S)		
	Body size	Port size Rc	Model		Body size	Port size Rc	Model
	M5	M5 x 0.8	KK2P-M5F	M5	M5 x 0.8	KK2S-M5F	
	1/8	1/8	KK3P-01F	1/8	1/8	KK3S-01F	
		1/4	KK4P-02F		1/4	KK4S-02F	
	1/4	3/8	-03F	1/4	3/8	-03F	
		3/8	KK6P-03F		3/8	KK6S-03F	
	1/2	1/2	-04F	1/2	1/2	-04F	

Nut Fitting Type (for fiber reinforced urethane hose)

	Plug (P)				Socket (S)		
	Body size	Applicable hose I.D. / O.D. mm	Model		Body size	Applicable hose I.D. / O.D. mm	Model
	1/8	5/8	KK3P-50N	1/8	5/8	KK3S-50N	
		6/9	-60N		6/9	-60N	
		6.5/10	-65N		6.5/10	-65N	
	1/4	5/8	KK4P-50N	1/4	5/8	KK4S-50N	
		6/9	-60N		6/9	-60N	
		6.5/10	-65N		6.5/10	-65N	
		8/12	-80N		8/12	-80N	
		8.5/12.5	-85N		8.5/12.5	-85N	
	1/2	8/12	KK6P-80N	1/2	8/12	KK6S-80N	
		8.5/12.5	-85N		8.5/12.5	-85N	
		11/16	-110N		11/16	-110N	

S Coupler

Series KK

Plug (P)

Socket (S)

Straight Type with One-touch Fitting

Body size	Applicable tube O.D. mm	Model	Body size	Applicable tube O.D. mm	Model
M5	3.2	KK2P-23H	M5	3.2	KK2S-23H
	4	-04H		4	-04H
	6	-06H		6	-06H
1/8	4	KK3P-04H	1/8	4	KK3S-04H
	6	-06H		6	-06H
	8	-08H		8	-08H
	10	-10H		10	-10H
1/4	6	KK4P-06H	1/4	6	KK4S-06H
	8	-08H		8	-08H
	10	-10H		10	-10H
	12	-12H		12	-12H
1/2	12	KK6P-12H	1/2	12	KK6S-12H
	16	-16H		16	-16H

Elbow Type with One-touch Fitting

Body size	Applicable tube O.D. mm	Model	Body size	Applicable tube O.D. mm	Model
M5	3.2	KK2P-23L	M5	3.2	KK2S-23L
	4	-04L		4	-04L
	6	-06L		6	-06L
1/8	4	KK3P-04L	1/8	4	KK3S-04L
	6	-06L		6	-06L
	8	-08L		8	-08L
	10	-10L		10	-10L
1/4	6	KK4P-06L	1/4	6	KK4S-06L
	8	-08L		8	-08L
	10	-10L		10	-10L
	12	-12L		12	-12L
1/2	12	KK6P-12L	1/2	12	KK6S-12L
	16	-16L		16	-16L

Bulkhead Type with One-touch Fitting

Body size	Applicable tube O.D. mm	Model	Body size	Applicable tube O.D. mm	Model
M5	3.2	KK2P-23E	M5	3.2	KK2S-23E
	4	-04E		4	-04E
	6	-06E		6	-06E
1/8	4	KK3P-04E	1/8	4	KK3S-04E
	6	-06E		6	-06E
	8	-08E		8	-08E
	10	-10E		10	-10E
1/4	6	KK4P-06E	1/4	6	KK4S-06E
	8	-08E		8	-08E
	10	-10E		10	-10E
	12	-12E		12	-12E
1/2	12	KK6P-12E	1/2	12	KK6S-12E
	16	-16E		16	-16E

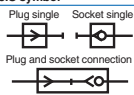
S Coupler

Series KKH

Rubber cover and super-high-impact PBT resin which absorb drop impact (Equivalent to impact energy of 0.5J) are adopted for body peripheral materials. Same flow rate as that of conventional series (Series KK)



JIS symbol



Specifications

Operating fluid	Air, Water (General industrial water)
Operating pressure range	0 to 145psi (0 to 1.0MPa)
Proof pressure	218psi (1.5MPa)
Ambient and fluid temperature	Air: 23° to 140°F (-5° to 60°C) Water: 40° to 105°F (5° to 40°C)
Plating, Seal	Electroless nickel plated, Copper-free application, With male thread seal
Connection plug	Series KK plug

Performance

Plug and socket connection	One-touch connection and release
Check valve	Socket: Built-in check valve
Sleeve lock mechanism	—

Effective Area

Body size	Plug	Socket	Effective area mm ²
1/8	KK3P-01MS	KKH3S-01MS	20
1/4	KK4P-02MS	KKH4S-02MS	39

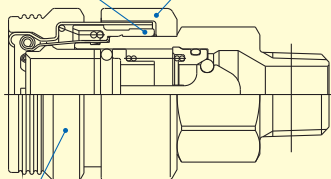
The flow characteristics are the same as those of series KK. Refer to Best Pneumatics Volum 15 page 15-2-78.

Spacer

(High-impact PBT)

Cover ring

(Super-high impact PBT)



Sleeve cover

(Rubber)

PAT.



S Coupler

Series KKH



Plug (P)

Socket (S)



Male Thread Type

	Plug (P)				Socket (S)		
	Body size	Port size R	Model		Body size	Port size R	Model
	1/8	1/8	KK3P-01MS		1/8	1/8	KKH3S-01MS
		1/4	-02MS			1/4	-02MS
	1/4	1/8	KK4P-01MS		1/8	KKH4S-01MS	
1/4		-02MS	1/4	-02MS			
3/8		-03MS	3/8	-03MS			
1/2		-04MS	1/2	-04MS			

Female Thread Type

	Plug (P)				Socket (S)		
	Body size	Port size R	Model		Body size	Port size R	Model
	1/8	1/8	KK3P-01F		1/8	1/8	KKH3S-01F
	1/4	1/4	KK4P-02F		1/4	KKH4S-02F	
		3/8	-03F		3/8	-03F	

Nut Fitting Type (for fiber reinforced urethane hose)

	Plug (P)				Socket (S)		
	Body size	Applicable hose I.D. / O.D. mm	Model		Body size	Applicable hose I.D. / O.D. mm	Model
	1/8	5/8	KK3P-50N		1/8	5/8	KKH3S-50N
		6/9	-60N			6/9	-60N
		6.5/10	-65N			6.5/10	-65N
1/4	5/8	KK4P-50N	5/8	KKH4S-50N			
	6/9	-60N	6/9	-60N			
	6.5/10	-65N	6.5/10	-65N			
	8/12	-80N	8/12	-80N			
	8.5/12.5	-85N	8.5/12.5	-85N			

Only sockets are provided as series KKH.
Please use plugs in Series KK.

S Coupler

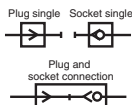
Series KK13



Manufactured
by Rectus



JIS symbol



Specifications

Operating fluid	Air ^{Note 1)}
Operating pressure range	0 to 218psi (0 to 1.5MPa)
Proof pressure	290psi (2MPa)
Ambient and fluid temperature	23° to 140°F (-5° to 60°C)
Plating	External metal parts nickel plated

Note 1) Not applicable to water.

Performance

Plug and socket connection	One-touch connection and release
Check valve	Socket: Built-in check valve (Standard)

Effective Area

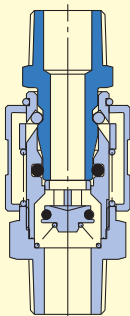
Body size	Plug	Socket	Effective area mm ²
1/4	KK13P-02M	KK13S-02M	24.1
	KK13P-03M	KK13S-03M	31.1

One-touch connection

Easy connection by inserting a plug into a socket
Improved working efficiency with one-handed operation

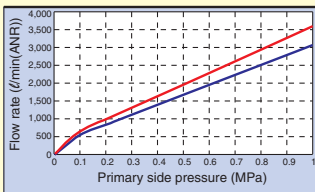
The flow can be either from the plug to the socket or from the socket to the plug.

Excellent airtightness and durability achieved by O-ring sealing construction



PAT.

Flow Characteristics



■ KK13S-03M + KK13P-03M
■ KK13S-02M + KK13P-02M



S Coupler

Series KK13



Plug (P)

Socket (S)



Male Thread Type

	Port size R	Model		Port size R	Model
		1/8		KK13P-01M	
	1/4	-02M		1/4	-02M
	3/8	-03M		3/8	-03M
	1/2	-04M		1/2	-04M



Female Thread Type

	Port size R	Model		Port size R	Model
		1/4		KK13P-02F	
	3/8	-03F		3/8	-03F
	1/2	-04F		1/2	-04F
	1/4	-G02F			

Barb Fitting Type

	Applicable hose I.D. Inch	Model		Applicable hose I.D. Inch	Model
		1/4		KK13P-07B	
	5/16	-09B		5/16	-09B
	3/8	-11B		3/8	-11B
	1/2	-13B		1/2	-13B

Nut Fitting Type

	Applicable hose I.D. / O.D. mm	Model		Applicable hose I.D. / O.D. mm	Model
		5/8		KK13P-50N	
	6/9	-60N		6/9	-60N
	6.5/10	-65N		6.5/10	-65N
	8/12	-80N		8/12	-80N
	8.5/12.5	-85N		8.5/12.5	-85N
	11/16	-110N		11/16	-110N

Insert Compression Fittings

Series KF

Applicable to use with nylon, soft nylon and polyurethane tubing

Designed to allow low tightening torque to improve working efficiency.



Applicable Tube

Tube size		O.D.	4	6	8		10		12
		I.D.	2.5	4	5	6	6.5	7.5	8
Material	Nylon tube	●	●	—	●	—	●	—	●
	Soft nylon tube	●	●	—	●	—	●	—	●
	Polyurethane tube	●	●	Note◎	—	Note◎	—	Note◎	—

Note) Since polyurethane tubing of sizes ø8, ø10 and ø12, which are marked with ◎, have different inside diameters, they must be used with special models.

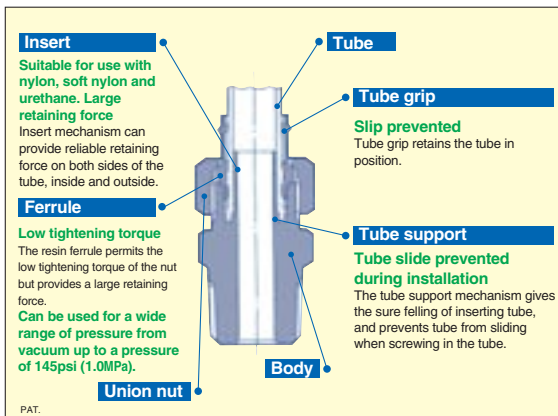
Specification

Operating fluid		Air
Max. operating pressure		145psi (1.0MPa)
Operating vacuum pressure		-15psi (-0.1MPa)
Proof Pressure		1015psi (7.0MPa)
Ambient and fluid temperature		23° to 140°F (-5° to 60°C) (With no condensation)
Thread	Mounting	JIS B0203 (Taper pipe thread)
	Nut	JIS B0211, Class 2 (Metric fine thread)
Sealant (Thread portion) <small>Note)</small>		None or with sealant

Note) Male elbow, Male branch tee and Male run tee with sealant are made to order.

Principal Element Material

Body	C3604BD, C3771BE
Nut	C3604BD
Ferrule	Nylon 66



Insert Compression Fittings

Series KF

Male Connector

KFH



Applicable tube mm		Port size R	Model
O.D.	I.D.		
4	2.5	1/8	KFH04-01
		1/4	-02
6	4	1/8	KFH06-01
		1/4	-02
		3/8	-03
8	5	1/8	KFH08U-01
		1/4	-02
		3/8	-03
	6	1/8	KFH08N-01
		1/4	-02
		3/8	-03
10	6.5	1/4	KFH10U-02
		3/8	-03
		1/2	-04
	7.5	1/4	KFH10N-02
		3/8	-03
		1/2	-04
12	8	1/4	KFH12U-02
		3/8	-03
		1/2	-04
	9	1/4	KFH12N-02
		3/8	-03
		1/2	-04

Male Elbow

KFL



Applicable tube mm		Port size R	Model
O.D.	I.D.		
4	2.5	1/8	KFL04-01
		1/4	-02
6	4	1/8	KFL06-01
		1/4	-02
		3/8	-03
8	5	1/8	KFL08U-01
		1/4	-02
		3/8	-03
	6	1/8	KFL08N-01
		1/4	-02
		3/8	-03
10	6.5	1/4	KFL10U-02
		3/8	-03
		1/2	-04
	7.5	1/4	KFL10N-02
		3/8	-03
		1/2	-04
12	8	1/4	KFL12U-02
		3/8	-03
		1/2	-04
	9	1/4	KFL12N-02
		3/8	-03
		1/2	-04

Insert Compression Fittings

Series KF

Swivel Elbow

KFV



	Applicable tube mm		Port size R	Model
	O.D.	I.D.		
4	2.5	1/8	KFV04-01	
		1/4	-02	
6	4	1/8	KFV06-01	
		1/4	-02	
		3/8	-03	
8	5	1/8	KFV08U-01	
		1/4	-02	
		3/8	-03	
	6	1/8	KFV08N-01	
		1/4	-02	
		3/8	-03	
10	6.5	1/4	KFV10U-02	
		3/8	-03	
		1/2	-04	
	7.5	1/4	KFV10N-02	
		3/8	-03	
12	8	1/4	KFV12U-02	
		3/8	-03	
		1/2	-04	
	9	1/4	KFV12N-02	
		3/8	-03	
		1/2	-04	

Swivel Extended Elbow

KFW



	Applicable tube mm		Port size R	Model
	O.D.	I.D.		
4	2.5	1/8	KFW04-01	
		1/4	-02	
6	4	1/8	KFW06-01	
		1/4	-02	
		3/8	-03	
8	5	1/8	KFW08U-01	
		1/4	-02	
		3/8	-03	
	6	1/8	KFW08N-01	
		1/4	-02	
		3/8	-03	
10	6.5	1/4	KFW10U-02	
		3/8	-03	
		1/2	-04	
	7.5	1/4	KFW10N-02	
		3/8	-03	
12	8	1/2	-04	
		1/4	KFW12U-02	
		3/8	-03	
	9	1/4	KFW12N-02	
		3/8	-03	
		1/2	-04	

Insert Compression Fittings

Series KF

Branch Male Tee

KFT



Applicable tube mm		Port size R	Model
4	2.5	1/8	KFT04-01
		1/4	-02
6	4	1/8	KFT06-01
		1/4	-02
		3/8	-03
		1/8	KFT08U-01
8	5	1/4	-02
		3/8	-03
		1/8	KFT08N-01
	6	1/4	-02
		3/8	-03
		1/4	KFT10U-02
10	6.5	3/8	-03
		1/2	-04
		1/4	KFT10N-02
	7.5	3/8	-03
		1/2	-04
		1/4	KFT12U-02
12	8	3/8	-03
		1/2	-04
		1/4	KFT12N-02
	9	3/8	-03
		1/2	-04

Male Run Tee

KFY



Applicable tube mm		Port size R	Model
4	2.5	1/8	KFY04-01
		1/4	-02
6	4	1/8	KFY06-01
		1/4	-02
		3/8	-03
		1/8	KFY08U-01
8	5	1/4	-02
		3/8	-03
		1/8	KFY08N-01
	6	1/4	-02
		3/8	-03
		1/4	KFY10U-02
10	6.5	3/8	-03
		1/2	-04
		1/4	KFY10N-02
	7.5	3/8	-03
		1/2	-04
		1/4	KFY12U-02
12	8	3/8	-03
		1/2	-04
		1/4	KFY12N-02
	9	3/8	-03
		1/2	-04

Insert Compression Fittings

Series KF

Straight Union

KFH



Applicable tube mm		Model
O.D.	I.D.	
4	2.5	KFH04-00
6	4	KFH06-00
8	5	KFH08U-00
	6	KFH08N-00
10	6.5	KFH10U-00
	7.5	KFH10N-00
12	8	KFH12U-00
	9	KFH12N-00

Bulkhead Union

KFE



Applicable tube mm		Model
O.D.	I.D.	
4	2.5	KFE04-00
6	4	KFE06-00
8	5	KFE08U-00
	6	KFE08N-00
10	6.5	KFE10U-00
	7.5	KFE10N-00
12	8	KFE12U-00
	9	KFE12N-00

Bulkhead Connector


KFE





Applicable tube mm		Port size Rc	Model
O.D.	I.D.		
6	4	1/4	KFE06-02
8	5	3/8	KFE08U-03
	6		KFE08N-03
10	6.5	3/8	KFE10U-03
	7.5		KFE10N-03
12	8	3/8	KFE12U-03
	9		KFE12N-03

Insert Compression Fittings

Series KF

Union Tee			KFT
	Applicable tube mm		Model
	O.D.	I.D.	
	4	2.5	KFT04-00
	6	4	KFT06-00
	8	5	KFT08U-00
		6	KFT08N-00
	10	6.5	KFT10U-00
		7.5	KFT10N-00
	12	8	KFT12U-00
		9	KFT12N-00

Female Connector			KFF	
	Applicable tube mm		Port size Rc	Model
	O.D.	I.D.		
	4	2.5	1/4	KFF04-02
	6	4	1/4	KFF06-02
			3/8	-03
	8	5	1/4	KFF08U-02
		6		KFF08N-02
	10	6.5	1/4	KFF10U-02
		7.5		KFF10N-02
	12	8	1/4	KFF12U-02
		9		KFF12N-02

Plug		KFP
	Applicable tube mm	Model
	4	KFP-04
	6	KFP-06
	8	KFP-08
	10	KFP-10
	12	KFP-12



Made to Order

Electroless Nickel Plated Metal Parts	X2
(Example) KFH06-02-X2	
With Sealant on R Thread	S
(Example) KFH06-02S	
Clean Series	10-
Electroless nickel plated metal parts (X2). Double packaging.	
(Example) 10-KFH06-02	



Self-align Compression Fittings

Series H, DL, L, LL

Flared Ridge Ferrule

Prevents accidental loss of ferrule when inserting tubing into the fitting body.

Hardened Ridge Ferrule

Prevents breakage of ferrule when tightening nut.

Flared I.D.

Provides low flow resistance inside the fitting.

Wide variety of types and sizes

Ten types and five tube O.D.s provide a wide range of fittings that will fit any application.

Spatter Resistant



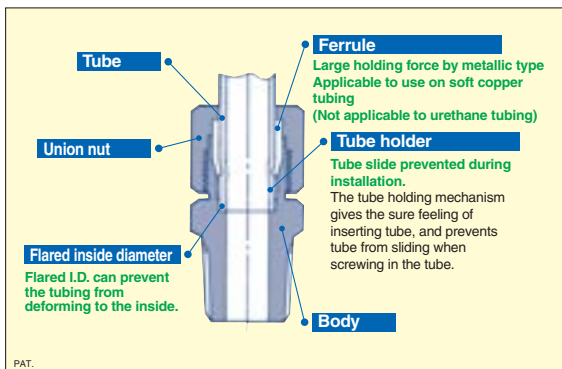
Specifications

Applicable tube material		Nylon, Soft nylon, Soft copper (C1220T-0)
Applicable tube O.D.		ø4, ø6, ø8, ø10, ø12
Max. operating pressure		145psi (1.0MPa)
Proof pressure		1,450psi (10MPa)
Operating fluid		Air
Thread	Mounting	JIS B0203 (Taper pipe thread)
	Nut	JIS B0211 Class 2 (Metric fine thread)
Sealant (Thread portion) <small>Note)</small>		None or with sealant

Note) Male elbow, Male branch tee, Male run tee with sealant are made to order. Suffix "S" to the end of part number if with sealant is desired.

Main Parts Material

Body	C3604BD, C3771BE
Nut	C3604BD
Ferrule	C2700T



Self-align Compression Fittings

Series H, DL, L, LL

Male Connector		H
Applicable tube mm	Port size R	Model
4	1/8	H04-01
	1/4	-02
6	1/8	H06-01
	1/4	-02
	3/8	-03
8	1/8	H08-01
	1/4	-02
	3/8	-03
10	1/4	H10-02
	3/8	-03
	1/2	-04
12	1/4	H12-02
	3/8	-03
	1/2	-04



Male Elbow		DL
Applicable tube mm	Port size R	Model
4	1/8	DL04-01
	1/4	-02
6	1/8	DL06-01
	1/4	-02
	3/8	-03
8	1/8	DL08-01
	1/4	-02
10	3/8	-03
	1/2	-04
	1/4	DL10-02
12	1/4	DL12-02
	3/8	-03
	1/2	-04



Self-align Compression Fittings

Series H, DL, L, LL

Swivel Elbow

L



Applicable tube mm	Port size R	Model
4	1/8	L04-01
	1/4	-02
6	1/8	L06-01
	1/4	-02
	3/8	-03
8	1/8	L08-01
	1/4	-02
	3/8	-03
10	1/4	L10-02
	3/8	-03
	1/2	-04
12	1/4	L12-02
	3/8	-03
	1/2	-04

Swivel Extended Elbow

LL



Applicable tube mm	Port size R	Model
4	1/8	LL04-01
	1/4	-02
6	1/8	LL06-01
	1/4	-02
	3/8	-03
8	1/8	LL08-01
	1/4	-02
	3/8	-03
10	1/4	LL10-02
	3/8	-03
	1/2	-04
12	1/4	LL12-02
	3/8	-03
	1/2	-04

Self-align Compression Fittings

Series H, DL, L, LL

Male Branch Tee

DT



Applicable tube mm	Port size R	Model
4	1/8	DT04-01
	1/4	-02
6	1/8	DT06-01
	1/4	-02
	3/8	-03
8	1/8	DT08-01
	1/4	-02
	3/8	-03
10	1/4	DT10-02
	3/8	-03
	1/2	-04
12	1/4	DT12-02
	3/8	-03
	1/2	-04

Male Run Tee

DY



Applicable tube mm	Port size R	Model
4	1/8	DY04-01
	1/4	-02
6	1/8	DY06-01
	1/4	-02
	3/8	-03
8	1/8	DY08-01
	1/4	-02
	3/8	-03
10	1/4	DY10-02
	3/8	-03
	1/2	-04
12	1/4	DY12-02
	3/8	-03
	1/2	-04

Bulkhead Union

DE



Applicable tube mm	Model
4	DE04-00
6	DE06-00
8	DE08-00
10	DE10-00
12	DE12-00

Self-align Compression Fittings

Series *H, DL, L, LL*

Union Tee

DT



Applicable tube mm	Model
4	DT04-00
6	DT06-00
8	DT08-00
10	DT10-00
12	DT12-00

Female Connector

DHF



Applicable tube mm	Port size Rc	Model
4	1/4	DHF04-02
6	1/4	DHF06-02
	3/8	-03
8	1/4	DHF08-02
10	1/4	DHF10-02
12	1/4	DHF12-02

Bulkhead Female Connector

DEF



Applicable tube mm	Port size Rc	Model
6	1/4	DEF06-02
8	3/8	DEF08-03
10	3/8	DEF10-03
12	3/8	DEF12-03

Plug

DP



Applicable fitting size	Model
ø4	DP-04
ø6	DP-06
ø8	DP-08
ø10	DP-10
ø12	DP-12



Made to Order

Electroless Nickel
Plated Metal Parts

X2

With Sealant on R Thread

S

(Example) H06-02-X2

(Example) H06-02S

Miniature size

For air connection in confined areas.

Simple connection/disconnection

Hose nipple tubing connection/disconnection is simple while keeping a large retaining force.

Accepts many type of plastic tubing.

Hose nipple and hose elbow accepts nylon, soft nylon, and polyurethane tubing.

Electroless nickel plated

To be used for copper-free application



Specifications

Applicable tube material	Nylon	Soft nylon		Polyurethane
Applicable tube	M3	—	ø3.18/ø2.18	ø4/ø2.5
	M5-R1/8	ø4/ø2.5 ø6/ø4		ø4/ø2.5 ø6/ø4
Max. operating pressure at 68°F (20°C)	218psi (1.5MPa)	145psi (1.0MPa)		116psi (0.8MPa)
Ambient and fluid temperature	32° to 140°F (0° to 60°C)			
Port size	M3, M5, R1/8			
Thread	JIS B0209 Class 2 (Metric coarse thread), JIS B0203 (Taper pipe thread)			

Principal Element Material

Body	C3604BD (Nipple M-3N, M-5N): Stainless steel (SUS303)
Gasket	PVC, Nylon66: GF30%

Hose Nipple

Barb

Easy tube insertion
High retaining force

Body

With electroless nickel plated

Gasket

Low clamping torque

Tube

Accepts nylon, soft nylon and polyurethane tubing.

Cap nut

Hose nipple tubing connection/disconnection is simple while keeping a large retaining force.
With electroless nickel plating

Barb Fittings

Barb

Easy tube insertion
High retaining force

Body

With electroless nickel plated








Tube

Gasket




Low tightening torque
Secure sealing

PAT.







Series M3

Description	Remark(s)	Model	Application	
Barb fitting 	ø3.18/ø2.18 X M3	M-3AU-3	For soft nylon tubing	
	ø3.18/ø2 X M3		For polyurethane tubing	
	ø4/ø2.5 X M3	M-3AU-4	For soft nylon, polyurethane tubing	
Barb elbow 	ø3.18/ø2.18 X M3	M-3ALU-3	Body rotates 360° around the stud axis. Position can be fixed after alignment.	For soft nylon tubing
	ø3.18/ø2 X M3			For polyurethane tubing
	ø4/ø2.5 X M3	M-3ALU-4		For soft nylon, polyurethane tubing
Universal elbow 	M3 female X M3 male	M-3UL	Body rotates 360° around the stud axis. Position can be fixed after alignment.	
Universal tee 	M3 female X M3 female X M3 male	M-3UT	Body rotates 360° around the stud axis. Position can be fixed after alignment.	
Nipple 	M3 male X M3 male	M-3N	To connect fittings and equipment or to connect 2 fittings	
Plug 		M-3P	To plug unused M3 port	
Gasket 		M-3G	To seal M3 thread	

Series R1/8

Description	Remark(s)	Model	Application
Barb fitting 	$\varnothing 4/\varnothing 2.5 \times R1/8$	M-01AN-4	For nylon tubing
	$\varnothing 6/\varnothing 4 \times R1/8$	M-01AN-6	
Barb fitting 	$\varnothing 4/\varnothing 2.5 \times R1/8$	M-01AU-4	For soft nylon, polyurethane tubing
	$\varnothing 6/\varnothing 4 \times R1/8$	M-01AU-6	
Hose nipple 	$\varnothing 4/\varnothing 2.5 \times R1/8$	M-01H-4	For nylon, soft nylon, polyurethane tubing
	$\varnothing 6/\varnothing 4 \times R1/8$	M-01H-6	














Series M5

Description	Remark(s)	Model	Application	
Barb fitting 	ø4/ø2.5 X M3	M-5AN-4	For nylon tubing	
	ø6/ø4 X M5	M-5AN-6		
Barb fitting 	ø3.18/ø2.18 X M5	M-5AU-3	For soft nylon tubing	
	ø3.18/ø2 X M5		For polyurethane tubing	
	ø4/ø2.5 X M5	M-5AU-4	For soft nylon, polyurethane tubing	
	ø6/ø4 X M5	M-5AU-6		
Barb elbow 	ø4/ø2.5 X M5	M-5ALN-4	<ul style="list-style-type: none"> •For nylon tubing •Body rotates 360° around the stud axis. Position can be fixed after alignment. 	
	ø6/ø4 X M5	M-5ALN-6		
Barb elbow 	ø3.18/ø2.18 X M5	M-5ALU-3	Body rotates 360° around the stud axis. Position can be fixed after alignment.	For soft nylon tubing
	ø3.18/ø2 X M5			For polyurethane tubing
	ø4/ø2.5 X M5	M-5ALU-4		For soft nylon, polyurethane tubing
	ø6/ø4 X M5	M-5ALU-6		
Barb elbow 	ø4/ø2.5 X M5	M-5ALHN-4	<ul style="list-style-type: none"> •For nylon tubing •Body rotates 360° around the stud axis. Position can be fixed after alignment. 	
	ø6/ø4 X M5	M-5ALHN-6		
Barb elbow 	ø3.18/ø2.18 X M5	M-5ALHU-3	Body rotates 360° around the stud axis. Position can be fixed after alignment.	For soft nylon tubing
	ø3.18/ø2 X M5			For polyurethane tubing
	ø4/ø2.5 X M5	M-5ALHU-4		For soft nylon, polyurethane tubing
	ø6/ø4 X M5	M-5ALHU-6		

Miniature Fittings

Series M





Series M5

Description	Remark(s)	Model	Application
Hose nipple 	$\phi 4/\phi 2.5 \times M5$	M-5H-4	For nylon, soft nylon, polyurethane tubing
	$\phi 6/\phi 4 \times M5$	M-5H-6	
Hose elbow 	$\phi 4/\phi 2.5 \times M5$	M-5HL-4	<ul style="list-style-type: none"> • For nylon, soft nylon, polyurethane tubing • Body rotates 360° around the stud axis. Position can be fixed after alignment.
	$\phi 6/\phi 4 \times M5$	M-5HL-6	
Hose elbow(H) 	$\phi 4/\phi 2.5 \times M5$	M-5HLH-4	
	$\phi 6/\phi 4 \times M5$	M-5HLH-6	
Elbow 	M5 female X M5 female	M-5L	Perpendicular piping
Tee 	M5 female X M5 female X M5 female	M-5T	Perpendicular piping in both directions
Universal elbow 	M5 female X M5 male	M-5UL	Body rotates 360° around the stud axis. Position can be fixed after alignment.
Universal tee 	M5 female X M5 female X M5 male	M-5UT	Body rotates 360° around the stud axis. Position can be fixed after alignment.
Extension fitting 	M5 male X M5 female	M-5J	For 3D piping to prevent interference between fittings
Nipple 	M5 male X M5 male	M-5N	To connect fittings and equipment or to connect 2 fittings
Union nipple 	M5 male X M5 male PAT.	M-5UN	Body rotates 360° around the stud axis.
Bulkhead union 	M5 X M5 female – female	M-5E	Panel mount connection
Bulkhead Reducer 	Rc1/8 X M5 female	M-5ER	Reduction from Rc1/8 to M5 Panel mounting is possible.
Manifold 	Rc1/8 X M5 female (9 port)	M-5M	Rc1/8 can be diverted in up to nine M5 stations. Panel mounting is possible.

Miniature Fittings

Series M

Series M5

Description	Remark(s)	Model	Application
Reducing Bushing 	R1/8 X M5 female	M-5B	Connection from R1/8 piping to M5 fittings
Plug 		M-5P	To plug unused M5 port
Gasket 	Material: PVC	M-5G1	To seal M5 thread
Gasket (H) 	Material: Nylon66 GF30%	M-5GH	M-5AL□-6 M-5ALH□-6 M-5HL-4, 6 M-5HLH-4, 6.



Made to Order

Clean Series

10-

Lubricant: Fluororesin grease
(For only M-5UN)
Double packaging

(Example) 10-M-5AN-4

Electroless Nickel Plated Metal Parts

X2

M-5E-X2

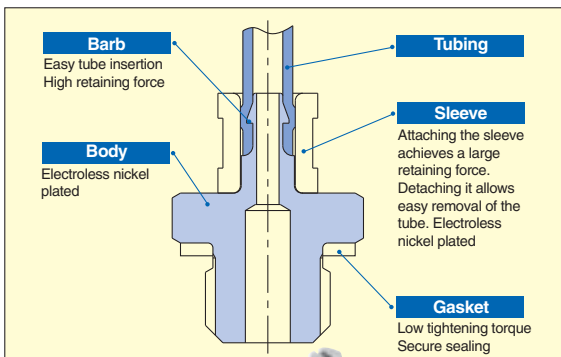
M-5ER-X2

M-5M-X2

Only the above three types are applicable. For other types, electroless nickel plating is standardized.

Miniature Fittings (For exclusive Miniature Tubing)

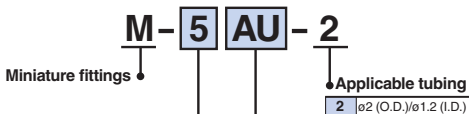
Series M



Specifications

Applicable tube material	Polyurethane
Applicable tube diameter	$\phi 2 / \phi 1.2$
Max. operating pressure at 68°F (20°C)	145psi (1MPa)
Port size	M3, M5, $\phi 3.2$, $\phi 4$
Thread	JIS B0209 Class 2 (Metric coarse thread)

How to Order



Model

AU	Barb fitting	M3, M5
ALU	Barb elbow	M3
ALHU		M5
F	Barb one-touch	$\phi 3.2$, $\phi 4$
R	Reducer	

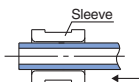
Port size

3	M3 x 0.5
5	M5 x 0.8
32	$\phi 3.2$
04	$\phi 4$

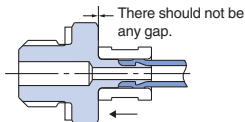
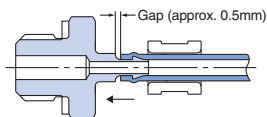
Tube Connection and Removal

Installing of tube

1. Cut the tubing perpendicularly allowing additional length.
2. Insert the tubing into the sleeve.
3. Insert the tubing slowly into the fittings. Make sure to secure a gap of approx. 0.5mm between the tubing end and the barb end.



4. Insert the sleeve slowly. Make sure not to allow any gap between the sleeve end side and the body end side. (Please refer to the illustration adjacent.) If you feel any strong resistance and cannot push the sleeve completely to the end side, this may be caused due to jamming. Remove and repeat again by starting from step 1 making sure to secure a gap in the step 3.



Note) When installing the tubing, the sleeve must be attached. Operation without attaching the sleeve may cause tubing disconnection.

Removing of tube

1. Withdraw the sleeve straight along the tubing. Use a tool such as long-nose pliers, if it is difficult to pull out by hand.
2. Withdraw the tubing straight.
3. When reusing the tubing, cut off the previously installed portion of the tubing to avoid possible leakage and/or disconnection of the tubing.

Miniature Fittings

(For exclusive Miniature Tubing)

Series M

Barb fitting: M-3AU-2, M-5AU-2



Applicable tubing O.D. x I.D. (mm)	Thread	Model
ø2 x ø1.2	M3 x 0.5	M-3AU-2
	M5 x 0.8	M-5AU-2

Component Parts

No.	Description	Material	Note
1	Sleeve	Brass	Electroless nickel plated
2	Barb fitting	Brass	Electroless nickel plated
3	Gasket	NBR, Stainless steel	–

Barb elbow: M-3ALU-2, M-5ALHU-2



Applicable tubing O.D. x I.D. (mm)	Thread	Model
ø2 x ø1.2	M3 x 0.5	M-3ALU-2
	M5 x 0.8	M-5ALHU-2

Component Parts

No.	Description	Material	Note
1	Sleeve	Brass	Electroless nickel plated
2	Stud	Brass	Electroless nickel plated
3	Barb elbow	Brass	Electroless nickel plated
4	Gasket	NBR, Stainless steel	–

Barb one-touch: M-32F-2, M-04F-2



Applicable tubing (mm)		Model
a (O.D. x I.D.)	b (O.D.)	
ø2 x ø1.2	ø3.2	M-32F-2
	ø4	M-04F-2

Component Parts

No.	Description	Material	Note
1	Sleeve	Brass	Electroless nickel plated
2	Body	Brass	Electroless nickel plated
3	Seal	NBR	–
4	Cassette	POM, Stainless steel	–

Reducer: M-32R-2, M-04R-2



Applicable tubing O.D. x I.D. (mm)	Fitting size øD	Model
ø2 x ø1.2	ø3.2	M-32R-2
	ø4	M-04R-2

Component Parts

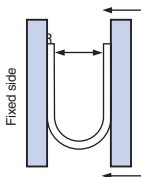
No.	Description	Material	Note
1	Sleeve	Brass	Electroless nickel plated
2	Studded body	Brass	Electroless nickel plated
3	Stem	PP	–



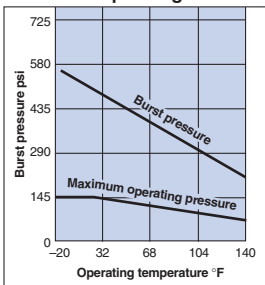
Specifications

Model	TU0212
O.D. x I.D. (mm)	2 x 1.2
Operating fluid	Air/Water
Max. operating pressure at 68°F (20°C)	116psi (0.8MPa)
Burst pressure	Refer to the burst pressure characteristics curve.
Min. bending radius (mm) <small>Note</small>	4
Operating temperature	-4° to 140°F (-20° to 60°C) (Water: 0° to 40°C) (No freezing)
Material	Polyurethane
Color	Black(B), White(W), Red(R), Blue(BU) Yellow(Y), Green(G), Clear(C)

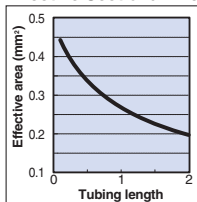
Note) At a temperature of 68°F (20°C) bend the tubing into a U shape. Then with one side fixed, gradually close the other side and measure 2R at the point where the tubing folds or flattens, etc.



Burst Pressure Characteristics Curve and Operating Pressure



Effective Sectional Area



How to Order

TU0212 B 20

Tubing model

Colors indication

Symbol	Color
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green
C	Clear

Length per roll

Symbol	Length
20	20m

Stainless Steel Miniature Fittings

Series MS

Possible to use in
corrosive application

Stainless steel material (SUS316)

Compact piping space

Tube has a large retaining force. Hose nipple assures
easy installation and removal.

Line up various types

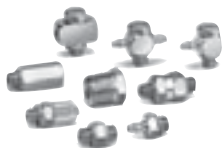
Possible for special tubing in a same direction

Accepts many types of plastic tubing.

Hose nipples and hose elbow accept nylon, soft nylon
and polyurethane tubing.

Corrosion Resistant

Clean



Specifications

Applicable tube material	Nylon	Soft nylon		Polyurethane
Applicable tube diameter	ø4/ø2.5 ø6/ø4	ø3.18/ø2.18	ø4/ø2.5 ø6/ø4	ø3.18/ø2 ø4/ø2.5, ø6/ø4
Max. operating pressure at 68°F (20°C)	218psi (1.5MPa)	145psi (1.0MPa)		116psi (0.8MPa)
Port size	M5 (JIS B0209, Class 2: Metric coarse thread)			
Material	Body	Stainless steel (SUS316)		
	Gasket	PVC, Nylon66/GF30%		

Hose Nipple

Barb

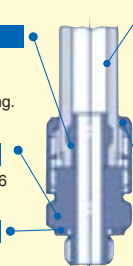
The tube allows easy tubing insertion as well as secure tubing holding.

Body

Stainless steel: SUS316

Gasket

Low tightening torque
Secure sealing



Tube

Hose nipples and hose elbow accept nylon, soft nylon and polyurethane tubing

Cap nut

Secure holding is achieved by manual tightening. Easy disconnection of tubing by loosening.
Stainless steel: SUS316

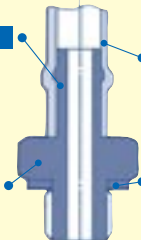
Barb Fittings

Barb

Configuration easy tube insertion
Certainly holds tube.

Body

Stainless steel: SUS316








Tube

Low tightening torque
Secure sealing

Gasket


Series M5

Description	Remark(s)	Model	Application	
Barb fittings 	$\varnothing 3.18/\varnothing 2.18 \times M5$	MS-5AU-3	For soft nylon tubing	
	$\varnothing 3.18/\varnothing 2 \times M5$		For polyurethane tubing	
	$\varnothing 4/\varnothing 2.5 \times M5$	MS-5AU-4	For soft nylon, polyurethane tubing	
	$\varnothing 6/\varnothing 4 \times M5$	MS-5AU-6		
Barb elbow 	$\varnothing 3.18/\varnothing 2.18 \times M5$	MS-5ALHU-3	Body rotates 360° around the stud axis. Position can be fixed after alignment.	For soft nylon tubing
	$\varnothing 3.18/\varnothing 2 \times M5$			For polyurethane tubing
	$\varnothing 4/\varnothing 2.5 \times M5$	MS-5ALHU-4		For soft nylon, polyurethane tubing
	$\varnothing 6/\varnothing 4 \times M5$	MS-5ALHU-6		
Hose nipple 	$\varnothing 4/\varnothing 2.5 \times M5$	MS-5H-4	For nylon, soft nylon, polyurethane tubing	
	$\varnothing 6/\varnothing 4 \times M5$	MS-5H-6		
Hose elbow 	$\varnothing 4/\varnothing 2.5 \times M5$	MS-5HLH-4	<ul style="list-style-type: none"> •For nylon, soft nylon, polyurethane tubing •Body rotates 360° around the stud axis. Position can be fixed after alignment. 	
	$\varnothing 6/\varnothing 4 \times M5$	MS-5HLH-6		
Gasket 	Material: PVC	M-5G1	To Seal M5 thread	

Stainless Steel Miniature Fittings

Series MS

Series M5

Description	Remark(s)	Model	Application	
Universal elbow 	M5 female X M5 male	MS-5UL	Body rotates 360° around the stud axis. Position can be fixed after alignment.	
Universal tee 	M5 female X M5 female X M5 male	MS-5UT	Body rotates 360° around the stud axis. Position can be fixed after alignment.	
Bushing 	R1/8 X M5 female	MS-5B	Connection from R1/8 piping to M5 fittings	
Plug 		MS-5P	To plug unused M5 port	
Extension fitting 	M5 male X M5 female	MS-5J	For 3D piping to prevent interference between fittings	
Nipple 	M5 male X M5 male	MS-5N	To connect fittings and equipment or to connect 2 fittings	
Union nipple 	M5 male X M5 male PAT	MS-5UN	Body rotates 360° around the stud axis.	
Universal tee  	ø3.18/ø2.18 X M5	MS-5ATHU-3	Body rotates 360° around the stud axis. Position can be fixed after alignment.	For soft nylon tubing
	ø3.18/ø2 X M5			For polyurethane tubing
	ø4/ø2.5 X M5	MS-5ATHU-4		For soft nylon, polyurethane tubing
	ø6/ø4 X M5	MS-5ATHU-6		
Gasket (H) 	Material: Nylon66 GF30%	M-5GH	Only for MS-5ALHU-6, MS-5HLH-4, MS-5HLH-6 and MS-5ATHU-6	

Made to Order

Made to Order

Clean Series

10-

Lubricant: Fluororesin grease (For only MS-5UN)
Double packaging



(Example) 10-MS-5AN-4

FIT-142

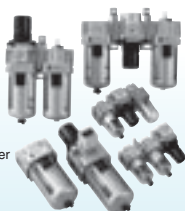


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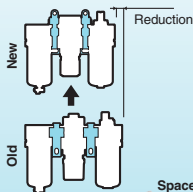
■ F.R.L.	Page
FRL-1 to 66	
F.R.L. Unit (Series AC)	FRL-1
<i>Air Filter + Regulator + Lubricator</i>	FRL-5
<i>Air Filter + Regulator</i>	FRL-9
<i>Air Filter + Mist Separator + Regulator</i>	FRL-11
<i>Filter Regulator + Mist separator</i>	FRL-13
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Filter Regulator with Back Flow Mechanism.....	FRL-59
Mist Separator Regulator (Series AWM)	FRL-61
Micro-Mist Separator Regulator (Series AWD)	FRL-64

Space-saving design

The use of compact spacer with bracket reduces the total assembling space.



Model		Reduction (mm)
New	Old	
AC10	AC1000	4
AC20	AC2000	14
AC25	AC2500	14
AC30	AC3000	14
AC40	AC4000	18
AC40-06	AC4000-06	18
AC50	AC5000	18
AC55	AC5500	18
AC60	AC6000	18



Improved visibility for lubricant drip with graduation for lubricant control

Graduation

Spacer with bracket

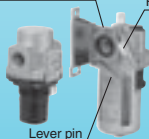
Embedded pressure gauge is a standard feature.

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

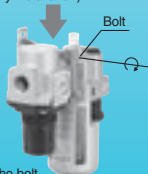
Float type auto drain with excellent operability is used for compact models (AF10, 20).
Drain cock is easy-to-use rotary type.

Improved installation

Spacer with bracket Retainer



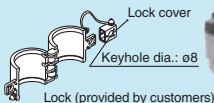
- Attach the component into the fitting of the spacer with bracket.
- Lock the lever pin into the retainer. (temporary installation)



- Tighten the bolt.

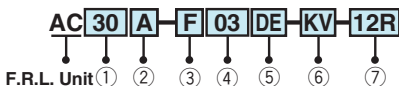
Knob cover

Prevents careless knob operation.



Part number	Model
AR20P-580AS	AC20□, AR20, AR20K, AW20, AW20K, AWM20, AWD20
AR25P-580AS	AC25□, AR25, AR25K
AR30P-580AS	AC30□, AR30, AR30K, AW30, AW30K, AWM30, AWD30
AR40P-580AS	AC40□(-06), AR40(-06), AR40K(-06), AW40(-06), AW40K(-06), AWM40, AWD40

How to Order



① Body Size

10	20	25	30	40	50	55	60
----	----	----	----	----	----	----	----

② Model Combination

Symbol	Combination				
	Air filter	Regulator	Lubricator	Filter regulator	Mist separator
Nil	1	2	3	—	—
A	—	—	2	1	—
B	1	2	—	—	—
C	1	3	—	—	2
D	—	—	—	1	2

* The number indicates the combination order counted from the inlet side.

③ Thread Type

Nil	Metric system thread (M5)
	Rc
N	NPT
F	G

④ Port Size

Symbol	Port size	Body size							
		10	20	25	30	40	50	55	60
M5	M5		—	—	—	—	—	—	—
01	1/8	—		—	—	—	—	—	—
02	1/4	—					—	—	—
03	3/8	—	—				—	—	—
04	1/2	—	—	—	—		—	—	—
06	3/4	—	—	—	—			—	—
10	1	—	—	—	—	—			

⑤ Accessories

Symbol	Description	Applicable model
Nil	—	—
C	Float type auto drain (N.C.) ⁽¹⁾	AC10□ to 60□
D	Float type auto drain (N.O.)	AC25□ to 60□
E	With square embedded type pressure gauge (with limit indicator)	AC20□ to 60□
G ⁽²⁾	With round pressure gauge (without limit indicator)	AC10□ to 60□

(1) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

(2) Mounting thread for pressure gauge:

1/16 for AC10; 1/8 for AC20 to 30; 1/4 for AC40 to 60

Pressure gauge is not mounted and is supplied loose at the time of shipment.

How to Order

⑥ Attachments

Symbol	Description	Attachment mounting position	Applicable model	Port size for intermediate air release
Nil	None	—	—	—
K	Check valve	AF + AR + [K] + AL	AC20 to 40	AC20□: 1/8 AC30□: 1/4 AC25□: 1/4 AC40□: 3/8
		AW + [K] + AL	AC20A to 40A	
S	Pressure switch	AF + AR + [S] + AL	AC20 to 60	—
		AW + [S] + AL	AC20A to 40A	
		AF + [S] + AR	AC20B to 60B	
		AF + AFM + [S] + AR	AC20C to 40C	
		AW + [S] + AFM	AC20D to 40D	
T	T-interface	AF + [T] + AR + AL	AC10 to 60	AC10□: M5 x 0.8 AC40□: 3/8 AC20□: 1/8 AC50□: 3/8 AC25□: 1/4 AC55□: 1/2 AC30□: 1/4 AC60□: 1/2
		AF + [T] + AR	AC10B to 60B	
		AF + AFM + [T] + AR	AC20C to 40C	
V	3-port valve for residual pressure release (Installed Downstream)	AF + AR + AL + [V]	AC20 to 50	—
		AW + AL + [V]	AC20A to 40A	
		AF + AR + [V]	AC20B to 50B	
		AF + AFM + AR + [V]	AC20C to 40C	
		AW + AFM + [V]	AC20D to 40D	
V1	3-port valve for residual pressure release (Installed Upstream)	[V] + AF + AR	AC20B to 50B	—
		[V] + AF + AFM + AR	AC20C to 40C	
		[V] + AW + AFM	AC20D to 40D	

* When more than one attachment is required, order in alphabetical order.

* Piping adapter, pressure switch with piping adapter, and cross interface need to be ordered separately.

* Contact SMC when using a pressure switch and T-interface together for AC□B.

* The bracket position varies depending on the T-interface or pressure switch mounting.

Refer to Catalog Number CAT.ES40-42 for standard bracket position.

⑦ Optional Specifications

Symbol	Description	Applicable model
1 ⁽¹⁾	3 to 29psi (0.02 to 0.2MPa) setting	AC10□ to 60□
2	Metal bowl	AC10□ to 60□
3	Lubricator with drain cock	AC10□ to 60□
6	Nylon bowl	AC10□ to 60□
8	Metal bowl with level gauge	AC25□ to 60□
C	With bowl guard	AC20
J ⁽²⁾	Drain guide 1/4	AC10□ to 60□
N	Non-relieving type	AC10□ to 60□
R	Flow direction: Right to left	AC10□ to 60□
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tube	AC25□ to 60□
Z ⁽³⁾	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	AC10□ to 60□

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

(1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(2) Without a valve function

(3) For thread types M5 and NPT

The SI (MPa, C°) unit type is provided for use in Japan.

Pressure switch comes with a dual unit scale in SI (MPa) and U.S. customary units (psi).



AC40

Page FRL-28



Standard Specifications

Model		AC10	AC20	AC25	AC30	AC40	AC40-06	AC50	AC55	AC60
Component	Air filter	AF10	AF20	AF30	AF30	AF40	AF40-06	AF50	AF60	AF60
	Regulator	AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR50	AR60
	Lubricator	AL10	AL20	AL30	AL30	AL40	AL40-06	AL50	AL60	AL60
Port sizes		M5 x 0.8	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1	1
Pressure gauge port size ⁽¹⁾		1/16	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4
Fluid		Air								
Proof pressure		218psi (1.5MPa)								
Max. operating pressure		145psi (1.0MPa)								
Set pressure range		⁷ to 102psi	7 to 123psi (0.05 to 0.85MPa)							
Relief pressure		Set pressure + 7psi (0.05MPa) ⁽²⁾ [at relief flow rate of 0.1L/min (ANR)]								
Ambient and fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)								
Nominal filtration rating		5µm								
Recommended lubricant		Class 1 turbine oil (ISO VG32)								
Bowl material		Polycarbonate								
Bowl guard		—	Standard							
Regulator construction		Relieving type								
Weight	Lb.	0.6	1.61	2.01	2.2	3.84	4.30	9.19	9.37	9.57
	kg	0.27	0.73	0.91	1.00	1.74	1.95	4.17	4.25	4.34

(1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20 to AC60).

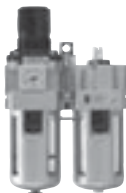
(2) Not applicable to AC10

Attachment/Accessory Part Numbers

Description			Part number				
			AC10	AC20	AC25	AC30	AC40
Accessories	Pressure gauge (1)	160psi Round	G27-P10-R1-X30	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K50-MP1.0-N02MS
		1.1MPa Square (2) embedded type	—	GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi Round	G27-P10-R1-X30 (3)	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K50-MP0.2-N02MS	
		0.2MPa Square (2) embedded type	—	GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS
	(4) Float type auto drain	N.O.	—	—	AD38N-Z (7)	AD38N-Z (7)	AD48N-Z (7)
N.C.		AD17-Z	AD27-CZ	AD37N-Z (7)	AD37N-Z (7)	AD47N-Z (7)	
Attachments	Spacer		Y100	Y200	Y300	Y300	Y400
	Check valve (5)(6)		—	AKM2000-□01□02	AKM3000-□01□02	AKM3000-□01□02	AKM4000-□01□02
	Pressure switch (6)		—	IS1000M-20	IS1000M-30	IS1000M-30	IS1000M-40
	T-interface (5)(6)		Y110-M5	Y210-□01□02	Y310-□01□02	Y310-□01□02	Y410-□01□02
	3-port valve for residual pressure release (6)		—	VHS20-□01□02	VHS30-□02□03	VHS30-□02□03	VHS40-□02□03
	Piping adapter (6)		E100-M5	E200-□01□02□03	E300-□02□03□04	E300-□02□03□04	E400-□02□03□04
	Pressure switch with piping adapter (6)		—	IS1000E-20-□01□02□03	IS1000E-30-□02□03□04	IS1000E-30-□02□03□04	IS1000E-40-□02□03□04
	Cross interface (6)		Y14-M5	Y24-□01□02	Y34-□01□02	Y34-□01□02	Y44-□02□03

Description			Part number			
			AC40-N06	AC50	AC55	AC60
Accessories	Pressure gauge (1)	160psi Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS
		1.1MPa Square (2) embedded type	GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	
		0.2MPa Square (2) embedded type	GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS
	(4) Float type auto drain	N.O.	AD48N-Z (7)	AD48N-Z (7)	AD48N-Z (7)	AD48N-Z (7)
N.C.		AD47N-Z (7)	AD47N-Z (7)	AD47N-Z (7)	AD47N-Z (7)	
Attachments	Spacer		Y500	Y600	Y600	Y600
	Check valve (5)(6)		—	—	—	—
	Pressure switch (7)		IS1000M-50	IS1000M-60	IS1000M-60	IS1000M-60
	T-interface (5)(6)		Y510-□02□03	Y610-□03□04	Y610-□03□04	Y610-□03□04
	3-port valve for residual pressure release (6)		VHS40-□06	VHS50-□06□10	—	—
	Piping adapter (6)		E500-□06	E600-□06□10	E600-□06□10	E600-□06□10
	Pressure switch with piping adapter (6)		—	—	—	—
Cross interface (6)		Y54-□03□04	—	—	—	

- (1) G27 reads 0 to 150psi
- (2) Includes one O-ring and 2 mounting screws.
- (3) For 145psi (1.0MPa)
- (4) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—22psi (0.15MPa) (AD17/27)
- (5) For F.R.L. units, port sizes not in () are for standard application.
- (6) Separate interfaces are required for modular unit.
- (7) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".



AC40A

JIS symbol



Standard Specifications

Model		AC10A	AC20A	AC30A	AC40A	AC40A-06
Component	Filter regulator	AW10	AW20	AW30	AW40	AW40-06
	Lubricator	AL10	AL20	AL30	AL40	AL40-06
Port sizes		M5 x 0.8 1/16	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Pressure gauge port size (1)			1/8	1/8	1/4	1/4
Fluid		Air				
Proof pressure		218psi (1.5MPa)				
Maximum operating pressure		145psi (1.0MPa)				
Set pressure range		7 to 104psi	7 to 123psi (0.05 to 0.85MPa)			
Relief pressure		Set pressure + 7psi ⁽²⁾ [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)				
Nominal filtration rating		5μm				
Recommended lubricant		Class 1 turbine oil (ISO VG32)				
Bowl material		Polycarbonate				
Bowl guard		—	Standard			
Filter regulator construction		Relieving type				
Weight	Lb.	0.44	1.30	1.65	3.11	3.22
	Kg	0.20	0.59	0.75	1.41	1.46

(1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20A to AC40A).

(2) Not applicable to AC10A

Attachment/Accessory Part Numbers

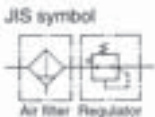
Description / Model			Part number		
			AC10A	AC20A	AC30A
Accessories	Pressure gauge (1)	160psi Round	G27-P10-R1-X30	K40-MP1.0-N01MS	K40-MP1.0-N01MS
		1.1MPa Square embedded type (2)	—	GC3-P10AS	GC3-P10AS
	30psi	Round	G27-P10-R1-X30 ⁽³⁾	K40-MP0.2-N01MS	K40-MP0.2-N01MS
		Square embedded type (2)	—	GC3-P2AS	GC3-P2AS
	0.2MPa	Square embedded type (2)	—	GC3-P2AS	GC3-P2AS
Float type auto drain (4)	N.O.	—	—	AD38N-Z (7)	
	N.C.	AD17-Z	AD27-CZ	AD37N-Z (7)	
Attachments	Spacer		Y100	Y200	Y300
	Check valve (5)(6)		—	AKM2000-□01 □02	AKM3000-□01 □02
	Pressure switch (6)		—	IS1000M-20	IS1000M-30
	T-interface (5)(6)		Y110-M5	Y210-□01 □02	Y310-□01 □02
	3-port valve for residual pressure release (6)		—	VHS20-□01 □02	VHS30-□02 □03
	Piping adapter (6)		E100-M5	E200-□01 □02 □03	E300-□02 □03 □04
	Pressure switch with piping adapter (6)		—	IS1000E-20-□01 □02 □03-P	IS1000E-30-□02 □03 □04-P
Cross interface (6)		Y14-M5	Y24-□01 □02	Y34-□01 □02	

Description / Model			Part number	
			AC40A	AC40A-N06
Accessories	Pressure gauge (1)	160psi Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS
		1.1MPa Square embedded type (2)	GC3-P10AS	GC3-P10AS
	30psi	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS
		Square embedded type (2)	GC3-P2AS	GC3-P2AS
	0.2MPa	Square embedded type (2)	GC3-P2AS	GC3-P2AS
Float type auto drain (4)	N.O.	AD48N-Z (7)	AD48N-Z (7)	
	N.C.	AD47N-Z (7)	AD47N-Z (7)	
Attachments	Spacer		Y400	Y500
	Check valve (5)(6)		AKM4000-□02 □03	—
	Pressure switch (6)		IS1000M-40	IS1000M-50
	T-interface (5)(6)		Y410-□02 □03	Y510-□02 □03
	3-port valve for residual pressure release (6)		VHS40-□02 □03 □04	VHS40-□06
	Piping adapter (6)		E400-□02 □03 □04 □06	E500-□06
	Pressure switch with piping adapter (6)		IS1000E-40-□02 □03 □06-P	—
Cross interface (6)		Y44-□02 □03	Y54-□03 □04	

- G27 reads 0 to 150psi.
- Includes one O-ring and 2 mounting screws.
- For 145psi (1.0MPa)
- Minimum operating pressure: N.O. type—15psi (0.1MPa) (AD17/27); N.C. type—22psi (0.15MPa) (AD37/47)
- For F.R.L. units, port sizes not in () are for standard application.
- Separate interfaces are required for modular unit.
- When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be $\phi 3/8"$. (1) G27 reads 0 to 150psi.



AC40B



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- (1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20B to AC60B).
- (2) Not applicable to AC10B

Standard Specifications

Model		AC10B	AC20B	AC25B	AC30B	AC40B
Component	Air filter	AF10	AF20	AF30	AF30	AF40
	Regulator	AR10	AR20	AR25	AR30	AR40
Port sizes		M5 x 0.8	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2
Pressure gauge port size (1)		1/16	1/8	1/8	1/8	1/4
Fluid		Air				
Proof pressure		218psi (1.5MPa)				
Max. operating pressure		145psi (1.0MPa)				
Set pressure range		7 to 102psi	7 to 123psi (0.05 to 0.85MPa)			
Relief pressure		Set pressure + 7psi (2) [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)				
Nominal filtration rating		5μm				
Bowl material		Polycarbonate				
Bowl guard		—	Standard			
Regulator construction		Relieving type				
Weight Lb. (kg)		0.35 (0.16)	1.12 (0.51)	1.21 (0.55)	1.39 (0.63)	2.47 (1.12)

Model		AC40B-06	AC50B	AC55B	AC60B
Component	Air filter	AF40-06	AF50	AF60	AF60
	Regulator	AR40-06	AR50	AR50	AR60
Port sizes		3/4	3/4 1	1	1
Pressure gauge port size (1)		1/4	1/4	1/4	1/4
Fluid		Air			
Proof pressure		218psi (1.5MPa)			
Max. operating pressure		145psi (1.0MPa)			
Set pressure range		7 to 123psi (0.05 to 0.85MPa)			
Relief pressure		Set pressure + 7psi (2) [at relief flow rate of 0.1L/min (ANR)]			
Ambient and fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)			
Nominal filtration rating		5μm			
Bowl material		Polycarbonate			
Bowl guard		Standard			
Regulator construction		Relieving type			
Weight Lb. (kg)		2.56 (1.16)	5.38 (2.44)	5.40 (2.45)	5.60 (2.54)

Attachment/Accessory Part Numbers

Description			Part number					
			AC10B	AC20B	AC25B	AC30B	AC40B	
Accessories	Pressure gauge	160psi 1.1MPa	Round	G27-P10-R1-X30	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K50-MP1.0-N02MS
			Square (2) embedded type	—	GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
	Pressure gauge	30psi 0.2MPa	Round	G27-P10-R1-X30 <small>Note 3)</small>	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K50-MP0.2-N02MS
			Square (2) embedded type	—	GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS
	Float type auto drain	(4)	N.O.	—	—	AD38N-Z <small>Note 7)</small>	AD38N-Z <small>Note 7)</small>	AD38N-Z <small>Note 7)</small>
			N.C.	AD17-Z	AD27-CZ	AD37N-Z <small>Note 7)</small>	AD37N-Z <small>Note 7)</small>	AD37N-Z <small>Note 7)</small>
Attachments	Spacer			Y100	Y200	Y300	Y300	Y400
	Pressure switch (6)			—	IS1000M-20	IS1000M-30	IS1000M-30	IS1000M-40
	T-interface (5)(6)			Y110-M5	Y210- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y310- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y310- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y410- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$
	3-port valve for residual pressure release (6)			—	VHS20- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	VHS30- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$	VHS30- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$	VHS40- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$
	Piping adapter (6)			E100-M5	E200- $\begin{matrix} \square 01 \\ \square 02 \\ \square 03 \end{matrix}$	E300- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$	E300- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$	E400- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \\ \square 06 \end{matrix}$
	Pressure switch (6) with piping adapter			—	IS1000E-20- $\begin{matrix} \square 01 \\ \square 02 \\ \square 03 \end{matrix}$ -P	IS1000E-30- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$ -P	IS1000E-30- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$ -P	IS1000E-40- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \\ \square 06 \end{matrix}$ -P
	Cross interface (6)			Y14-M5	Y24- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y34- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y34- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y44- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$

Description			Part number				
			AC40B-N06	AC50B	AC55B	AC60B	
Accessories	Pressure gauge	160psi 1.1MPa	Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS
			Square (2) embedded type	GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
	Pressure gauge	30psi 0.2MPa	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS
			Square (2) embedded type	GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS
	Float type auto drain	(4)	N.O.	AD48N-Z <small>Note 7)</small>	AD48N-Z <small>Note 7)</small>	AD48N-Z <small>Note 7)</small>	AD48N-Z <small>Note 7)</small>
			N.C.	AD47N-Z <small>Note 7)</small>	AD47N-Z <small>Note 7)</small>	AD47N-Z <small>Note 7)</small>	AD47N-Z <small>Note 7)</small>
Attachments	Spacer			Y500	Y600	Y600	Y600
	Pressure switch (6)			IS1000M-50-P	IS1000M-60-P	IS1000M-60-P	IS1000M-60-P
	T-interface (5)(6)			Y510- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$	Y610- $\begin{matrix} \square 03 \\ \square 04 \end{matrix}$	Y610- $\begin{matrix} \square 03 \\ \square 04 \end{matrix}$	Y610- $\begin{matrix} \square 03 \\ \square 04 \end{matrix}$
	3-port valve for residual pressure release (6)			VHS40- $\square 06$	VHS50- $\begin{matrix} \square 06 \\ \square 10 \end{matrix}$	—	—
	Piping adapter (6)			E500- $\square 06$	E600- $\begin{matrix} \square 06 \\ \square 10 \end{matrix}$	E600- $\begin{matrix} \square 06 \\ \square 10 \end{matrix}$	E600- $\begin{matrix} \square 06 \\ \square 10 \end{matrix}$
	Pressure switch (6) with piping adapter			—	—	—	—
Cross interface (6)			Y54- $\begin{matrix} \square 03 \\ \square 04 \end{matrix}$	—	—	—	

- (1) G27 reads 0 to 150psi.
- (2) Includes one O-ring and 2 mounting screws.
- (3) For 145psi (1.0MPa)
- (4) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1MPa) (AD17/27), 22psi (0.15MPa) (AD37/47)
- (5) For F.R.L. units, port sizes not in () are for standard application.
- (6) Separate interfaces are required for modular unit.
- (7) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be $\phi 3/8$.



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Standard Specifications

Model		AC20C	AC25C	AC30C	AC40C	AC40C-06
Component	Air filter	AF20	AF30	AF30	AF40	AF40-06
	Mist separator	AFM20	AFM30	AFM30	AFM40	AFM40-06
	Regulator	AR20	AR25	AR30	AR40	AR40-06
Port sizes		1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	3/4
Pressure gauge port size (1)		1/8	1/8	1/8	1/4	1/4
Fluid		Air				
Proof pressure		218psi (1.5MPa)				
Maximum operating pressure		145psi (1.0MPa)				
Minimum operating pressure		7psi (0.05MPa)				
Set pressure range		7 to 123psi (0.05 to 0.85MPa)				
Rated flow L/min (ANR) (2)		200	450	450	1100	1100
Relief pressure		Set pressure + 7psi [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)				
Nominal filtration rating		AF: 5μm; AFM: 0.3μm (95% filtered particle size)				
Outlet side oil mist concentration		Maximum 1.0mg/m ³ (ANR) (approx. 0.8ppm)				
Bowl material		Polycarbonate				
Bowl guard		Standard				
Filter regulator construction		Relieving type				
Weight Lb. (kg)		1.63 (0.74)	1.94 (0.88)	2.09 (0.95)	3.88 (1.76)	4.03 (1.83)

(1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20C to AC40C).

(2) Conditions: Inlet pressure: 102psi (0.7MPa); Set pressure: 73psi (0.5MPa). The rated flow varies depending on the inlet pressure.

(3) At compressor discharge 30mg/Nm³

Attachment/Accessory Part Numbers

Description			Model	Part number		
				AC20C	AC25C	AC30C
Accessories	(1) Pressure gauge	160psi	Round	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K40-MP1.0-N01MS
		1.1MPa	Square embedded type (2)	GC3-10PAS	GC3-P10AS	GC3-P10AS
	30psi	0.2MPa	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS
			Square embedded type (2)	GC3-P2AS	GC3-P2AS	GC3-P2AS
Float type auto drain (3)			N.O.	—	AD38N-Z (6)	AD38N-Z (6)
			N.C.	AD27-CZ	AD37N-Z (6)	AD37N-Z (6)
Attachments	Spacer			Y200	Y300	Y300
	Pressure switch (5)			IS1000M-20	IS1000M-30	IS1000M-30
	T-interface (4)(5)			Y210- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y310- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y310- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$
	3-port valve for residual pressure release (5)			VHS20- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	VHS30- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$	VHS30- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$
	Piping adapter (5)			E200- $\begin{matrix} \square 01 \\ \square 02 \\ \square 03 \end{matrix}$	E300- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$	E300- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$
	Pressure switch with piping adapter (5)			IS1000E-20- $\begin{matrix} \square 01 \\ \square 02 \\ \square 03 \end{matrix}$ -P	IS1000E-30- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$ -P	IS1000E-30- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$ -P
	Cross interface (5)			Y24- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y34- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$	Y34- $\begin{matrix} \square 01 \\ \square 02 \end{matrix}$

Description			Model	Part number	
				AC40C	AC40C-06
Accessories	(1) Pressure gauge	160psi	Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS
		1.1MPa	Square embedded type (2)	GC3-P10AS	GC3-P10AS
	30psi	0.2MPa	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS
			Square embedded type (2)	GC3-P2AS	GC3-P2AS
Float type auto drain (3)			N.O.	AD48N-Z (6)	AD48N-Z (6)
			N.C.	AD47N-Z (6)	AD47N-Z (6)
Attachments	Spacer			Y400	Y500
	Pressure switch (5)			IS1000M-40	IS1000M-50
	T-interface (4)(5)			Y410- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$	Y510- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$
	3-port valve for residual pressure release (5)			VHS40- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \end{matrix}$	VHS40- $\square 06$
	Piping adapter (5)			E400- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \\ \square 06 \end{matrix}$	E500- $\square 06$
	Pressure switch with piping adapter (5)			IS1000E-40- $\begin{matrix} \square 02 \\ \square 03 \\ \square 04 \\ \square 06 \end{matrix}$ -P	—
	Cross interface (5)			Y44- $\begin{matrix} \square 02 \\ \square 03 \end{matrix}$	Y54- $\begin{matrix} \square 03 \\ \square 04 \end{matrix}$

- (1) G27 reads 0 to 150psi.
- (2) Includes one O-ring and 2 mounting screws.
- (3) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1 MPa) (AD27), 22 psi (0.15MPa) (AD37/47)
- (4) For F.R.L. units, port sizes not in () are for standard application.
- (5) Separate interfaces are required for modular unit.
- (6) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be $\phi 3/8$ ".



AC40D



JIS symbol



Standard Specifications

Model		AC20D	AC30D	AC40D	AC40D-06
Component	Filter regulator	AW20	AW30	AW40	AW40-06
	Mist separator	AFM20	AFM30	AFM40	AFM40-06
Port sizes		1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Pressure gauge port size (1)		1/8	1/8	1/4	1/4
Fluid		Air			
Proof pressure		218psi (1.5MPa)			
Maximum operating pressure		145psi (1.0MPa)			
Minimum operating pressure		7psi (0.05MPa)			
Set pressure range		7 to 123psi (0.05 to 0.85MPa)			
Rated flow L/min (ANR) (1)		150	330	800	800
Relief pressure		Set pressure + 7psi [at relief flow rate of 0.1L/min (ANR)]			
Ambient and fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)			
Nominal filtration rating		AW: 5μm; AFM: 0.3μm (95% filtered particle size)			
Outlet side oil mist concentration		Max. 1.0mg/m ³ (ANR) (approx. 0.8ppm) (3)			
Bowl material		Polycarbonate			
Bowl guard		Standard			
Filter regulator construction		Relieving type			
Weight Lb. (kg)		1.26 (0.57)	1.63 (0.74)	3.04 (1.38)	3.15 (1.43)

(1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20D to AC40D).

(2) Conditions: Inlet pressure: 102psi (0.7MPa); Set pressure: 73psi (0.5MPa). The rated flow varies depending on the inlet pressure.

(3) At compressor discharge of 30mg/Nm³

Attachment/Accessory Part Numbers

Description			Model	Part number	
				AC20D	AC30D
Accessories	Pressure gauge (1)	160psi 1.1MPa	Round	K40-MP1.0-N01MS	K40-MP1.0-N01MS
			Square embedded type (2)	GC3-P10AS	GC3-P10AS
		30psi 0.2MPa	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS
			Square embedded type (2)	GC3-P2AS	GC3-P2AS
	Float type auto drain (3)	N.O.		—	AD38N-Z (6)
N.C.		AD27-CZ	AD37N-Z (6)		
Attachments	Spacer			Y200	Y300
	Pressure switch (5)			IS1000M-20	IS1000M-30
	T-Interface (4)(5)			Y210- <input type="checkbox"/> 01 <input type="checkbox"/> 02	Y310- <input type="checkbox"/> 01 <input type="checkbox"/> 02
	3-port valve for residual pressure release (5)			VHS20- <input type="checkbox"/> 01 <input type="checkbox"/> 02	VHS30- <input type="checkbox"/> 02 <input type="checkbox"/> 03
	Piping adapter (5)			E200- <input type="checkbox"/> 01 <input type="checkbox"/> 02 <input type="checkbox"/> 03	E300- <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/> 04
	Pressure switch with piping adapter (5)			IS1000E-20- <input type="checkbox"/> 01 <input type="checkbox"/> 02 <input type="checkbox"/> 03 -P	IS1000E-30- <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/> 04 -P
	Cross interface (5)			Y24- <input type="checkbox"/> 01 <input type="checkbox"/> 02	Y34- <input type="checkbox"/> 01 <input type="checkbox"/> 02

Description			Model	Part number	
				AC40D	AC40D-N06
Accessories	Pressure gauge (1)	160psi 1.1MPa	Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS
			Square embedded type (2)	GC3-P10AS	GC3-P10AS
		30psi 0.2MPa	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS
			Square embedded type (2)	GC3-P2AS	GC3-P2AS
	Float type auto drain (3)	N.O.		AD48N-Z (6)	AD48N-Z (6)
N.C.		AD47N-Z (6)	AD47N-Z (6)		
Attachments	Spacer			Y400	Y500
	Pressure switch (5)			IS1000M-40	IS1000M-50
	T-Interface (4)(5)			Y410- <input type="checkbox"/> 02 <input type="checkbox"/> 03	Y510- <input type="checkbox"/> 02 <input type="checkbox"/> 03
	3-port valve for residual pressure release (5)			VHS40- <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/> 04	VHS40- <input type="checkbox"/> 06
	Piping adapter (5)			E400- <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/> 04 <input type="checkbox"/> 06	E500- <input type="checkbox"/> 06
	Pressure switch with piping adapter (5)			IS1000E-40- <input type="checkbox"/> 02 <input type="checkbox"/> 03 <input type="checkbox"/> 04 <input type="checkbox"/> 06 -P	—
	Cross interface (5)			Y44- <input type="checkbox"/> 02 <input type="checkbox"/> 03	Y54- <input type="checkbox"/> 03 <input type="checkbox"/> 04

(1) G27 reads 0 to 150psi.

(2) Includes one O-ring and 2 mounting screws.

(3) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1MPa) (AD27), 22psi (0.15MPa) (AD37/47)

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

(5) Separate interfaces are required for modular unit.

(6) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be $\phi 3/8"$.



K27A-P1.0-N01M



K40-MP1.0-N01MS



K50-MP1.0-N02MS

*Standard pressure gauges are stocked and readily available.

Size	27mm (1")	40mm (1-1/2")	50mm (2")
Thread location	CBM	CBM	CBM
Thread size	1/8NPT	1/8NPT	1/4NPT
	With M5 x 0.8 female		
Material	Polyamid/Polyamid	ABS/Brass	ABS/Brass
Units	psi	MPa & psi	MPa & psi
Scale	Parts number		
0 to 30psi	K27A-P0.2-N01M	K40A-MP0.2-N01MS	K50A-MP0.2-N02MS
0 to 60psi	K27A-P0.4-N01M	K40A-MP0.4-N01MS	K50A-MP0.4-N02MS
0 to 160psi	K27A-P1.0-N01M	K40A-MP1.0-N01MS	K50A-MP1.0-N02MS

Important delivery information:

The part numbers listed on this page are standard stocked gauges. The delivery time on these standard gauges is approximately 1 week. Many other options can be made to order (see How to Order on preceding page), but delivery time will be up to 14 weeks for the initial

order. Subsequent orders for made to order gauges will be up to 10 weeks delivery depending on gauge options. If short delivery time is desired, SMC recommends choosing a part number from the list above instead of the preceding page. **Important delivery information:**

The part numbers listed on this page

How to Order

K **Z** **A** **50** **P** — **MP** **1.0** **C** — **N** **02** **MS** — **L**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

Note) See delivery information on preceding page.

① Measurement

Nil	Pressure
Z	Vacuum

② Thread Location

Nil	Back mount
A	Bottom mount
B	Left side mount
C	Top mount
D	Right side mount

③ Case Size

27	1" (27mm)
40	1-1/2" (40mm)
50	2" (50mm)

For large sizes, consult factory.

④ Case/Thread Material

(for K27, case & thread material are specified by the thread material.)

Nil	ABS/Brass
A	Polyamid/Polyamid (K27 only)
N	Stainless steel/Nickel plate brass (N/A K40)
P	Painted steel/Brass (N/A K27)
S	Stainless steel/Stainless steel (N/A K27)

⑤ Pressure Units

	Unit	Pressure only	Vacuum only	Pressure & Vacuum (Compound gauge)
Nil	MPa	●	●	—
B	bar	●	—	●
K	kPa	●	—	●
M	MPa	●	—	●
P	psi	●	—	●

⑥ Scale

Nil	Vacuum only
0.1	0.1MPa (15psi)
0.2	0.2MPa (30psi)
0.4	0.4MPa (58psi)
0.7	0.7MPa (102psi)
1.0	1.0MPa (145psi)
1.5	1.5MPa (218psi)
2.0	2.0MPa (290psi)

⑦ Vacuum Units

Nil	Not a vacuum gauge
A	mmHg
C	inHg

⑧ Thread Type

Nil	P
N	NPT

⑨ Thread Size

01	1/8
02	1/4

⑩ Thread Option

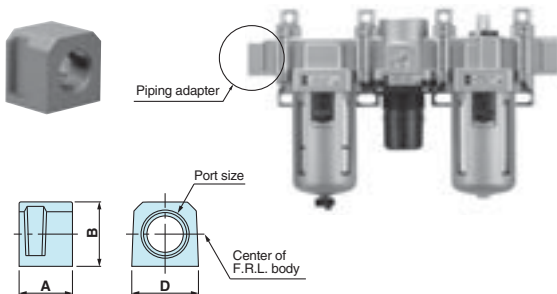
M	M5 Female thread (standard)
S	Sealant (standard)

⑪ Auxiliary Option

Nil	No option
B	O ² clean/no oil
C	Panel mount
C1	Panel mount with polished SS ring on ABS case
C2	Panel mount with adapter ring
L	Liquid filled
M	Mark pointer
R	Restrictor (.012"dia.)
S	SAN convex lens
W	Washdown (Metal case only)

Piping Adapter (E) M5 x 0.8, 1/8, 1/4, 3/8, 1/2, 3/4, 1

A piping adapter allows installation/removal of the component without removing the piping and thus makes maintenance easier.



Model	Port size	A	B	D	Applicable model
E100-M5	M5 x 0.8	10	14	14	AC10□, AW10, AF10, AR10, AL10
E200-□01	1/8	30	23.5	28	AC20□
E200-□02	1/4				AF20, AR20□, AW20□
E200-□03	3/8				AL20, AFM20, AFD20, AWM20, AWD20
E300-□02	1/4	32	30	30	AC25□, AC30□
E300-□03	3/8				AF30, AR30□, AW30□
E300-□04	1/2				AL30, AFM30, AFD30, AWM30, AWD30
E400-□02	1/4	32	36	36	AC40□
E400-□03	3/8				AF40, AR40□, AW40□
E400-□04	1/2				AL40, AFM40, AFD40
E400-□06	3/4				AWM40, AWD40
E500-□06	3/4	32	40	44	AC40□-06, AF40-06, AR40□-06, AW40□-06 AL40-06, AFM40-06, AFD40-06
E600-□06	3/4	35	48	53	AC50, AC55, AC60, AC50B, AC55B, AC60B
E600-□10	1				AF50, AR50□, AL50, AF60, AR60□, AL60

Notes) □ in model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.

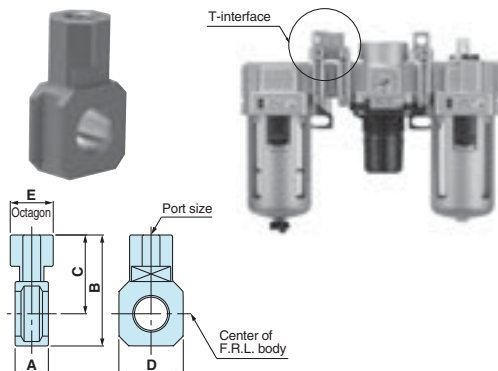
• Separate interfaces are required for modular unit.

* Factory mounting of a piping adapter on the AC models is available as a special order.

T-interface (T)

M5 x 0.8, 1/8, 1/4, 3/8, 1/2

Using a T-interface facilitates the redirection of air flow.



Model	Port size	A	B	C	D	E	Applicable model
Y110-M5	M5 x 0.8	11	19	12	14	8	AC10, AC10B
Y210-□01	1/8	15	42	32	28	19	AC20, AC20B AC20C
Y210-□02	1/4						
Y310-□01	1/8	15	53	39	30	19	AC25, AC25B, AC25C, AC30 AC30B, AC30C
Y310-□02	1/4						
Y410-□02	1/4	19	62	44	36	24	AC40, AC40B AC40C
Y410-□03	3/8						
Y510-□02	1/4	19	66	46	44	24	AC40-06, AC40B-06 AC40C-06
Y510-□03	3/8						
Y610-□03	3/8	22	81	57	53	30	AC50, AC55, AC60, AC50B AC55B, AC60B
Y610-□04	1/2						

Notes) • □ in model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.

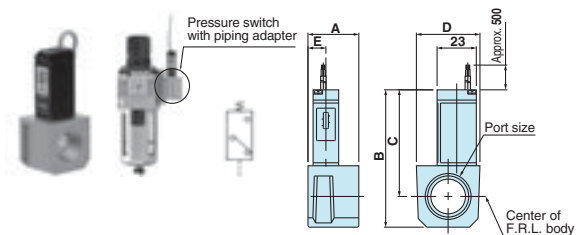
• Separate interfaces are required for modular unit.

* Refer to the table on page 202 for standard port sizes when using with AC.

Caution in Mounting

• If a T-interface is used on the IN side of the lubricator, lubricant may be mixed. Use the series AKM check valve to avoid such possibility.

Pressure Switch with Piping Adapter (P)



Specifications

Fluid	Air
Proof pressure	145psi (1.0MPa)
Maximum operating pressure	102psi (0.7MPa)
Set pressure range (when OFF)	15 to 58psi (0.1 to 0.4MPa)
Differential	12psi (0.08MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)

Switch Characteristics

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

Model (1)	Port size	A	B	C	D	E	Applicable model
IS1000E-20□01-P	1/8	30	68	57	28	16	AC20□
IS1000E-20□02-P	1/4						AR20□, AW20□
IS1000E-20□03-P	3/8						AWM20, AWD20
IS1000E-30□02-P	1/4	32	74.5	60.5	30	13	AC25□, AC30□
IS1000E-30□03-P	3/8						AR25□, AR30□, AW30□
IS1000E-30□04-P	1/2						AWM30, AWD30
IS1000E-40□02-P	1/4	32	80.5	62.5	37	12.5	AC40□ (2)
IS1000E-40□03-P	3/8						AR40□, AW40□
IS1000E-40□04-P	1/2						AWM40, AWD40
IS1000E-40□06-P	3/4						

(1) □ in the model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.

(2) A pressure switch cannot be mounted on AC40□-06 and AW40□-06.

* Separate interfaces are required for modular unit.

** The pressure switch on AC40□-06 and above and AW40□-06 can be mounted by screwing IS1000-01 into the piping adapter E500-□06-X501 or E600-□06-X501 to E600-□06 to 10-X501 (with top-face thread Rc1/8). Products with a premounted switch are available as a special order. Please contact SMC regarding their availability.

How to Order

IS1000E-30 [] 03 [] P

Pressure switch
with piping
adapter

Body size

20	For AC20
30	For AC25, AC30
40	For AC40-02 to 04

Thread type

Nil	Rc
N	NPT
F	G

Piping adapter port size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	●	●	●
04	1/2	—	●	●
06	3/4	—	—	●

PSI unit

Nil	With MPa unit
P	With PSI unit

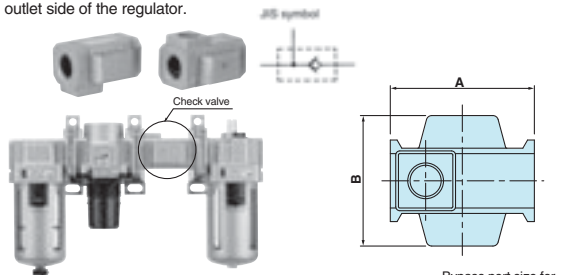
Option

X201	Lead wire length: 9.84ft (3m)
X202	Regulating pressure range: 15 to 84psi (0.1 to 0.6MPa)
X207	MPa/PSI Dual scale
X215	Lead wire length: 9.84ft (3m); Regulating pressure range: 15 to 84psi (0.1 to 0.6MPa)
X250	Opposite-side mounting (Left-side mounting type)
X251	Lead wire length: 9.84ft (3m); Opposite-side mounting (Left-side mounting type)
X252	Set pressure range: 15 to 84psi (0.1 to 0.6MPa); Opposite-side mounting (Left-side mounting type)
X253	Lead wire length: 9.84ft (3m); Regulating pressure range: 15 to 84psi (0.1 to 0.6MPa); Opposite-side mounting (Left-side mounting type)

The SI (MPa, C°) unit type is provided for use in Japan.

Check Valve (K) Rc1/8, 1/4, 3/8

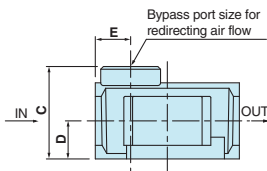
A check valve with intermediate air release port can be easily installed to prevent a back flow of lubricant when redirecting the air flow and releasing the air on the outlet side of the regulator.



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 sizes	A	B	C	D	E	Applicable model
AKM2000	1/8, 1/4	40	40	28	11	11	AC20, AC20A
AKM3000	1/8, 1/4	53	48	34	14	13	AC25, AC25A, AC30, AC30A
AKM4000	1/4, 3/8	70	54	42	18	15	AC40, AC40A (Note)

Note) Not applicable to AC40□-06

* Refer to the attachment table on page 205 through 208 for standard bypass port sizes applicable to AC.

How to Order

AKM 3000 - [] 01

Check valve
Body size
20 30 40

Bypass port size for redirecting air flow

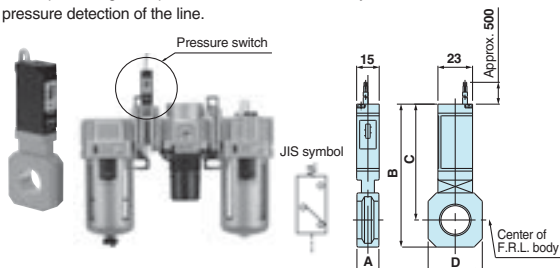
Symbol	Port size	Body size		
		20	30	40
01	1/8	●	●	—
02	1/4	●	●	●
03	3/8	—	—	●

Thread type

Nll	Rc
N	NPT
F	G

Pressure Switch (S)

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



Model	A	B	C	D	Applicable model
IS1000M-20-P	11	76	66	28	AC20□
IS1000M-30-P	13	86	72	30	AC25□, AC30□
IS1000M-40-P	15	95	77	36	AC40□
IS1000M-50-P	17	99	79	44	AC40□-06
IS1000M-60-P	22	92.5	68.5	53	AC50□, AC55□, AC60□

Note) Separate interfaces are required for modular unit.

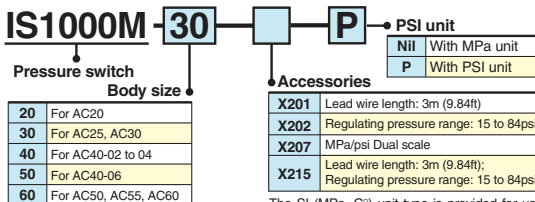
Specifications

Fluid	Air
Proof pressure	145psi (1.0MPa)
Maximum operating pressure	102psi (0.7MPa)
Set pressure range (off)	15 to 58psi (0.1 to 0.4MPa)
Differential	12 psi (0.08MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)

Switch Characteristics

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

How to Order

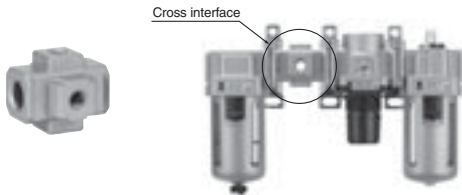


The SI (MPa, C°) unit type is provided for use in Japan.

Cross Interface (C) M5 x 0.8, 1/8, 1/4, 3/8, 1/2

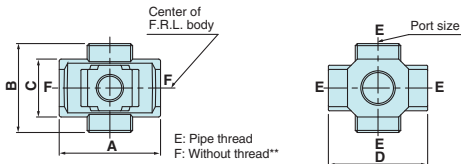
Pipings are possible in all 4 directions.

IN/OUT ports are not machined for threads. Contact SMC if threaded (machined) ports are required.



Cautions in Mounting

- When mounting a cross interface directly on the IN side of the lubricator, be sure to use a series AKM check valve between the lubricator and cross interface.
- Factory mounting of a cross interface on the AC model is available as a special order.



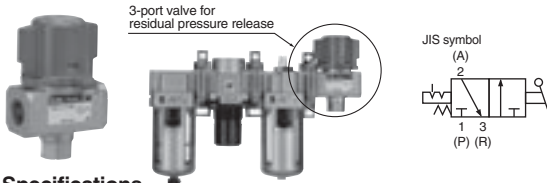
Model*	Port size	A	B	C	D	Applicable model
Y14-M5	M5	23	16	14	25	AC10□
Y24-□01	1/8	40	40	22	40	AC20□
Y24-□02	1/4					
Y34-□01	1/8	49	43	28	48	AC25□, AC30□
Y34-□02	1/4					
Y44-□02	1/4	60	48	36	54	AC40□
Y44-□03	3/8					
Y54-□03	3/8	72	62	40	62	AC40□-06
Y54-□04	1/2					

Notes) * □ in the model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.

** If threaded ports are required, they are available as a special order. Contact SMC.

3-Port Valve for Residual Pressure Release (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	
	IN, OUT	EXH.	IN to OUT	OUT to EXH.
VHS20	1/8	1/8	10	11
	1/4		14	16
VHS30	1/4	1/4	16	14
	3/8		31	29
VHS40	1/4	3/8	27	36
	3/8		38	40
	1/2		55	42
VHS40-06	3/4	1/2	77	49
VHS50	3/4	1/2	82	50
	1		125	53

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

How to Order

VHS 30 F 03 RZ

3-port valve for residual pressure release

Body size

Symbol	Applicable model
20	AC20
30	AC25, 30
40	AC40
50	AC50, AC60 ^{Note)}

Note) When the valve is mounted on AC60, the flow rate may decrease depending upon the mounting position.

Thread type

Symbol	Thread type
Nil	Rc
N	NPT
F	G

Optional specifications

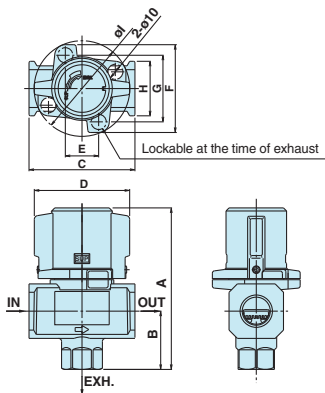
Code	Description
R	Flow direction: Right to left
Z Note)	Name plate in U.S. customary units (psi, °F)

Note) The SI unit type is provided for use in Japan.

Port size

Symbol	Port size	Body size			
		20	30	40	50
01	1/8	●	—	—	—
02	1/4	●	●	●	—
03	3/8	—	●	●	—
04	1/2	—	—	●	—
06	3/4	—	—	●	●
10	1	—	—	—	●

3-Port Valve for Residual Pressure Release (V)



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
VHS40-06	110	42	75	67	21	65	50	44	69
VHS50	134	53	90	78	26	76	61	54	81

Caution

1. Consult SMC when a pressure switch and T type spacer are 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 and VHS50)

Model	Effective area mm ²
VHS20	5
VHS30	5

Spacer (X)



Y200



Y400

Model	Applicable model
Y100	AC10, AC10A, AC10B
Y200	AC20□
Y300	AC25□, AC30□
Y400	AC40□
Y500	AC40□-06
Y600	AC50, AC55, AC60 AC50B, AC55B, AC60B

Spacer with Bracket (Z)



Y200T



Y400T

Model	Applicable model
Y100T	AC10□
Y200T	AC20□
Y300T	AC25□, AC30□
Y400T	AC40□
Y500T	AC40□-06
Y600T	AC50, AC55, AC60, AC50B, AC55B, AC60B

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

With Digital Pressure Switch

AC20 to 60 with a digital pressure switch (Model: ISE30-□□-□□-□L) can be ordered. A digital pressure switch is mounted on the connection threads of the pressure gauge of the regulator or the filter regulator.



Specifications

Part number		-X465
Pressure switch	Model	ISE30-□□-□□-□L
	Set pressure range	-15 to 145psi (-0.1 to 1 MPa)
	Set/Display resolution	0.15psi (0.001 MPa)
	Power supply voltage	12 to 24VDC ±10%, Ripple (p-p) 10% or less (with reverse connection protection)
	Current consumption	45mA or less (70mA or less during current output)

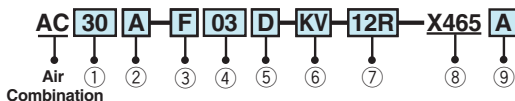
* Pressure gauge port size: Rc1/8

Applicable Models

Model	AC20□	AC25□	AC30□	AC40□	AC40□-06	AC50□	AC55□	AC60□
Port sizes	1/8	1/4	1/4	1/4	3/4	3/4	1	1
	1/4	3/8	3/8	1/2		1		

How to Order → Refer to the next page.

How to Order



① Body Size

20	25	30	40	50	55	60
----	----	----	----	----	----	----

② Model Combination

Symbol	Combination				
	Air filter	Regulator	Lubricator	Filter Regulator	Mist Separator
Nil	—	—	—	—	—
A	1	2	3	—	—
B	—	—	2	1	—
C	1	2	—	—	—
D	1	3	—	—	2
	—	—	—	1	2

③ Thread Type

Nil	Rc
N	NPT
F	G

Note) The numbers indicate the order in which the units are assembled.

④ Port Size

Symbol	Port size	Body size						
		20	25	30	40	50	55	60
01	1/8	●	—	—	—	—	—	—
02	1/4	●	●	●	●	—	—	—
03	3/8	—	●	●	●	—	—	—
04	1/2	—	—	—	●	—	—	—
06	3/4	—	—	—	●	●	—	—
10	1	—	—	—	—	●	●	●

⑤ Accessories

Symbol	Description	Applicable model
Nil	—	—
C	With float type auto drain (N.C.) ^{Note)}	AC20□ to 60□
D	With float type auto drain (N.O.) ^{Note)}	AC25□ to 60□

Note) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

How to Order

⑥ Attachment

Symbol	Description	Attachment mounting position	Applicable model	Port size for intermediate air release
Nil	None	—	—	—
K	Check valve	AF+AR+[K]+AL	AC20 to 40	AC20□: 1/8 AC25□: 1/4 AC30□: 1/4 AC40□: 3/8
		AW+[K]+AL	AC20A to 40A	
T	T-interface	AF+[T]+AR+AL	AC20 to 60	AC20□: 1/8 AC25□: 1/4 AC30□: 1/4 AC40□: 3/8 AC50□: 3/8 AC55□: 1/2 AC60□: 1/2
		AF+[T]+AR	AC20B to 60B	
		AF+AFM+[T]+AR	AC20C to 40C	
V	3-port valve for residual pressure release (Installed Downstream)	AF+AR+AL+[V]	AC20 to 50	—
		AW+AL+[V]	AC20A to 40A	
		AF+AR+[V]	AC20B to 50B	
		AF+AFM+AR+[V]	AC20C to 40C	
		AW+AFM+[V]	AC20D to 40D	
V1	3-port valve for residual pressure release Installed Upstream)	[V] + AF+AR	AC20B to 50B	—
		[V] + AF+AFM+AR	AC20C to 40C	
		[V] + AW+AFM	AC20D to 40D	

- * When more than one attachment is required, order in alphabetical order.
- * Piping adapter, pressure switch with piping adapter, and cross interface need to be ordered separately.
- * Contact SMC when using a pressure switch and T-interface together for AC□B.
- * The bracket position varies depending on the T-interface or pressure switch mounting.

⑦ Description

Symbol	Description	Applicable model
1 (1)	3 to 29psi (0.02 to 0.2MPa) setting	AC20□ to 60□
2	Metal bowl	AC20□ to 60□
3	Lubricator with drain cock	AC20□ to 60□
6	Nylon bowl (including sight dome)	AC20□ to 60□
8	Metal bowl with level gauge	AC25□ to 60□
C	With bowl guard	AC20□
J (2)	Drain guide 1/4	AC25□ to 60□
N	Non-relieving type	AC20□ to 60□
R	Flow direction: Right to left	AC20□ to 60□
W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AC25□ to 60□
Z (3)	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AC20□ to 60□

- * When more than one specification is required, indicate in ascending alphanumeric order.
- (1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).
- (2) Without a valve function
- (3) For thread type NPT The SI (MPa, C°) unit type is provided for use in Japan.
- (4) Digital pressure switch is not mounted and is supplied loose at the time of shipment.

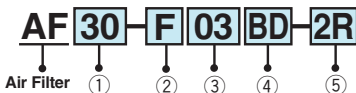
⑧ With Digital Pressure Switch (Series ISE30) (4)

- Notes) * Consult SMC for detailed dimensions and available attachments and options.
* Refer to SMC catalog CAT.ES100-42 for detailed specifications and instructions of digital pressure switch.

⑨ Switch Specifications

Symbol	Output specification
A	NPN output
B	PNP output
C	1 to 5V output
D	4 to 20mA output

How to Order

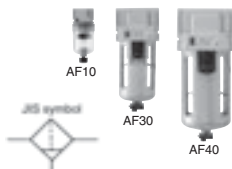


① Body Size

10	20	30	40	50	60
----	----	----	----	----	----

② Thread Type

Nil	Metric thread (M5)
	Rc
N	NPT
F	G



③ Port Size

Symbol	Port size	Body size					
		10	20	30	40	50	60
M5	M5	●	—	—	—	—	—
01	1/8	—	●	—	—	—	—
02	1/4	—	●	●	●	—	—
03	3/8	—	—	●	—	—	—
04	1/2	—	—	—	●	—	—
06	3/4	—	—	—	●	●	—
10	1	—	—	—	—	●	●

④ Accessories

Symbol	Description	Applicable model
Nil	—	—
B (1)	With bracket	AF20 to 60
C	Float type (2) auto drain (N.C.)	AF10 to 60
D	Float type (2) auto drain (N.O.)	AF30 to 60

(1) Bracket is not assembled and is supplied loose at the time of shipment.

(2) Applicable tube O.D. for auto drain connection should be $\phi 3/8$ " in case NPT thread port is chosen.

⑤ Optional Specifications

Symbol	Description	Applicable model
2	Metal bowl	AF10 to 60
6	Nylon bowl	AF10 to 60
8	Metal bowl with level gauge	AF30 to 60
C	With bowl guard	AF20
J (3)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF10 to 60
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tubing	AF30 to 60
Z (4)	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AF10 to 60

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

(3) Without a valve function

(4) The SI (MPa, C°) unit type is provided for use in Japan.



Page FRL-33



Accessory/Optional Specification Combinations Page FRL-33

- : Combination available : Combination not available
● : Varies depending on the model ▲ : Available only with NPT thread



Accessories Optional specifications	Combination Symbol	Accessory										Optional specification			Applicable filter		
		B	C	D	2	6	8	C	J	R	W	Z	AF10	AF20	AF30 to 60		
With bracket	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	●	●	●	●	●	●	●	●	●	▲	●	●	●	●	●	●
Drain guide 1/4	-J	●	●	●	●	●	●	●	●	●	▲	●	●	●	●	●	●
Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	▲	●	●	●	●	●	●
Drain cock with barb fitting: ø6 x ø4 nylon tubing	-W	●	●	●	●	●	●	●	●	●	▲	●	●	●	●	●	●
Name plate and caution plate for bowl in U.S. customary units (psi, °F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

Standard Specifications

Model	AF10	AF20	AF30	AF40	AF40-N06	AF50	AF60
Port sizes	M5 x 0.8	1/8 1/4	1/4 3/8	1/4 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Proof pressure	218psi (1.5MPa)					2.74(45)	
Maximum operating pressure	145psi (1.0MPa)					2.2(0.99)	
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)						
Nominal filtration rating	5µm						
Bowl material	Polycarbonate						
Bowl guard	—	Standard					
Drain capacity in ³ (cm ³)	0.15 (2.5)	0.49 (8)	1.52 (25)	2.74(45)	2.74 (45)		2.74 (45)
Weight Lb. (kg)	0.13 (0.06)	0.40 (0.18)	0.49 (0.22)	0.99 (0.45)	1.08 (0.49)		2.31 (1.05)

Accessory Part Number

Accessory	Applicable model	AF10	AF20	AF30	AF40
		Bracket assembly (1)	—	AF20P-050AS	AF30P-050AS
Float type auto drain (2)	N.O.	—	—	AD38N-Z (3)	AD48N-Z (3)
	N.C.	AD17-Z	AD27-CZ	AD37N-Z (3)	AD47N-Z (3)

Accessory	Applicable model	AF40-N06	AF50	AF60
		Bracket assembly (1)	AF40P-070AS	AF50P-050AS
Float type auto drain (2)	N.O.	AD48N-Z (3)	AD48N-Z (3)	AD48N-Z (3)
	N.C.	AD47N-Z (3)	AD47N-Z (3)	AD47N-Z (3)

- (1) Assembly includes a bracket and 2 mounting screws.
- (2) Minimum operating pressure: N.O. type -15psi (0.1MPa); N.C. type -15psi (0.1MPa) (AD17/27) and 22psi (0.15MPa) (AD37/47)
- (3) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".

Air Filter AF20 to 60 Made to Order Specifications

Series AF

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

① Special Temperature Environment

Made to Order

Special materials are used in the manufacturing of seals and resin parts to allow them to withstand various temperature conditions in cold or tropical (hot) climates.

Specifications

Part number	-X430	-X440
Environment	Low temperature	High temperature
Ambient temperature	-22 to 140°F (-30 to 60°C)	23 to 176°F(-5 to 80°C)
Fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)	
Material	Rubber parts	Special NBR
	Main parts	FPM
	Metal (Aluminum die-cast)	

Applicable Models

Model	AF30	AF40	AF40-N06	AF50	AF60
Port sizes	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1

How to Order

AF 30 - F 03 B - 2 R - X430

Air filter → AF

Body size → 30 40 50 60

Thread type

Symbol	Thread type
Nil	Rc
N	NPT
F	G

Port size

Symbol	Port size	Body size			
		30	40	50	60
02	1/4	●	●	—	—
03	3/8	●	●	—	—
04	1/2	●	●	—	—
06	3/4	—	●	●	—
10	1	—	—	●	●

Optional specifications

Symbol	Description	Applicable model
J (3)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF30 to 60
Z (4)	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AF30 to 60

For high/low temperature

X430	Low temperature
X440	High temperature

Bowl

Symbol	Description	Applicable model
2 (2)	Metal bowl	AF30 to 60

Option

Symbol	Description	Applicable model
Nil	—	—
B (1)	With bracket	AF30 to 60

* When more than one specification is required, indicate in ascending alphanumeric order.
 (3) Without a valve function
 (4) For thread type NPT
 The SI (MPa, C°) unit type is provided for use in Japan.

(2) Only Metal Bowl available

(1) Bracket is not assembled and is supplied loose at the time of shipment.

Note) Contact SMC regarding the detailed dimensions and optional availability.

Air Filter AF20 to 60 Made to Order Specifications

Series AF

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

② High Pressure

Made to Order

Strong materials are used in the manufacturing of air filters intended for high pressure operation.

Specifications

Part number	-X425
Proof pressure	435psi (3.0MPa)
Maximum operating pressure	290psi (2.0MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)

Applicable Models

Model	AF20	AF30	AF40	AF40-N06	AF50	AF60
Port sizes	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1

How to Order

AF 30 - F 03 B - 2 R - X425

Air filter ●

Body size ●

20	30	40	50	60
----	----	----	----	----

Thread type ●

Nil	Rc
N	NPT
F	G

Port size ●

Symbol	Port size	Body size				
		20	30	40	50	60
01	1/8	●	—	—	—	—
02	1/4	●	●	●	—	—
03	3/8	—	●	●	—	—
04	1/2	—	—	●	—	—
06	3/4	—	—	●	●	—
10	1	—	—	—	●	●

Option ●

Symbol	Description	Applicable model
Nil	—	—
B (1)	With bracket	AF20 to 60

● For high pressure

● Optional specifications

Symbol	Description	Applicable model
J (3)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF20 to 60
Z (4)	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AF20 to 60

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

(3) Without a valve function
(4) For thread type NPT
The SI (MPa, C°) unit type is provided for use in Japan.

● Bowl

Symbol	Description	Applicable model
2 (2)	Metal bowl	AF20 to 60
8 (2)	Metal bowl with level gauge	AF30 to 60

(2) Only metal bowl or metal bowl with level gauge available

(1) Bracket is not assembled and is supplied loose at the time of shipment.

Note) Contact SMC regarding the detailed dimensions and optional availability.

How to Order

AFM **30** **F** **03** **BD** **2R**

Mist separator

①

②

③

④

⑤

① Body Size

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

② Thread Type

Nil	Rc
N	NPT
F	G

③ Port Size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●
06	3/4	—	—	●

④ Accessories

Symbol	Description	Applicable model
Nil	—	—
B (1)	With bracket	AFM20 to 40
C	Float type auto drain (N.C.) ⁽²⁾	AFM20 to 40
D	Float type auto drain (N.O.) ⁽²⁾	AFM30, 40

(1) Bracket is not assembled and is supplied loose at the time of shipment.

(2) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

⑤ Optional Specifications

Symbol	Description	Applicable model
2	Metal bowl	AFM20 to 40
6	Nylon bowl	AFM20 to 40
8	Metal bowl with level gauge	AFM30, 40
C	With bowl guard	AFM20
J ⁽³⁾	Drain guide 1/4	AFM30, 40
R	Flow direction: Right to left	AFM20 to 40
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tube	AFM30, 40
Z ⁽⁴⁾	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AFM20 to 40

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

(3) Without a valve function

(4) For NPT thread type

The SI (MPa, C°) unit type is provided for use in Japan.



JIS symbol



Accessory/Optional Specification Combinations

- : Combination available ■ : Combination not available
 ● : Varies depending on the model ▲ : Available only with NPT thread

Combination	Symbol	Accessory										Optional specification		Applicable mist separator			
		B	C	D	2	6	8	C	J	R	W	Z	AFM20	AFM30 to 40			
Accessory/Optional specifications																	
Accessories																	
With bracket	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	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Drain guide 1/4	-J	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Drain cock with barb fitting: ø6 x ø4 nylon tubing	-W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Name plate and caution plate for bowl in U.S. customary units (psi, °F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Optional specifications																	

Standard Specifications

Model	AFM20	AFM30	AFM40	AFM40-N06
Port sizes	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	218psi (1.5MPa)			
Maximum operating pressure	145psi (1.0MPa)			
Minimum operating pressure	7psi (0.05MPa)			
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)			
Rated flow L/min (ANR) (1)	200	450	1100	1100
Nominal filtration rating	0.3µm (95% filtered particle size)			
Outlet side oil mist concentration	Maximum 1.0mg/m ³ (ANR) (approx. 0.8ppm) (2)			
Bowl material	Polycarbonate			
Bowl guard	Standard			
Drain capacity in ³ (cm ³)	0.49 (8)	1.53 (25)	2.75 (45)	2.75 (45)
Weight Lb. (kg)	0.4 (0.18)	0.49 (0.22)	0.97 (0.44)	1.08 (0.49)

(1) When the inlet pressure is 102psi (0.7MPa). Flow rate varies depending on the inlet pressure.

(2) When the compressor oil mist discharge concentration is 30mgf/m³ (ANR).

Accessory Part Numbers

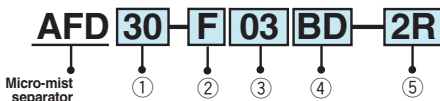
Applicable model		AFM20	AFM30
Accessory			
Bracket assembly (1)		AF20P-050AS	AF30P-050AS
Float type auto drain (2)	N.O.	—	AD38N-Z (3)
	N.C.	AD27-CZ	AD37N-Z (3)
Applicable model		AFM40	AFM40-N06
Accessory			
Bracket assembly (1)		AF40P-050AS	AF40P-070AS
Float type auto drain (2)	N.O.	AD48N-Z (3)	AD48N-Z (3)
	N.C.	AD47N-Z (3)	AD47N-Z (3)

(1) Assembly includes a bracket and 2 mounting screws.

(2) Minimum operating pressure: N.O. type-15psi (0.1MPa); N.C. type-15psi (0.1MPa) (AD17/27) and 22psi (0.15MPa) (AD37/47)

(3) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".

How to Order



① Body Size

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

② Thread Type

Nil	Rc
N	NPT
F	G



③ Port Size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●
06	3/4	—	—	●

④ Accessories

Symbol	Description	Applicable model
Nil	—	—
B ⁽¹⁾	With bracket	AFD20 to 40
C ⁽²⁾	Float type auto drain (N.C.)	AFD20 to 40
D ⁽²⁾	Float type auto drain (N.O.)	AFD30, 40

(1) Bracket is not assembled and is supplied loose at the time of shipment.

(2) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

⑤ Optional Specifications

Symbol	Description	Applicable model
2	Metal bowl	AFD20 to 40
6	Nylon bowl	AFD20 to 40
8	Metal bowl with level gauge	AFD30, 40
C	With bowl guard	AFD20
J ⁽³⁾	Drain guide 1/4	AFD30, 40
R	Flow direction: Right to left	AFD20 to 40
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tube	AFD30, 40
Z ⁽⁴⁾	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AFD20 to 40

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

(3) Without a valve function

(4) For NPT thread type

Accessory/Optional Specification Combinations

- : Combination available ■ : Combination not available
 ● : Varies depending on the model ▲ : Available only with NPT thread

Combination	Symbol	Accessory										Optional specification		Applicable micro mist separator		
		B	C	D	2	6	8	C	J	R	W	Z	AFD20	AFD30 to 40		
Accessory/Optional specifications																
Accessories																
With bracket	B	●	●	●	●	●	●	●	●	●	▲	●	●			
Float type auto drain (N.C.)	C	●	●	●	●	●	●	●	●	●	▲	●	●			
Float type auto drain (N.O.)	D	●	●	●	●	●	●	●	●	●	▲	●	●			
Optional specifications																
Metal bowl	-2	●	●	●	●	●	●	●	●	●	▲	●	●			
Nylon bowl	-6	●	●	●	●	●	●	●	●	●	▲	●	●			
Metal bowl with level gauge	-8	●	●	●	●	●	●	●	●	●	▲	●	●			
With bowl guard	-C	●	●	●	●	●	●	●	●	●	▲	●	●			
Drain guide 1/4	-J	●	●	●	●	●	●	●	●	●	▲	●	●			
Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	▲	●	●			
Drain cock with barb fitting: ø6 x ø4 nylon tube	-W	●	●	●	●	●	●	●	●	●	▲	●	●			
Name plate and caution plate for bowl in U.S. customary units (psi, °F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			

Standard Specifications

Model	AFD20	AFD30	AFD40	AFD40-N06
Port size	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	218psi (1.5MPa)			
Maximum operating pressure	415psi (1.0MPa)			
Minimum operating pressure	7 psi (0.05MPa)			
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)			
Rated flow L/min (ANR) ^(Note 1)	120	240	600	600
Nominal filtration rating	0.01μm (95% filtered particle size)			
Outlet side oil mist concentration	Max.0.1mg/m ³ (ANR) (before saturated with oil: 0.01mg/m ³ (ANR) or less, approx. 0.008ppm) (2)			
Bowl material	Polycarbonate			
Bowl guard	Standard			
Drain capacity in ³ (cm ³)	0.49 (8)	1.53 (25)	2.75 (45)	2.75 (45)
Weight Lb. (kg)	0.4 (0.18)	0.49 (0.22)	0.97 (0.44)	1.08 (0.49)

- (1) When the inlet pressure is 102psi (0.7MPa). The flow rate varies depending on the inlet pressure.
 (2) When the compressor oil mist discharge concentration is 30mg/m³ (ANR).

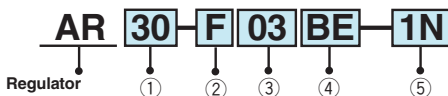
Accessory Part Numbers

Applicable model		AFD20	AFD30
Accessory			
Bracket assembly ⁽¹⁾		AF20P-050AS	AF30P-050AS
Float type auto drain ⁽²⁾	N.O.	—	AD38N-Z ⁽³⁾
	N.C.	AD27-CZ	AD37N-Z ⁽³⁾

Applicable model		AFD40	AFD40-N06
Accessory			
Bracket assembly ⁽¹⁾		AF40P-050AS	AF40P-070AS
Float type auto drain ⁽²⁾	N.O.	AD48N-Z ⁽³⁾	AD48N-Z ⁽³⁾
	N.C.	AD47N-Z ⁽³⁾	AD47N-Z ⁽³⁾

- (1) Assembly includes a bracket and 2 mounting screws.
 (2) Minimum operating pressure: N.O. type-15psi (0.1MPa); N.C. type-15psi (0.1MPa) (AD27) and 22psi (0.15MPa) (AD37/47)
 (3) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".

How to Order



① Body Size

10	20	25	30	40	50	60
----	----	----	----	----	----	----

② Thread Type

Nil	Metric thread (M5)
	Rc
N	NPT
F	G



③ Port Size

Symbol	Port size	Body size						
		10	20	25	30	40	50	60
M5	M5	●	—	—	—	—	—	—
01	1/8	—	●	—	—	—	—	—
02	1/4	—	●	●	●	—	—	—
03	3/8	—	—	●	●	●	—	—
04	1/2	—	—	—	—	●	—	—
06	3/4	—	—	—	—	●	●	—
10	1	—	—	—	—	—	●	●

JIS symbol



④ Accessories (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AR10 to 60
E	With square embedded type pressure gauge (with limit indicator)	AR20 to 60
G	With round pressure gauge (without limit indicator)	AR10 to 60
H	With set nut (for panel mount)	AR10 to 40

(1) Optional parts are not assembled and are supplied loose at the time of shipment (except for option E).

⑤ Optional Specifications

Symbol	Description	Applicable model
1 (1)	3 to 29psi (0.02 to 0.2MPa) setting	AR10 to 60
N	Non-relieving	AR10 to 60
R	Flow direction: Right to left	AR10 to 60
Y	Upward handle	AR10 to 60
Z (2)	Name plate and pressure gauge in U.S. customary units (psi, °F)	AR10 to 60

(1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa)

(2) For M5 and NPT thread types

The SI (MPa, C°) unit type is provided for use in Japan.

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



Accessory/Optional Specification Combinations

- : Combination available ■ : Combination not available
 ● : Varies depending on the model ▲ : Available only with NPT thread

Accessory/Optional specifications	Combination Symbol	Accessory				Optional specification				Applicable regulator			
		B	E	G	H	1	N	R	Y	Z	AR10	AR20 to 40	AR50 to 60
Accessories	With bracket (with set nut)	B	●	●	●	●	●	●	●	●	●	●	●
	Square embedded type pressure gauge	E	●	■	■	■	■	■	■	■	■	■	■
	Round pressure gauge	G	●	■	■	■	■	■	■	■	■	■	■
	With set nut (for panel mount)	H	●	●	●	●	●	●	●	●	●	●	●
Optional specifications	3 to 29psi (0.02 to 0.2MPa) setting	-1	●	●	●	●	●	●	●	●	●	●	●
	Non-relieving type	-N	●	●	●	●	●	●	●	●	●	●	●
	Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	●	●
	Upward handle	-Y	●	●	●	●	●	●	●	●	●	●	●
	Name plate and pressure gauge in U.S. customary units (psi, °F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

Standard Specifications

Model	AR10	AR20	AR25	AR30
Port sizes	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8
Fluid	Air			
Proof pressure	218psi (1.5MPa)			
Maximum operating pressure	145psi (1.0MPa)			
Set pressure range	7 to 102psi (0.05 to 0.7MPa)	7 to 123psi (0.05 to 0.85MPa)		
Pressure gauge port size	Rc1/16 (2)	Rc, NPT, G1/8	Rc, NPT, G1/8	Rc, NPT, G1/8
Relief pressure	Set pressure + 7psi (0.05MPa) (3) at relief flow rate of 0.1L/min (ANR)			
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)			
Construction	Relieving type			
Weight Lb. (kg)	0.13 (0.06)	0.57 (0.26)	0.46 (0.21)	0.64 (0.29)

Model	AR40	AR40-06	AR50	AR60
Port sizes	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air			
Proof pressure	218psi (1.5MPa)			
Maximum operating pressure	145psi (1.0MPa)			
Set pressure range	7 to 123psi (0.05 to 0.85MPa)			
Pressure gauge port size	Rc, NPT, G1/4	Rc, NPT, G1/4	Rc, NPT, G1/4	Rc, NPT, G1/4
Relief pressure	Set pressure + 7psi (3) [at relief flow rate of 0.1L/min (ANR)]			
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)			
Construction	Relieving type			
Weight Lb. (kg)	0.97 (0.44)	1.04 (0.47)	2.58 (1.17)	2.69 (1.22)

- (1) Pressure gauge connection threads are not required for regulator with a square embedded type pressure gauge (AR20 to AR60).
- (2) Use a bushing (part no: 131368) when connecting the R1/8 pressure gauge to the R1/16 gauge port.
- (3) Except for AR10

Accessory Part Numbers

Accessory		Applicable model		AR10	AR20	AR25	AR30
Bracket assembly (1)				AR10P-270AS	AR20P-270AS	AR25P-270AS	AR30P-270AS
Set nut				AR10P-260S	AR20P-260S	AR25P-260S	AR30P-260S
Pressure gauge (2)	160psi 1.1MPa	Round		G27-P10-R1-X30	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K40-MP1.0-N01MS
		Square embedded type (4)		—	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi 0.2MPa	Round		G27-P10-R1-X30 (3)	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS
		Square embedded type (4)		—	GC3-P2AS	GC3-P2AS	GC3-P2AS

Accessory		Applicable model		AR40	AR40-N06	AR50	AR60
Bracket assembly (1)				AR40P-270AS	AR40P-270AS	AR50P-270AS (5)	AR50P-270AS (5)
Set nut				AR40P-260S	AR40P-260S	— (6)	— (6)
Pressure gauge (2)	160psi 1.1MPa	Round		K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS
		Square embedded type (4)		GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi 0.2MPa	Round		K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS
		Square embedded type (4)		GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS

(1) Assembly includes a bracket and set nuts.

(2) G27 reads 0 to 150psi.

(3) For 15psi (1.0MPa)

(4) Includes one O-ring and 2 mounting screws.

(5) Assembly includes a bracket and 2 mounting screws.

(6) Contact SMC regarding the set nuts for AR50 and AR60.

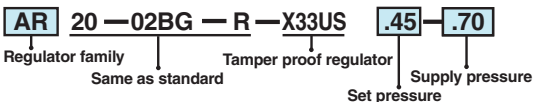
How to Order

AR Options

Tamper Proof Regulator

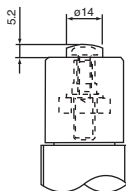
AR10, 20, 25, 30, 40, 50, 60

* Secondary pressure is preset and cannot be changed or secondary pressure can be set/adjusted in the field with a special tool.



Regulator Family

AC	Air combination
AP	Pressure relief valve
AR	Regulator
ARB	Interface regulator
ARBF	Interface regulator
ARP	Precision regulator
ARX	2MPa regulator
AW	Filter regulator
AWD	Micro mist separator regulator
AWM	Mist separator regulator



Set Pressure

Port thread		Applicable model	Tolerance +/- MPa (psi)
Rc, G (MPa)	NPT (psi)		
*Nil	*Nil	All models listed below	—
.05 to .70	7 to 100	AP	0.02 (3)
See Note 2	See Note 2	ARB	—
See Note 2	See Note 2	ARBF	—
.01 to .30	1 to 40	ARP	0.003 (.5)
.05 to .70	7 to 100	AR111	0.007 (1)
.02 to .85	3 to 120	AC20 to 60 AR20 to 60 AW/AWD/AWM20 to 40	0.01 (1.5)
.02 to .70	3 to 100	AC/AR/AW10	0.03 (3.5)
.05 to .85	7 to 120	ARX	0.03 (4.5)

Supply Pressure

Port thread	
Rc, G (MPa)	NPT (psi)
*Nil	*Nil
See Note 3	See Note 3
See Note 2	See Note 2
See Note 2	See Note 2
.02 to .80	2 to 115
.06 to 1.0	8 to 150
.03 to 1.0	4 to 150
.03 to 1.0	4 to 150
.06 to 2.0	8 to 290

* For regulator that includes tamper proof components but is not present, leave set & supply pressure blank.

Note 1: Dimensional changes from standard product are as shown.

Note 2: Valve/subplate interface type regulators (ARB/ARBF) cannot be preset.

Note 3: Since supply pressure equals set pressure for AP100, supply pressure indication is not required.

Adjustment Tool for "—X33US*" Tamper Proof Regulator

Tool Description	Part Number
Bit, M5 spanner with 1/4" hex shank	AR0000-00-X33US-1
Screwdriver, M5 spanner with non-removable bit	AR0000-00-X33US-2

Regulator AR10 to 60

Series AR

Retrofit Kits for Tamper Proof Regulators:

Kit P/N	Applicable Model	Bill of Materials	
		P/N Description (QTY)	
KT-ARX20-X33US	ARX20	ARX20-00-X33US-1 HANDLE (1)	ARX20-00-X33US-2 ADJUST SCREW (1)
KT-AR20-X33US	AC/AR/AW20	ARX20-00-X33US-1 HANDLE (1)	AR20-00-X33US-2 ADJUST SCREW (1)
KT-AR25-X33US	AC/AR/AW25	ARX25-00-X33US-1 HANDLE (1)	AR25-00-X33US-2 ADJUST SCREW (1)
KT-AR30-X33US	AC/AR/AW30	AR30-00-X33US-1 HANDLE (1)	AR30-00-X33US-2 ADJUST SCREW (1)
KT-AR10-X33US	AC/AR/AW10	AR10-00-X33US-1 HANDLE (1)	AR10-00-X33US-2 ADJUST SCREW (1)
KT-AR40-X33US	AC/AR/AW/AWD/ AWM40	AR40-00-X33US-1 HANDLE (1)	AR40-00-X33US-2 ADJUST SCREW (1)
KT-AR50-X33US	AC/AR50 to 60	AR50-00-X33US-1 HANDLE (1)	AR50-00-X33US-2 ADJUST SCREW (1)
KT-ARP3000-X33US	ARP3000	ARP3000-00-X33US-1 HANDLE A (1)	ARP3000-00-X33US-2 ADJUST SCREW (1)
KT-ARBF3050-X33US	ARBF3050	ARBF3050-00-0-0-X33US-1 SCREW COVER SPACER (1)	ARBF3050-00-0-0-X33US-2 ADJUST SCREW (1)
KT-ARB110-1-X33US	ARB110-*1	ARBF3050-00-0-0-X33US-1 SCREW COVER SPACER (1)	ARBF3050-00-0-0-X33US-2 ADJUST SCREW (2)
KT-ARB110-2-X33US	ARB110-*2	ARBF3050-00-0-0-X33US-1 SCREW COVER SPACER (2)	ARBF3050-00-0-0-X33US-2 ADJUST SCREW (2)
KT-AP100-X33US	AP100	AP100-00-X33US-1 SCREW COVER SPACER (1)	AP100-00-X33US-2 HANDLE RETAINING WASHER (1)
KT-AR111-X33US	AR111	AP100-00-X33US-1 SCREW COVER SPACER (1)	AP100-00-X33US-2 HANDLE RETAINING WASHER (1)
*KT-SR3000-X33US	SR3000		

*Tamper proof SR series regulator is not available after 12/2002, but the kit for retrofit will continue to be supplied.

Kit P/N	Applicable Model	Bill of Materials		
		P/N Description (QTY)		
KT-ARX20-X33US	ARX20	—		
KT-AR20-X33US	AC/AR/AW20	AR20P-130 ADJUST NUT (1)	AR1000-00-X33US-3 TAMPER PROOF SCREW (1)	
KT-AR25-X33US	AC/AR/AW25	AR25P-130 ADJUST NUT (1)		
KT-AR30-X33US	AC/AR/AW30	AR30P-130 ADJUST NUT (1)		
KT-AR10-X33US	AC/AR/AW10	AR10P-130 ADJUST NUT (1)	AR10-00-X33US-3 TAMPER PROOF SCREW (1)	8-10B SCREW COVER (1)
KT-AR40-X33US	AC/AR/AW/AWD/ AWM40	AR40P-130 ADJUST NUT (1)		
KT-AR50-X33US	AC/AR50 to 60	AR50P-130 ADJUST NUT (1)	M5X0.8X12L TAMPER PROOF SCREW (1)	
KT-ARP3000-X33US	ARP3000	ARP3000-00-X33US-3 HANDLE B (1)		
KT-ARBF3050-X33US	ARBF3050	—		
KT-ARB110-1-X33US	ARB110-*1	—		
KT-ARB110-2-X33US	ARB110-*2	—	M5X0.8X12L TAMPER PROOF SCREW (2)	8-10B SCREW COVER (2)
KT-AP100-X33US	AP100	—		
KT-AR111-X33US	AR111	—	M5X0.8X12L TAMPER PROOF SCREW (1)	8-10B SCREW COVER (1)
*KT-SR3000-X33US	SR3000	—		

*Tamper proof SR series regulator is not available after 12/2002, but the kit for retrofit will continue to be supplied.

Restricted Regulator:

Restricted secondary pressure range (ex. 35psi maximum output).



Regulator family

Set pressure

AC	Air combination	Port thread		Applicable model
		Rc, G (MPa)	NPT (psi)	
AP	Pressure control valve	.01 to .30	1 to 40	ARP
AR	Regulator	.02 to .70	3 to 100	AR111
ARP	Precision regulator	.02 to .85	3 to 120	AC, AR, AW, AWD, AWM
AW	Filter regulator	.05 to .70	7 to 100	AP
AWD	Micor mist separator regulator			
AWM	Mist separator regulator			

Note) No dimensional changes from standard product.

Regulator AR20 to 60 Made to Order Specifications

Series AR

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

① Special Temperature Environment

Special materials are used in the manufacturing of seals and resin parts to allow them to withstand various temperature conditions in cold or tropical (hot) regions.

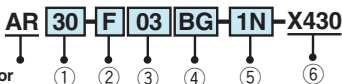
Specifications

Part number	-X430	-X440
Environment	Low temperature	High temperature
Ambient temperature	-22 to 140°F (-30 to 60°C)	23 to 167°F (-5 to 80°C)
Fluid temperature	23 to 140°F (-5 to 60°C) (with no freezing)	
Material	Rubber parts	Special NBR
	Main metal parts	Metal (Die-cast aluminum)

Applicable Models

Model	AR25	AR30	AR40	AR40-06	AR50	AR60
Port size	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

How to Order



① Body Size

25	30	40	50	60
----	----	----	----	----

② Thread Type

Nil	Rc
N	NPT
F	G

③ Port Size

Symbol	Port size	Body size					
		25	30	40	50	60	
02	1/4	●	●	●	—	—	
03	3/8	●	●	●	—	—	
04	1/2	—	—	●	—	—	
06	3/4	—	—	●	●	—	
10	1	—	—	—	●	●	

④ Option (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AR25 to 60
G (2)	With round pressure gauge (with limit indicator)	AR25 to 60
H	With set nut (for panel mount)	AR25 to 40

⑥ For High/Low Temperature

X430	Low temperature
X440	High temperature

(1) Optional parts are not assembled and are supplied loose at the time of shipment.

(2) Mounting thread for pressure gauge: 1/8 for AR25 to 30; 1/4 for AR40 to 60
Pressure gauge type: G43

⑤ Optional Specifications

Symbol	Description	Applicable model
1 (3)	3 to 29psi (0.02 to 0.2MPa) setting	AR25 to 60
N	Non-relieving type	AR25 to 60
R	Flow direction: Right to left	AR25 to 60
Y	Upward handle	AR25 to 60
Z (4)	Name plate and pressure gauge in U.S. customary units (psi, °F)	AR25 to 60

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

(3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(4) For thread type NPT

The SI unit type is provided for use in Japan.

* Consult SMC for detailed dimensions and available attachments and options.

* Comes with T type handle.

* Contact SMC regarding the detailed dimensions and optional availability.

Regulator AR20 to 60 Made to Order Specifications

Series AR

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

② High Pressure

Strong materials are used in the manufacturing of air filters intended for high pressure operation. Also construction modification allows a wider regulating pressure range.

Specifications

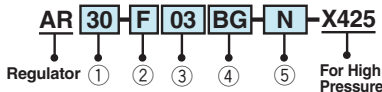
Part number	-X425
Proof pressure	435psi (3.0MPa)
Maximum operating pressure	290psi (2.0MPa)
Set pressure range	15 to 232psi (0.1 to 1.6MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)



Applicable Models

Model	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

How to Order



① Body Size

20	25	30	40	50	60
----	----	----	----	----	----

② Thread Type

Nil	Rc
N	NPT
F	G

③ Port Size

Symbol	Port size	Body size					
		20	25	30	40	50	60
01	1/8	●	—	—	—	—	—
02	1/4	●	●	●	●	—	—
03	3/8	—	●	●	●	—	—
04	1/2	—	—	—	●	—	—
06	3/4	—	—	—	●	●	—
10	1	—	—	—	—	●	●

④ Option ⁽¹⁾

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AR20 to 60
G ⁽²⁾	With round pressure gauge (with limit indicator)	AR20 to 60
H	With set nut (for panel mount)	AR20 to 40

(1) Optional parts are not assembled and are supplied loose at the time of shipment.

(2) Mounting thread for pressure gauge: 1/8 for AR20 to 30; 1/4 for AR40 to 60

⑤ Optional Specifications

Symbol	Description	Applicable model
N	Non-relieving	AR20 to 60
R	Flow direction: Right to left	AR20 to 60
Y	Upward handle	AR20 to 60
⁽³⁾ Z	Name plate and pressure gauge in U.S. customary units (psi, °F)	AR20 to 60

(3) For thread type NPT

The SI (MPa, C°) unit type is provided for use in Japan.

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

Regulator AR20(K) to 60(K) Made to Order Specifications

Series AR

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

③ With Digital Pressure Switch

Made to Order

Digital pressure switch (ISE30-□□-□□-□□) is supplied loose for mounting on pressure gauge connection port.

Specifications

Part number suffix		-X465
Pressure switch	Model	ISE30-□□-□□-□□
	Set pressure range	-15 to 145psi (-0.1 to 1MPa)
	Set and display resolution	0.145psi (0.001MPa)
	Power supply voltage	12 to 24 VDC ± 10%, Ripple (p-p) 10% or less (with power supply polarity protection)
	Power consumption	45 mA or less (70 mA or less for current output)

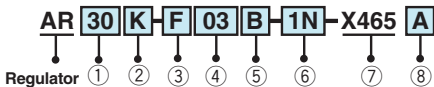


* Pressure gauge port size: 1/8

Applicable Models

Model	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)
Port sizes	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

How to Order



① Body Size

20	25	30	40	50	60
----	----	----	----	----	----

② Back Flow Mechanism

Nil	Without back flow mechanism
K	With back flow mechanism

③ Thread Type

Nil	Rc
N	NPT
F	G

④ Port Size

Symbol	Port size	Body size					
		20	25	30	40	50	60
01	1/8	●	—	—	—	—	—
02	1/4	●	●	●	●	—	—
03	3/8	—	●	●	●	—	—
04	1/2	—	—	—	●	—	—
06	3/4	—	—	—	●	●	—
10	1	—	—	—	—	●	●

⑦ With Digital Pressure Switch (Series ISE30)⁽⁴⁾

(4) Digital pressure switch is not assembled and are supplied loose at the time of shipment.

* Consult SMC for detailed dimensions and available attachments and options.

* Refer to SMC catalog CAT.ES100-42 for detailed specifications and instructions of digital pressure switch.

⑤ Option (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AR20(K) to 60(K)
H	With set nut (for panel mount)	AR20(K) to 40(K)

(1) Optional parts are not assembled and are supplied loose at the time of shipment.

⑥ Optional Specifications

Symbol	Description	Applicable model
1 ⁽²⁾	3 to 29psi (0.02 to 0.2MPa) setting	AR20(K) to 60(K)
N	Non-relieving	AR20(K) to 60(K)
R	Flow direction: Right to left	AR20(K) to 60(K)
Y	Upward handle	AR20(K) to 60(K)
Z ⁽³⁾	Name plate and pressure gauge in U.S. customary units (psi, °F)	AR20(K) to 60(K)

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

⑧ Switch Specifications

Symbol	Output specification
A	NPN output
B	PNP output
C	1 to 5V output
D	4 to 20mA output

(2) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

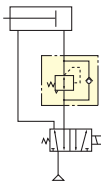
(3) For thread type NPT The SI (MPa, C°) unit type is provided for use in Japan.

Regulator with a built-in mechanism that ensures a quick release of the outlet air pressure (built-in check valve with back flow mechanism)

Example 1)

When the pressure in the rear and the front of the cylinder differs:

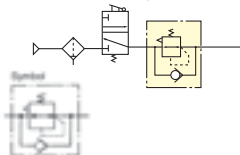
Circuit diagram



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

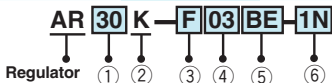


AR40K



AR20K

How to Order



① Body Size

20	25	30	40	50	60
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② With Back Flow Mechanism

Note) AR10 comes with a back flow mechanism as a standard feature.

If the set pressure is below 22psi (0.15MPa), back flow may not occur. When a backflow mechanism is required with a set pressure of less than 22psi (0.15MPa), contact SMC.

③ Thread Type

Nil	Rc
N	NPT
F	G

④ Port size

Symbol	Port size	Body size					
		20	25	30	40	50	60
01	1/8	●	—	—	—	—	—
02	1/4	●	—	—	—	—	—
03	3/8	—	●	●	●	—	—
04	1/2	—	—	—	●	—	—
06	3/4	—	—	—	●	●	—
10	1	—	—	—	—	●	●

⑤ Accessories (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AR20K to 60K
E	With square embedded type pressure gauge (with limit indicator)	AR20K to 60K
G	With round pressure gauge	AR20K to 60K
H	With set nut (for panel mount)	AR20K to 40K

(1) Optional parts are not assembled and are supplied loose at the time of shipment (except for option E).

⑥ Optional Specifications

Symbol	Description	Applicable model
(1)	3 to 30psi (0.02 to 0.2MPa) setting	AR20K to 60K
N	Non-relieving	AR20K to 60K
R	Flow direction: Right to left	AR20K to 60K
Y	Upward handle	AR20K to 60K
(2) Z	Name plate and pressure gauge in U.S. customary units (psi, °F).	AR20K to 60K

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

(2) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 30psi (0.2MPa).

(3) For NPT thread type The SI (MPa, C°) unit type is provided for use in Japan.

Standard Specifications

Model	AR20K	AR25K	AR30K
Port sizes	1/8, 1/4	1/4, 3/8	1/4, 3/8
Fluid	Air		
Proof pressure	218psi (1.5MPa)		
Maximum operating pressure	145psi (1.0MPa)		
Set pressure range ⁽¹⁾	7 to 123psi (0.05 to 0.85MPa)		
Pressure gauge port size ⁽²⁾	Rc, NPT, G1/8	Rc, NPT, G1/8	Rc, NPT, G1/8
Relief pressure	Set pressure + 7psi (0.05MPa) [at relief flow rate of 0.1L/min (ANR)]		
Ambient and fluid temperature	23 to 140°F (-5° to 60°C) (with no condensation)		
Construction	Relieving type		
Weight Lb. (kg)	0.57 (0.26)	0.46 (0.21)	0.66 (0.30)

Model	AR40K	AR40K-06	AR50K	AR60K
Port sizes	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air			
Proof pressure	218psi (1.5MPa)			
Maximum operating pressure	145psi (1.0MPa)			
Set pressure range ⁽¹⁾	7 to 123psi (0.05 to 0.85MPa)			
Pressure gauge port size ⁽²⁾	Rc, NPT, G1/4	Rc, NPT, G1/4	Rc, NPT, G1/4	Rc, NPT, G1/4
Relief pressure	Set pressure + 7psi (0.05MPa) [at relief flow rate of 0.1L/min (ANR)]			
Ambient and fluid temperature	23 to 140°F (-5° to 60°C) (with no condensation)			
Construction	Relieving type			
Weight Lb. (kg)	0.99 (0.45)	1.06 (0.48)	2.58 (1.17)	2.69 (1.22)

* AR10 comes with a back flow mechanism as a standard feature.

- (1) Set the inlet pressure 7psi (0.05MPa) or higher than the set pressure.
 (2) Pressure gauge connection threads are not required for regulators with a square embedded type pressure gauge (AR20K to AR60K).

Accessory Part Numbers

Accessory		Applicable model	AR20K	AR25K	AR30K
Bracket assembly ⁽¹⁾			AR20P-270AS	AR25P-270AS	AR30P-270AS
Set nut			AR20P-260S	AR25P-260S	AR30P-260S
⁽²⁾ Pressure gauge	160psi	Round	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K40-MP1.0-N01MS
	1.1MPa	Square embedded type ⁽⁴⁾	GC3-P10AS	GC3-P10AS	GC3-P10AS
		Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS
	30psi	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS
0.2MPa	Square embedded type ⁽⁴⁾	GC3-P2AS	GC3-P2AS	GC3-P2AS	
	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K40-MP0.2-N01MS	

Accessory		Applicable model	AR40K	AR40K-N06	AR50K	AR60K
Bracket assembly ⁽¹⁾			AR40P-270AS	AR40P-270AS	AR50P-270AS ⁽³⁾	AR50P-270AS ⁽³⁾
Set nut			AR40P-260S	AR40P-260S	(†)	(†)
⁽²⁾ Pressure gauge	160psi	Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS
	1.1MPa	Square embedded type ⁽⁴⁾	GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
		Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS
	30psi	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS
0.2MPa	Square embedded type ⁽⁴⁾	GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS	
	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS	

(1) Assembly includes a bracket and set nuts.

(2) G27 reads 0 to 150psi.

(3) Assembly includes a bracket and 2 mounting screws.

(4) Includes one O-ring and 2 mounting screws.

(5) Contact SMC regarding the set nut for AR50K and 60K.

How to Order

AL 30 F 03 B 2R

Lubricator

①

②

③

④

⑤

① Body Size

10	20	30	40	50	60
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② Thread Type

Nil	Metric thread (M5)
	Rc
	NPT
	G

③ Port Size

Symbol	Port size	Body size					
		10	20	30	40	50	60
M5	M5	●	—	—	—	—	—
01	1/8	—	●	—	—	—	—
02	1/4	—	●	●	●	—	—
03	3/8	—	—	●	●	—	—
04	1/2	—	—	—	—	—	—
06	3/4	—	—	—	—	●	—
10	1	—	—	—	—	●	●

④ Accessory

Symbol	Description	Applicable model
Nil	—	—
B ⁽¹⁾	With bracket	AL20 to AL 60

(1) Bracket is not assembled and is supplied loose at the time of shipment.

⑤ Optional Specifications

Symbol	Description	Applicable model
1	61in ³ (1000cm ³) tank	AL30 to 60
10	61in ³ (1000cm ³) tank with level switch (lowest limit ON)	AL30 to 60
11	61in ³ (1000cm ³) tank with level switch (lowest limit OFF)	AL30 to 60
2	Metal bowl	AL10 to 60
3	With drain cock	AL10 to 60
6	Nylon bowl (including sight dome)	AL10 to 60
8	Metal bowl with level gauge	AL30 to 60
C	With bowl guard	AL20
R	Flow direction: Right to left	AL10 to 60
3W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AL30 to 60
Z ⁽²⁾	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AL10 to 60

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

(2) For M5 and NPT thread types
The SI (MPa, C°) unit type is provided for use in Japan.



AL40

ø6 symbol



Accessory/Optional Specification Combinations

- : Combination available
- : Combination not available
- : Varies depending on the model
- ▲ : Available only with NPT thread

Accessories Optional specifications	Combination	Symbol	Optional specification											Applicable lubricator				
			B	1	10	11	2	3	6	8	C	R	3W	Z	AL10	AL20	AL30 to 60	
Accessory	With bracket	B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Optional specifications	61in ³ (1000cm ³) tank	-1	●												●	●	●	
	61in ³ tank with level switch (lowest limit ON)	-10	●												▲		●	
	61in ³ tank with level switch (lowest limit OFF)	-11	●												▲		●	
	Metal bowl	-2	●				●								▲	●	●	
	With drain cock	-3	●				●								▲	●	●	
	Nylon bowl (including sight dome)	-6	●									●			▲	●	●	
	Metal bowl with level gauge	-8	●												▲	●	●	
	With bowl guard	-C	●												▲	●	●	
	Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	
	Drain cock with barb fitting: ø6 x ø4 nylon tubing	-3W	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	
	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	-Z	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	

Note) -1, -10, -11 are for a metal bowl with level gauge that comes with drain cock.

Standard Specifications

Model	AL10	AL20	AL30	AL40
Port sizes	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air			
Proof pressure	218psi (1.5MPa)			
Maximum operating pressure	145psi (1.0MPa)			
Minimum dripping flow rate [L/min (ANR)] ⁽¹⁾	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50
Oil capacity in ³ (cm ³)	0.43 (7)	1.53 (25)	3.36 (55)	8.24 (135)
Recommended lubricant	Class 1 turbine oil (ISO VG32)			
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)			
Bowl material	Polycarbonate			
Bowl guard	—	Standard		
Weight Lb. (kg)	0.15 (0.07)	0.44 (0.20)	0.53 (0.24)	1.04 (0.47)

Model	AL40-06	AL50	AL60
Port sizes	3/4	3/4, 1	1
Fluid	Air		
Proof pressure	218psi (1.5MPa)		
Maximum operating pressure	145psi (1.0MPa)		
Minimum dripping flow rate [L/min (ANR)] ⁽¹⁾	50	190	220
Oil capacity in ³ (cm ³)	8.24 (135)	8.24 (135)	8.24 (135)
Recommended lubricant	Class 1 turbine oil (ISO VG32)		
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)		
Bowl material	Polycarbonate		
Bowl guard	Standard		
Weight Lb. (kg)	1.15 (0.52)	2.34 (1.06)	2.49 (1.13)

(1) • The flow rate is 5 drips/min under the following conditions: Inlet pressure of 73psi (0.5MPa); Class 1 turbine oil (ISO VG32); Temperature at 68°F (20°C); Oil adjustment valve fully open.

- Use air consumption flow rate for minimum dripping flow rate.

Accessory Part Numbers

Accessory	Applicable model	AL10	AL20	AL30	AL40
Bracket assembly ^{Note)}		—	AF20P-050AS	AF30P-050AS	AF40P-050AS

Accessory	Applicable model	AL40-06	AL50	AL60
Bracket assembly ^{Note)}		AF40P-070AS	AF50P-050AS	AF50P-050AS

* The part number for Bracket assembly for 61in³ (1000cm³) is AF50P-050AS (applicable to AL30 to AL60).

Note) Assembly includes a bracket and 2 mounting screws.

Filter Regulator AW10 to 60

Series AW

Integrated filter and regulator units save space and require less piping.

Direct operated, relieving type

JIS symbol



Page FRL-55



AW40

How to Order

AW 30 F 03 BE 1N

Filter regulator ① ② ③ ④ ⑤

① Body Size

10	20	30	40	60
----	----	----	----	----

② Thread Type

Nil	Metric thread (M5)
	Rc
N	NPT
F	G

③ Port Size

Symbol	Port size	Body size				
		10	20	30	40	60
M5	M5	●	—	—	—	—
01	1/8	—	●	—	—	—
02	1/4	—	●	●	—	—
03	3/8	—	—	●	●	—
04	1/2	—	—	—	●	—
06	3/4	—	—	—	●	●
10	1	—	—	—	—	●

④ Accessories ⁽¹⁾

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AW10 to 60
C	Float type auto drain (N.C.) ⁽²⁾	AW10 to 60
D	Float type auto drain (N.O.) ⁽²⁾	AW30, 60
E	With square embedded type pressure gauge (with limit indicator)	AW20 to 60
G	With round pressure gauge (without limit indicator)	AW10 to 60
H	With set nut (for panel mount)	AW10 to 60

(1) Optional parts are not assembled and are supplied loose at the time of shipment (except for options C, D and E).

(2) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

⑤ Optional Specifications

Symbol	Description	Applicable model
1 ⁽³⁾	3 to 29psi (0.02 to 0.2MPa) setting	AW10 to 60
2	Metal bowl	AW10 to 60
6	Nylon bowl	AW10 to 60
8	Metal bowl with level gauge	AW30, 60
C	With bowl guard	AW20
J ⁽⁴⁾	Drain guide 1/4	AW30, 60
N	Non-relieving	AW10 to 60
R	Flow direction: Right to left	AW10 to 60
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tubing	AW30, 60
Z ⁽⁵⁾	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	AW10 to 60

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

(3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(4) Without a valve function

(5) For M5 and NPT thread types
The SI (MPa, C°) unit type is provided for use in Japan.

Accessory/Optional Specification Combinations

- : Combination available ■ : Combination not available
 ● : Varies depending on the model ▲ : Available only with NPT thread

Accessory Optional specifications	Combination Symbol	Accessory													Applicable filter regulator					
		B	C	D	E	G	H	1	2	6	8	C	J	N	R	W	Z	AW10	AW20	AW30 to 40
Accessories	With bracket	B	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	●	●
	Float type auto drain (N.C.)	C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Float type auto drain (N.O.)	D	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	●
	Square embedded type pressure gauge	E	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	●
	Round pressure gauge	G	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	With set nut (for panel mount)	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	●
Optional specifications	3 to 29psi (0.02 to 0.2MPa) 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	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	
Optional specifications	Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	
	Drain cock with barb fitting: ø6 x ø4 nylon tubing	-W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	

Standard Specifications

Model	AW10	AW20	AW30	AW40	AW40-06	AW60
Port sizes	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1
Fluid	Air					
Proof pressure	218psi (1.5MPa)					
Maximum operating pressure	145psi (1.0MPa)					
Set pressure range	7 to 102psi	7 to 123psi (0.05 to 0.85MPa)				
Pressure gauge port size (1)	Rc1/16 (2)	Rc, NPT, G1/8	Rc, NPT, G1/8	Rc, NPT, G1/4	Rc, NPT, G1/4	Rc, NPT, G1/4
Relief pressure	Set pressure + 7psi (3) [at relief flow rate of 0.1L/min (ANR)]					
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no freezing)					
Nominal filtration rating	5μm					
Drain capacity in³ (cm³)	0.15 (2.5)	0.49 (8)	1.53 (25)	2.75 (45)	2.75 (45)	2.45 (40)
Bowl material	Polycarbonate					
Bowl guard	—	Standard				
Construction	Relieving type					
Weight Lb. (kg)	0.2 (0.09)	0.71 (0.32)	0.88 (0.40)	1.59 (0.72)	1.65 (0.75)	4.4 (2.0)

(1) Pressure gauge connection threads are not required for regulators with a square embedded type pressure gauge (AW20 to AW40).

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

(3) Not applicable to AW10

Accessory Part Numbers

Accessory		Applicable model	AW10	AW20	AW30
Bracket assembly ⁽¹⁾			AR10P-270AS	AW20P-270AS	AR30P-270AS
Set nut			AR10P-260S	AR20P-260S	AR30P-260S
(2) Pressure gauge	160psi 1.1MPa	Round	G27-P10-R1-30X	K40-MP1.0-N01MS	K40-MP1.0-N01MS
		Square embedded type ⁽⁴⁾	—	GC3-P10AS	GC3-P10AS
	30psi 0.2MPa	Round	G27-P10-R1-30X ⁽³⁾	K40-MP0.2-N01MS	K40-MP0.2-N01MS
		Square embedded type ⁽⁴⁾	—	GC3-P2AS	GC3-P2AS
(5) Float type auto drain		N.O.	—	—	AD38N-Z ⁽⁶⁾
		N.C.	AD17-Z	AD27-CZ	AD37N-Z ⁽⁶⁾

Accessory		Applicable model	AW40	AW40-N06	AW60
Bracket assembly ⁽¹⁾			AR40P-270AS	AR40P-270AS	AR50P-270AS
Set nut			AR40P-260S	AR40P-260S	AR50P-260S
(2) Pressure gauge	160psi 1.1MPa	Round	K50-MP1.0-N02MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS
		Square embedded type ⁽⁴⁾	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi 0.2MPa	Round	K50-MP0.2-N02MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS
		Square embedded type ⁽⁴⁾	GC3-P2AS	GC3-P2AS	GC3-P2AS
(5) Float type auto drain		N.O.	AD48N-Z ⁽⁶⁾	AD48N-Z ⁽⁶⁾	AD48N-Z ⁽⁶⁾
		N.C.	AD47N-Z ⁽⁶⁾	AD47N-Z ⁽⁶⁾	AD47N-Z ⁽⁶⁾

(1) Assembly includes a bracket and mounting hardware.

(2) G27 reads 0 to 150psi.

(3) For 145psi (1MPa)

(4) Includes one O-ring and 2 mounting screws.

(5) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1MPa) (AD17/27) and 22psi (0.15MPa) (AD37/47)

(6) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be $\phi 3/8$ ".

Filter Regulator AW20 to 40 Made to Order Specification

Series AW

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

① Special Temperature Environment

Made to Order

Special materials are used in the manufacturing of seals and resin parts to allow them to withstand various temperature conditions in cold or tropical (hot) regions.

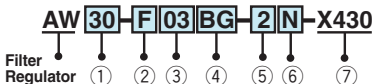
Specifications

Part number		-X430	-X440
Environment		Low temperature	High temperature
Ambient temperature		-22 to 140°F (-30 to 60°C)	23 to 176°F (-5 to 80°C)
Fluid temperature		23 to 140°F (-5 to 60°C) (with no condensation)	
Material	Rubber parts	Special NBR	FPM
	Main parts	Aluminum die-cast	

Applicable Models

Model	AW30	AW40	AW40-06
Port size	1/4, 3/8	1/4, 3/8, 1/2	3/4

How to Order



① Body Size

30	40
----	----

③ Port Size

Symbol	Port size	Body size	
		30	40
02	1/4	●	●
03	3/8	●	●
04	1/2	—	●
06	3/4	—	●

② Thread Type

	Rc
Nil	
N	NPT
F	G

⑤ Bowl

Symbol	Description	Applicable model
Nil (3)	Metal bowl	AW30, 40

④ Option (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AW30, 40
G (2)	With round pressure gauge (with limit indicator)	AW30, 40
H	With set nut (for panel mount)	AW30, 40

(3) Only Metal Bowl available

⑦ For High/Low Temperature

X430	Low temperature
X440	High temperature

(1) Bracket is not assembled and is supplied loose at the time of shipment.

(2) Mounting thread for pressure gauge: 1/8 for AW30; 1/4 for AW40

Pressure gauge type: G43

⑥ Optional Specifications

Symbol	Description	Applicable model
1 (4)	3 to 29psi (0.02 to 0.2MPa) setting	AW30, 40
J (5)	Drain guide 1/4	AW30, 40
N	Non-relieving	AW30, 40
R	Flow direction: Right to left	AW30, 40
Z (6)	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	AW30, 40

(4) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(5) Without a valve function

(6) For thread type NPT

The SI (MPa, C°) unit type is provided for use in Japan.

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

* Consult SMC for detailed dimensions and available attachments and options.

* Comes with T type handle.

Filter Regulator AW20 to 40 Made to Order Specifications

Series AW

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

② High Pressure

Made to Order

Strong materials are used in the manufacturing of air filters intended for high pressure operation.

Specifications

Part number	-X425
Proof pressure	435psi (3.0MPa)
Maximum operating pressure	290psi (2.0MPa)
Set pressure range	15 to 232psi (0.1 to 1.6MPa)
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)

Applicable Models

Model	AW20	AW30	AW40	AW40-06
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4



How to Order

AW 30 - F 03 BG - 2 N - X425

Filter Regulator ① ② ③ ④ ⑤ ⑥ For High Pressure

① Body Size

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

② Thread Type

Nil	Rc
N	NPT
F	G

③ Port Size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●
06	3/4	—	—	●

④ Option (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AW20 to 40
2) G	With round pressure gauge (with limit indicator)	AW20 to 40
H	With set nut (for panel mount)	AW20 to 40

(1) Bracket is not assembled and is supplied loose at the time of shipment.

(2) Mounting thread for pressure gauge: 1/8 for AW20 to 30; 1/4 for AW40
Pressure gauge type: G46

⑤ Bowl

Symbol	Description	Applicable model
2 (3)	Metal bowl	AW20 to 40
8 (3)	Metal bowl with level gauge	AW30, 40

(3) Only metal bowl or metal bowl with level gauge is available.

⑥ Optional Specifications

Symbol	Description	Applicable model
(d)	Drain guide 1/4	AW30, 40
N	Non-relieving type	AW20 to 40
R	Flow direction: Right to left	AW20 to 40
(s) Z	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	AW20 to 40

(4) Without a valve function

(5) For thread type NPT

The SI (MPa, C°) unit type is provided for use in Japan.

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

* Consult SMC for detailed dimensions and available attachments and options.

* Comes with T type handle.(4) Without a valve function



Filter Regulator AW20(K) to 40(K) Made to Order Specifications

Series AW

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

③ With Digital Pressure Switch

Made to Order

Digital pressure switch (ISE30-□□-□□-□L) is supplied loose for mounting on pressure gauge connection port.



Specifications

Part number suffix		-X465
Pressure switch	Model	ISE30-□□-□□-□L
	Set pressure range	-15 to 145psi(-0.1 to 1MPa)
	Set and display resolution	0.145psi (0.001MPa)
	Power supply voltage	12 to 24 VDC \pm 10%, Ripple (p-p) 10% or less (with power supply polarity protection)
	Power consumption	45mA or less (70mA or less for current output)

*Pressure gauge port size: 1/8

Applicable Models

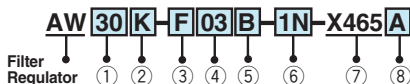
Model	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4

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

③ With Digital Pressure Switch (Continued)

Made to Order

How to Order



① Body Size

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

② With Back Flow Mechanism

Nil	—
K	With back flow mechanism

③ Thread Type

Nil	Rc
N	NPT
F	G

④ Port Size

Symbol	Port size	Body size		
		20	30	40
01	1/8	●	●	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●
06	3/4	—	—	●

⑦ With Digital Pressure Switch (Series ISE30) ⁽⁶⁾

⁽⁶⁾ Optional parts are not assembled and are supplied loose at the time of shipment.

⑧ Switch Specifications

Symbol	Output specifications
A	NPN output
B	PNP output
C	1 to 5V output
D	4 to 20mA output

⑤ Option ⁽¹⁾

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AW20(K) to 40(K)
C	Float type auto drain (N.C.) ⁽²⁾	AW20(K) to 40(K)
D	Float type auto drain (N.O.) ⁽²⁾	AW30(K), 40(K)
H	With set nut (for panel mount)	AW20(K) to 40(K)

- (1) Optional parts are not assembled and are supplied loose at the time of shipment (except for options C and D)
 (2) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

⑥ Optional Specifications

Symbol	Description	Applicable model
1 ⁽³⁾	3 to 29psi (0.02 to 0.2MPa) setting	AW20(K) to 40(K)
2	Metal bowl	AW20(K) to 40(K)
6	Nylon bowl	AW20(K) to 40(K)
8	Metal bowl with level gauge	AW30(K), 40(K)
C	With bowl guard	AW20(K)
J ⁽⁴⁾	Drain guide 1/4	AW30(K), 40(K)
N	Non-relieving type	AW20(K) to 40(K)
R	Flow direction: Right to left	AW20(K) to 40(K)
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tubing	AW30(K), 40(K)
Z ⁽⁵⁾	Name plate and caution plate for bowl in U.S. customary units (psi, °F)	AW20(K) to 40(K)

- (3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).
 (4) Without a valve function
 (5) For thread type NPT
 The SI MPa, (C°) unit type is provided for use in Japan.
- * Consult SMC for detailed dimensions and available attachments and options.
 * Refer to SMC catalog CAT.ES100-42 for detailed specifications and instructions of digital pressure switch.⁽³⁾ The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

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

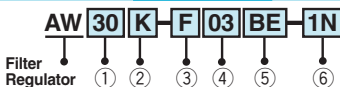


Filter Regulator with Back Flow Mechanism AW20K/30K/40K/60K

Series AW

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

How to Order



① Body Size

20	30	40	60
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② With Back Flow Mechanism

Note) AW10 comes with a back flow mechanism as a standard feature.

If the set pressure is not exceeding 22psi (0.15MPa), back flow may not occur. When a back flow mechanism is required with a set pressure of less than 22psi (0.15MPa), contact SMC.

④ Port Size

Symbol	Port size	Body size			
		20	30	40	60
01	1/8	●	—	—	—
02	1/4	●	●	●	—
03	3/8	—	●	●	—
04	1/2	—	—	●	—
06	3/4	—	—	●	●
10	1	—	—	—	●

③ Thread Type

Nil	Rc
N	NPT
F	G

⑤ Accessories ⁽¹⁾

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AW20K to 60K
C	Float type auto drain (N.C.) ⁽²⁾	AW20K to 60K
D	Float type auto drain (N.O.) ⁽²⁾	AW30K, 60K
E	With square embedded type pressure gauge (with limit indicator)	AW20K to 60K
G	With round pressure gauge (with limit indicator)	AW20K to 60K
H	With set nut (for panel mount)	AW20K to 60K

(1) Optional parts are not assembled and are supplied loose at the time of shipment (except for options C, D and E).

(2) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

⑥ Optional Specifications

Symbol	Description	Applicable model
1 ⁽³⁾	3 to 29psi (0.02 to 0.2MPa) setting	AW20K to 60K
2	Metal bowl	AW20K to 60K
6	Nylon bowl	AW20K to 60K
8	Metal bowl with level gauge	AW30K, 60K
C	With bowl guard	AW20K
J ⁽⁴⁾	Drain guide 1/4	AW30K, 60K
N	Non-relieving	AW20K to 60K
R	Flow direction: Right to left	AW20K to 60K
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tubing	AW30K, 60K
Z ⁽⁵⁾	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	AW20K to 60K

(3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(4) Without a valve function

(5) For NPT thread type

The SI (MPa, C°) unit type is provided for use in Japan.

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

Standard Specifications

Model	AW20K	AW30K	AW40K	AW40K-06	AW60K
Port sizes	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1
Fluid	Air				
Proof pressure	218psi (1.5MPa)				
Maximum operating pressure	145psi (1.0MPa)				
Set pressure range (1)	7 to 123psi (0.05 to 0.85MPa)				
Pressure gauge port size (2)	Rc, NPT, G1/8	Rc, NPT, G1/8	Rc, NPT, G1/4	Rc, NPT, G1/4	Rc, NPT, G1/4
Relief pressure	Set pressure + 7psi (0.05MPa) [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)				
Nominal filtration rating	5μm				
Drain capacity In ³ (cm ³)	0.49 (8)	1.53 (25)	2.45 (45)	2.45 (45)	2.45 (40)
Bowl material	Polycarbonate				
Bowl guard	Standard				
Construction	Relieving type				
Weight Lb. (kg)	0.71 (0.32)	0.88 (0.40)	1.59 (0.72)	1.65 (0.75)	4.4 (2.0)

(1) Set the inlet pressure 7psi (0.05MPa) or higher than the set pressure.

(2) Pressure gauge connection threads are not required for regulators with a square embedded type pressure gauge (AW20K to AW60K).

Accessory Part Numbers

Applicable model		AW20K	AW30K	AW40K	AW40K-N06	AW60
		AW20K	AW30K	AW40K	AW40K-N06	AW60
Accessory						
Bracket assembly (1)		AW20P-270AS	AR30P-270AS	AR40P-270AS	AR40P-270AS	AR50P-270AS
Set nut		AR20P-260S	AR30P-260S	AR40P-260S	AR40P-260S	AR50P-260S
Pressure gauge	160psi	Round	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K50-MP1.0-N02MS	K50-MP1.0-N02MS
	1.1MPa	Square embedded type (2)	GC3-P10AS	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K50-MP0.2-N02MS	K50-MP0.2-N02MS
	0.2MPa	Square embedded type (2)	GC3-P2AS	GC3-P2AS	GC3-P2AS	GC3-P2AS
Float type auto drain (3)	N.O.	—	AD38N-Z (4)	AD48N-Z (4)	AD48N-Z (4)	AD48N-Z (4)
	N.C.	AD27-CZ	AD37N-Z (4)	AD47N-Z (4)	AD47N-Z (4)	AD47N-Z (4)

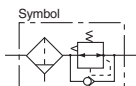
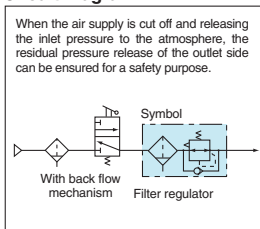
(1) Assembly includes a bracket and set nuts.

(2) Includes one O-ring and 2 mounting screws.

(3) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1MPa) (AD27) and 22psi (0.15MPa) (AD37/47)

(4) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".

Circuit Diagram



Mist Separator Regulator AWM20/30/40

Series AWM

Series AWM is a component made up of a regulator and a mist separator that are integrated to provide optimum results in applications such as clean-air blow operations.

Filtration: 0.3µm



AWM40

How to Order

AWM 30 F 03 BE 1N

Mist Separator Regulator

① Body Size

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

② Thread Type

Nil	Rc
N	NPT
F	G

③ Port Size

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

④ Accessories ⁽¹⁾

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AWM20 to 40
C	Float type auto drain (N.C.) ⁽²⁾	AWM20 to 40
D	Float type auto drain (N.O.) ⁽²⁾	AWM30, 40
E	With square embedded type pressure gauge (with limit indicator)	AWM20 to 40
G	With round pressure gauge (with limit indicator)	AWM20 to 40
H	With set nut (for panel mount)	AWM20 to 40

(1) Optional parts are not assembled and are supplied loose at the time of shipment (except for options C, D and E).

(2) Applicable tube O.D. for auto drain connection should be ø3/8" in case NPT thread port is chosen.

⑤ Optional Specifications

Symbol	Description	Applicable model
1 ⁽³⁾	7 to 29psi (0.05 to 0.2MPa) setting	AWM20 to 40
2	Metal bowl	AWM20 to 40
6	Nylon bowl	AWM20 to 40
8	Metal bowl with level gauge	AWM30, 40
C	With bowl guard	AWM20
J ⁽⁴⁾	Drain guide 1/4	AWM30, 40
N	Non-relieving	AWM20 to 40
R	Flow direction: Right to left	AWM20 to 40
W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AWM30, 40
Z ⁽⁵⁾	Name plate, caution plate for bowl, and pressure gauge in imperial units (psi, °F)	AWM20 to 40

(3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(4) Without a valve function

(5) For NPT thread type
The SI (MPa, C°) unit type is provided for use in Japan.

* When more than one specification is required, indicate in alphanumeric order.⁽³⁾ The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

Mist Separator Regulator AWM20/30/40

Series **AWM**

Accessory/Optional Specification Combinations

- : Combination available ■ : Combination not available
 ● : Varies depending on the model ▲ : Available only with NPT thread

Combination Accessory Optional specifications		Symbol	Accessory											Optional specification						Applicable mist separator regulator	
			B	C	D	E	G	H	1	2	6	8	C	J	N	R	W	Z	AWM20	AWM30 to 40	
Accessories	With bracket (with set nut)	B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●		
	Float type auto drain (N.C.)	C	●	■	■	■	■	■	■	■	■	■	■	■	■	■	▲	●	●		
	Float type auto drain (N.O.)	D	●	■	■	■	■	■	■	■	■	■	■	■	■	■	▲	■	●		
	Square embedded type pressure gauge	E	●	■	■	■	■	■	■	■	■	■	■	■	■	■	▲	●	●		
	Round pressure gauge	G	●	●	●	■	■	■	■	■	■	■	■	■	■	■	▲	●	●		
	Panel mount (with set nut)	H	■	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●		
Optional specifications	7 to 29psi (0.05 to 0.2MPa) 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	■	●	●	●	●	●	●	●	●	●	●	●	●	▲	■	●			
	Flow direction: Right to left	-R	■	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●			
	Drain cock with barb fitting: ø6 x ø4 nylon tubing	-W	■	■	■	■	■	■	■	■	■	■	■	■	■	▲	■	●			
	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			

Standard Specifications

Model	AWM20	AWM30	AWM40
Port sizes	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	218psi (1.5MPa)		
Maximum operating pressure	145psi (1.0MPa)		
Set pressure range	7 to 123psi (0.05 to 0.85MPa)		
Pressure gauge port size ⁽¹⁾	Rc, NPT, G1/8	Rc, NPT, G1/8	Rc, NPT, G1/4
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)		
Nominal filtration rating	0.3μm (95% filtered particle size)		
Outlet side oil mist concentration	Max. 1.0 ^{m3} /m ³ (ANR) (approx. 0.8ppm) ⁽²⁾⁽³⁾		
Rated flow L/min (ANR) ⁽⁴⁾	150	330	820
Bowl material	Polycarbonate		
Bowl guard	Standard		
Drain capacity in ³ (cm ³)	0.49 (8)	1.53 (25)	2.75 (45)
Construction	Relieving type		
Weight Lb. (kg)	0.97 (0.44)	1.3 (0.59)	2.76 (1.25)

(1) Pressure gauge connection threads are not required for the regulator with a square embedded type pressure gauge (AWM20 to 40).

(2) When the compressor oil mist discharge concentration is 30^{m3}/Nm³ (ANR).

(3) Bowl O-ring and other O-rings are slightly lubricated.

(4) When the outlet pressure is 73psi (0.5MPa). (The rated flow varies depending on the set pressure.)
 Keep the air flow within the rated flow to prevent and outflow of a lubricant to the outlet side.

Accessory Part Numbers

Accessory		Applicable model			
		AWM20	AWM30	AWM40	
Bracket assembly ⁽¹⁾		AW20P-270AS	AR30P-270AS	AR40P-270AS	
Set nut		AR20P-260S	AR30P-260S	AR40P-260S	
Pressure gauge	160psi 1.1MPa	Round	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K50-MP1.0-N02MS
		Square embedded type ⁽²⁾	GC3-P10AS	GC3-P10AS	GC3-P10AS
	30psi 0.2MPa	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K50-MP0.2-N02MS
		Square embedded type ⁽²⁾	GC3-P2AS	GC3-P2AS	GC3-P2AS
Float type ^⑤ auto drain		N.O.	—	AD38N-Z ⁽⁴⁾	AD48N-Z ⁽⁴⁾
		N.C.	AD27-CZ	AD37N-Z ⁽⁴⁾	AD47N-Z ⁽⁴⁾

(1) Assembly includes a bracket and set nuts.

(2) Includes one O-ring and 2 mounting screws.

(3) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1MPa) (AD27) and 22psi (0.15MPa) (AD37/47). Set the pressure to allow a pressure drop when the fluid flows. Contact SMC regarding the specification for psi unit and °F.

(4) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".

Series AWD is a component made up of a regulator and a micro-mist separator that are integrated to provide optimum results in applications such as ultraclean air blow operations.

Filtration: 0.01 μ m



AWD40

How to Order

AWD 30 F 03 BE 1N

Micro-mist Separator Regulator ① ② ③ ④ ⑤

① Body Size

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

② Thread Type

Nil	Rc
N	NPT
F	G

③ Port Size

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

④ Accessories (1)

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AWD20 to 40
C	Float type auto drain (N.C.) (2)	AWD20 to 40
D	Float type auto drain (N.O.) (2)	AWD30, 40
E	With square embedded type pressure gauge (with limit indicator)	AWD20 to 40
G	With round pressure gauge (with limit indicator)	AWD20 to 40
H	With set nut (for panel mount)	AWD20 to 40

(1) Optional parts are not assembled and are supplied loose at the time of shipment (except for options C, D and E).

(2) Applicable tube O.D. for auto drain connection should be $\phi 3/8"$ in case NPT thread port is chosen.

⑤ Optional Specifications

Symbol	Description	Applicable model
1 (3)	7 to 29psi (0.05 to 0.2MPa) setting	AWD20 to 40
2	Metal bowl	AWD20 to 40
6	Nylon bowl	AWD20 to 40
8	Metal bowl with level gauge	AWD30, 40
C	With bowl guard	AWD20
J (4)	Drain guide 1/4	AWD30, 40
N	Non-relieving	AWD20 to 40
R	Flow direction: Right to left	AWD20 to 40
W	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tubing	AWD30, 40
Z (5)	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, °F)	AWD20 to 40

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

(3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting to 29psi (0.2MPa).

(4) Without a valve function

(5) For NPT thread type

The SI (MPa, C°) unit type is provided for use in Japan.* When more than one specification is required, indicate in alphanumeric order.

Accessory/Optional Specification Combinations

- : Combination available
 ● : Combination not available
 ● : Varies depending on the model
 ▲ : Available only with NPT thread

Combination	Symbol	Accessory													Optional specification		Applicable micro-mist separator regulator		
		B	C	D	E	G	H	1	2	6	8	C	J	N	R	W	Z	AWD20	AWD30 to 40
Accessories	With bracket (with set nut)	B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Float type auto drain (N.C.)	C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Float type auto drain (N.O.)	D	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Square embedded type pressure gauge	E	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Round pressure gauge	G	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Panel mount (with set nut)	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
Optional specifications	7 to 29psi (0.05 to 0.2MPa) 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	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Flow direction: Right to left	-R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Drain cock with barb fitting; ø6 x ø4 nylon tubing	-W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲	●	●
	Name plate, caution plate for bowl, and pressure gauge in U.S. customary units (psi, F)	-Z	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

Standard Specifications

Model	AWD20	AWD30	AWD40
Port sizes	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	218psi (1.5MPa)		
Maximum operating pressure	145psi (1.0MPa)		
Set pressure range	7 to 123psi (0.05 to 0.85MPa)		
Pressure gauge port size (1)	Rc, NPT, G1/8	Rc, NPT, G1/8	Rc, NPT, G1/4
Ambient and fluid temperature	23 to 140°F (-5 to 60°C) (with no condensation)		
Nominal filtration rating	0.01μm (95% filtered particle size)		
Outlet side oil mist concentration	Max. 0.1mg/m ³ (ANR) (2) (3) (before saturated with hydraulic fluid: 0.01mg/m ³ (ANR) or less, approx. 0.008ppm)		
Rated flow L/min (ANR) (4)	90	180	450
Bowl material	Polycarbonate		
Bowl guard	Standard		
Drain capacity in ³ (cm ³)	0.49 (8)	1.53 (25)	2.75 (45)
Construction	Relieving type		
Weight Lb. (kg)	0.97 (0.44)	1.3 (0.59)	2.76 (1.25)

(1) Pressure gauge connection threads are not required for the regulator with a square embedded type pressure gauge (AWD20 to 40).

(2) When the compressor oil mist discharge concentration is 30mg/m³ (ANR).

(3) Bowl O-ring and other O-rings are slightly lubricated.

(4) When the outlet pressure is 73psi (0.5MPa). (The rated flow varies depending on the set pressure.)

Keep the air flow within the rated flow to prevent an outflow of lubricant to the outlet side.

Accessory Part Numbers

Accessory		Applicable model			
		AWD20	AWD30	AWD40	
Bracket assembly ⁽¹⁾		AW20P-270AS	AR30P-270AS	AR40P-270AS	
Set nut		AR20P-260S	AR30P-260S	AR40P-260S	
Pressure gauge	145psi 1.0MPa	Round	K40-MP1.0-N01MS	K40-MP1.0-N01MS	K50-MP1.0-N02MS
		Square embedded type ⁽²⁾	GC3-P10AS	GC3-P10AS	GC3-1P0AS
	29psi 0.2MPa	Round	K40-MP0.2-N01MS	K40-MP0.2-N01MS	K50-MP0.2-N02MS
		Square embedded type ⁽²⁾	GC3-P2AS	GC3-P2AS	GC3-P2AS
Float type auto drain		N.O.	—	AD38N-Z ⁽⁴⁾	AD48N-Z ⁽⁴⁾
		N.C.	AD27-CZ	AD37N-Z ⁽⁴⁾	AD47N-Z ⁽⁴⁾

(1) Assembly includes a bracket and set nuts.

(2) Includes one O-ring and 2 mounting screws.


(3) Minimum operating pressure: N.O. type—15psi (0.1MPa); N.C. type—15psi (0.1MPa) (AD27) and 22psi (0.15MPa) (AD37/47). Set the pressure to allow a pressure drop when the fluid flows.


(4) When "N" is specified in the end of part number of auto drain, applicable tube O.D. should be ø3/8".




Air Line Components Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard by labeling "**Caution**", "**Warning**" or "**Danger**". To ensure safety, be sure to observe ISO4414 ^{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 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, analysis and/or tests should be carried out before determining their compatibility for a specific pneumatic system. The expected performance and safety assurance will be 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 catalog 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 an operator is unfamiliar with it. 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 after confirmation of safe locked-out control positions.
2. When equipment is to be removed, confirm the aforementioned safety step. Cut the supply pressure to the equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent cylinder piston rod, lurching, etc.

4. Contact SMC if the product is to 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 beverage, recreational equipment, emergency stop circuits, 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.



Air Fittings & Tubing Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Common Precautions

Selection

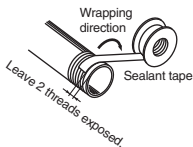
Caution

1. Keep the connection part of the thread and tubing away from sliding or rotating parts to prevent dislocation. Use the rotary one-touch fittings Series KS or KX on rotating or sliding parts.
2. Observe the minimum bending radius of the tubing. If used with a bending radius below the minimum bending radius, the tubing may be kinked.
3. Do not use tubing for combustibles, explosives or toxic substances such as gas, gas fuel and coolant. The substances may exude through tubing walls.
4. Applicable to general industrial water. Consult SMC for use of other types of fluids. Keep the surge pressure below the maximum operating temperature.
A surge pressure exceeding the maximum operating pressure may cause damage to the fittings and tubing.

Mounting

Caution

1. Check the product for damaged before installing. Also confirm the model, size, etc.
2. Allow extra length when connecting the tubing, considering changes in the tubing length due to pressure.
3. Do not allow twisting, twining or pulling force or moment load to be applied on the fittings or tubing. It can cause kinking, bursting or disconnection of the fittings or tubing.
4. Avoid worn-out tubing, twisted piping or damage to tubing to prevent crushing, bursting or release of tubing.
5. When screwing pipes and fittings, make sure that cutting dust from the pipe threads and sealing material do not enter inside. When a sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end.



Operating Environment

Warning

1. Antistatic fittings (Series KA) and antistatic tubing (Series TA) are recommended for use in environment where static electricity is a problem. Using other fittings or tubing may cause damage to the system and products.
2. Flame resistant fittings (Series KR, KRM) and tubing (Series TRS, TRB and TRBU) are recommended for use in spatter applications. Use of other one-touch fittings may result in fires caused by spattering.
3. Do not use fittings and tubing where they are directly exposed to cutting oil, lubricant or coolant oil. Consult SMC if the product is to be used in such an environment.



Air Fittings & Tubing Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.



Common Precautions

Maintenance



Caution

1. Confirm the following items in periodic inspections and replace the fittings or tubing as required.
 - a) Scratches, gouges, wear, corrosion.
 - b) Air leakage.
 - c) Twisting, twining and kinking of tubing.
 - d) Hardening, deterioration and softening of tubing.
2. Do not use damaged or replaced fittings or tubing by reworking.

Use of One-touch Fittings



Caution

1. Tubing insertion and removal of one-touch fittings.
 - 1) Installation of tubing
 - a. Take a tubing with no flaws on its periphery and cut it perpendicularly with tubing cutters T-1, 2 or 3. Do not use pinchers, nippers or scissors, etc. The tubing might be cut diagonally, or flattened, making installation impossible or causing problems such as disconnection and leakage.
 - b. Hold the tubing and push it in slowly, inserting it securely all the way into the fitting.
 - c. Pull the tubing gently to confirm that it will not come out. Insufficient insertion may cause leakage or disconnection.
 - 2) Removal of tubing
 1. Push the release button deeply while also pushing in the flange equally.
 2. Pull out the tubing while holding the release button so that it will not be locked again.

Insufficient holding of the release button will result in increased biting force that will hinder the tubing removal.
 3. When reusing a removed tubing, cut off the deformed part.

If deformed part of the tubing is used, it can cause leakage or impede tubing removal.
2. To install one-touch fittings, tighten it with an appropriate wrench applied to the hexagon wrench flats on the body as close to the thread as possible. Use of a wrench not corresponding to the size of the hexagonal portion may crush the wrench flats.
3. Tightening the thread portion of an M3, M5 and M6 fittings.
 - 1) M3
Add approximately 1/4 turn using a tool after fastening by hand.
 - 2) M5, M6
Add approximately 1/6 turn using a tool after fastening by hand.



Air Fittings & Tubing Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Common Precautions

Fittings with Sealant

Caution

1. Tighten the fitting with an appropriate torque in the table below. For standard installation, add 2 to 3 turns using a tool after hand tightening.

Thread size	Appropriate tightening torque lb-ft (N·m)
NPT1/16, NPT, R1/8	5 to 7 (7 to 9)
NPT, R1/4	9 to 10 (12 to 14)
NPT, R3/8	16 to 18 (22 to 24)
NPT, R1/2	21 to 22 (28 to 30)

2. If the fitting is threaded in with excessive torque, a large amount of sealant will seep out. Remove the excess sealant.
3. Insufficient tightening may cause faulty sealing or loosening.
4. Reuse
 - 1) In most case, two or three uses are possible.
 - 2) Remove the sealant sticking to the fittings by blowing air over the threaded portion to prevent the sealant from entering the equipment, which may result in air leakage.
 - 3) If the sealant no longer provides an effective seal, wrap a sealing tape over the sealant before reuse. (Sealant in any form other than a tape will not work.)
5. Once the fitting has been tightened backing it out to its original position often causes the sealant to become defective, resulting in air leakage.

Use of fittings with Uni thread

Caution

1. After manual tightening, screw the fitting into the hexagonal face of the body, applying an appropriate wrench, with the proper tightening torque shown below.

Connecting female screw: Rc, NPT, NPTF

Nominal size of Uni thread	Appropriate tightening torque lb-ft (N·m)	Additional tightening angle after hand tightening (guideline) deg.
1/8	4 to 5 (5 to 7)	30 to 60
1/4	8 to 10 (11 to 13)	30 to 60
3/8	10 to 12 (14 to 16)	15 to 45
1/2	15 to 16 (20 to 22)	15 to 30

Connecting female screw: G

Nominal size of Uni thread	Appropriate tightening torque lb-ft (N·m)	Additional tightening angle after hand tightening (guideline) deg.
1/8	2 to 3 (3 to 4)	30 to 45
1/4	3 to 4 (4 to 5)	15 to 30
3/8	6 to 7 (8 to 9)	15 to 30
1/2	10 to 11 (14 to 15)	15 to 30

2. A gasket can be used 6 to 10 times and can be replaced easily when damaged. To remove a damaged gasket, hold it and turn counterclockwise. If the gasket is difficult to remove, cut it with a cutter. Be careful not to damage the 45° gasket bearing surface of the fitting.
3. Consult SMC for use of fluid other than air.
4. For other instructions, follow the precautions for one-touch fittings.



Air Fittings & Tubing Precautions

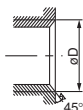
Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Common Precautions

Use of fittings with Uni thread

Chamfer diameter (Recommended value)

Chamfering according to the following table is effective for thread processing and burr prevention.



Thread size	Chamfer diameter øD (Recommended value)	
	Rc, G	NPT, NPTF
1/8	10.2 to 11.8	10.5 to 11.8
1/4	13.6 to 15.8	14.1 to 15.8
3/8	17.1 to 19.4	17.4 to 19.4
1/2	21.4 to 25.1	21.7 to 25.1

Precautions on Use of Other Brands

Caution

- When using tubing brands other than SMC, confirm that the outside diameter tolerances of the tubing satisfy the following specifications.
 - Nylon tubing Max.: ± 0.1 mm or less
 - Soft nylon tubing Max.: ± 0.1 mm or less
 - Polyurethane tubing Max.: $+0.15$ mm or less, -0.2 mm or less
 - Polyolefin tubing Max.: $+0.15$ mm or less, -0.2 mm or less

Do not use the product unless the outside diameter tolerance is satisfied. Otherwise, the tubing may not be connected or air leakage or disconnection may occur after connection.

Specific Product Precautions

Series KP, TPH/TPS Specific Product Precautions

Selection

Caution

- Consult SMC for use of fluid other than air, water or nitrogen.

Handling

Caution

- Store away from direct sunlight at 40°C or less.
- The inner bag of the double packaging should be opened in a clean room or other kinds of clean environments.



Air Fittings & Tubing Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Specific Product Precautions

Installation of Threads

Caution

Be sure to wind a sealant tape around the resin thread part.

Use without a sealant tape may cause air leakage.

1. Series KP (With resin thread)
 - 1) Wrapping the seal tape
Wind the seal tape 2 to 3 turns around the threads, leaving 1.5 to 2 thread ridges exposed at the end of the threads.
 - 2) Tightening method
After tightening by hand, use a tightening tool for additional 2 to 3 turns.
2. Tightening tool
Tighten the fitting by applying an appropriate wrench to the hexagonal face of the body.
Position the wrench on the base as close to the threads as possible. If the size of the wrench is not suitable for the hexagon wrench flats, the wrench flats may be crushed.

Installation and Removal of Tubing

Caution

1. Installation of tubing
 - 1) Take a tubing with no flaws on its periphery and cut it off at a right angle. Do not use pinchers, nippers or scissors, etc. The tubing might be cut diagonally or flattened, making installation impossible or causing problems such as disconnection and leakage.
 - 2) Hold the tubing and push it in slowly, inserting it securely all the way into the fitting.
 - 3) After inserting the tubing, pull it out lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, problems such as leakage or disconnection of tubing may occur.
 - 4) Grease is not used due to Series KP's oil-free specifications. For this reason, greater insertion force is required when tubing is installed. In particular, polyurethane tubing may fold when inserted due to its softness. Hold the tubing while keeping the insertion length at the end and insert it all the way slowly and securely until its end is felt to touch the bottom. Refer to dimension drawings for guidance on the tubing insertion length.
2. Removal of tubing
 - 1) Push the release button deeply while also pushing in the flange equally.
 - 2) Pull out the tubing while holding the release button so that it will not be locked again.
Insufficient holding of the release button will result in increased biting force that will hinder the tubing removal.
 - 3) When reusing a removed tubing, cut off the deformed part.
If deformed part of the tubing is used, it can cause leakage or impede tubing removal.

Tubing port size	Tubing insertion length mm
ø4	18
ø6	19.5
ø8	21.5
ø10	24
ø12	25



Air Fittings & Tubing Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Specific Product Precautions

Operating Environment

Caution

1. Series KP is a line of special one-touch fittings for use in **clean room blowing and washing lines**. Consult SMC regarding other types of applications.
Sealant material: EPDM does not have sufficient resistance to mineral oil and is not suitable for piping of general pneumatic equipment.
Use Series KPQ and KPG for piping of general pneumatic equipment.
2. Series TP has less resistance to lithium grease and is not suitable for piping of pneumatic equipment using lithium grease.

Maintenance

Caution

1. Tightening of blow fittings (Resin taper threads for piping).
Since Series KP taper threads are made of resin, minute leakage may gradually occur due to stress relaxation. Perform periodic inspections. If leakage is detected, correct the problem by additional tightening. When additional tightening is no longer effective, replace the fitting with a new product.

Precautions on Use of Other Brands

Caution

1. When using tubing brands other than SMC, confirm that the outside diameter tolerances of the tubing satisfy the following specifications.

- | | |
|------------------------|-------------------------------|
| 1) Polyolefin tubing | within +0.15mm, within -0.2mm |
| 2) Polyurethane tubing | within +0.15mm, within -0.2mm |
| 3) Nylon tubing | within ± 0.1 mm |
| 4) Soft nylon tubing | within ± 0.1 mm |

Do not use the product unless the outside diameter tolerance is satisfied.

Otherwise, the tubing may not be connected or air leakage or disconnection may occur after connection.

Polyolefin tubing is recommended for use with clean room fittings. Note that while other types of tubing will satisfy performance standards for leakage and tubing pull-out strength, etc., they are inferior in terms of cleanliness.



Speed Control Equipment Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Common Precautions

Selection

Warning

- 1. The products presented in this catalog are not designed for use as stop valves with zero air leakage.**

The product specification allows for a certain degree of leakage.

Mounting

Warning

- 1. Confirm that the lock nut is not loose.**

A loose lock nut may cause dangerous changes in actuator speed.

- 2. Confirm the number of rotations of the needle valve.**

The products are of a retainer type so that the needle is not removed completely. Over rotation will cause damage.

- 3. Confirm air flow direction.**

If mounted in the wrong direction, the speed adjustment needle may not function and may cause uncontrolled extension of the piston rod.

- 4. Adjust the speed by opening the needle slowly after having closed it completely.**

Loose needle valves may cause unexpected sudden actuator extension. When a needle valve is turned clockwise, it is closed and the actuator speed decreases. When a needle valve is turned counterclockwise, it is opened and the actuator speed increases.

- 5. Needle adjustment and lock nut tightening must be conducted manually.**

Use of tools such as cutting pliers may result in fracture of the handle or overtightening and consequent changes in the flow characteristics.

Specific Product Precautions

Series AS-F, FE, FG, FM Precautions

Selection

Warning

- 1. Please confirm if it is compatible with PTFE.**

PTFE powder (tetrafluoroethylene resin) is included in sealing. Confirm if its use may cause any adverse effect in the system.



Speed Control Equipment Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Specific Product Precautions

Series AS-F, FE, FG, FM Precautions

Mounting

Warning

- To install/remove the flow control equipment, tighten/loosen at wrench flat B as close to the thread as possible using an appropriate wrench.**
Do not apply torque to other points as the product may be damaged. Rotate Body A manually for positioning after installation.
- Do not use universal type fittings for applications involving continuous rotation.**
The fitting may be damaged.
- Do not use in an environment where vibration or tensile load is applied to the tubing.**
The fitting may be damaged.
- Do not apply impacts and excessive loads to the resin part.**
It may cause deformation or damage.

Tightening Torque

Caution

- The proper tightening torque for fittings is shown in the table. As a rule, tighten the fitting 2 or 3 turns with a tool after first tightening by hand. Be careful excessive tightening may damage the fitting.

Male Thread	Appropriate tightening torque lb-ft (N-m)	Width across flats of hexagon socket mm	The nominal size of an adjustable angle wrench mm
M3	1/4 turn after manual tightening	4.5	—
M5 10/32-UNF	1/6 turn after manual tightening	8	100
1/8	5 to 7 (7 to 9)	14	150
1/4	9 to 10 (12 to 14)	17	200
3/8	16 to 18 (22 to 24)	21	200
1/2	21 to 22 (28 to 30)	24	200

Lock Nut Tightening Torque

Caution

- Suitable torque for tightening hexagon lock nuts is shown in the table below. For standard installation, turn 15 to 30° using a tool after fastening by hand. Be careful not to damage the product by over torque.

Body size	Appropriate tightening torque lb-in (N-m)
M3	0.62 (0.07)
M5	2.67 (0.3)
1/8	8.85 (1)
1/4	13.3 (1.5)
3/8	35.4 (4)
1/2	88.5 (10)



Speed Control Equipment Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Specific Product Precautions

Series AS-F, FE, FG, FM Precautions

Handling of One-touch Fittings

Caution

1. Refer to Best Pneumatics No. 4 for handling of one-touch fittings.

Series AKH/AKB Precautions

Operating Environment

Warning

1. **Bush type:** Except for AKB, do not use in an environment where spatters are generated.
Spatters may adhere to synthetic resin parts, resulting in fires.
2. **Bush type:** Except for AKB, do not use in an environment where the product is directly exposed to cutting oil, lubricant or coolant oil.
Consult SMC regarding use in an environment of this kind.

Mounting

Caution

1. **Confirm the flow direction of the check valve.**
Confirm the free flow direction referring to the JIS symbol on the body.





Speed Control Equipment Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Specific Product Precautions

Series ASD Precautions

Operation

Caution

1. Single acting cylinder

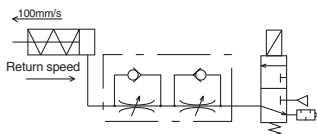
When a single acting cylinder is controlled, the cylinder's retracting speed will vary with the operating condition. Confirm the maximum retracting speed mentioned in the table below.

Speed Controller	Cylinder	Solenoid Valve	Tubing	Silencer	Max. return speed mm/s		
					100	200	300
ASD230F	CJ2	VJ500	TU0604 1m	AN110-01			
					Cylinder size		
ASD330F	CM2	VZ500	TU0604 1m	AN110-01			
					Cylinder size		

<Operating conditions>

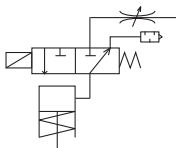
- Cylinder extending speed: 100 mm/s
- Needle fully open at meter-out side

*At pressure of 0.5 MPa and temperature of 20°C



(Reference) Recommended circuit to accelerate the return speed.

If a low extension speed and a high retraction speed are desired, a circuit using 3 ports as illustrated below is recommended.



Note) Use the -X214 throttle valve in Series AS-F.



F.R.L. Unit Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Design

Warning

1. The standard bowl for the air filter, filter regulator, and lubricator, 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, 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 catalog.
 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 0.1MPa, as exceeding this value can cause damage.
 4. **Regulator and filter regulator**
Air consumption is 0.1L/min (ANR) or less under standard specifications. Consult with SMC, if this value is not allowable.
- #### 5. F.R.L.
1. When using a 2-unit combination such as AC□0A, AC□0B, and AC□0D, secure the top and bottom of the bracket. For 3-unit, securing the bottom side of the bracket is recommended.
 2. The bracket position varies depending on the attachment (T-interface or pressure switch) mounting.
 3. The standard mounting position for bracket is OUT side of each component (AF, AR, AL, AW, AFM, and AKM). Refer to the table on page 19 for pitches and dimensions of the bracket when mounting the attachment.
 4. Brackets cannot be mounted on both sides of a T-interface or pressure switch.
 5. Contact SMC if your wish to change the bracket mounting position.



F.R.L. Unit Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

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 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 catalog's specification table. However, the outlet pressure may exceed the set pressure due to a delay in the valve's closing.
 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 proper size lubricator by referring the minimum dripping flow rate provided in this catalog.
 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 redirecting the piping on the inlet side.
4. **Float-type auto drain**

Use auto drain under the following conditions to avoid malfunction.

<N.O. type>

 - Operating compressor: 0.75KW (100L/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, 1.5kW (200L/min (ANR)) of the compressor capacity is required.
 - Operating pressure: 15psi (0.1MPa) or more

<N.C. type>

 - Operating pressure for AD17, AD27: 15psi (0.1MPa) or more
 - Operating pressure for AD37, AD47: 22psi (0.15MPa) or more



F.R.L. Unit Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

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 downward so that faulty drain discharge and dripping can 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 regulators**
Be sure to unlock the knob before adjusting the pressure and to lock it after the pressure is set.

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 knob excessively can cause damage to the internal parts.
 2. Do not use a tool on the pressure regulator knob as this can cause damage. It must be operated manually.

Caution

1. **Regulator and filter regulator**
 1. Be sure to check the inlet pressure before setting the outlet pressure.
 2. The pressure gauge included with regulators for 3 to 29 psi (0.02 to 0.2MPa) setting is for up to 29psi (0.2MPa) only. Do not apply pressure exceeding 0.2 MPa. It can damage the pressure gauge.
 3. To set the pressure using the knob, turn the knob in the direction that increases pressure and lock the knob 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 knob clockwise increases the outlet pressure, and turning it counterclockwise reduces the pressure.



F.R.L. Unit Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Piping

Warning

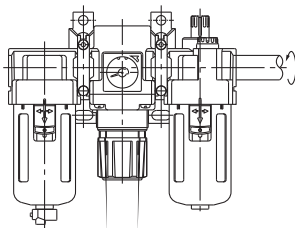
1. To screw piping materials into components, tighten with a recommended tightening torque while holding the female thread side. If the minimum tightening torque is not observed, this can cause a looseness and seal failure. On the other hand, excess tightening torque can cause damage to the threads. 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

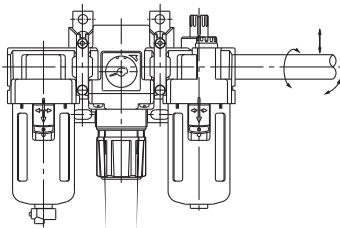
Unit: lb-ft (N·m)

Connection thread	M5	1/8	1/4	3/8	1/2	3/4	1
Torque	*	5 to 7 (7 to 9)	9 to 10 (12 to 14)	16 to 18 (22 to 24)	21 to 22 (28 to 30)	21 to 22 (28 to 30)	27 to 28 (36 to 38)

- * After tightening by hand, tighten further approximately 1/6 turn using a tightening tool.



2. 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.



3. 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.



F.R.L. Unit Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Piping

Caution

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 5m or less. Avoid riser piping.

<N.C. type>

- AD17/27: 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. 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 catalog.
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. 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. **Air filter**
 1. Replace the element every 2 years or when the pressure drop becomes 0.1MPa, 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. Unit Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Maintenance

Warning

5. Mist separator, micro-mist separator

1. Replace the element every 2 years or when the pressure drop becomes 0.1MPa, 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.

6. Lubricator

1. Use class 1 turbine oil (without additives) ISO VG32. Using other lubricant can cause damage to devices and result in malfunctions.
2. For AL10 type, replenish the lubricant after releasing the inlet pressure as lubricant cannot be properly applied in a pressurized condition.

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 knob counterclockwise to release the drain manually. Avoid applying excessive torque to the knob, such as by using a tool, as this can damage an auto drain.
After releasing the condensate, turn the knob 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.



Miniature Tubing and Miniature Fittings Specific Product Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Selection

Caution

1. Do not use in locations where the connected tubing will slide or rotate. This may result in damage of the fittings.
2. The tube bending radius in the vicinity of the fitting should be at least the minimum bending radius of the tubing. If bent more than the min. bending radius, tubing may fail or be crushed.
3. Do not use with fluids other than those shown in the applicable specifications. The tubing is applicable for air and general industrial water. Please consult with SMC when using with other fluids.
4. When using water, be careful than the surge pressure dose not cause the tubing to burst.

Mounting

Caution

1. Before mounting confirm the model and size, etc. Also, confirm that there are no blemishes, nicks or cracks in the product.
2. Mount so than the tubing and fittings are not subjected to twisting, pulling or moment loads, allowing sufficient leeway in the tubing length. Failure to consider this factor, can cause damage to the fittings and flattening, bursting or disconnection of the tubing.
3. All tubing is specified as immovable piping, except in the case of the coil tubing. For example, if tubing is used inside the cable carrier, any piping movement may result in increased frictional abrasion, tensile expansion, or tubing disconnection from the fittings. Please check carefully when piping.

Operation Environment

Warning

1. Do not use in locations where static electric charges will be a problem. Please consult with SMC regarding use in this kind of environment.
2. Do not use in locations where spatter occurs.
There is a danger of spatter causing a fire.
3. Do not use in environments where there is direct contact with liquids such as cutting oil, lubricating oil or coolant oil, etc. Please contact SMC regarding use in environments where there will be direct contact with cutting oil, lubricating oil or coolant oil, etc.

Maintenance

Caution

1. Check for the following during regular maintenance, and replace components as necessary.
 - a) Scratches, gouges, abrasion, corrosion
 - b) Leakage
 - c) Twisting, flattening or distortion of tubing
 - d) Hardening, deterioration or softness of tubing
2. Do not repair or patch the replaced tubing or fittings for reuse.



Miniature Tubing and Miniature Fittings Specific Product Precautions

Be sure to read before handling. Refer to Page INF-1 for Safety Instructions.

Handling of One-touch Fittings

Caution

1. Tubing attachment/detachment for One-touch fittings
 - 1) Attaching of tube
 1. Take a tubing having no flaws on its periphery and cut it off at a right angle. When cutting the tubing, use tubing cutters TK-1, 2 or 3. Do not use pinchers, nippers or scissors, etc. If cutting is done with tools other than tubing cutters, the tubing may be cut diagonally or become flattened, etc. This can make a secure installation impossible, and cause problems such as the tubing pulling out after installation or air leakage. Allow some extra length in the tubing.
 2. The polyurethane tubing with internal pressure expands its O.D. This may result in failure of reconnection to One-touch fittings. Examine the tubing and do not cut the tubing but reconnect to the One-touch fittings when its O.D. accuracy is +0.15 or more. Make sure the tubing goes through the release bushing smoothly when reconnecting it to the One-touch fittings.
 3. Grasp the tubing and push it in slowly, inserting it securely all the way into the fitting.
 4. After inserting the tubing, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tubing pulling out.
 - 2) Detaching of tube
 1. Push in the release bushing sufficiently. When doing this, push the collar evenly.
 2. Pull out the tubing while holding down the release bushing so that it does not come out. If the release bushing is not pressed down sufficiently, there will be increased bite on the tubing and it will become more difficult to pull it out.
 3. When the removed tubing is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tubing is used as is, this can cause trouble such as air leakage or difficulty in removing the tubing.
2. Tightening of M3 and M5 screws
 - 1) M3
 1. After tightening by hand, the barb fitting type should be tightened by an additional 1/4 rotation using an appropriate wrench.
 2. After tightening by hand, the barb elbow type should be tightened by an additional 1/2 rotation using an appropriate wrench.
 - 2) M5
 1. After tightening by hand, the barb fitting type should be tightened by an additional 1/6 rotation using a suitable tool.
 2. After tightening by hand, the barb elbow type should be tighten an additional 1/3 rotation using an appropriate wrench.

Over tightening can cause air leakage due to damage to the threads and/or deformation of the gasket. Under tightening can cause loose threads and air leakage, etc.



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