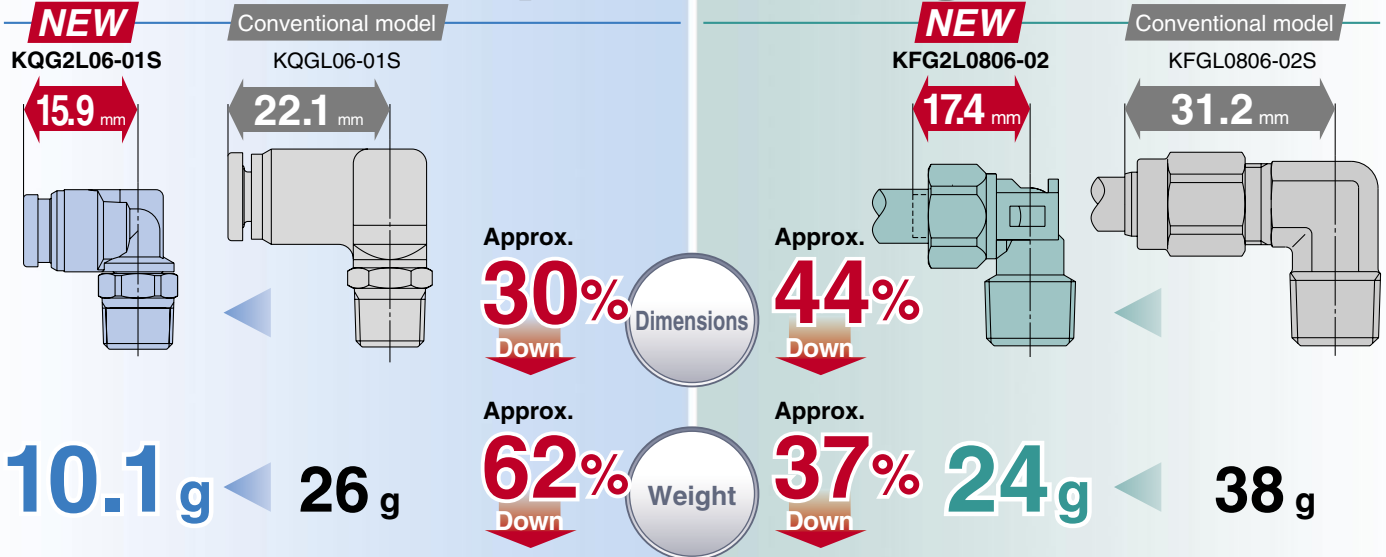


# Stainless Steel 316 Fittings

New

RoHS

## Compact and Light



- More configuration variations  
17 models < 9 models
- Tube size: Ø3.2 and Ø16 have been added.

- More configuration variations  
9 models < 5 models
- Inch sizes have been added.

## One-touch Fittings

### Series KQG2



Seal parts: Special FKM

Material

**Stainless steel 316**

## Insert Fittings

### Series KFG2



Rubber material is not used.  
(Except swivel elbow)

**-5 to 150°C**

Fluid temperature

**-65 to 260°C**  
(Swivel elbow: -5 to 150°C)

**Grease-free/Can be used with steam.**

Metric size, Inch size Applicable tube Metric size, Inch size

M, R, Rc, UNF, NPT Connection thread R, Rc, NPT

Certified to meet current Food Sanitation Law standards.  
(Component materials have met apparatus and container-packages standards.)



CAT.EUS50-33A-UK

# Stainless Steel 316 One-touch Fittings *Series KQG2*

## Compact and light

Dimensions: Approx. **30%** down

Weight: Approx. **62%** down

\* Comparison with KQGL06-01S

## More configuration variations

**17** models < **9** models

## More tube sizes added

**Ø3.2** and **Ø16** have been added.

## Material

Metal parts: **Stainless steel 316**

Seal parts: Special **FKM**

## Applicable tube material

FEP • PFA • Nylon • Soft nylon  
Polyurethane • Polyolefin

## Fluid temperature: **-5 to 150°C**

## Grease-free

## Can be used with steam.

**NEW**

KQG2L06-01S

15.9 mm

Weight  
**10.1 g**

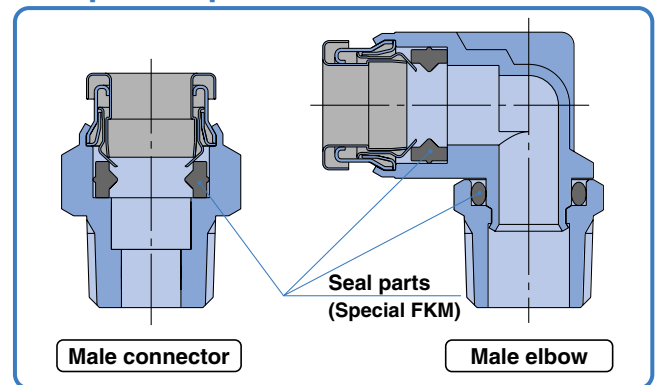
Conventional model

KQGL06-01S

22.1 mm

Weight  
**26 g**

All **Stainless steel 316**  
except seal parts



Applicable tube	Connection thread	Page
Metric size	M, R, Rc	P.1 to 7
Inch size	UNF, NPT	P.8 to 14



Certified to meet current  
Food Sanitation Law standards.  
(Component materials have  
met apparatus and container-  
packages standards.)

# Stainless Steel 316 Insert Fittings *Series KFG2*

## Compact and light

Dimensions: Approx. **44%** down

Weight: Approx. **37%** down

\* Comparison with KFG2L0806-02S

## More configuration variations

**9** models < **5** models

## Material: Stainless steel 316

Rubber material is not used.  
(Except swivel elbow)

## Fluid temperature

**-65 to 260°C**

(Swivel elbow: -5 to 150°C)

## Applicable tube material

FEP • PFA • Modified PTFE

Nylon • Soft nylon • Polyolefin

Polyurethane\* • Soft polyurethane\*

Hard polyurethane\*

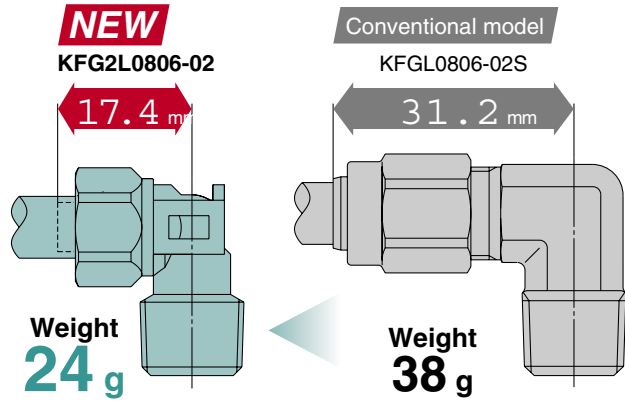
Soft polyolefin\*

Antistatic soft nylon\* • Antistatic polyurethane\*

Note) For tubes marked \*, check the appropriate size. (Page 16, 21)

## Grease-free

## Can be used with steam.



**Sleeveless** Sleeveless sealing structure makes replacement parts for maintenance unnecessary.

### Superior tube mounting

#### Union nut

Light tightening torque

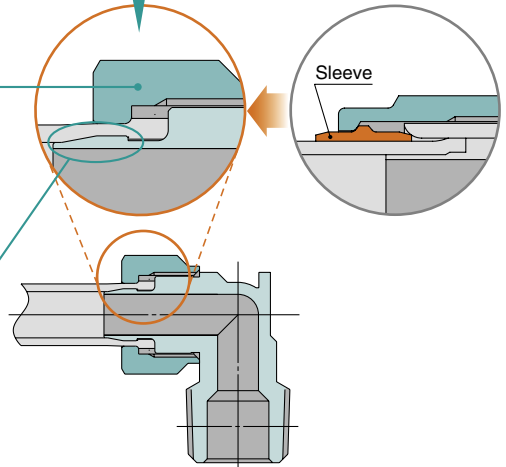
Comparison with conventional model

Approx. **60%** down

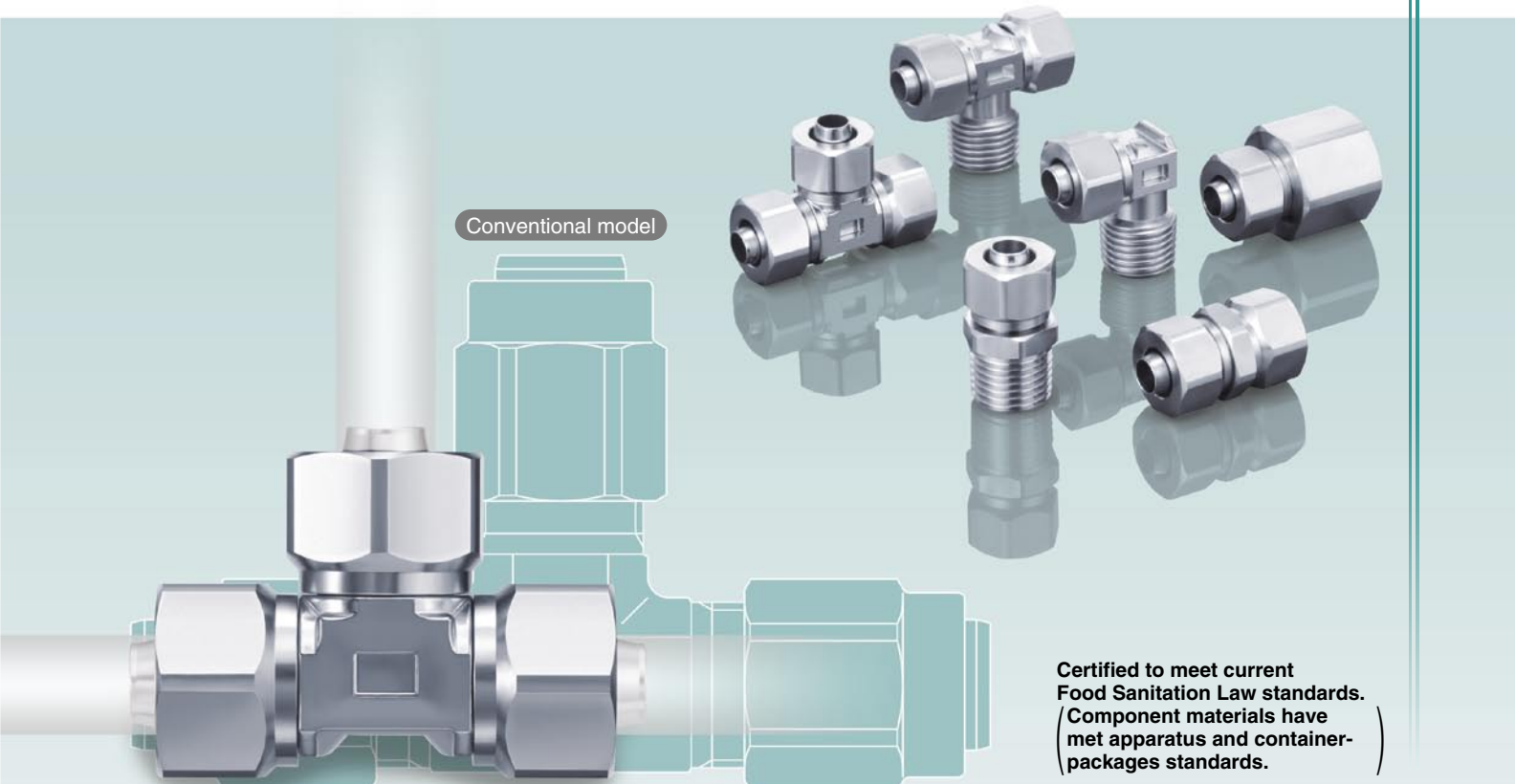
\* Comparison with KFG□0806

#### Barb

Sealing performance and holding of tube are secured by back-up from the barb.



Applicable tube	Connection thread	Page
Metric size	R, Rc	P.16 to 20
Inch size	NPT	P.21 to 24



Certified to meet current Food Sanitation Law standards. (Component materials have met apparatus and container-packages standards.)

# Stainless Steel 316 One-touch Fittings *Series KQG2*

## Variations

### Male Connector **KQG2H**



Metric ..... P. 3  
Inch ..... P. 9

### Bulkhead Union **KQG2E**



Metric ..... P. 5  
Inch ..... P. 11

### Different Diameter Union "Y" **KQG2U**



Metric ..... P. 6  
Inch ..... P. 12

### Hexagon Socket Head Male Connector **KQG2S**



Metric ..... P. 3  
Inch ..... P. 9

### Union Tee **KQG2T**



Metric ..... P. 5  
Inch ..... P. 11

### Bulkhead Connector **KQG2E**



Metric ..... P. 6  
Inch ..... P. 12

### Straight Union **KQG2H**



Metric ..... P. 3  
Inch ..... P. 9

### Union "Y" **KQG2U**



Metric ..... P. 5  
Inch ..... P. 11

### Extended Male Elbow **KQG2W**



Metric ..... P. 7  
Inch ..... P. 12

### Male Elbow **KQG2L**



Metric ..... P. 4  
Inch ..... P. 10

### Different Diameter Tee **KQG2T**



Metric ..... P. 5  
Inch ..... P. 11

### Female Connector **KQG2F**



Metric ..... P. 7  
Inch ..... P. 13

### Male Branch Tee **KQG2T**



Metric ..... P. 4  
Inch ..... P. 10

### Plug-in Reducer **KQG2R**



Metric ..... P. 5  
Inch ..... P. 11

### Plug **KQG2P**



Metric ..... P. 7  
Inch ..... P. 13

### Union Elbow **KQG2L**



Metric ..... P. 4  
Inch ..... P. 10

### Different Diameter Straight **KQG2H**



Metric ..... P. 6  
Inch ..... P. 12

# Stainless Steel 316 One-touch Fittings

Applicable Tube: Metric Size, Connection Thread: M, R, Rc

## Series **KQG2**

RoHS



### Applicable Tube

Tube material	FEP, PFA, Nylon, Soft nylon <sup>Note 1)</sup> , Polyurethane, Polyolefin
Tube O.D.	ø3.2, ø4, ø6, ø8, ø10, ø12, ø16

### Specifications

Fluid	Air, Water, Steam <sup>Note 2)</sup>
Operating pressure range <sup>Note 3)</sup>	-100 kPa to 1 MPa <sup>Note 4)</sup>
Proof pressure	3.0 MPa
Ambient and fluid temperature <sup>Note 5)</sup>	-5 to 150°C (No freezing) <sup>Note 4)</sup>
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) Avoid using in a vacuum holding application such as a leak tester, since there is leakage.

Note 4) Check the operating pressure range and operating temperature range of the tube.

Note 5) It is recommended that you use the inner sleeve in the following conditions (Except ø3.2):

- 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	80°C or more
PFA tube/TL series	120°C or more

### Spare Parts

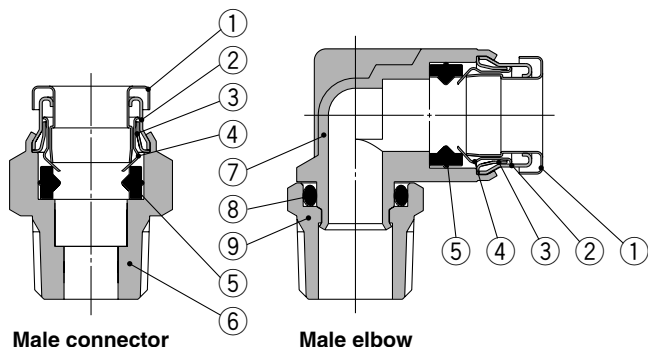
Description	Tube O.D.	Part no.	Material
Gasket	—	<b>M-5G3</b>	Stainless steel 316, Special FKM
Bulkhead nut	ø3.2, ø4	<b>KQG223-P01</b>	Stainless steel 316
	ø6	<b>KQG206-P01</b>	
	ø8	<b>KQG208-P01</b>	
	ø10	<b>KQG210-P01</b>	
	ø12	<b>KQG212-P01</b>	
	ø16	<b>KQG216-P01</b>	

### Cross Reference Table of the Inner Sleeve

Tube O.D.	Tube material			Applicable inner sleeve	
	TUS (Soft polyurethane)	TH/THI (FEP)	TL/TIL (PFA)	Part no.	Length
ø4	—	TH0402	—	<b>TJG-0402</b>	18
	TUS0425	TH0425	—	<b>TJG-0425</b>	18
	—	—	TL0403	<b>TJG-0403</b>	18
ø6	TUS0604	TH0604	TL0604	<b>TJG-0604</b>	19
	TUS0805	—	—	<b>TJG-0805</b>	20.5
ø8	—	TH0806	TL0806	<b>TJG-0806</b>	20.5
	TUS1065	—	—	<b>TJG-1065</b>	23
ø10	—	TH1075	—	<b>TJG-1075</b>	23
	—	TH1008	TL1008	<b>TJG-1008</b>	23
	TUS1208	—	—	<b>TJG-1208</b>	24
ø12	—	TH1209	—	<b>TJG-1209</b>	24
	—	TH1210	TL1210	<b>TJG-1210</b>	24
	—	—	—	—	—

\* Stainless steel 316 is used for the TJG series.

### Construction



### Component Parts

No.	Description	Material
1	Release button	Stainless steel 316
2	Guide 1	Stainless steel 316
3	Guide 2	Stainless steel 316
4	Chuck	Stainless steel 316
5	Seal	Special FKM (Fluoro coated)
6	Male connector body	Stainless steel 316
7	Male elbow body	Stainless steel 316
8	O-ring	Special FKM (Fluoro coated)
9	Stud	Stainless steel 316

# Series KQG2

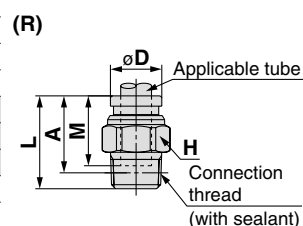
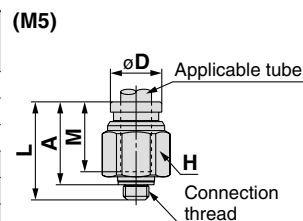
Applicable Tube: Metric Size, Connection Thread: M, R, Rc

## Dimensions

### Male Connector: KQG2H



Applicable tube O.D. (mm)	Connection thread R, M	Model	H (Width across flat)	Note 1) $\phi D$	L	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	M5	KQG2H23-M5	8	8	16.5	13.5	12	3	3.3
	1/8	KQG2H23-01S	10		15.4	12.3		3.4	5.7
	1/4	KQG2H23-02S	14		21	16.3		16.9	
$\phi 4$	M5	KQG2H04-M5	10	8.7	17.1	14.1	12.6	4	5
	1/8	KQG2H04-01S	10		15.3	12.2		5.6	4.7
	1/4	KQG2H04-02S	14		20.9	16.2		15.8	
$\phi 6$	M5	KQG2H06-M5	12	11.1	19.1	16.1	13.6	4	7.7
	1/8	KQG2H06-01S	12		18.1	15		7	
	1/4	KQG2H06-02S	14		20.8	16.1		13.1	14.5
	3/8	KQG2H06-03S	17		23	17.9		27.3	
$\phi 8$	1/8	KQG2H08-01S	14	13.4	24.5	21.4	16.1	26.1	12.8
	1/4	KQG2H08-02S			22.3	17.6		12.9	
	3/8	KQG2H08-03S			23.7	18.6		24.7	
$\phi 10$	1/8	KQG2H10-01S	17	16.4	25.5	22.4	17	26.1	18.9
	1/4	KQG2H10-02S			27.9	23.2		21.6	
	3/8	KQG2H10-03S			23	17.9		41.5	20.6
	1/2	KQG2H10-04S			28.6	22.2		51.1	
$\phi 12$	1/4	KQG2H12-02S	19	18.5	30.5	25.8	18.6	58.3	27.4
	3/8	KQG2H12-03S			24.7	19.6		20.5	
	1/2	KQG2H12-04S			28.7	22.3		44.6	
$\phi 16$	3/8	KQG2H16-03S	24	24.6	33.6	28.5	20.8	81	46
	1/2	KQG2H16-04S			29.5	23.1		113	37.4

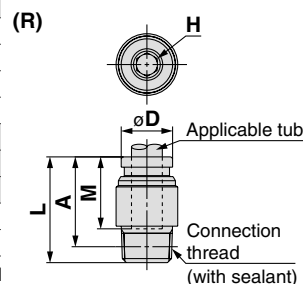
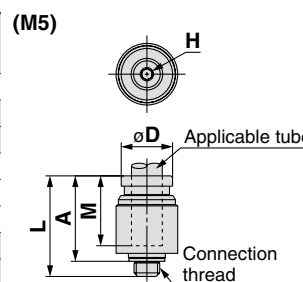


\* Reference dimensions after installation of R thread  
 Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.  
 Value of nylon tube for  $\phi 16$  only.

### Hexagon Socket Head Male Connector: KQG2S



Applicable tube O.D. (mm)	Connection thread R, M	Model	H (Width across flat)	Note 1) $\phi D$	L	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	M5	KQG2S23-M5	2	9	16.5	13.5	12	3	3.8
$\phi 4$	M5	KQG2S04-M5	2	9	17.1	14.1	12.6	4	3.7
	1/8	KQG2S04-01S	3	10	19.6	16.5		4.1	7.6
$\phi 6$	M5vv	KQG2S06-M5	2	12	19.6	16.6	13.6	4	7.4
	1/8	KQG2S06-01S	4		20.6	17.5		10	8.7
	1/4	KQG2S06-02S	14		15.9	10.7		14	
$\phi 8$	1/8	KQG2S08-01S	5	14	24.7	21.6	16.1	17.2	12.3
	1/4	KQG2S08-02S	6		22.9	18.2		23.3	12.8
	3/8	KQG2S08-03S	17		23.1	18		22.8	
$\phi 10$	1/8	KQG2S10-01S	5	17	25.6	22.5	17	17.2	17.7
	1/4	KQG2S10-02S	8		27.5	22.8		19.1	
	3/8	KQG2S10-03S	24		18.9	39		20.9	
	1/2	KQG2S10-04S	22		17.6	37.2			
$\phi 12$	1/4	KQG2S12-02S	8	19	30.6	25.9	18.6	46	24.8
	3/8	KQG2S12-03S	10		24.9	19.8		19.3	
	1/2	KQG2S12-04S	22		18.5	60		33.6	
$\phi 16$	3/8	KQG2S16-03S	10	24.6	33.2	28.1	20.8	81	41.6
	1/2	KQG2S16-04S	12		29.4	23		113	38.4

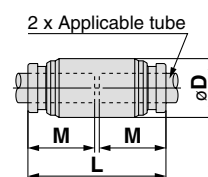


\* Reference dimensions after installation of R thread  
 Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.  
 Value of nylon tube for  $\phi 16$  only.

### Straight Union: KQG2H



Applicable tube O.D. (mm)	Model	$\phi D$ Note 1)	L	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	KQG2H23-00	9	25	12	3.4	6.5
$\phi 4$	KQG2H04-00	9	26.2	12.6	5.6	6.5
$\phi 6$	KQG2H06-00	12	28.2	13.6	13.1	11.5
$\phi 8$	KQG2H08-00	14	33.2	16.1	26.1	16.6
$\phi 10$	KQG2H10-00	17	35	17	41.5	26
$\phi 12$	KQG2H12-00	19	38.2	18.6	58.3	32.2
$\phi 16$	KQG2H16-00	24.6	42.6	20.8	113	53.7



Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.  
 Value of nylon tube for  $\phi 16$  only.

**Dimensions**

**Male Elbow: KQG2L**

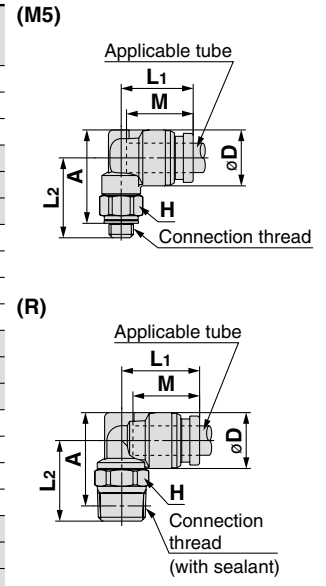
Applicable tube O.D. (mm)	Connection thread R, M	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	M5	KQG2L23-M5	8	8.3	13.1	14.8	16	12	2.6	6.3
	1/8	KQG2L23-01S	10		13.6	14.9	15.9		3	7.6
	1/4	KQG2L23-02S	14		18.7	18.1	16			
$\phi 4$	M5	KQG2L04-M5	8	9.1	13.7	15.2	16.8	12.6	3.5	6.9
	1/8	KQG2L04-01S	10		14.4	15.3	16.7		4.2	8.5
	1/4	KQG2L04-02S	14		19.1	18.9	16.8			
$\phi 6$	M5	KQG2L06-M5	8	11.4	14.7	16.3	19	13.6	3.5	8.8
	1/8	KQG2L06-01S	10		16.4	19	10.1			
	1/4	KQG2L06-02S	14		15.9	20.2	21.2		11.4	18.4
	3/8	KQG2L06-03S	17		21.6	22.2	29.9			
$\phi 8$	1/8	KQG2L08-01S	12	13.7	18.6	18.3	22	16.1	21.6	14.6
	1/4	KQG2L08-02S	14		19.1	21.5	23.6		20.3	
	3/8	KQG2L08-03S	17		22.9	24.6	31.6			
$\phi 10$	1/8	KQG2L10-01S	12	16.6	20	19.7	24.9	17	21.6	20.2
	1/4	KQG2L10-02S	14		22.9	26.5	23.3			
	3/8	KQG2L10-03S	17		21	24.3	27.5		35.2	33.6
	1/2	KQG2L10-04S	22		28.5	30.4	60.1			
$\phi 12$	1/4	KQG2L12-02S	14	18.7	22.6	24	28.6	18.6	50.2	27.1
	3/8	KQG2L12-03S	17		23.6	25.3	29.5		33.7	
	1/2	KQG2L12-04S	22		29.5	32.4	58.7			
$\phi 16$	3/8	KQG2L16-03S	19	24.6	26.3	28	34.5	20.8	71	46.3
	1/2	KQG2L16-04S	22		27.3	31.8	37		100	61.3

\* Reference dimensions after installation of R thread

Note 2) Value of FEP tube.

Value of nylon tube for  $\phi 16$  only.

Note 1)  $\phi D$  is maximum diameter.



**Male Branch Tee: KQG2T**

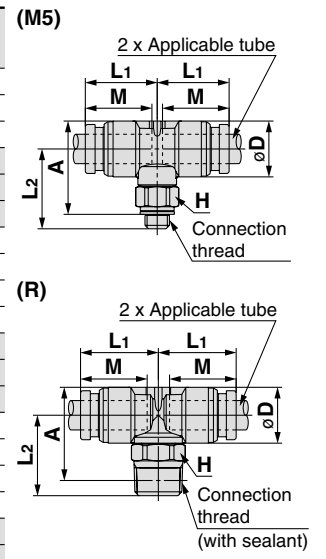
Applicable tube O.D. (mm)	Connection thread R, M	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	M5	KQG2T23-M5	8	8.3	13.1	14.8	16	12	3.2	8.1
	1/8	KQG2T23-01S	10		13.6	14.9	15.9		3.4	9.4
	1/4	KQG2T23-02S	14		18.7	18.1	17.7			
$\phi 4$	M5	KQG2T04-M5	8	9.1	13.7	15.2	16.8	12.6	4.5	9
	1/8	KQG2T04-01S	10		14.4	15.3	16.7		6	10.4
	1/4	KQG2T04-02S	14		19.1	18.9	18.8			
$\phi 6$	M5	KQG2T06-M5	8	11.4	14.7	16.3	19	13.6	4.5	11.9
	1/8	KQG2T06-01S	10		16.4	19	13.4			
	1/4	KQG2T06-02S	14		15.9	20.2	21.2		13.9	21.8
	3/8	KQG2T06-03S	17		21.6	22.2	33.3			
$\phi 8$	1/8	KQG2T08-01S	12	13.7	18.6	18.3	22	16.1	26.3	20
	1/4	KQG2T08-02S	14		19.1	21.5	23.6		25.5	
	3/8	KQG2T08-03S	17		22.9	24.6	36.8			
$\phi 10$	1/8	KQG2T10-01S	12	16.6	20	19.7	24.9	17	40.8	28.4
	1/4	KQG2T10-02S	14		22.9	26.5	31.1			
	3/8	KQG2T10-03S	17		21	24.3	27.5		41.4	
	1/2	KQG2T10-04S	22		28.5	30.4	68			
$\phi 12$	1/4	KQG2T12-02S	14	18.7	22.6	24	28.6	18.6	57.2	37.8
	3/8	KQG2T12-03S	17		23.6	25.3	29.5		39.3	
	1/2	KQG2T12-04S	22		29.5	32.4	68.8			
$\phi 16$	3/8	KQG2T16-03S	19	24.6	26.3	28	34.5	20.8	71	63.7
	1/2	KQG2T16-04S	22		27.3	31.8	37		100	77.6

\* Reference dimensions after installation of R thread

Note 2) Value of FEP tube.

Value of nylon tube for  $\phi 16$  only.

Note 1)  $\phi D$  is maximum diameter.



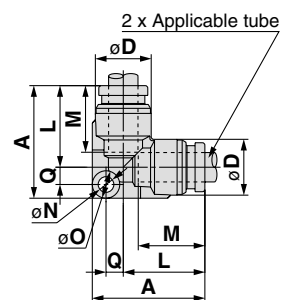
**Union Elbow: KQG2L**

Applicable tube O.D. (mm)	Model	Note 1) $\phi D$	L	A	Q	M	$\phi N$	$\phi O$	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	KQG2L23-00	8.3	13.6	19.3	2.9	12	3.2	5.6	3	6.3
$\phi 4$	KQG2L04-00	9.1	14.6	20.5	3.1	12.6	3.2	5.6	4.2	7.4
$\phi 6$	KQG2L06-00	11.4	16.6	23	3.6	13.6	3.2	5.6	11.4	11
$\phi 8$	KQG2L08-00	13.7	20.1	29.1	5	16.1	4.2	8	21.6	20.2
$\phi 10$	KQG2L10-00	16.6	22	31.7	5.7	17	4.2	8	35.2	29.6
$\phi 12$	KQG2L12-00	18.7	24.6	35	6.4	18.6	4.2	8	50.2	37.1
$\phi 16$	KQG2L16-00	24.6	28.8	40.5	7.7	20.8	4.2	8	100	59.7

Note 1)  $\phi D$  is maximum diameter.

Note 2) Value of FEP tube.

Value of nylon tube for  $\phi 16$  only.



# Series KQG2

Applicable Tube: Metric Size, Connection Thread: M, R, Rc

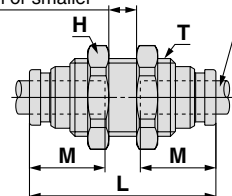
## Dimensions

### Bulkhead Union: KQG2E



Applicable tube O.D. (mm)	Model	T (M)	H (Width across flat)	L	Mounting hole	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø3.2	KQG2E23-00	M10 x 1	12	32.2	11	12	3.4	14
ø4	KQG2E04-00	M10 x 1	12	32.4	11	12.6	5.6	14
ø6	KQG2E06-00	M14 x 1	17	33.6	15	13.6	13.1	25.8
ø8	KQG2E08-00	M15 x 1	19	36.4	16	16.1	26.1	30.4
ø10	KQG2E10-00	M18 x 1	21	37.2	19	17	41.5	40.3
ø12	KQG2E12-00	M20 x 1	24	39.2	21	18.6	58.3	49.9
ø16	KQG2E16-00	M27 x 1	30	42.6	28	20.8	113	87.3

Mounting plate thickness 7 mm or smaller

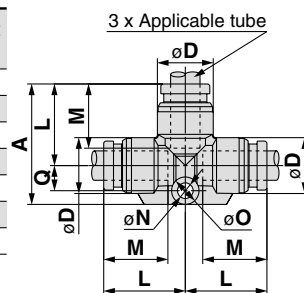


Note) Value of FEP tube.  
Value of nylon tube for ø16 only.

### Union Tee: KQG2T



Applicable tube O.D. (mm)	Model	Note 1) øD	L	A	Q	M	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø3.2	KQG2T23-00	8.3	13.6	20.5	4.1	12	3.2	5.6	3.4	7.9
ø4	KQG2T04-00	9.1	14.6	21.8	4.4	12.6	3.2	5.6	6.4	9.5
ø6	KQG2T06-00	11.4	16.6	24.6	5.2	13.6	3.2	5.6	13.4	14.2
ø8	KQG2T08-00	13.7	20.1	31.1	7	16.1	4.2	8	25.6	24.4
ø10	KQG2T10-00	16.6	22	34	8	17	4.2	8	40	36.8
ø12	KQG2T12-00	18.7	24.6	37.7	9.1	18.6	4.2	8	57.4	46.9
ø16	KQG2T16-00	24.6	28.8	43.4	10.6	20.8	4.2	8	100	75.5

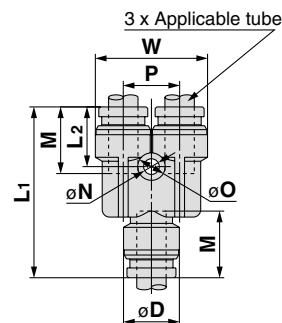


Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.  
Value of nylon tube for ø16 only.

### Union "Y": KQG2U



Applicable tube O.D. (mm)	Model	Note 1) øD	W	L <sub>1</sub>	L <sub>2</sub>	P	M	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø3.2	KQG2U23-00	8.3	16.4	29	11	8.1	12	3.2	5.6	3.4	9.2
ø4	KQG2U04-00	9.1	18.2	30.4	11.3	9.1	12.6	3.2	5.6	4.2	11.1
ø6	KQG2U06-00	11.4	22.9	34.9	12.2	11.5	13.6	3.2	5.6	13.4	18.8
ø8	KQG2U08-00	13.7	28.3	40.1	14.1	14.6	16.1	4.2	8	25.6	29.7
ø10	KQG2U10-00	16.6	34.2	44	14.4	17.6	17	4.2	8	40	47.4
ø12	KQG2U12-00	18.7	38.5	48.4	15.8	19.8	18.6	4.2	8	57.4	62.1
ø16	KQG2U16-00	24.6	49.3	56.6	17.3	26	20.8	4.2	8	113	110.2

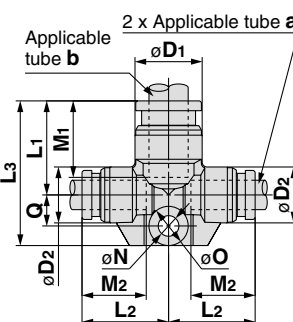


Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.  
Value of nylon tube for ø16 only.

### Different Diameter Tee: KQG2T



Applicable tube O.D. (mm)		Model	Note 1) øD <sub>1</sub>	Note 1) øD <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	Q	M <sub>1</sub>	M <sub>2</sub>	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
a	b													
ø3.2	ø4	KQG2T23-04	9.1	8.3	14.2	14.1	21.1	4.1	12.6	12	3.2	5.6	3.8	8.5
ø4	ø6	KQG2T04-06	11.4	9.1	15.6	15.7	22.8	4.4	13.6	12.6	3.2	5.6	7.1	11.5
ø6	ø8	KQG2T06-08	13.7	11.4	19.1	17.7	29.5	6.4	16.1	13.6	4.2	8	16.4	20
ø8	ø10	KQG2T08-10	16.6	13.7	21	21.2	32.1	7.1	17	16.1	4.2	8	36	29.8
ø10	ø12	KQG2T10-12	18.7	16.6	23.6	23.1	35.7	8.1	18.6	17	4.2	8	56	41.3
ø12	ø16	KQG2T12-16	24.6	18.7	26.8	26.7	39.9	9.1	20.8	18.6	4.2	8	108.5	58

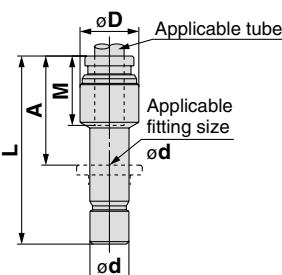


Note 1) øD<sub>1</sub>, øD<sub>2</sub> are maximum diameters.  
Note 2) Value of FEP tube.

### Plug-in Reducer: KQG2R



Applicable tube O.D. (mm)	Applicable fitting size ød	Model	Note 1) øD	L	A	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø3.2	ø4	KQG2R23-04	9	32.9	20.3	12	3.4	4.7
ø4	ø6	KQG2R04-06	9	34.4	20.8	12.6	5.6	6.7
ø6	ø8	KQG2R06-08	12	38.4	22.3	13.6	13.1	12.1
ø8	ø10	KQG2R08-10	14	41.9	24.9	16.1	26.1	18.3
ø10	ø12	KQG2R10-12	17	44.8	26.2	17	41.5	26.5
ø12	ø16	KQG2R12-16	19	42.9	22.1	18.6	58.3	35.4



Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.





# Series KQG2

Applicable Tube: Metric Size, Connection Thread: M, R, Rc

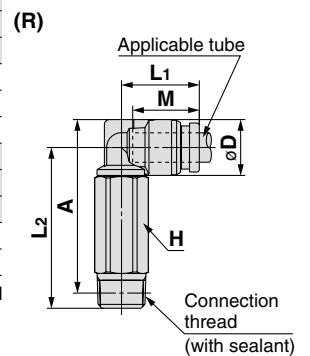
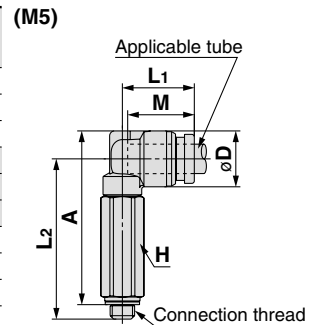
## Dimensions

### Extended Male Elbow: KQG2W



Applicable tube O.D. (mm)	Connection thread R, M	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	M5	KQG2W23-M5	8	8.3	13.1	31.2	32.4	12	2.8	13
	1/8	KQG2W23-01S	10		13.6	31.3	32.3			14.7
	1/4	KQG2W23-02S	14		35.1	34.5	33.1			
$\phi 4$	M5	KQG2W04-M5	8	9.1	13.7	31.6	33.2	12.6	3	13.6
	1/8	KQG2W04-01S	10		14.4	31.7	33.1			15.6
	1/4	KQG2W04-02S	14		35.5	35.3	33.9			
$\phi 6$	M5	KQG2W06-M5	8	11.4	14.7	32.7	35.4	13.6	10.9	15.5
	1/8	KQG2W06-01S	10		32.8	37.6	17.2			
	1/4	KQG2W06-02S	14		36.6	37.6	35.5			
	3/8	KQG2W06-03S	17		38	38.6	57.4			
$\phi 8$	1/8	KQG2W08-01S	12	13.7	18.6	37	40.7	16.1	20.5	28
	1/4	KQG2W08-02S	14		19.1	40.2	42.3			37.7
	3/8	KQG2W08-03S	17		41.6	43.3	60.9			
$\phi 10$	1/4	KQG2W10-02S	14	16.6	21	46.6	50.2	17	33.5	40.7
	3/8	KQG2W10-03S	17		45.9	49.1	61.9			
	1/2	KQG2W10-04S	22		50.1	52	117.3			
$\phi 12$	1/4	KQG2W12-02S	14	18.7	22.6	47.7	52.3	18.6	47.7	44.6
	3/8	KQG2W12-03S	17		23.6	49	53.2			56.3
	1/2	KQG2W12-04S	22		53.2	56.1	112.9			
$\phi 16$	3/8	KQG2W16-03S	19	24.6	26.3	57.6	64.1	20.8	71	86.6
	1/2	KQG2W16-04S	22		27.3	61.4	66.6			100

\* Reference dimensions after installation of R thread  
 Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.  
 Value of nylon tube for  $\phi 16$  only.

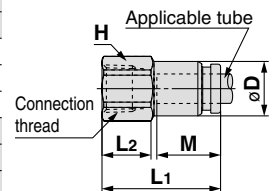


### Female Connector: KQG2F



Applicable tube O.D. (mm)	Connection thread Rc	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 3.2$	1/8	KQG2F23-01	12	8	23.3	9.8	12	3.4	8.9
	1/8	KQG2F04-01	12		23.7	9.8			9.2
$\phi 4$	1/4	KQG2F04-02	17	8.7	28.7	13.2	12.6	5.6	21.6
	1/8	KQG2F06-01	12		24.2	10			10.5
$\phi 6$	1/4	KQG2F06-02	17	11.1	29.2	13.4	13.6	13.1	23.1
	3/8	KQG2F06-03	19		30.6	14.2			24.5
	1/8	KQG2F08-01	14		26.3	9.6			16.3
$\phi 8$	1/4	KQG2F08-02	17	13.4	31.3	13.7	16.1	26.1	25.5
	3/8	KQG2F08-03	19		32.7	14.4			27
	1/4	KQG2F10-02	17		31.6	13.9			28.8
$\phi 10$	3/8	KQG2F10-03	19	16.4	33	14.7	17	41.5	30.4
	1/4	KQG2F12-02	19		32.6	13.3			37.5
$\phi 12$	3/8	KQG2F12-03	19	18.5	34	14.7	18.6	58.3	32.3
	1/2	KQG2F12-04	24		39.3	18.4			50.2
	3/8	KQG2F16-03	24		35.3	13.5			59.7
$\phi 16$	1/2	KQG2F16-04	24	24.6	40.6	18.8	20.8	113	57

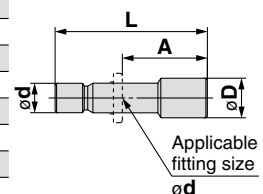
Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.  
 Value of nylon tube for  $\phi 16$  only.



### Plug: KQG2P



Applicable fitting size $\phi d$	Model	$\phi D$	L	A	Weight (g)
$\phi 3.2$	KQG2P-23	5	28.9	16.9	2.7
$\phi 4$	KQG2P-04	6	29.6	17	4.1
$\phi 6$	KQG2P-06	8	30.8	17.2	8.5
$\phi 8$	KQG2P-08	10	33.7	17.6	15.5
$\phi 10$	KQG2P-10	12	34.6	17.6	24.1
$\phi 12$	KQG2P-12	14	36.5	17.9	35.8
$\phi 16$	KQG2P-16	18	38.6	17.8	65.5



# Stainless Steel 316 One-touch Fittings

Applicable Tube: Inch Size, Connection Thread: UNF, NPT

## Series **KQG2**

RoHS



### Applicable Tube

Tube material	FEP, PFA, Nylon, Soft nylon <sup>Note 1)</sup> , Polyurethane, Polyolefin
Tube O.D.	ø1/8", ø5/32", ø1/4", ø5/16", ø3/8", ø1/2"

### Specifications

Fluid	Air, Water, Steam <sup>Note 2)</sup> <sup>Note 3)</sup>
Operating pressure range <sup>Note 4)</sup>	-100 kPa to 1 MPa <sup>Note 5)</sup>
Proof pressure	3.0 MPa
Ambient and fluid temperature <sup>Note 6)</sup>	-5 to 150°C (No freezing) <sup>Note 5)</sup>
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	80°C or more
PFA tube/TL series	120°C or more

### Spare Parts

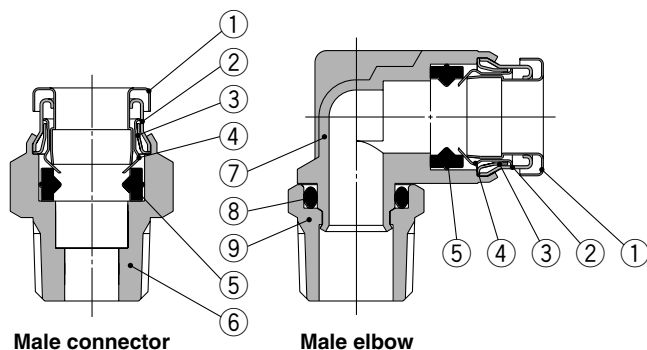
Description	Tube O.D.	Part no.	Material
Gasket	—	<b>M-5G3</b>	Stainless steel 316, Special FKM
Bulkhead nut	ø1/8", ø5/32"	<b>KQG201-P01</b>	Stainless steel 316
	ø1/4"	<b>KQG207-P01</b>	
	ø5/16"	<b>KQG209-P01</b>	
	ø3/8"	<b>KQG211-P01</b>	
	ø1/2"	<b>KQG213-P01</b>	

### Cross Reference Table of the Inner Sleeve

Tube O.D.	Tube material		Applicable inner sleeve	
	TH/THI (FEP)	TL/TIL (PFA)	Part no.	Length
ø5/32"	TH0402	—	<b>TJG-0402</b>	18
	TH0425	—	<b>TJG-0425</b>	18
	—	TL0403	<b>TJG-0403</b>	18
ø1/4"	THB07	TIL07	<b>TJG-0604</b>	19
	THA07	—	<b>TJG-0746</b>	19
ø5/16"	TH0806	TL0806	<b>TJG-0806</b>	20.5
ø3/8"	THB11	TIL11	<b>TJG-1065</b>	23
	THA11	—	<b>TJG-1107</b>	23
ø1/2"	TH13	TIL13	<b>TJG-1395</b>	24

\* Stainless steel 316 is used for the TJG series.

### Construction



### Component Parts

No.	Description	Material
1	Release button	Stainless steel 316
2	Guide 1	Stainless steel 316
3	Guide 2	Stainless steel 316
4	Chuck	Stainless steel 316
5	Seal	Special FKM (Fluoro coated)
6	Male connector body	Stainless steel 316
7	Male elbow body	Stainless steel 316
8	O-ring	Special FKM (Fluoro coated)
9	Stud	Stainless steel 316

# Series KQG2

Applicable Tube: Inch Size, Connection Thread: UNF, NPT

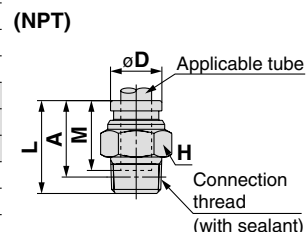
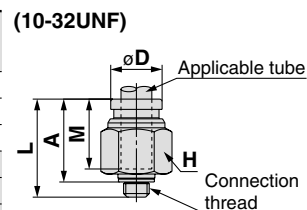
## Dimensions

### Male Connector: KQG2H



Applicable tube O.D. (inch)	Connection thread UNF, NPT	Model	H (Width across flat)	Note 1) $\phi D$	L	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)	
$\phi 1/8$ "	10-32UNF	KQG2H01-32	8	8	16.5	13.5	12	3	3.3	
	1/8	KQG2H01-N01S	12		17.1	13.9				
	1/4	KQG2H01-N02S	14		20.9	16.5				
$\phi 5/32$ "	10-32UNF	KQG2H03-32	10	8.7	17.1	14.1	12.6	4	5	
	1/8	KQG2H03-N01S	12		17	13.8				
	1/4	KQG2H03-N02S	14		20.9	16.5				
$\phi 1/4$ "	10-32UNF	KQG2H07-32	12	11.2	19	16	13.5	4	7.5	
	1/8	KQG2H07-N01S	12		20	16.8				
	1/4	KQG2H07-N02S	14		20.6	16.2				
	3/8	KQG2H07-N03S	19		23.8	19.1				
$\phi 5/16$ "	1/8	KQG2H09-N01S	14	13.4	24.2	21	16.1	26.1	12.6	
	1/4	KQG2H09-N02S			23.1	18.7			13.9	
	3/8	KQG2H09-N03S			24.6	19.9			28.9	
$\phi 3/8$ "	1/8	KQG2H11-N01S	17	16	25	21.8	16.6	26.1	19.4	
	1/4	KQG2H11-N02S			26.3	21.9			20.3	
	3/8	KQG2H11-N03S			23.6	18.9			41.5	25.2
	1/2	KQG2H11-N04S			28.3	21.9			51.8	
$\phi 1/2$ "	1/4	KQG2H13-N02S	22	19.3	30.5	26.1	18.5	58.3	36.7	
	3/8	KQG2H13-N03S			28.4	23.7			34.4	
	1/2	KQG2H13-N04S			22	22			43.4	

\* Reference dimensions after installation of NPT thread  
 Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.

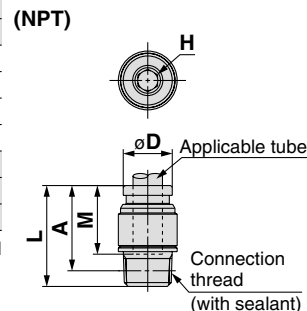
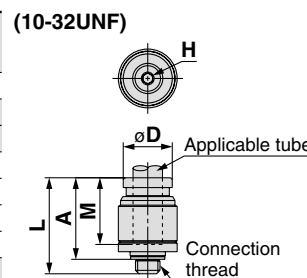


### Hexagon Socket Head Male Connector: KQG2S



Applicable tube O.D. (inch)	Connection thread UNF, NPT	Model	H (Width across flat)	Note 1) $\phi D$	L	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)	
$\phi 1/8$ "	10-32UNF	KQG2S01-32	2	9	16.5	13.5	12	3	3.8	
$\phi 5/32$ "	10-32UNF	KQG2S03-32	2	9	17.1	14.1	12.6	4	3.7	
	1/8	KQG2S03-N01S	2.78	11	19.6	16.4		4.1	8.5	
$\phi 1/4$ "	10-32UNF	KQG2S07-32	2	12	19.5	16.5	13.5	4	7.2	
	1/8	KQG2S07-N01S	4.76		20.5	17.3		10	8.1	
	1/4	KQG2S07-N02S				16.1		13.4		
	3/8	KQG2S07-N03S				15.8		22.6		
$\phi 5/16$ "	1/8	KQG2S09-N01S		5.56		14	24.7	21.5	16.1	17.2
	1/4	KQG2S09-N02S	6.35	18	23.1		18.7	23.3		12.8
	3/8	KQG2S09-N03S			18.4		23.5			
$\phi 3/8$ "	1/8	KQG2S11-N01S			5.56	17	25.2	22	16.6	17.2
	1/4	KQG2S11-N02S	6.35	18	27.1		22.7	39		21.2
	3/8	KQG2S11-N03S			23.6		18.9	23.8		
	1/2	KQG2S11-N04S			22		17.2	38.6		
$\phi 1/2$ "	1/4	KQG2S13-N02S			8	20	30.5	26.1	18.5	46
	3/8	KQG2S13-N03S	9.53	22	29.4		24.7	60		29
	1/2	KQG2S13-N04S			25.5		19.1	34.8		

\* Reference dimensions after installation of NPT thread  
 Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.

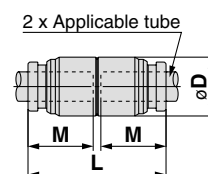


### Straight Union: KQG2H



Applicable tube O.D. (inch)	Model	$\phi D$ Note 1)	L	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 1/8$ "	KQG2H01-00	9	25	12	3.4	6.5
$\phi 5/32$ "	KQG2H03-00	9	26.2	12.6	5.6	6.5
$\phi 1/4$ "	KQG2H07-00	12	28	13.5	13.1	11
$\phi 5/16$ "	KQG2H09-00	14	33.2	16.1	26.1	16.6
$\phi 3/8$ "	KQG2H11-00	16	34.2	16.6	41.5	22.7
$\phi 1/2$ "	KQG2H13-00	20	38	18.5	58.3	35.5

Note 1)  $\phi D$  is maximum diameter.  
 Note 2) Value of FEP tube.



## Dimensions

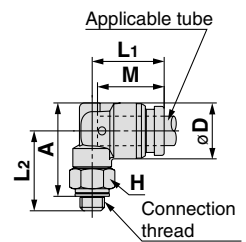
### Male Elbow: KQG2L



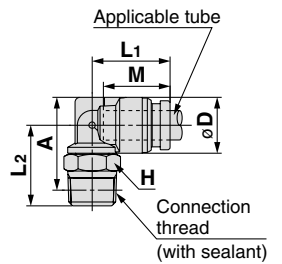
Applicable tube O.D. (inch)	Connection thread UNF, NPT	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 1/8"$	10-32UNF	KQG2L01-32	8	8.3	13.1	14.8	16	12	2.6	6.3
	1/8	KQG2L01-N01S	12		13.6	14.9	15.8		3	9
	1/4	KQG2L01-N02S	14		18.7	18.4	16.7			
$\phi 5/32"$	10-32UNF	KQG2L03-32	8	9.1	13.7	15.2	16.8	12.6	3.5	6.9
	1/8	KQG2L03-N01S	12		14.4	15.3	16.6		4.2	9.9
	1/4	KQG2L03-N02S	14		19.1	19.2	17.6			
$\phi 1/4"$	10-32UNF	KQG2L07-32	8	11.7	14.7	16.5	19.3	13.5	3.5	8.9
	1/8	KQG2L07-N01S	12		16.6	19.2	11.4		11.7	
	1/4	KQG2L07-N02S	14		15.9	20.4	21.8		19.4	
	3/8	KQG2L07-N03S	19		22.2	23.3	34.2			
$\phi 5/16"$	1/8	KQG2L09-N01S	12	13.7	18.6	18.3	21.9	16.1	21.6	15.1
	1/4	KQG2L09-N02S	14		19.1	21.5	23.9		21.1	
	3/8	KQG2L09-N03S	19		23.3	25.4	35.7			
$\phi 3/8"$	1/8	KQG2L11-N01S	12	16	20	19.4	24.2	16.6	21.6	19.7
	1/4	KQG2L11-N02S	14		21	22.6	26.2		23.2	
	3/8	KQG2L11-N03S	19		24.4	27.7	36.7			
	1/2	KQG2L11-N04S	22		28.2	29.8	60.2			
$\phi 1/2"$	1/4	KQG2L13-N02S	14	19.6	22.7	24.4	29.8	18.5	50.2	29.4
	3/8	KQG2L13-N03S	19		23.7	26.1	31.2		39.2	
	1/2	KQG2L13-N04S	22		29.9	33.3	61.3			

\* Reference dimensions after installation of NPT thread  
Note 1)  $\phi D$  is maximum diameter.  
Note 2) Value of FEP tube.

(10-32UNF)



(NPT)



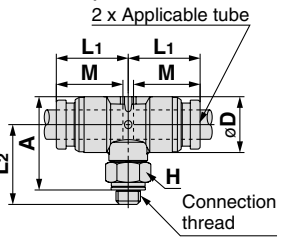
### Male Branch Tee: KQG2T



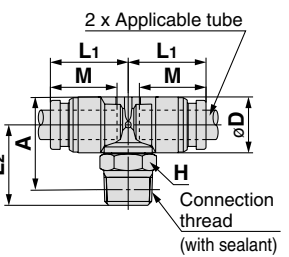
Applicable tube O.D. (inch)	Connection thread UNF, NPT	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 1/8"$	10-32UNF	KQG2T01-32	8	8.3	13.1	14.8	16	12	3.2	8.1
	1/8	KQG2T01-N01S	12		13.6	14.9	15.8		3.4	10.8
	1/4	KQG2T01-N02S	14		18.7	18.4	18.5			
$\phi 5/32"$	10-32UNF	KQG2T03-32	8	9.1	13.7	15.2	16.8	12.6	4.5	9
	1/8	KQG2T03-N01S	12		14.4	15.3	16.6		6	11.8
	1/4	KQG2T03-N02S	14		19.1	19.2	19.5			
$\phi 1/4"$	10-32UNF	KQG2T07-32	8	11.7	14.7	16.5	19.3	13.5	4.5	12.1
	1/8	KQG2T07-N01S	12		15.9	16.6	19.2		13.9	15.1
	1/4	KQG2T07-N02S	14		20.4	21.8	22.8			
	3/8	KQG2T07-N03S	19		22.2	23.3	37.7			
$\phi 5/16"$	1/8	KQG2T09-N01S	12	13.7	18.6	18.3	21.9	16.1	26.3	20.4
	1/4	KQG2T09-N02S	14		19.1	21.5	23.9		26.3	
	3/8	KQG2T09-N03S	19		23.3	25.4	41			
$\phi 3/8"$	1/8	KQG2T11-N01S	12	16	20	19.4	24.2	16.6	40.8	27.3
	1/4	KQG2T11-N02S	14		21	22.6	26.2		30.5	
	3/8	KQG2T11-N03S	19		24.4	27.7	44			
	1/2	KQG2T11-N04S	22		28.2	29.8	67.4			
$\phi 1/2"$	1/4	KQG2T13-N02S	14	19.6	22.7	24.4	29.8	18.5	57.2	41.1
	3/8	KQG2T13-N03S	19		23.7	26.1	31.2		50.2	
	1/2	KQG2T13-N04S	22		29.9	33.3	72.3			

\* Reference dimensions after installation of NPT thread  
Note 1)  $\phi D$  is maximum diameter.  
Note 2) Value of FEP tube.

(10-32UNF)



(NPT)

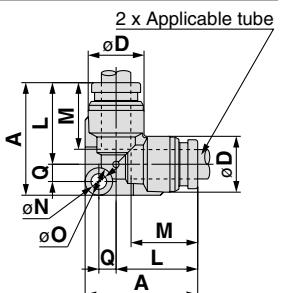


### Union Elbow: KQG2L



Applicable tube O.D. (inch)	Model	Note 1) $\phi D$	L	A	Q	M	$\phi N$	$\phi O$	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 1/8"$	KQG2L01-00	8.3	13.6	19.3	2.9	12	3.2	5.6	3	6.3
$\phi 5/32"$	KQG2L03-00	9.1	14.6	20.5	3.1	12.6	3.2	5.6	4.2	7.4
$\phi 1/4"$	KQG2L07-00	11.7	16.7	23.2	3.7	13.5	3.2	5.6	11.4	11.5
$\phi 5/16"$	KQG2L09-00	13.7	20.1	29.1	5	16.1	4.2	8	21.6	20.2
$\phi 3/8"$	KQG2L11-00	16	21.4	31.1	5.7	16.6	4.2	8	35.2	28.2
$\phi 1/2"$	KQG2L13-00	19.6	24.9	35.3	6.4	18.5	4.2	8	50.2	41.7

Note 1)  $\phi D$  is maximum diameter.  
Note 2) Value of FEP tube.



# Series KQG2

Applicable Tube: Inch Size, Connection Thread: UNF, NPT

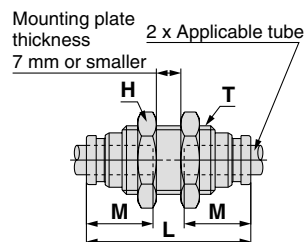
## Dimensions

### Bulkhead Union: KQG2E



Applicable tube O.D. (inch)	Model	T (UNF)	H (Width across flat)	L	Mounting hole	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø1/8"	KQG2E01-00	7/16-20UNF	14	34.2	12.5	12	3.4	20.7
ø5/32"	KQG2E03-00	7/16-20UNF	14	34.4	12.5	12.6	5.6	20.5
ø1/4"	KQG2E07-00	1/2-20UNF	17	35.4	14	13.5	13.1	28
ø5/16"	KQG2E09-00	5/8-18UNF	19	39.6	17	16.1	26.1	39.5
ø3/8"	KQG2E11-00	3/4-16UNF	22	40.4	20.5	16.6	41.5	57.3
ø1/2"	KQG2E13-00	7/8-14UNF	26	44.4	23.5	18.5	58.3	83.2

Note) Value of FEP tube.

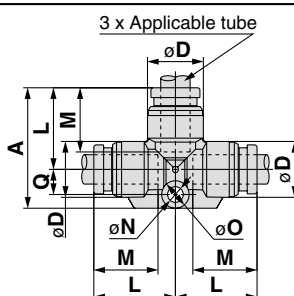


### Union Tee: KQG2T



Applicable tube O.D. (inch)	Model	Note 1) øD	L	A	Q	M	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø1/8"	KQG2T01-00	8.3	13.6	20.5	4.1	12	3.2	5.6	3.4	7.9
ø5/32"	KQG2T03-00	9.1	14.6	21.8	4.4	12.6	3.2	5.6	6.4	9.5
ø1/4"	KQG2T07-00	11.7	16.7	24.7	5.2	13.5	3.2	5.6	13.4	14.7
ø5/16"	KQG2T09-00	13.7	20.1	31.1	7	16.1	4.2	8	25.6	24.4
ø3/8"	KQG2T11-00	16	21.4	33.4	8	16.6	4.2	8	40	34.7
ø1/2"	KQG2T13-00	19.6	24.9	37.9	9	18.5	4.2	8	57.4	52.3

Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.

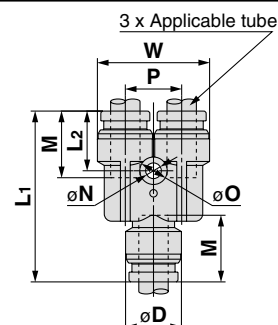


### Union "Y": KQG2U



Applicable tube O.D. (inch)	Model	Note 1) øD	W	L1	L2	P	M	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø1/8"	KQG2U01-00	8.3	16.4	29	11	8.1	12	3.2	5.6	3.4	9.2
ø5/32"	KQG2U03-00	9.1	18.2	30.4	11.3	9.1	12.6	3.2	5.6	4.2	11.1
ø1/4"	KQG2U07-00	11.7	23.9	34.5	12.1	12.2	13.5	3.2	5.6	13.4	19.6
ø5/16"	KQG2U09-00	13.7	28.3	40.1	14.1	14.6	16.1	4.2	8	25.6	29.7
ø3/8"	KQG2U11-00	16	33.2	42.2	14	17.2	16.6	4.2	8	40	43.1
ø1/2"	KQG2U13-00	19.6	40.2	47.3	15.8	20.6	18.5	4.2	8	57.4	66.4

Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.

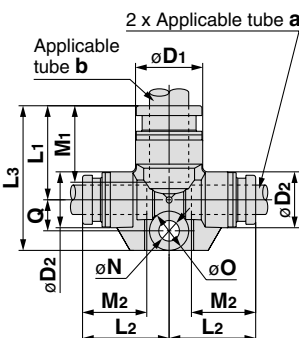


### Different Diameter Tee: KQG2T



Applicable tube O.D. (inch)	Model	Note 1) øD1	Note 1) øD2	L1	L2	L3	Q	M1	M2	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø1/8" ø5/32"	KQG2T01-03	9.1	8.3	14.2	14.1	21.1	4.1	12.6	12	3.2	5.6	3.8	8.5
ø5/32" ø1/4"	KQG2T03-07	11.7	9.1	15.5	15.9	22.7	4.4	13.5	12.6	3.2	5.6	7.1	11.7
ø1/4" ø5/16"	KQG2T07-09	13.7	11.7	19.3	17.6	29.6	6.3	16.1	13.5	4.2	8	16.4	20.2
ø5/16" ø3/8"	KQG2T09-11	16	13.7	20.6	21	31.7	7.1	16.6	16.1	4.2	8	36	28.9
ø3/8" ø1/2"	KQG2T11-13	19.6	16	23.3	23	35.4	8.1	18.5	16.6	4.2	8	56	41.8

Note 1) øD1, øD2 are maximum diameters.  
Note 2) Value of FEP tube.

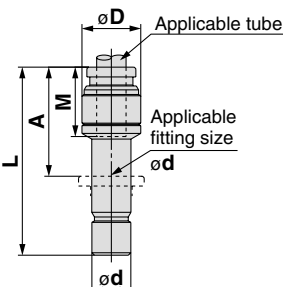


### Plug-in Reducer: KQG2R



Applicable tube O.D. (inch)	Applicable fitting size ød	Model	Note 1) øD	L	A	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
ø1/8"	ø5/32"	KQG2R01-03	9	32.9	20.3	12	3.4	4.7
ø5/32"	ø1/4"	KQG2R03-07	9	33.7	20.2	12.6	5.6	7.1
ø1/4"	ø5/16"	KQG2R07-09	12	38.4	22.3	13.5	13.1	11.9
ø5/16"	ø3/8"	KQG2R09-11	14	41.6	25	16.1	26.1	16.8
ø3/8"	ø1/2"	KQG2R11-13	17	39.8	21.3	16.6	41.5	23.5

Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.

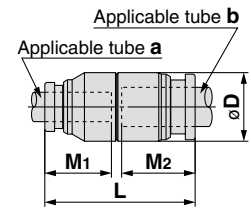


## Dimensions

### Different Diameter Straight: KQG2H



Applicable tube O.D. (inch)		Model	øD <sup>Note 1)</sup>	L	M <sub>1</sub>	M <sub>2</sub>	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
a	b							
ø1/8"	ø5/32"	<b>KQG2H01-03</b>	9	25.6	12	12.6	3.4	6.5
ø5/32"	ø1/4"	<b>KQG2H03-07</b>	12	27.1	12.6	13.5	5.6	11.3
ø1/4"	ø5/16"	<b>KQG2H07-09</b>	14	30.6	13.5	16.1	13.1	16.1
ø5/16"	ø3/8"	<b>KQG2H09-11</b>	16	33.7	16.1	16.6	26.1	22.8
ø3/8"	ø1/2"	<b>KQG2H11-13</b>	20	36.1	16.6	18.5	41.5	37.1

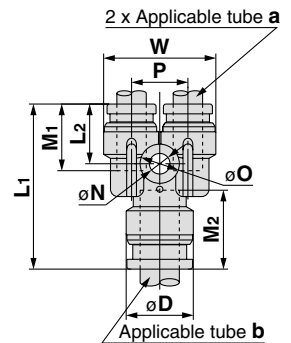


Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.

### Different Diameter Union "Y": KQG2U



Applicable tube O.D. (inch)		Model	Note 1) øD	L <sub>1</sub>	L <sub>2</sub>	P	W	M <sub>1</sub>	M <sub>2</sub>	øN	øO	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
a	b												
ø1/8"	ø5/32"	<b>KQG2U01-03</b>	9.1	27	10.8	8.1	16.4	12	12.6	3.2	5.6	3.2	8.5
ø5/32"	ø1/4"	<b>KQG2U03-07</b>	11.7	28.8	11.4	9.1	18.2	12.6	13.5	3.2	5.6	4.2	11.8
ø1/4"	ø5/16"	<b>KQG2U07-09</b>	13.7	33.8	12	12.2	23.9	13.5	16.1	4.2	8	13.4	20
ø5/16"	ø3/8"	<b>KQG2U09-11</b>	16	38.3	13.8	14.6	28.3	16.1	16.6	4.2	8	25.6	31
ø3/8"	ø1/2"	<b>KQG2U11-13</b>	19.6	40.5	13.7	17.2	33.2	16.6	18.5	4.2	8	40	45

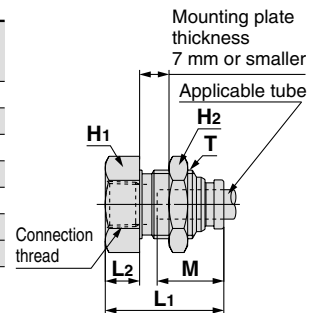


Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.

### Bulkhead Connector: KQG2E



Applicable tube O.D. (inch)	Connection thread NPT	Model	T (UNF)	Width across flat		L <sub>1</sub>	L <sub>2</sub>	Mounting hole	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
				H <sub>1</sub>	H <sub>2</sub>						
ø1/8"	1/4	<b>KQG2E01-N02</b>	7/16-20UNF	17	14	32.8	15.3	12.5	12	3.4	30.6
ø5/32"	1/4	<b>KQG2E03-N02</b>	7/16-20UNF	17	14	32.6	15.3	12.5	12.6	5.6	30.1
ø1/4"	1/4	<b>KQG2E07-N02</b>	1/2-20UNF	17	17	32.7	14.8	14	13.5	13.1	32.6
ø5/16"	3/8	<b>KQG2E09-N03</b>	5/8-18UNF	19	19	35	15.1	17	16.1	26.1	38.2
ø3/8"	3/8	<b>KQG2E11-N03</b>	3/4-16UNF	21	22	33.8	13.3	20.5	16.6	41.5	51.7
ø1/2"	3/8	<b>KQG2E13-N03</b>	7/8-14UNF	24	26	34.6	12.3	23.5	18.5	58.3	73.2
	1/2	<b>KQG2E13-N04</b>									

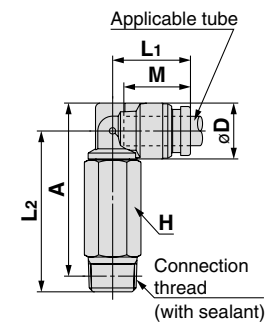


Note 2) Value of FEP tube.

### Extended Male Elbow: KQG2W



Applicable tube O.D. (inch)	Connection thread NPT	Model	H (Width across flat)	Note 1) øD	L <sub>1</sub>	L <sub>2</sub>	A*	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)	
											ø1/8"
	1/4	<b>KQG2W01-N02S</b>	14	35.4	35.1	34.4					
ø5/32"	1/8	<b>KQG2W03-N01S</b>	12	9.1	14.4	32	33.3	12.6	4	22.4	
		1/4	<b>KQG2W03-N02S</b>			14	35.8			35.9	35.2
ø1/4"	1/8	<b>KQG2W07-N01S</b>	12	11.7	15.9	33.3	35.9	13.5	10.9	24.1	
	1/4	<b>KQG2W07-N02S</b>	14			37.1	38.5			37	
	3/8	<b>KQG2W07-N03S</b>	19			38.9	40			70.9	
ø5/16"	1/8	<b>KQG2W09-N01S</b>	12	13.7	19.1	18.6	34.7	16.1	20.5	26.9	
	1/4	<b>KQG2W09-N02S</b>	14			40.2	42.6			38.7	
	3/8	<b>KQG2W09-N03S</b>	19			42	44.1			74.7	
ø3/8"	1/4	<b>KQG2W11-N02S</b>	14	16	21	47.2	50.8	16.6	33.5	41.8	
	3/8	<b>KQG2W11-N03S</b>	19			45.4	48.7			75.2	
ø1/2"	1/2	<b>KQG2W11-N04S</b>	22	19.6	23.7	49.2	50.8	18.5	47.7	116.5	
	1/4	<b>KQG2W13-N02S</b>	14			22.7	49			54.4	47.9
	3/8	<b>KQG2W13-N03S</b>	19			50.7	55.8			75.3	
	1/2	<b>KQG2W13-N04S</b>	22			54.5	57.9			118.3	



\* Reference dimensions after installation of NPT thread  
Note 1) øD is maximum diameter.  
Note 2) Value of FEP tube.

Metric Size **KQG2**

Inch Size **KQG2**

Specific Product Precautions **KQG2**

Metric Size **KFG2**

Inch Size **KFG2**

Specific Product Precautions **KFG2**

Applicable Fluid List

# Series KQG2

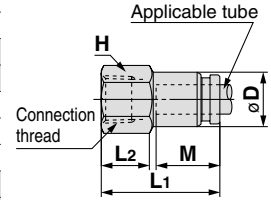
Applicable Tube: Inch Size, Connection Thread: UNF, NPT

## Dimensions

### Female Connector: KQG2F



Applicable tube O.D. (inch)	Connection thread NPT	Model	H (Width across flat)	Note 1) $\phi D$	L1	L2	M	Note 2) Effective area (mm <sup>2</sup> )	Weight (g)
$\phi 1/8$ "	1/8	KQG2F01-N01	12	8	24.1	10.4	12	3.4	9.4
	1/4	KQG2F01-N02	17		29.1	13.7			22.5
$\phi 5/32$ "	1/8	KQG2F03-N01	12	8.7	24.6	10.5	12.6	5.6	9.9
	1/4	KQG2F03-N02	17		29.6	13.8			23
$\phi 1/4$ "	1/8	KQG2F07-N01	12	11.2	25	10.7	13.5	13.1	11.1
	1/4	KQG2F07-N02	17		30	14.1			24.5
	3/8	KQG2F07-N03	19		31.2	14.6			25.5
$\phi 5/16$ "	1/8	KQG2F09-N01	14	13.4	27.2	10.3	16.1	26.1	17.3
	1/4	KQG2F09-N02	17		32.2	14.3			26.9
	3/8	KQG2F09-N03	19		33.4	14.8			28.1
$\phi 3/8$ "	1/4	KQG2F11-N02	17	16	32.1	14.4	16.6	41.5	29.7
	3/8	KQG2F11-N03	19		33.3	14.9			30.9
	1/2	KQG2F11-N04	24		38.6	18.6			49.1
$\phi 1/2$ "	3/8	KQG2F13-N03	21	19.3	34.6	14.7	18.5	58.3	43.3
	1/2	KQG2F13-N04	24		39.9	18.8			53.5

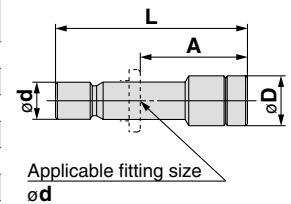


Note 1)  $\phi D$  is maximum diameter.  
Note 2) Value of FEP tube.

### Plug: KQG2P



Applicable fitting size $\phi d$	Model	$\phi D$	L	A	Weight (g)
$\phi 1/8$ "	KQG2P-01	5	28.9	16.9	2.7
$\phi 5/32$ "	KQG2P-03	6	29.6	17	4.1
$\phi 1/4$ "	KQG2P-07	8	30.3	16.8	8.9
$\phi 5/16$ "	KQG2P-09	10	33.7	17.6	15.5
$\phi 3/8$ "	KQG2P-11	11	34.1	17.5	21
$\phi 1/2$ "	KQG2P-13	14	36.4	17.9	38.5







# Series KQG2

## Specific Product Precautions

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) for Fittings and Tubing Precautions.

### Selection

#### ⚠ Caution

1. The surge pressure must be under the maximum operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes or the tube may result in being fallen out.
2. If using a fluoro resin tube in an environment where the fluid temperature changes drastically, it is recommended to use an inner sleeve. Otherwise, air leakage may occur or the tube may release from fitting due to deformation of the tube.
3. The particle generation of the KQG2 series depends on the operating conditions and operating environment. If you are concerned about the effects on machinery and equipment, check the particle generation with your machine before use.

The components of the KQG2 series may slide due to changes in the internal pressure, which may generate particles. When using male elbow, male branch tee, and extended male elbow fittings, particles may be generated by rotation for positioning after connecting.

### Mounting

#### ⚠ Caution

1. The union elbow, union tee, union "Y", different diameter tee, and different diameter union "Y" fittings should be fixed through the mounting hole. Otherwise, air leakage or breaking can occur due to a pulling force or moment load created by the product's weight.
2. The male elbow, male branch tee, and extended male elbow fittings can be rotated for positioning, but they cannot be used rotating. This will cause metal debris by wearing, which may enter the operating fluid or cause fitting damage.
3. Keep the connection part of fittings and tubes from rotating or oscillating movement.

### Operating Environment

#### ⚠ Warning

1. Avoid installing and using fittings inside a food zone.
  - Not installable**  
Food zone ..... An environment where food which will be sold as merchandise, directly touches the fitting components.
  - Installable**  
Splash zone ..... An environment where food which will not be sold as merchandise, directly touches the fitting components.
  - Non-food zone ..... An environment where there is no contact with food.

### Installation and Removal of Tube

#### ⚠ Caution

1. Installation of tube
  - 1) Grease is not used for the KQG2 series, therefore a greater insertion force is required when the tube is installed. In particular, polyurethane tube may fold when inserted due to its softness. Hold the end of the tube, and insert it all the way in slowly and securely. Refer to dimension "M" in the dimension drawings for guidance on the insertion depth of tube.
2. Removal of tube
  - 1) For tube used at a high temperature or for an extended period of time, there is a possibility that it will not fit into a one-touch fitting again due to an enlarged O.D. Dispose of the tube and replace it with a new one.

#### Stainless steel

Metal exists in nature as ore (like oxide or sulfide). This means that oxide or sulfide is more stable than pure metal. Accordingly, metallic material chemically oxidizes (metallic constituent becomes ion and melts out). It corrodes in the natural environment.

Even though corrosion of metal easily occurs in an environment where oxidizing tendency is stronger, some kinds of metal have a characteristic for which corrosion never happens if the level of oxidizing goes higher than a specific point. In such a case, it is called "metal in passive state".

Stainless steel has corrosion resistance because of a thin coat of passive state on its surface. However, there does not exist stainless steel with absolute corrosion resistance; therefore, many types of stainless steel have been developed for improved corrosion resistance performance.

## Variations

Male Connector

**KFG2H**



Metric ..... P. 17  
Inch ..... P. 22

Bulkhead Union

**KFG2E**



Metric ..... P. 19  
Inch ..... P. 23

Male Elbow

**KFG2L**



Metric ..... P. 17  
Inch ..... P. 22

Union Elbow

**KFG2L**



Metric ..... P. 19  
Inch ..... P. 23

Male Branch Tee

**KFG2T**



Metric ..... P. 18  
Inch ..... P. 22

Swivel Elbow

**KFG2V**



Metric ..... P. 19  
Inch ..... P. 24

Straight Union

**KFG2H**



Metric ..... P. 18  
Inch ..... P. 23

Female Connector

**KFG2F**



Metric ..... P. 20  
Inch ..... P. 24

Union Tee

**KFG2T**



Metric ..... P. 18  
Inch ..... P. 23

Union Nut

**KFG2N**



Metric ..... P. 20  
Inch ..... P. 24

# Stainless Steel 316 Insert Fittings

Applicable Tube: Metric Size, Connection Thread: R, Rc

## Series **KFG2**

RoHS



### Applicable Tube

Tube material <sup>Note)</sup>	FEP, PFA, Modified PTFE, Nylon, Soft nylon <sup>Note)</sup> , Polyurethane, Soft polyurethane, Polyolefin, Soft polyolefin, Antistatic soft nylon, Antistatic polyurethane, Hard polyurethane
Tube size	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

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)								
		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	FEP	●	—	●	●	●	●	●	●	—
TL	PFA	—	●	●	●	—	●	—	●	—
TD	Modified PTFE	●	—	●	●	●	—	●	—	—
T	Nylon	●	●	●	●	●	—	●	—	●
TS	Soft nylon	●	—	●	●	●	—	●	—	—
TU	Polyurethane	●	—	●	—	—	—	—	—	—
TPH	Polyolefin	●	—	●	●	●	—	●	—	—
TUS	Soft polyurethane	●	—	●	—	—	—	—	—	—
TUH	Hard polyurethane (High pressure)	●	—	●	—	—	—	—	—	—
TPS	Soft polyolefin	●	—	●	—	—	—	—	—	—
TAS	Antistatic soft nylon	●	—	●	—	—	—	—	—	—
TAU	Antistatic polyurethane	●	—	●	—	—	—	—	—	—

### Spare Parts

Description	Tube O.D.	Part no.	Material
Bulkhead nut	ø4	KFG204-P01	Stainless steel 316 (Fluoro coated)
	ø6	KFG206-P01	
	ø8	KFG208-P01	
	ø10	KFG210-P01	
	ø12	KFG212-P01	
	ø16	KFG216-P01	

### Specifications

Fluid	Air, Water, Steam <sup>Note 2)</sup> <sup>Note 3)</sup>
Operating pressure range <sup>Note 1)</sup>	–100 kPa to 1 MPa <sup>Note 4)</sup>
Proof pressure	3.0 MPa
Ambient and fluid temperature	–65 to 260°C (No freezing) <sup>Note 4)</sup> [Swivel elbow and with sealant types: –5 to 150°C]
Lubricant	Grease-free specification
Seal on the threads	Without sealant (With sealant type compatible) <sup>Note 5)</sup>

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.

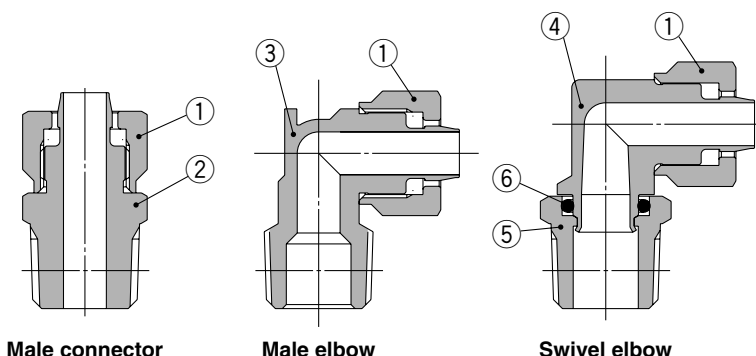
Note 3) Using special FKM that is resistant even when steam is used.

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



### Principal Parts Material

No.	Description	Material	Note
1	Union nut	Stainless steel 316	Fluoro coated
2	Male connector body	Stainless steel 316	
3	Male elbow body	Stainless steel 316	
4	Swivel elbow body	Stainless steel 316	
5	Stud	Stainless steel 316	
6	O-ring	Special FKM	Fluoro coated

# Series KFG2

Applicable Tube: Metric Size, Connection Thread: R, Rc

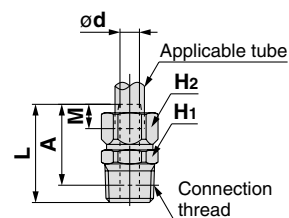
## Dimensions

### Male Connector: KFG2H



Applicable tube size (mm)		Connection thread R	Model	Width across flat		L	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H <sub>1</sub>	H <sub>2</sub>						
ø4	ø2.5	1/8	KFG2H0425-01	10	8	19.4	5	1.8	16.3	1.6	8
		1/4	KFG2H0425-02	14		23.8					14
ø4	ø3	1/8	KFG2H0403-01	10	8	19.4	5	2.3	16.3	2.6	8
		1/4	KFG2H0403-02	14		23.8					14
ø6	ø4	1/8	KFG2H0604-01	10	10	20.9	5.8	3.3	17.8	6	10
		1/4	KFG2H0604-02	14		25.3					16
ø8	ø6	1/8	KFG2H0806-01	14	14	23.3	6.6	5.3	20.2	17	18
		1/4	KFG2H0806-02			26.7					24
		3/8	KFG2H0806-03			28.1					36
ø10	ø7.5	1/4	KFG2H1075-02	17	17	29.7	7.6	6.8	25	30	34
		3/8	KFG2H1075-03			30.1					41
		1/2	KFG2H1075-04			33.5					67
ø10	ø8	1/4	KFG2H1008-02	17	17	29.7	7.6	7.3	25	35	33
		3/8	KFG2H1008-03			30.1					40
		1/2	KFG2H1008-04			33.5					66
ø12	ø9	1/4	KFG2H1209-02	17	17	31.3	8.5	8	26.6	45	33
		3/8	KFG2H1209-03			31.7					40
		1/2	KFG2H1209-04			35.1					66
ø12	ø10	1/4	KFG2H1210-02	17	17	31.3	8.5	9	26.6	57	30
		3/8	KFG2H1210-03			31.7					38
		1/2	KFG2H1210-04			35.1					63
ø16	ø13	3/8	KFG2H1613-03	22	22	33.1	9.3	12	28	101	51
		1/2	KFG2H1613-04			36.3					67

\* Reference dimensions after installation of R thread

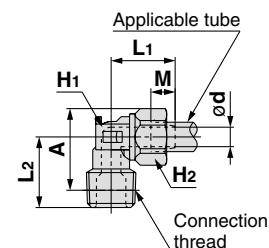


### Male Elbow: KFG2L



Applicable tube size (mm)		Connection thread R	Model	Width across flat		L <sub>1</sub>	L <sub>2</sub>	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H <sub>1</sub>	H <sub>2</sub>							
ø4	ø2.5	1/8	KFG2L0425-01	10	8	13.5	5	1.8	13.8	1.6	10	
		1/4	KFG2L0425-02								15.9	14
ø4	ø3	1/8	KFG2L0403-01	10	8	13.5	5	2.3	13.8	2.6	10	
		1/4	KFG2L0403-02								15.9	14
ø6	ø4	1/8	KFG2L0604-01	10	10	15	5.8	3.3	16	6	12	
		1/4	KFG2L0604-02								17	16
ø8	ø6	1/8	KFG2L0806-01	12	14	17.4	6.6	5.3	20.4	12	20	
		1/4	KFG2L0806-02								19.2	24
		3/8	KFG2L0806-03								19.6	27
ø10	ø7.5	1/4	KFG2L1075-02	15	17	20.9	7.6	6.8	25.6	23	38	
		3/8	KFG2L1075-03								21.3	41
		1/2	KFG2L1075-04								24.5	51
ø10	ø8	1/4	KFG2L1008-02	15	17	20.9	7.6	7.3	25.6	27	37	
		3/8	KFG2L1008-03								21.3	41
		1/2	KFG2L1008-04								24.5	50
ø12	ø9	1/4	KFG2L1209-02	16	17	23.5	8.5	8	25.6	27	41	
		3/8	KFG2L1209-03								21.3	45
		1/2	KFG2L1209-04								24.5	57
ø12	ø10	1/4	KFG2L1210-02	16	17	23.5	8.5	9	25.6	34	42	
		3/8	KFG2L1210-03								21.3	43
		1/2	KFG2L1210-04								24.5	53
ø16	ø13	3/8	KFG2L1613-03	21	22	26.2	9.3	12	31	79	72	
		1/2	KFG2L1613-04								27.2	78

\* Reference dimensions after installation of R thread



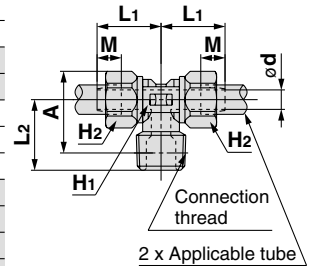
## Dimensions

### Male Branch Tee: KFG2T



Applicable tube size (mm)		Connection thread R	Model	Width across flat		L <sub>1</sub>	L <sub>2</sub>	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)			
O.D.	I.D.			H <sub>1</sub>	H <sub>2</sub>										
ø4	ø2.5	1/8	KFG2T0425-01	10	8	13.5	12.5	5	1.8	13.8	3	13			
		1/4	KFG2T0425-02										15.9	15.6	17
ø4	ø3	1/8	KFG2T0403-01	10	8	13.5	12.5	5	2.3	13.8	5	12			
		1/4	KFG2T0403-02										15.9	15.6	17
ø6	ø4	1/8	KFG2T0604-01	10	10	15	13.6	5.8	3.3	16	10	17			
		1/4	KFG2T0604-02										17	17.8	21
ø8	ø6	1/8	KFG2T0806-01	12	14	17.4	15.8	6.6	5.3	20.4	16	30			
		1/4	KFG2T0806-02										19.2	19.6	34
		3/8	KFG2T0806-03										19.6	19.6	38
ø10	ø7.5	1/4	KFG2T1075-02	15	17	20.9	20.9	7.6	6.8	25.6	30	55			
		3/8	KFG2T1075-03										21.3	21.3	59
		1/2	KFG2T1075-04										24.5	24.5	68
ø10	ø8	1/4	KFG2T1008-02	15	17	20.9	20.9	7.6	7.3	25.6	35	54			
		3/8	KFG2T1008-03										21.3	21.3	58
		1/2	KFG2T1008-04										24.5	24.5	67
ø12	ø9	1/4	KFG2T1209-02	16	17	23.5	20.9	8.5	8	25.6	32	59			
		3/8	KFG2T1209-03										21.3	21.3	63
		1/2	KFG2T1209-04										24.5	24.5	72
ø12	ø10	1/4	KFG2T1210-02	16	17	23.5	20.9	8.5	9	25.6	41	57			
		3/8	KFG2T1210-03										21.3	21.3	60
		1/2	KFG2T1210-04										24.5	24.5	69
ø16	ø13	3/8	KFG2T1613-03	21	22	26.2	24	9.3	12	31	108	98			
		1/2	KFG2T1613-04										27.2	27.2	106

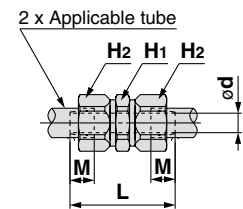
\* Reference dimensions after installation of R thread



### Straight Union: KFG2H



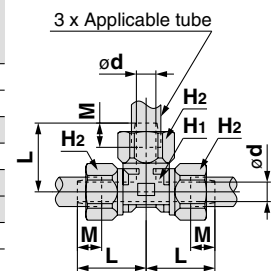
Applicable tube size (mm)		Model	Width across flat		L	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H <sub>1</sub>	H <sub>2</sub>					
ø4	ø2.5	KFG2H0425-00	8	8	21.8	5	1.8	1.6	7
		KFG2H0403-00							
ø6	ø4	KFG2H0604-00	10	10	24.8	5.8	3.3	6	11
		KFG2H0806-00							
ø10	ø7.5	KFG2H1075-00	17	17	33.6	7.6	6.8	30	43
		KFG2H1008-00							
ø12	ø9	KFG2H1209-00	17	17	37	8.5	8	45	44
		KFG2H1210-00							
ø16	ø13	KFG2H1613-00	22	22	39.4	9.3	12	101	71



### Union Tee: KFG2T



Applicable tube size (mm)		Model	Width across flat		L	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H <sub>1</sub>	H <sub>2</sub>					
ø4	ø2.5	KFG2T0425-00	7	8	13.3	5	1.8	1.6	11
		KFG2T0403-00							
ø6	ø4	KFG2T0604-00	9	10	15.8	5.8	3.3	6	18
		KFG2T0806-00							
ø10	ø7.5	KFG2T1075-00	15	17	22.2	7.6	6.8	30	67
		KFG2T1008-00							
ø12	ø9	KFG2T1209-00	16	17	24.3	8.5	8	45	71
		KFG2T1210-00							
ø16	ø13	KFG2T1613-00	21	22	28	9.3	12	101	122



Metric Size **KQG2**

Inch Size **KQG2**

Specific Product Precautions **KQG2**

Metric Size **KFG2**

Inch Size **KFG2**

Specific Product Precautions **KFG2**

Applicable Fluid List

# Series KFG2

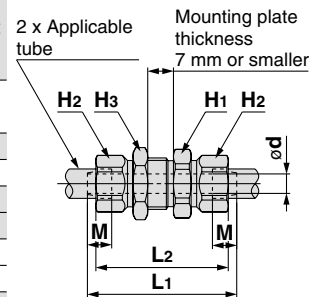
Applicable Tube: Metric Size, Connection Thread: R, Rc

## Dimensions

### Bulkhead Union: KFG2E



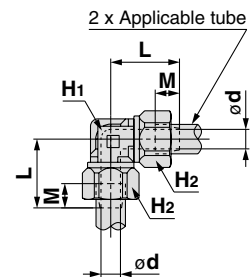
Applicable tube size (mm)		Model	Width across flat			L1	L2	M	ød	Mounting hole	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H1	H2	H3							
ø4	ø2.5	KFG2E0425-00	12	8	12	32.6	29	5	1.8	11	1.6	16
ø4	ø3	KFG2E0403-00							2.3		2.6	
ø6	ø4	KFG2E0604-00	14	10	14	36.6	32.2	5.8	3.3	13	6	25
ø8	ø6	KFG2E0806-00	17	14	17	40.4	35.8	6.6	5.3	15	17	43
ø10	ø7.5	KFG2E1075-00	21	17	21	44.8	39.4	7.6	6.8	18	30	69
ø10	ø8	KFG2E1008-00							7.3		35	
ø12	ø9	KFG2E1209-00	21	17	21	48.1	41.7	8.5	8	19	45	71
ø12	ø10	KFG2E1210-00							9		57	
ø16	ø13	KFG2E1613-00	27	22	27	52.3	45.9	9.3	12	25	101	122



### Union Elbow: KFG2L



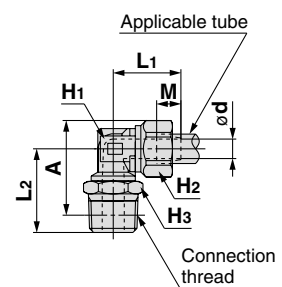
Applicable tube size (mm)		Model	Width across flat		L	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H1	H2					
ø4	ø2.5	KFG2L0425-00	7	8	13.3	5	1.8	1.6	8
ø4	ø3	KFG2L0403-00					2.3	2.6	
ø6	ø4	KFG2L0604-00	9	10	15.8	5.8	3.3	6	13
ø8	ø6	KFG2L0806-00	12	14	18.7	6.6	5.3	17	28
ø10	ø7.5	KFG2L1075-00	15	17	22.2	7.6	6.8	30	47
ø10	ø8	KFG2L1008-00					7.3	35	46
ø12	ø9	KFG2L1209-00	16	17	24.3	8.5	8	45	51
ø12	ø10	KFG2L1210-00					9	57	48
ø16	ø13	KFG2L1613-00	21	22	28	9.3	12	101	89



### Swivel Elbow: KFG2V



Applicable tube size (mm)		Connection thread R	Model	Width across flat			L1	L2	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H1	H2	H3							
ø4	ø2.5	1/8	KFG2V0425-01	7	8	10	14.5	5	1.8	17.4	1.4	9	
		1/4	KFG2V0425-02			14				19.6		18	
		1/8	KFG2V0403-01			10				16.1		9	
ø4	ø3	1/4	KFG2V0403-02			14			2.3	17.4	2.3	9	
						14			19.6	18			
ø6	ø4	1/8	KFG2V0604-01	9	10	10	16	5.8	3.3	19.6	5	12	
		1/4	KFG2V0604-02			14				21		21.8	21
ø8	ø6	1/8	KFG2V0806-01	12	14	12	18.4	6.6	5.3	24.7	14	22	
		1/4	KFG2V0806-02			14				20.1		24.7	22
		3/8	KFG2V0806-03			17				23.3		27.3	30
ø10	ø7.5	1/4	KFG2V1075-02	15	17	14	21.4	7.6	6.8	29.6	25	37	
		3/8	KFG2V1075-03			17				25		30.6	47
		1/2	KFG2V1075-04			22				30.6		33.5	74
		1/4	KFG2V1008-02			14				25		29.6	36
ø10	ø8	3/8	KFG2V1008-03			17			7.3	30.6	29	46	
		1/2	KFG2V1008-04	22	30.6	33.5	73						
		1/4	KFG2V1209-02	14	25	29.6	38						
ø12	ø9	3/8	KFG2V1209-03	16	17	17	23	8.5	8	30.6	38	49	
		1/2	KFG2V1209-04			22				30.6		33.5	75
		1/4	KFG2V1210-02			14				25		29.6	40
ø12	ø10	3/8	KFG2V1210-03			17	24.5	9	9	30.6	48	51	
		1/2	KFG2V1210-04	22	30.6	33.5				77			
		3/8	KFG2V1613-03	19	26.7	29.3				75			
ø16	ø13	1/2	KFG2V1613-04	21	22	22	26.7	9.3	12	36.3	86	96	
										39			



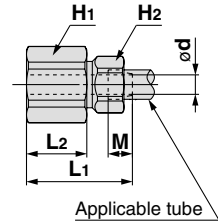
\* Reference dimensions after installation of R thread

## Dimensions

### Female Connector: KFG2F



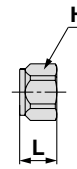
Applicable tube size (mm)		Connection thread Rc	Model	Width across flat		L1	L2	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H1	H2						
ø4	ø2.5	1/4	<b>KFG2F0425-02</b>	17	8	25.9	16.4	5	1.8	1.6	24
ø4	ø3	1/4	<b>KFG2F0403-02</b>						2.3	2.6	
ø6	ø4	1/4	<b>KFG2F0604-02</b>	17	10	26.8	15.8	5.8	3.3	6	25
ø8	ø6	3/8	<b>KFG2F0806-03</b>	19	14	28.8	16.4	6.6	5.3	17	31
ø10	ø7.5	3/8	<b>KFG2F1075-03</b>	19	17	30	15.6	7.6	6.8	30	36
ø10	ø8	3/8	<b>KFG2F1008-03</b>						7.3	35	
ø12	ø9	3/8	<b>KFG2F1209-03</b>	19	17	31.2	15.2	8.5	8	45	36
ø12	ø10	3/8	<b>KFG2F1210-03</b>						9	57	
ø16	ø13	1/2	<b>KFG2F1613-04</b>	24	22	37.7	20.5	9.3	12	101	71



### Union Nut: KFG2N



Applicable tube O.D. (mm)	Model	H (Width across flat)	L	Weight (g)
ø4	<b>KFG2N-04</b>	8	7.7	1.9
ø6	<b>KFG2N-06</b>	10	8.8	3
ø8	<b>KFG2N-08</b>	14	10.1	6.7
ø10	<b>KFG2N-10</b>	17	11.7	10.5
ø12	<b>KFG2N-12</b>	17	12.8	9.6
ø16	<b>KFG2N-16</b>	22	14	15.3



# Stainless Steel 316 Insert Fittings

Applicable Tube: Inch Size, Connection Thread: NPT

## Series **KFG2**

RoHS



### Applicable Tube

Tube material <sup>Note)</sup>	FEP, PFA, Modified PTFE, Nylon, Soft nylon <sup>Note)</sup> , Polyurethane, Soft polyurethane, Polyolefin, Soft polyolefin, Antistatic soft nylon, Antistatic polyurethane, Hard polyurethane
Tube size	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"

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. (inch)					
		ø1/8" x ø0.086" (ø3.18 x ø2.18)	ø5/32" x ø0.098" (ø4 x ø2.5)	ø1/4" x ø5/32" (ø6.35 x ø3.95)	ø5/16" x ø0.236" (ø8 x ø6)	ø3/8" x ø1/4" (ø9.53 x ø6.35)	ø1/2" x ø3/8" (ø12.7 x ø9.53)
TH/TIH	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	—	●	—	—	—	—

### Spare Parts

Description	Tube O.D.	Part no.	Material
Bulkhead nut	ø1/8"	KFG201-P01	Stainless steel 316 (Fluoro coated)
	ø5/32"	KFG203-P01	
	ø1/4"	KFG207-P01	
	ø5/16"	KFG209-P01	
	ø3/8"	KFG211-P01	
	ø1/2"	KFG213-P01	

### Specifications

<b>Fluid</b>	Air, Water, Steam <sup>Note 2)</sup> <sup>Note 3)</sup>
<b>Operating pressure range</b> <sup>Note 1)</sup>	–100 kPa to 1 MPa <sup>Note 4)</sup>
<b>Proof pressure</b>	3.0 MPa
<b>Ambient and fluid temperature</b>	–65 to 260°C (No freezing) <sup>Note 4)</sup> [Swivel elbow and with sealant types: –5 to 150°C]
<b>Lubricant</b>	Grease-free specification
<b>Seal on the threads</b>	Without sealant (With sealant type compatible) <sup>Note 5)</sup>

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.

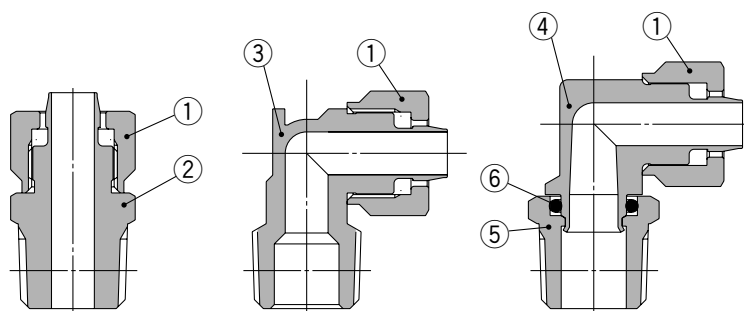
Note 3) Using special FKM that is resistant even when steam is used.

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



Male connector

Male elbow

Swivel elbow

### Principal Parts Material

No.	Description	Material	Note
1	Union nut	Stainless steel 316	Fluoro coated
2	Male connector body	Stainless steel 316	
3	Male elbow body	Stainless steel 316	
4	Swivel elbow body	Stainless steel 316	
5	Stud	Stainless steel 316	
6	O-ring	Special FKM	Fluoro coated

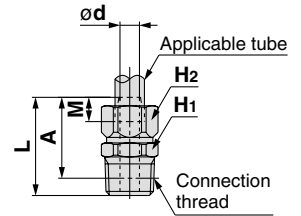


## Dimensions

### Male Connector: KFG2H



Applicable tube size (inch)		Connection thread NPT	Model	Width across flat		L	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H <sub>1</sub>	H <sub>2</sub>						
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2H0122-N01	12	8	19.4	5	1.5	16.2	1.1	9
		1/4	KFG2H0122-N02	14		23.8			19.4		
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2H0325-N01	12	8	19.4	5	1.8	16.2	1.6	9
		1/4	KFG2H0325-N02	14		23.8			19.4		
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2H0704-N01	12	12	21.1	6	3.3	17.9	6	13
		1/4	KFG2H0704-N02	14		25.5			21.1		
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2H0906-N01	14	14	23.3	6.6	5.3	20.1	17	18
		1/4	KFG2H0906-N02			26.7			22.3		
		3/8	KFG2H0906-N03			28.3			23.6		
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2H1163-N02	17	17	29.7	7.6	5.6	25.3	19	37
		3/8	KFG2H1163-N03	19		30.3			25.6		
		1/2	KFG2H1163-N04	22		33.5			27.1		70
		1/4	KFG2H1395-N02	19	19	31.5	8.5	8.5	27.1	40.1	40
3/8	KFG2H1395-N03	31.9	27.2								
1/2	KFG2H1395-N04	35.1	28.7								

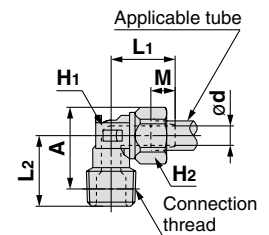


\* Reference dimensions after installation of NPT thread

### Male Elbow: KFG2L



Applicable tube size (inch)		Connection thread NPT	Model	Width across flat		L <sub>1</sub>	L <sub>2</sub>	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H <sub>1</sub>	H <sub>2</sub>							
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2L0122-N01	10	8	13.5	12.5	5	1.5	13.7	1.1	10
		1/4	KFG2L0122-N02				15.9					
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2L0325-N01	10	8	13.5	12.5	5	1.8	13.7	1.6	10
		1/4	KFG2L0325-N02				15.9					
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2L0704-N01	10	12	15.2	14.7	6	3.3	18.1	6	15
		1/4	KFG2L0704-N02				18.1					
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2L0906-N01	12	14	17.4	15.8	6.6	5.3	20.3	12	20
		1/4	KFG2L0906-N02				19.2			22.5		
		3/8	KFG2L0906-N03				19.6			22.6		
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2L1163-N02	15	17	20.4	20.9	7.6	5.6	25.9	13	39
		3/8	KFG2L1163-N03				21.3			26.0		
		1/2	KFG2L1163-N04				24.5			27.5		52
		1/4	KFG2L1395-N02	17	19	23.3	21.9	8.5	8.5	27.9	30	48
3/8	KFG2L1395-N03	22.3	28									
1/2	KFG2L1395-N04	25.5	29.5									

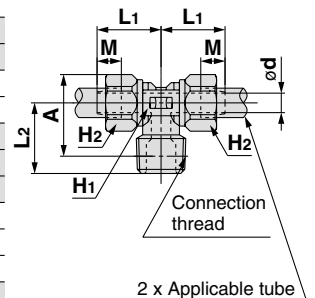


\* Reference dimensions after installation of NPT thread

### Male Branch Tee: KFG2T



Applicable tube size (inch)		Connection thread NPT	Model	Width across flat		L <sub>1</sub>	L <sub>2</sub>	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H <sub>1</sub>	H <sub>2</sub>							
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2T0122-N01	10	8	13.5	12.5	5	1.5	13.7	2	13
		1/4	KFG2T0122-N02				15.9					
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2T0325-N01	10	8	13.5	12.5	5	1.8	13.7	3	13
		1/4	KFG2T0325-N02				15.9					
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2T0704-N01	10	12	15.2	14.7	6	3.3	18.1	10	22
		1/4	KFG2T0704-N02				18.1					
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2T0906-N01	12	14	17.4	15.8	6.6	5.3	20.3	16	31
		1/4	KFG2T0906-N02				19.2			22.5		
		3/8	KFG2T0906-N03				19.6			22.6		
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2T1163-N02	15	17	20.4	20.9	7.6	5.6	25.9	18	58
		3/8	KFG2T1163-N03				21.3			26.0		
		1/2	KFG2T1163-N04				24.5			27.5		71
		1/4	KFG2T1395-N02	17	19	23.3	21.9	8.5	8.5	27.9	36	70
3/8	KFG2T1395-N03	22.3	28									
1/2	KFG2T1395-N04	25.5	29.5									



\* Reference dimensions after installation of NPT thread

# Series KFG2

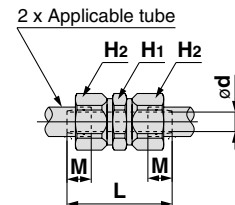
Applicable Tube: Inch Size, Connection Thread: NPT

## Dimensions

### Straight Union: KFG2H



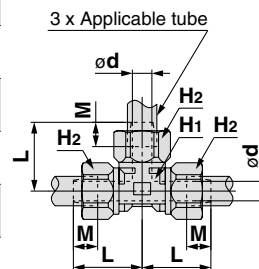
Applicable tube size (inch)		Model	Width across flat		L	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H <sub>1</sub>	H <sub>2</sub>					
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2H0122-00	8	8	21.8	5	1.5	1.1	7
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2H0325-00	8	8	21.8	5	1.8	1.6	7
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2H0704-00	12	12	25.2	6	3.3	6	16
ø5/16" (ø8)	ø0.236" (ø6)	KFG2H0906-00	14	14	28.6	6.6	5.3	17	25
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2H1163-00	17	17	33.6	7.6	5.6	19	45
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2H1395-00	19	19	37	8.5	8.5	51	55



### Union Tee: KFG2T



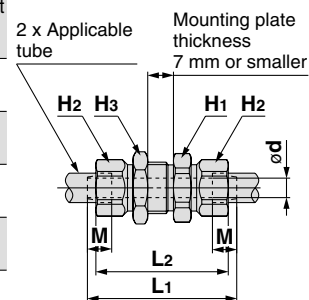
Applicable tube size (inch)		Model	Width across flat		L	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H <sub>1</sub>	H <sub>2</sub>					
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2T0122-00	7	8	13.3	5	1.5	1.1	11
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2T0325-00	7	8	13.3	5	1.8	1.6	11
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2T0704-00	10	12	16.5	6	3.3	6	26
ø5/16" (ø8)	ø0.236" (ø6)	KFG2T0906-00	12	14	18.7	6.6	5.3	17	39
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2T1163-00	15	17	22.2	7.6	5.6	19	70
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2T1395-00	17	19	24.8	8.5	8.5	51	87



### Bulkhead Union: KFG2E



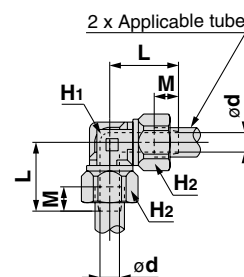
Applicable tube size (inch)		Model	Width across flat			L <sub>1</sub>	L <sub>2</sub>	M	ød	Mounting hole	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>							
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2E0122-00	12	8	12	32.8	29.4	5	1.5	10	1.1	16
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2E0325-00	12	8	12	32.6	29	5	1.8	11	1.6	16
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2E0704-00	17	12	17	39	34.6	6	3.3	13.5	6	39
ø5/16" (ø8)	ø0.236" (ø6)	KFG2E0906-00	17	14	17	40.4	35.8	6.6	5.3	15	17	43
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2E1163-00	22	17	22	46.8	41.4	7.6	5.6	20	19	84
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2E1395-00	26	19	26	51.9	45.5	8.5	8.5	23	51	117



### Union Elbow: KFG2L



Applicable tube size (inch)		Model	Width across flat		L	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.		H <sub>1</sub>	H <sub>2</sub>					
ø1/8" (ø3.18)	ø0.086" (ø2.18)	KFG2L0122-00	7	8	13.3	5	1.5	1.1	8
ø5/32" (ø4)	ø0.098" (ø2.5)	KFG2L0325-00	7	8	13.3	5	2.3	1.6	8
ø1/4" (ø6.35)	ø5/32" (ø3.95)	KFG2L0704-00	10	12	16.5	6	3.3	6	18
ø5/16" (ø8)	ø0.236" (ø6)	KFG2L0906-00	12	14	18.7	6.6	5.3	17	28
ø3/8" (ø9.53)	ø1/4" (ø6.35)	KFG2L1163-00	15	17	22.2	7.6	5.6	19	50
ø1/2" (ø12.7)	ø3/8" (ø9.53)	KFG2L1395-00	17	19	24.8	8.5	8.5	51	62



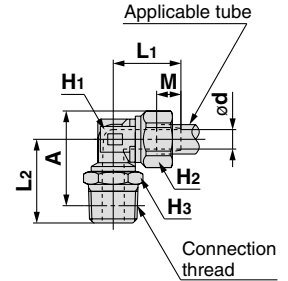
## Dimensions

### Swivel Elbow: KFG2V



Applicable tube size (inch)		Connection thread NPT	Model	Width across flat			L1	L2	M	ød	A*	Effective area (mm <sup>2</sup> )	Weight (g)				
O.D.	I.D.			H1	H2	H3											
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/8	KFG2V0122-N01	7	8	12	14.5	16.1	5	1.5	17.3	1	11				
		1/4	KFG2V0122-N02			14								19.8			
ø5/32" (ø4)	ø0.098" (ø2.5)	1/8	KFG2V0325-N01	7	8	12	14.5	16.1	5	1.8	17.3	1.4	11				
			1/4			KFG2V0325-N02								14	19.8		
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/8	KFG2V0704-N01	10	12	12	16.2	18.3	6	3.3	21.7	5	16				
			1/4			KFG2V0704-N02								14	22	24.2	25
ø5/16" (ø8)	ø0.236" (ø6)	1/8	KFG2V0906-N01	12	14	12	18.4	19.6	6.6	5.3	24.1	14	23				
			1/4			KFG2V0906-N02								14	23.3	26.6	31
			3/8			KFG2V0906-N03								19	25.1	28.1	45
ø3/8" (ø9.53)	ø1/4" (ø6.35)	1/4	KFG2V1163-N02	15	17	14	21.4	24.7	7.6	5.6	29.7	16	38				
			3/8			KFG2V1163-N03								19	26.8	31.4	51
			1/2			KFG2V1163-N04								22	30.6	33.5	75
ø1/2" (ø12.7)	ø3/8" (ø9.53)	1/4	KFG2V1395-N02	17	19	14	23	25.8	8.5	8.5	31.8	43	46				
			3/8			KFG2V1395-N03								19	27.8	33.5	59
			1/2			KFG2V1395-N04								22	31.6	35.6	83

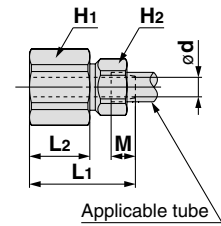
\* Reference dimensions after installation of NPT thread



### Female Connector: KFG2F



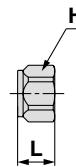
Applicable tube size (inch)		Connection thread NPT	Model	Width across flat		L1	L2	M	ød	Effective area (mm <sup>2</sup> )	Weight (g)
O.D.	I.D.			H1	H2						
ø1/8" (ø3.18)	ø0.086" (ø2.18)	1/4	KFG2F0122-N02	17	8	26.7	17.2	5	1.5	1.1	25
ø5/32" (ø4)	ø0.098" (ø2.5)	1/4	KFG2F0325-N02	17	8	26.7	17.2	5	1.8	1.6	23
ø1/4" (ø6.35)	ø5/32" (ø3.95)	1/4	KFG2F0704-N02	17	12	27.5	16.3	6	3.3	6	28
ø5/16" (ø8)	ø0.236" (ø6)	3/8	KFG2F0906-N03	19	14	29.4	17	6.6	5.3	17	32
ø3/8" (ø9.53)	ø1/4" (ø6.35)	3/8	KFG2F1163-N03	19	17	30.5	16.1	7.6	5.6	19	38
ø1/2" (ø12.7)	ø3/8" (ø9.53)	3/8	KFG2F1395-N03	19	19	31.6	15.6	8.5	8.5	51	42



### Union Nut: KFG2N



Applicable tube O.D. (inch)	Model	H (Width across flat)	L	Weight (g)
ø1/8" (ø3.18)	KFG2N-01	8	7.8	1.9
ø5/32" (ø4)	KFG2N-03	8	7.7	1.9
ø1/4" (ø6.35)	KFG2N-07	12	9	4.6
ø5/16" (ø8)	KFG2N-09	14	10.1	6.7
ø3/8" (ø9.53)	KFG2N-11	17	11.7	10.7
ø1/2" (ø12.7)	KFG2N-13	19	12.8	13





# Series KFG2

## Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) for Fittings and Tubing Precautions.

### Selection

#### ⚠ Caution

1. Consult with SMC regarding fluids other than air, water and steam.
2. When using the swivel elbow fittings, particles may be generated by rotation for positioning after connecting. If you are concerned about the effects on machinery and equipment, check the particle generation with your machine before use.

### Mounting

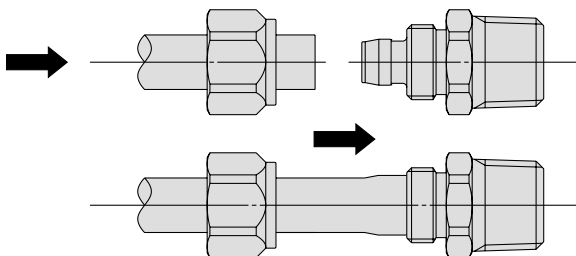
#### ⚠ Caution

1. The swivel elbow fittings can be rotated for positioning, but they cannot be used rotating.  
This will cause metal debris by wearing, which may enter the operating fluid or cause fitting damage.
2. Keep the connection part of fittings and tubes from rotating or oscillating movement.

### Piping

#### ⚠ Caution

1. Take a tube having no flaws on its periphery and cut it off at right angles.  
(Use a tube cutter TK-1, 2, 3. Do not use pinchers, nippers or scissors, etc.)  
The tube might be cut diagonally or flattened, making installation impossible or causing problems such as disconnection and leakage.
2. Insert the tube into the union nut with the union nut removed. Grab the tube and gently push it thoroughly into the fitting.



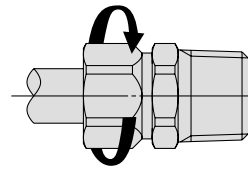
3. After insertion, tighten the union nut temporarily by hand.

### Piping

#### ⚠ Caution

4. Fix the body with a tightening tool. Tighten the union nut to the end surface of the body using a suitable wrench.

Hex. across flats may be deformed, if using an improper wrench for hex. across flats. Tighten the union nut with the proper tightening torque shown below.



Fitting size	Proper tightening torque N·m
KFG2□01	2 to 3
KFG2□03	
KFG2□04	
KFG2□06	3 to 4
KFG2□07	
KFG2□08	5 to 6
KFG2□09	
KFG2□10	8 to 10
KFG2□11	
KFG2□12	10 to 12
KFG2□13	
KFG2□16	16 to 18

### Operating Environment

#### ⚠ Warning

1. Avoid installing and using fittings inside a food zone.

##### Not installable

Food zone ..... An environment where food which will be sold as merchandise, directly touches the fitting components.

##### Installable

Splash zone ..... An environment where food which will not be sold as merchandise, directly touches the fitting components.

Non-food zone ..... An environment where there is no contact with food.

### Maintenance

#### ⚠ Caution

1. Pre-maintenance inspection

When the product is removed, turn off the power, cut off the supply pressure, and confirm that fluid in the piping has been discharged.

2. During regular maintenance, check for the following and replace any components as necessary.

- a) Scratches, gouges, abrasion, corrosion
- b) Leakage
- c) Flattening or distortion of the tube
- d) Hardening, deterioration or softness of the tube
- e) Loosening of the union nut

3. Do not repair the fittings or patch the tube for reuse.



## Series KFG2

# Specific Product Precautions 2

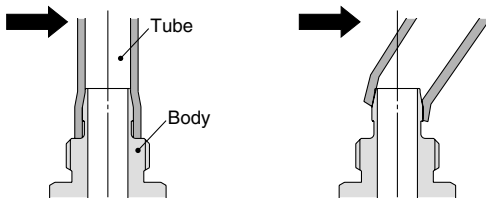
Be sure to read before handling. Refer to back cover for Safety Instructions, “Handling Precautions for SMC Products” (M-E03-3) for Fittings and Tubing Precautions.

### Maintenance

#### Caution

4. After operation at a high temperature, leakage may occur due to time dependent change of the tube material. If leakage occurs, remove the tube, cut off the connecting part of the tube, and connect to the piping again.

Check if the tube dimension accuracy is within the recommended tolerance. If it is difficult to take the tube out of the body, bend the tube to the side to remove.



#### Stainless steel

Metal exists in nature as ore (like oxide or sulfide). This means that oxide or sulfide is more stable than pure metal. Accordingly, metallic material chemically oxidizes (metallic constituent becomes ion and melts out). It corrodes in the natural environment.

Even though corrosion of metal easily occurs in an environment where oxidizing tendency is stronger, some kinds of metal have a characteristic for which corrosion never happens if the level of oxidizing goes higher than a specific point. In such a case, it is called “metal in passive state”.

Stainless steel has corrosion resistance because of a thin coat of passive state on its surface. However, there does not exist stainless steel with absolute corrosion resistance; therefore, many types of stainless steel have been developed for improved corrosion resistance performance.

Metric Size  
**KQG2**

Inch Size  
**KQG2**

Specific Product  
Precautions  
**KQG2**

Metric Size  
**KFG2**

Inch Size  
**KFG2**

Specific Product  
Precautions  
**KFG2**

Applicable  
Fluid List



## Series KQG2/KFG2

# Applicable Fluid List

### How to Read the Table

- ◎: Completely unaffected or largely unaffected.
- : May be slightly affected, but, dependent upon condition, can sufficiently withstand.
- △: Advisable to use as little as possible.
- ×: Not applicable, as substantially affected.
- : No data is available.

## Compatibility Checklist for Used Materials and Fluids

Chemical	Body	Seal
	Stainless steel 316	Special FKM
Acrylonitrile	◎	×
Acetamide	○	○
Acetaldehyde	◎	×
Acetone	◎	×
Aniline	○	◎
Amylene	◎	—
Sulphurous acid gas (Humid gas)	◎	—
Sodium bisulfite [50%]	◎	—
Allyl alcohol	◎	—
Benzoic acid	◎	—
Ammonia (Compressed gas)	◎	×
Isopropyl alcohol	○	◎
Isophorone	×	—
Ethyl alcohol	◎	○
Ethyl ether	○	×
Ethylene	◎	—
Ethylene glycol	○	◎
Ethylene diamine	◎	—
Ethylene dichloride	◎	—
Epichlorohydrine	◎	×
Methyl tertiary butyl ether	—	×
Allyl chloride	×	—
Ammonium chloride	◎	—
Calcium chloride	◎	—
Iron(II) chloride [5%]	×	—
Sodium chloride	○	—
Magnesium chloride	◎	—
Hydrochloric acid [5%]	×	—
Chlorine gas (Humid gas)	×	—
Carbitol	×	—
Formic acid [50%]	○	×
o-Xylene	△	△
p-Xylene	△	△
Citric acid	◎	—
Cumene	×	—
Glycerin	◎	◎
Cresol	◎	△

Chemical	Body	Seal
	Stainless steel 316	Special FKM
Chromic acid [10%]	◎	—
Chlorosulfonic acid	○	×
Chlorofluorocarbon (CFC) 11	—	×
Chlorofluorocarbon (CFC) 113	—	×
Chlorofluorocarbon (CFC) 12	○	×
Chlorofluorocarbon (CFC) 13B1	—	×
Chlorofluorocarbon (CFC) 14	—	◎
Chlorofluorocarbon (CFC) 22	○	×
Chlorobenzene	×	○
Chloroform (Trichloromethane)	○	○
Acetic acid	○	×
Amyl acetate	◎	×
Isopropyl acetate [20%]	◎	×
Ethyl acetate	×	×
Butyl acetate	×	×
Methyl acetate	◎	×
Calcium hypochlorite	◎	—
Sodium hypochlorite [5%]	◎	◎
Potassium cyanide [50%]	◎	—
Copper cyanide	◎	—
Diisobutyl ketone	◎	—
Diisobutylene	—	◎
Diethanolamine	◎	—
Diethylamine	×	×
Diethylene glycol	◎	—
Carbon tetrachloride	◎	◎
Cyclohexanol	×	—
Cyclohexanone	×	×
Cyclohexane	×	○
Dichloroethylene	—	△
Dichlorobenzene	—	△
Dichloromethane (Methylene chloride)	△	△
Ethylene bromide	×	—
Potassium bromide [30%]	◎	—
Potassium dichromate [25%]	◎	—
Oxalic acid	◎	—
Bromine gas	×	—

# Applicable Fluid List

Chemical	Body	Seal
	Stainless steel 316	Special FKM
Tartaric acid	◎	—
Nitric acid [65%]	◎	◎
Ammonium nitrate	◎	—
Ammonium hydroxide	—	○
Calcium hydroxide	◎	—
Sodium hydroxide [50%]	◎	○
Barium hydroxide	◎	—
Solvent naphtha	◎	—
Carbonic acid (Humid gas and aqueous solution)	◎	—
Tetrachloroethylene	×	◎
Tetrahydrofuran	—	×
Dodecylbenzene	◎	—
Trichloroethane	△	—
Trichloroethylene	◎	○
Trichloroacetic acid	—	—
Toluene	◎	◎
Naphtha	○	○
Naphthenic acid	◎	—
Lactic acid	◎	—
Carbon disulfide	○	◎
Picric acid	◎	—
Pyridine	×	×
Phenol	×	○
Butyl phthalate	×	—
Butyl alcohol	△	—
Hydrofluoric acid [50%]	◎	—
Furfural	×	×
n-Propyl alcohol	◎	—
Propylene glycol	◎	—
Bromochloroethane	—	×
n-Hexane	○	◎
n-Hexyl alcohol	◎	—
n-Heptane	◎	—
Benzene	×	×
n-Pentane	×	—
Boric acid	◎	—
Gallic acid	◎	—

Chemical	Body	Seal
	Stainless steel 316	Special FKM
Formic aldehyde	◎	×
Methyl methacrylate	×	×
Methyl alcohol	◎	○
Methyl isobutyl ketone	×	×
Methyl ethyl ketone	×	×
Ethyleneglycol monomethyl ether	×	—
Monoethanolamine	◎	—
Morpholine	◎	—
Butyric acid	◎	—
Hydrogen sulfide (Humid gas and aqueous solution)	◎	×
Sulphuric acid [10%]	◎	◎
Ammonium sulfate	◎	×
Sodium bisulfate [10%]	◎	—
Iron(II) sulfate	○	—
Sodium sulfate	◎	—
Phosphoric acid [85%]	◎	—

Note 1) [ ] denotes the concentration. Aqueous solutions without condensation notes are in a saturated state.

Note 2) The above data is based on a room temperature of 20°C. Note that you may obtain different figures, depending on temperature conditions.

Note 3) The above data shows compatibility guidelines based upon component parts. Therefore, it is no guarantee of product performance. In addition, using fluids other than those specified in the catalog are not covered by the product's warranty.

Metric Size **KQG2**

Inch Size **KQG2**

Specific Product Precautions **KQG2**

Metric Size **KFG2**

Inch Size **KFG2**

Specific Product Precautions **KFG2**

Applicable Fluid List

## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

### Caution:

**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

### Warning:

**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

### Danger :

**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

- \*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.  
ISO 4413: Hydraulic fluid power – General rules relating to systems.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines.  
(Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots - Safety.  
etc.

## Warning

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

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

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

- The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
- When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
- Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

- Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
- Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
- An application which could have negative effects on people, property, or animals requiring special safety analysis.
- Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

## Caution

### 1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

## Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

### Limited warranty and Disclaimer

- The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.\*2)  
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
- For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.  
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
- Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

\*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

### Compliance Requirements

- The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

## Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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