

For Food Industry

# EHEDG Compliant/Clean Design/ FDA Compliant Fittings

New

RoHS

- Hygienic design prevents liquid from accumulating after cleaning
- FDA compliant materials

## EHEDG Compliant Fittings

p. 7

EHEDG Compliant

IP69K

Hygienic Design

FDA Compliant

Stainless Steel 316 Insert Fittings

**KFG2H□-E Series**



## Clean Design Fittings

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Hygienic Design

FDA Compliant

Stainless Steel 316 Insert Fittings

**KFG2H□-C Series**



## FDA Compliant Fittings

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FDA Compliant



Stainless Steel 316 One-touch Fittings

**KQG2-F Series**



Metal One-touch Fittings

**KQB2-F Series**



Stainless Steel 316 Insert Fittings

**KFG2-F Series**

**KFG2H-E/KFG2H-C/KQ<sub>B</sub>2-F KFG2-F Series**



CAT.ES50-41A

# EHEDG Compliant Fittings

EHEDG Compliant

IP69K

Hygienic Design

FDA Compliant

## KFG2H□-E Series

p. 7



### EHEDG Certification

This series satisfies EHEDG guidelines (hygienic design standards), preventing liquid and foreign matter from entering, and is easy to wash.

### Design for less residual liquid accumulation



**EHEDG compliant fitting**

Design for better liquid flow and less residual liquid accumulation

**Existing KFG2 model**

Design for poor liquid flow and more residual liquid accumulation

### Achieved IP69K rating

### Rubber parts

The material used is a special FKM that is compliant with the Food and Drug Administration (FDA) §177.2600. They are colored in blue for superior visibility.

### Body type: Male connector

### Connection thread: M, G<sup>\*1</sup>

\*1 ISO 16030 compliant

### Fluid temperature

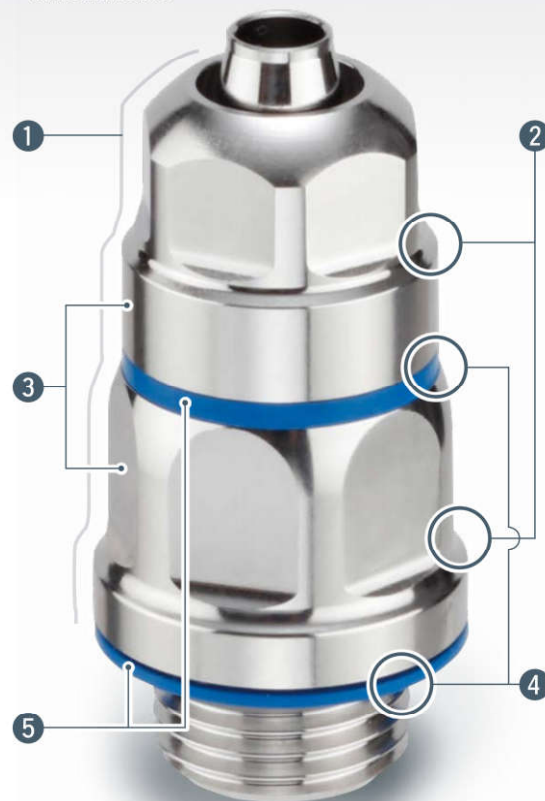
-5 to 150°C

### EHEDG design standards

- 1 External surface roughness:  
Ra 0.8 µm or less
- 2 Corners of radius 3 mm or more or with an internal angle of 135°
- 3 Stainless material with high anti-corrosion performance: Stainless steel 316
- 4 No direct contact of external metal parts
- 5 Gasket seals made of FDA-compliant rubber materials



**EHEDG Certificate of Compliance**



# Clean Design Fittings

Hygienic  
Design

FDA  
Compliant

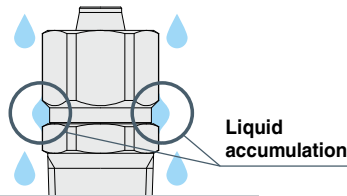
KFG2H□-C Series

p. 11

## Design for less residual liquid accumulation



**Clean design fitting**  
Rounded design for less residual liquid accumulation



**Existing KFG2 model**  
Design for poor liquid flow and more residual liquid accumulation

## Metal parts: Stainless steel 316

## Rubber parts

The material used is a special FKM that is compliant with the Food and Drug Administration (FDA) §177.2600. They are colored in blue for superior visibility.

## Body type: Male connector

## Connection thread: M, G<sup>\*1</sup>

\*1 ISO 16030 compliant

## Fluid temperature

-5 to 150°C



# FDA Compliant Fittings

FDA  
Compliant

## KQG2-F/KQB2-F/KFG2-F Series

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### Rubber parts

The material used is a special FKM that is compliant with the Food and Drug Administration (FDA) §177.2600.

### Grease

NSF H1-compliant paraffin grease is used.

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

Applicable tubing: Metric size  
Connection thread: M, R, Rc, UNF, NPT, G\*<sup>1</sup>

\*1 ISO 16030 compliant



### Metal One-touch Fittings KQB2-F Series

Applicable tubing: Metric size  
Connection thread: M, R, Rc, UNF, NPT, G\*<sup>1</sup>

\*1 ISO 16030 compliant



### Stainless Steel 316 Insert Fittings KFG2-F Series

Applicable tubing: Metric size  
Connection thread: R, Rc, NPT, G\*<sup>1,2</sup>

\*1 Swivel elbow only  
\*2 ISO 16030 compliant



# FDA (U.S. Food and Drug Administration) Compliant Tubing

## Polyurethane Tubing

### TU-X214



- Complies with the FDA (U.S. Food and Drug Administration) § 177.2600 dissolution test
- Complies with the EU No 10/2011 dissolution test
- Max. operating pressure: 0.8 MPa (at 20°C)

Tubing O.D.		Color	Fluid
Metric size	Inch size		
ø4, ø6, ø8, ø10, ø12		Black, White, Red, Blue, Yellow, Green, Clear, Orange	Air, Water

## Fluoropolymer Tubing

### TL/TIL



- Complies with the FDA (U.S. Food and Drug Administration) § 177.1550 dissolution test
- Food Sanitation Law compliant\*1
- Max. operating pressure: 1.0 MPa (at 20°C)
- Operating temperature (Fixed usage): -65 to 260°C

Tubing O.D.		Color
Metric size	Inch size	
ø4, ø6, ø8, ø10, ø12, ø19	ø1/8", ø3/16", ø1/4", ø3/8", ø1/2", ø3/4", ø1"	Translucent

## Fluoropolymer Tubing (PFA)

### TLM/TILM



- Complies with the FDA (U.S. Food and Drug Administration) § 177.1550 dissolution test
- Food Sanitation Law compliant\*1
- Operating temperature (Fixed usage):  
Air, Inert gas: -65 to 260°C  
Water: 0 to 100°C (No freezing)

Tubing O.D.		Color
Metric size	Inch size	
ø2, ø3, ø4, ø6, ø8, ø10, ø12, ø16, ø19, ø25	ø1/8", ø3/16", ø1/4", ø3/8", ø1/2", ø3/4", ø1", ø1 1/4"	Translucent, Black, Red, Blue

## FEP Tubing (Fluoropolymer)

### TH/THH



- Complies with the FDA (U.S. Food and Drug Administration) § 177.1550 dissolution test
- Food Sanitation Law compliant\*1
- Max. operating pressure: 2.3 MPa (at 20°C)\*2  
\*2 This may vary according to size.
- Operating temperature (Fixed usage):  
Air, Inert gas: -65 to 200°C  
Water: 0 to 100°C (No freezing)
- Longer length reel (500 m): -X64

Tubing O.D.		Color
Metric size	Inch size	
ø4, ø6, ø8, ø10, ø12	ø1/8", ø3/16", ø1/4", ø3/8", ø1/2", ø3/4"	Translucent, Black, Red, Blue

## Soft Fluoropolymer Tubing

### TD/TID



- Complies with the FDA (U.S. Food and Drug Administration) § 177.1550 dissolution test
- Food Sanitation Law compliant\*1
- Max. operating pressure: 1.6 MPa (at 20°C)\*2  
\*2 This may vary according to size.
- Operating temperature (Fixed usage):  
Air, Inert gas: -65 to 260°C  
Water: 0 to 100°C (No freezing)

Tubing O.D.		Color
Metric size	Inch size	
ø4, ø6, ø8, ø10, ø12	ø1/8", ø3/16", ø1/4", ø3/8", ø1/2"	Translucent

## Polyolefin Tubing

### TPH



- Complies with the FDA (U.S. Food and Drug Administration) § 175.300 dissolution test
- Max. operating pressure (at 20°C): 1.0 MPa (ø4, ø6), 0.7 MPa (ø8, ø10, ø12)
- Longer length reel (500 m): -X40

Applicable tubing O.D.	Color	Fluid
ø4, ø6, ø8, ø10, ø12	White, Blue, Yellow	Air, Water, etc.

## Soft Polyolefin Tubing

### TPS



- Complies with the FDA (U.S. Food and Drug Administration) § 175.300 dissolution test
- Max. operating pressure (at 20°C): 0.7 MPa (ø4 to ø12)

Applicable tubing O.D.	Color	Fluid
ø4, ø6, ø8, ø10, ø12	White, Blue, Yellow	Air, Water, etc.

\*1 Testing in compliance with Japan's Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959

### Variations

#### Male Connector **KQB2H**

Metric	R thread	p. 39
	G thread	p. 54
Inch		p. 47



#### Bulkhead Union **KQB2E**

Metric	p. 41
Inch	p. 49



#### Different Diameter Union "Y" **KQB2U**

Metric	p. 42
Inch	p. 50



#### Hexagon Socket Head Male Connector **KQB2S**

Metric	R thread	p. 39
	G thread	p. 54
Inch		p. 47



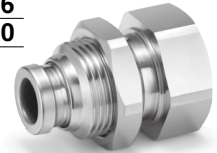
#### Union Tee **KQB2T**

Metric	p. 41
Inch	p. 49



#### Bulkhead Connector **KQB2E**

Metric	Rc thread	p. 43
	G thread	p. 56
Inch		p. 50



#### Straight Union **KQB2H**

Metric	p. 39
Inch	p. 47



#### Union "Y" **KQB2U**

Metric	p. 41
Inch	p. 49



#### Extended Male Elbow **KQB2W**

Metric	R thread	p. 43
	G thread	p. 56
Inch		p. 50



#### Male Elbow **KQB2L**

Metric	R thread	p. 40
	G thread	p. 55
Inch		p. 48



#### Different Diameter Tee **KQB2T**

Metric	p. 42
Inch	p. 49



#### Female Connector **KQB2F**

Metric	Rc thread	p. 44
	G thread	p. 56
Inch		p. 51



#### Male Branch Tee **KQB2T**

Metric	R thread	p. 40
	G thread	p. 55
Inch		p. 48



#### Plug-in Reducer **KQB2R**

Metric	p. 42
Inch	p. 49



#### Plug **KQB2P**

Metric	p. 44
Inch	p. 51



#### Union Elbow **KQB2L**

Metric	p. 41
Inch	p. 48



#### Different Diameter Straight **KQB2H**

Metric	p. 42
Inch	p. 50



EHEDG  
Compliant

Metric M, G  
KFG2H□-E

Clean  
Design

Metric M, G  
KFG2H□-C

FDA  
Compliant

Metric M, R, Rc  
KQG2-F

Inch UNF, NPT  
KQG2-F

Metric G  
KQG2-F

Metric M, R, Rc  
KQB2-F

Inch UNF, NPT  
KQB2-F

Metric G  
KQB2-F

Metric R, Rc  
KFG2-F

Inch NPT  
KFG2-F

Metric G  
KFG2-F

Precautions

## FDA Compliant Fittings

# Metal One-touch Fittings

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

# KQB2-F Series

RoHS



## Applicable Tubing

Tubing material*1	FEP, PFA, Nylon, Soft nylon, Polyurethane, Polyolefin
Tubing O.D.	ø1/8", ø5/32", ø1/4", ø5/16", ø3/8", ø1/2"

\*1 Considering the product application, FDA-compliant products are recommended.

## Specifications

Fluid	Air, Water*1
Operating pressure range*2	-100 kPa to 1 MPa*3
Proof pressure	3.0 MPa
Ambient and fluid temperatures*4	-5 to 150°C (No freezing)*3
Lubricant	NSF H1 grease
Seal on the threads	Without sealant

\*1 Deionized water is not recommended for use as it may affect the material used in the fittings. In addition, it is known to degrade the water quality.

\*2 Do not use the fittings with a leak tester or for vacuum retention because they are not guaranteed for zero leakage.

\*3 Check the operating pressure range and operating temperature range of the tubing.

\*4 It is recommended that you use the inner sleeve in the following conditions. (Except ø1/8")

- When using in an environment where the fluid temperature changes drastically
- When using at a high temperature

### \* Temperature Condition of Mounting the Inner Sleeve

Tubing	Temperature
FEP tubing/TH series	80°C or more
Super PFA tubing/TL series	120°C or more

## Spare Parts

Description	Tubing O.D.	Part no.	Material
O-ring	—	<b>M-5-F</b>	FDA compliant FKM
Bulkhead nut	ø1/8"	<b>KQB201-P01-F</b>	C3604 (Electroless nickel plating)
	ø5/32"		
	ø1/4"	<b>KQB207-P01-F</b>	
	ø5/16"	<b>KQB209-P01-F</b>	
	ø3/8"	<b>KQB211-P01-F</b>	
ø1/2"	<b>KQB213-P01-F</b>		

## Cross Reference Table of the Inner Sleeve

Tubing O.D.	Tubing material		Applicable inner sleeve	
	TH/TIH (FEP)	TL/TIL (Super 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"	TIHB07	TIL07	<b>TJG-0604</b>	19
	TIHA07	—	<b>TJG-0746</b>	19
ø5/16"	TH0806	TL0806	<b>TJG-0806</b>	20.5
ø3/8"	TIHB11	TIL11	<b>TJG-1065</b>	23
	TIHA11	—	<b>TJG-1107</b>	23
ø1/2"	TIH13	TIL13	<b>TJG-1395</b>	24

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

# Metal One-touch Fittings **KQB2-F Series**

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

## How to Order

**KQB2** **H** **03** - **N** **03** - **F**

• **Body type**

Symbol	Model
<b>H</b>	Male connector, Straight union, Different diameter straight
<b>S</b>	Hexagon socket head male connector
<b>L</b>	Male elbow, Union elbow
<b>T</b>	Male branch tee, Union tee, Different diameter tee
<b>E</b>	Bulkhead union, Bulkhead connector
<b>U</b>	Union "Y", Different diameter union "Y"
<b>R</b>	Plug-in reducer
<b>W</b>	Extended male elbow
<b>F</b>	Female connector
<b>P</b>	Plug

• **Tubing size (Inch)**

Symbol	Size
<b>01</b>	ø1/8"
<b>03</b>	ø5/32"
<b>07</b>	ø1/4"
<b>09</b>	ø5/16"
<b>11</b>	ø3/8"
<b>13</b>	ø1/2"

• **FDA compliant**

• **Thread size, Tubing size**

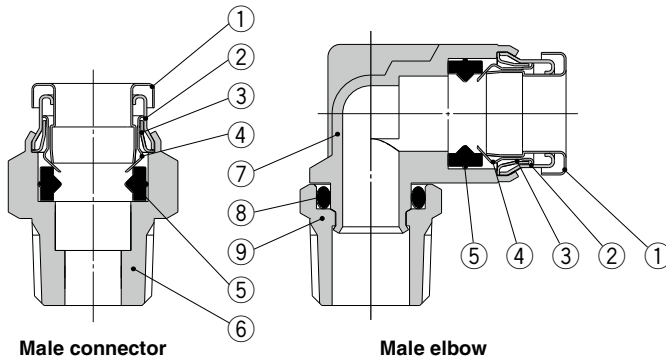
Symbol	Size	
<b>32</b>	10-32UNF	Thread size
<b>01</b>	NPT1/8	
<b>02</b>	NPT1/4	
<b>03</b>	NPT3/8	
<b>04</b>	NPT1/2	
<b>00</b>	Same tubing O.D.	Tubing size
<b>03</b>	ø5/32"	
<b>07</b>	ø1/4"	
<b>09</b>	ø5/16"	
<b>11</b>	ø3/8"	
<b>13</b>	ø1/2"	

\* Sealant is unavailable for this product as no FDA-compliant material is available.

• **Thread type**

Symbol	Type
<b>N</b>	NPT

## Construction



### Component Parts

No.	Description	Material
<b>1</b>	<b>Release button</b>	Stainless steel 304
<b>2</b>	<b>Guide 1</b>	Stainless steel 304
<b>3</b>	<b>Guide 2</b>	Stainless steel 304
<b>4</b>	<b>Chuck</b>	Stainless steel 304
<b>5</b>	<b>Seal</b>	FDA compliant FKM (NSF H1 grease)
<b>6</b>	<b>Male connector body</b>	C3604 (Electroless nickel plating)
<b>7</b>	<b>Male elbow body</b>	Stainless steel 316
<b>8</b>	<b>O-ring</b>	FDA compliant FKM (NSF H1 grease)
<b>9</b>	<b>Stud</b>	C3604 (Electroless nickel plating)

EHEDG  
Metric M, G  
KFG2H□-E  
Compliant

Clean  
Design  
Metric M, G  
KFG2H□-C

FDA  
Compliant  
Metric M, R, Rc  
KQG2-F

Inch UNF, NPT  
KQG2-F

Metric G  
KQG2-F

Metric M, R, Rc  
KQB2-F

Inch UNF, NPT  
KQB2-F

Metric G  
KQB2-F

Metric M, R, Rc  
KQB2-F

Inch UNF, NPT  
KQB2-F

Metric G  
KQB2-F

Metric R, Rc  
KFG2-F

Inch NPT  
KFG2-F

Metric G  
KFG2-F

Precautions



# KQB2-F Series

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

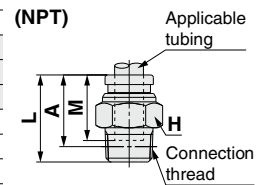
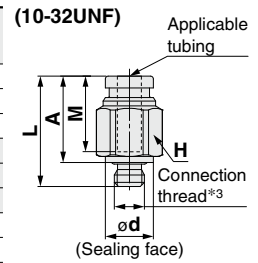
## Dimensions

### Male Connector: KQB2H



Applicable tubing O.D. [inch]	Connection thread UNF, NPT	Model	H (Width across flats)	ød	L	A*1	M	Effective area [mm <sup>2</sup> ]*2	Weight [g]		
ø1/8"	10-32UNF	KQB2H01-32-F	8	8	17.8	13.8	12	3	3.7		
	1/8	KQB2H01-N01-F	11.11	—	17.1	15.2				3.4	7.9
	1/4	KQB2H01-N02-F	14.29	—	20.9	17.8					
ø5/32"	10-32UNF	KQB2H03-32-F	10	8	18.4	14.4	12.6	4	7		
	1/8	KQB2H03-N01-F	11.11	—	17	15.1				5.6	7.4
	1/4	KQB2H03-N02-F	14.29	—	20.9	17.8					
ø1/4"	10-32UNF	KQB2H07-32-F	12	8	21	17	13.5	4	8.8		
	1/8	KQB2H07-N01-F	12.7	—	20	18.1				13.1	15.1
	1/4	KQB2H07-N02-F	14.29	—	20.6	17.5					
	3/8	KQB2H07-N03-F	17.46	—	23.8	20.4					
ø5/16"	1/8	KQB2H09-N01-F	14.29	—	24.2	22.3	16.1	26.1	13.8		
	1/4	KQB2H09-N02-F			23.1	20				14.9	
	3/8	KQB2H09-N03-F			24.6	21.2				28.3	
ø3/8"	1/8	KQB2H11-N01-F	17.46	—	25	23.1	16.6	41.5	21.5		
	1/4	KQB2H11-N02-F			26.3	23.2				22.3	
	3/8	KQB2H11-N03-F			23.6	20.2				24.4	
	1/2	KQB2H11-N04-F			22.23	28.3				23.2	55
ø1/2"	1/4	KQB2H13-N02-F	22.23	—	30.5	27.4	18.5	58.3	39.4		
	3/8	KQB2H13-N03-F			25	25				36.8	
	1/2	KQB2H13-N04-F			28.4	23.3				46.1	

\*1 Reference dimensions after installation for NPT thread  
 \*2 Value of FEP tubing  
 \*3 In the case of 10-32UNF, the screw length (L - A) is longer than that of the KQB2 series.

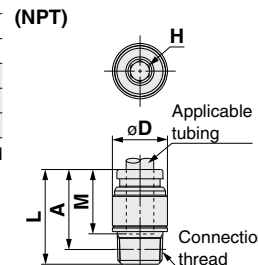
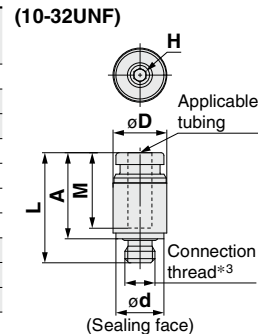


### Hexagon Socket Head Male Connector: KQB2S



Applicable tubing O.D. [inch]	Connection thread UNF, NPT	Model	H (Width across flats)	øD	ød	L	A*1	M	Effective area [mm <sup>2</sup> ]*2	Weight [g]								
ø1/8"	10-32UNF	KQB2S01-32-F	2	9	8	17.8	13.8	12	3	4.2								
ø5/32"	10-32UNF	KQB2S03-32-F	2	9	8	18.4	14.4	12.6	4	4.2								
	1/8	KQB2S03-N01-F	2.78	11	—	21.4	19.5				4.1	8.9						
ø1/4"	10-32UNF	KQB2S07-32-F	2	12	8	20	16	13.5	4	7.3								
	1/8	KQB2S07-N01-F	4.76								—	20.5	18.6	10	8.5			
	1/4	KQB2S07-N02-F														17.4	10.7	23.8
	3/8	KQB2S07-N03-F																
ø5/16"	1/8	KQB2S09-N01-F	5.56	14	—	24.7	22.8	16.1	17.2	12.6								
	1/4	KQB2S09-N02-F	6.35								20	19.7	23.3	13.4				
	3/8	KQB2S09-N03-F													23.1	19.7	24.7	
ø3/8"	1/8	KQB2S11-N01-F	5.56	17	—	25.2	23.3	16.6	17.2	18.7								
	1/4	KQB2S11-N02-F	6.35								18	27.1	24	39	25			
	3/8	KQB2S11-N03-F														23.6	18.5	40.6
	1/2	KQB2S11-N04-F																
ø1/2"	1/4	KQB2S13-N02-F	8	20	—	30.5	27.4	18.5	46	27.9								
	3/8	KQB2S13-N03-F	9.53								22	29.4	26	60	30.4			
	1/2	KQB2S13-N04-F														25.5	20.4	36.5

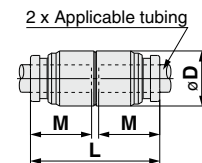
\*1 Reference dimensions after installation for NPT thread  
 \*2 Value of FEP tubing  
 \*3 In the case of 10-32UNF, the screw length (L - A) is longer than that of the KQB2 series.



### Straight Union: KQB2H



Applicable tubing O.D. [inch]	Model	øD	L	M	Effective area [mm <sup>2</sup> ]*1	Weight [g]
ø1/8"	KQB2H01-00-F	9	25	12	3.4	6.8
ø5/32"	KQB2H03-00-F	9	26.2	12.6	5.6	6.8
ø1/4"	KQB2H07-00-F	12	28	13.5	13.1	11.5
ø5/16"	KQB2H09-00-F	14	33.2	16.1	26.1	17.4
ø3/8"	KQB2H11-00-F	16	34.2	16.6	41.5	23.7
ø1/2"	KQB2H13-00-F	20	38	18.5	58.3	37



\*1 Value of FEP tubing

# Metal One-touch Fittings **KQB2-F Series**

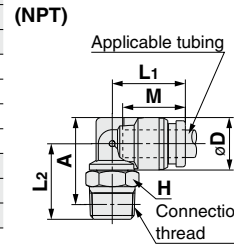
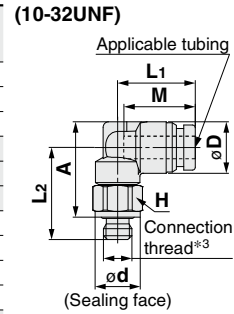
Applicable Tubing: Inch Size, Connection Thread: UNF, NPT

## Dimensions

### Male Elbow: KQB2L



Applicable tubing O.D. [inch]	Connection thread UNF, NPT	Model	H (Width across flats)	øD	ød	L1	L2	A*1	M	Effective area [mm <sup>2</sup> ]*2	Weight [g]
ø1/8"	10-32UNF	KQB2L01-32-F	8	8.3	8	13.1	15.9	16.1	12	2.6	6.7
	1/8	KQB2L01-N01-F	11.11			13.6	14.9	17.1		3	8.8
	1/4	KQB2L01-N02-F	14.29			18.7	19.7	19.7		17.7	
ø5/32"	10-32UNF	KQB2L03-32-F	8	9.1	8	13.7	16.3	16.9	12.6	3.5	7.2
	1/8	KQB2L03-N01-F	11.11			14.4	15.3	17.9		4.2	9.7
	1/4	KQB2L03-N02-F	14.29			19.1	20.5	20.5		18.5	
ø1/4"	10-32UNF	KQB2L07-32-F	8	11.7	8	14.7	17.6	19.5	13.5	3.5	9.3
	1/8	KQB2L07-N01-F	11.11			16.6	20.5	11.4		11.4	
	1/4	KQB2L07-N02-F	14.29			20.4	23.1	20.3		20.3	
ø5/16"	10-32UNF	KQB2L09-32-F	8	13.7	8	14.7	17.6	19.5	16.1	3.5	9.3
	1/8	KQB2L09-N01-F	11.11			18.6	18.3	23.2		15.8	15.8
	1/4	KQB2L09-N02-F	14.29			19.1	21.5	25.2		21.6	21.9
ø3/8"	10-32UNF	KQB2L11-32-F	8	16	20	19.4	25.5	25.5	16.6	21.6	20.5
	1/4	KQB2L11-N02-F	14.29			22.6	27.5	23.9		23.9	
	3/8	KQB2L11-N03-F	17.46			24.4	29	35.8		35.8	
ø1/2"	10-32UNF	KQB2L13-32-F	8	19.6	22.7	24.4	31.1	31.1	18.5	50.2	30.1
	3/8	KQB2L13-N03-F	17.46			26.1	32.5	37.9		37.9	
	1/2	KQB2L13-N04-F	22.23			29.9	34.6	63.8		63.8	

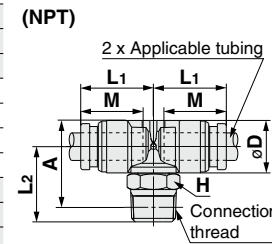
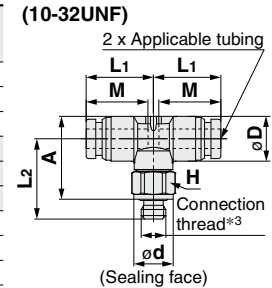


\*1 Reference dimensions after installation for NPT thread  
 \*2 Value of FEP tubing  
 \*3 In the case of 10-32UNF, the screw length (øD/2 + L2 - A) is longer than that of the KQB2 series.

### Male Branch Tee: KQB2T



Applicable tubing O.D. [inch]	Connection thread UNF, NPT	Model	H (Width across flats)	øD	ød	L1	L2	A*1	M	Effective area [mm <sup>2</sup> ]*2	Weight [g]
ø1/8"	10-32UNF	KQB2T01-32-F	8	8.3	8	13.1	15.9	16.1	12	3.2	8.4
	1/8	KQB2T01-N01-F	11.11			13.6	14.9	17.1		3.4	10.6
	1/4	KQB2T01-N02-F	14.29			18.7	19.7	19.7		19.5	
ø5/32"	10-32UNF	KQB2T03-32-F	8	9.1	8	13.7	16.3	16.9	12.6	4.5	9.3
	1/8	KQB2T03-N01-F	11.11			14.4	15.3	17.9		6	11.6
	1/4	KQB2T03-N02-F	14.29			19.1	20.5	20.5		20.5	
ø1/4"	10-32UNF	KQB2T07-32-F	8	11.7	8	14.7	17.6	19.5	13.5	4.5	12.5
	1/8	KQB2T07-N01-F	11.11			16.6	20.5	14.9		14.9	
	1/4	KQB2T07-N02-F	14.29			20.4	23.1	23.8		23.8	
ø5/16"	10-32UNF	KQB2T09-32-F	8	13.7	8	14.7	17.6	19.5	16.1	4.5	12.5
	1/8	KQB2T09-N01-F	11.11			18.6	18.3	23.2		21.2	21.2
	1/4	KQB2T09-N02-F	14.29			19.1	21.5	25.2		26.3	27.1
ø3/8"	10-32UNF	KQB2T11-32-F	8	16	20	19.4	25.5	25.5	16.6	40.8	28.1
	1/4	KQB2T11-N02-F	14.29			22.6	27.5	31.1		31.1	
	3/8	KQB2T11-N03-F	17.46			24.4	29	43.1		43.1	
ø1/2"	10-32UNF	KQB2T13-32-F	8	19.6	22.7	24.4	31.1	31.1	18.5	57.2	41.8
	3/8	KQB2T13-N03-F	17.46			26.1	32.5	49		49	
	1/2	KQB2T13-N04-F	22.23			29.9	34.6	74.9		74.9	

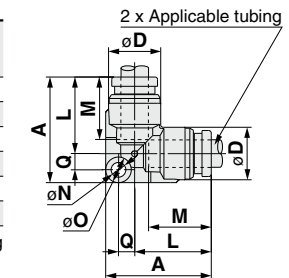


\*1 Reference dimensions after installation for NPT thread  
 \*2 Value of FEP tubing  
 \*3 In the case of 10-32UNF, the screw length (øD/2 + L2 - A) is longer than that of the KQB2 series.

### Union Elbow: KQB2L



Applicable tubing O.D. [inch]	Model	øD	L	A	Q	M	øN	øO	Effective area [mm <sup>2</sup> ]*1	Weight [g]
ø1/8"	KQB2L01-00-F	8.3	13.6	19.3	2.9	12	3.2	5.6	3	6.3
ø5/32"	KQB2L03-00-F	9.1	14.6	20.5	3.1	12.6	3.2	5.6	4.2	7.4
ø1/4"	KQB2L07-00-F	11.7	16.7	23.2	3.7	13.5	3.2	5.6	11.4	11.5
ø5/16"	KQB2L09-00-F	13.7	20.1	29.1	5	16.1	4.2	8	21.6	20.2
ø3/8"	KQB2L11-00-F	16	21.4	31.1	5.7	16.6	4.2	8	35.2	28.2
ø1/2"	KQB2L13-00-F	19.6	24.9	35.3	6.4	18.5	4.2	8	50.2	41.7



\*1 Value of FEP tubing

EHEDG  
Compliant

Metric M, G  
KFG2H□-E

Clean  
Design

Metric M, G  
KFG2H□-C

FDA  
Compliant

Metric M, R, Rc  
KQG2-F

Inch UNF, NPT  
KQG2-F

Metric G  
KQG2-F

Metric M, R, Rc  
KQB2-F

Inch UNF, NPT  
KQB2-F

Metric G  
KQB2-F

Metric R, Rc  
KFG2-F

Inch NPT  
KFG2-F

Metric G  
KFG2-F

Precautions

# KQB2-F Series

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

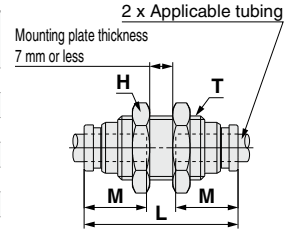
## Dimensions

### Bulkhead Union: KQB2E



Applicable tubing O.D. [inch]	Model	T (UNF)	H (Width across flats)	L	Mounting hole	M	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
ø1/8"	KQB2E01-00-F	7/16-20UNF	14.29	34.2	12.5	12	3.4	21.8
ø5/32"	KQB2E03-00-F	7/16-20UNF	14.29	34.4	12.5	12.6	5.6	21.6
ø1/4"	KQB2E07-00-F	1/2-20UNF	17.46	36.2	14	13.5	13.1	30.2
ø5/16"	KQB2E09-00-F	5/8-18UNF	22.23	41.2	17	16.1	26.1	43.9
ø3/8"	KQB2E11-00-F	3/4-16UNF	22.23	42.4	20.5	16.6	41.5	64.2
ø1/2"	KQB2E13-00-F	7/8-14UNF	25.4	47	23.5	18.5	58.3	94.2

\*1 Value of FEP tubing

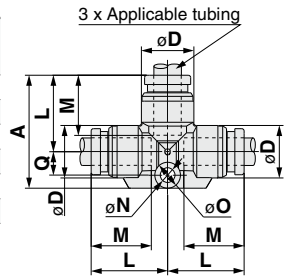


### Union Tee: KQB2T



Applicable tubing O.D. [inch]	Model	øD	L	A	Q	M	øN	øO	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
ø1/8"	KQB2T01-00-F	8.3	13.6	20.5	4.1	12	3.2	5.6	3.4	7.9
ø5/32"	KQB2T03-00-F	9.1	14.6	21.8	4.4	12.6	3.2	5.6	6.4	9.5
ø1/4"	KQB2T07-00-F	11.7	16.7	24.7	5.2	13.5	3.2	5.6	13.4	14.7
ø5/16"	KQB2T09-00-F	13.7	20.1	31.1	7	16.1	4.2	8	25.6	24.4
ø3/8"	KQB2T11-00-F	16	21.4	33.4	8	16.6	4.2	8	40	34.7
ø1/2"	KQB2T13-00-F	19.6	24.9	37.9	9	18.5	4.2	8	57.4	52.3

\*1 Value of FEP tubing

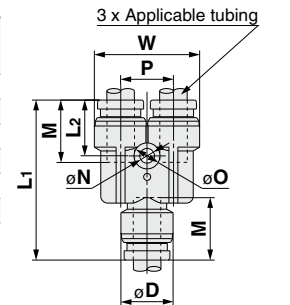


### Union "Y": KQB2U



Applicable tubing O.D. [inch]	Model	øD	W	L <sub>1</sub>	L <sub>2</sub>	P	M	øN	øO	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
ø1/8"	KQB2U01-00-F	8.3	16.4	29	11	8.1	12	3.2	5.6	3.4	9.2
ø5/32"	KQB2U03-00-F	9.1	18.2	30.4	11.3	9.1	12.6	3.2	5.6	4.2	11.1
ø1/4"	KQB2U07-00-F	11.7	23.9	34.5	12.1	12.2	13.5	3.2	5.6	13.4	19.6
ø5/16"	KQB2U09-00-F	13.7	28.3	40.1	14.1	14.6	16.1	4.2	8	25.6	29.7
ø3/8"	KQB2U11-00-F	16	33.2	42.2	14	17.2	16.6	4.2	8	40	43.1
ø1/2"	KQB2U13-00-F	19.6	40.2	47.3	15.8	20.6	18.5	4.2	8	57.4	66.4

\*1 Value of FEP tubing

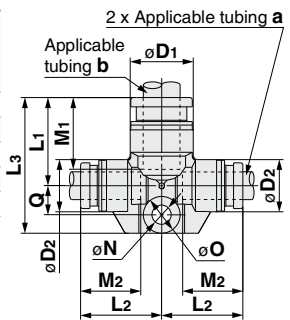


### Different Diameter Tee: KQB2T



Applicable tubing O.D. [inch]	Model	øD <sub>1</sub>	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	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
ø1/8" ø5/32"	KQB2T01-03-F	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"	KQB2T03-07-F	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"	KQB2T07-09-F	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"	KQB2T09-11-F	16	13.7	20.6	21	31.7	7.1	16.6	16.1	4.2	8	36	28.9
ø3/8" ø1/2"	KQB2T11-13-F	19.6	16	23.3	23	35.4	8.1	18.5	16.6	4.2	8	56	41.8

\*1 Value of FEP tubing

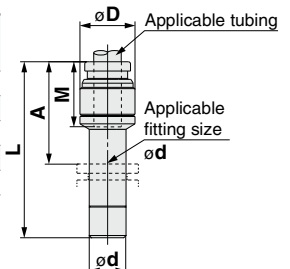


### Plug-in Reducer: KQB2R



Applicable tubing O.D. [inch]	Applicable fitting size ød	Model	øD	L	A	M	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
ø1/8"	ø5/32"	KQB2R01-03-F	9	32.9	20.3	12	3.4	4.9
ø5/32"	ø1/4"	KQB2R03-07-F	9	33.7	20.2	12.6	5.6	7.4
ø1/4"	ø5/16"	KQB2R07-09-F	12	38.4	22.3	13.5	13.1	12.5
ø5/16"	ø3/8"	KQB2R09-11-F	14	41.6	25	16.1	26.1	17.7
ø3/8"	ø1/2"	KQB2R11-13-F	17	39.8	21.3	16.6	41.5	24.7

\*1 Value of FEP tubing



# Metal One-touch Fittings **KQB2-F Series**

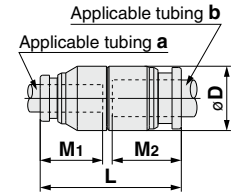
Applicable Tubing: Inch Size, Connection Thread: UNF, NPT

## Dimensions

### Different Diameter Straight: KQB2H



Applicable tubing O.D. [inch]		Model	øD	L	M1	M2	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
a	b							
ø1/8"	ø5/32"	KQB2H01-03-F	9	25.6	12	12.6	3.4	6.8
ø5/32"	ø1/4"	KQB2H03-07-F	12	27.1	12.6	13.5	5.6	11.9
ø1/4"	ø5/16"	KQB2H07-09-F	14	30.6	13.5	16.1	13.1	16.8
ø5/16"	ø3/8"	KQB2H09-11-F	16	33.7	16.1	16.6	26.1	23.9
ø3/8"	ø1/2"	KQB2H11-13-F	20	36.1	16.6	18.5	41.5	38.8

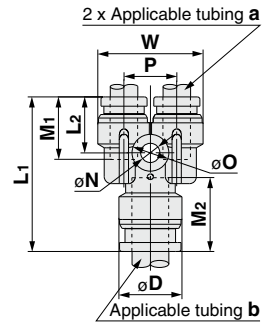


\*1 Value of FEP tubing

### Different Diameter Union "Y": KQB2U

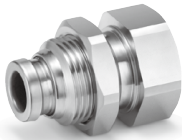


Applicable tubing O.D. [inch]		Model	øD	L1	L2	P	W	M1	M2	øN	øO	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
a	b												
ø1/8"	ø5/32"	KQB2U01-03-F	9.1	27	10.8	8.1	16.4	12	12.6	3.2	5.6	3.2	8.5
ø5/32"	ø1/4"	KQB2U03-07-F	11.7	28.8	11.4	9.1	18.2	12.6	13.5	3.2	5.6	4.2	11.8
ø1/4"	ø5/16"	KQB2U07-09-F	13.7	33.8	12	12.2	23.9	13.5	16.1	4.2	8	13.4	20
ø5/16"	ø3/8"	KQB2U09-11-F	16	38.3	13.8	14.6	28.3	16.1	16.6	4.2	8	25.6	31
ø3/8"	ø1/2"	KQB2U11-13-F	19.6	40.5	13.7	17.2	33.2	16.6	18.5	4.2	8	40	45

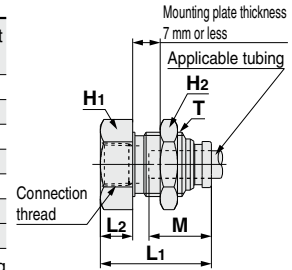


\*1 Value of FEP tubing

### Bulkhead Connector: KQB2E



Applicable tubing O.D. [inch]	Connection thread NPT	Model	T (UNF)	Width across flats		L1	L2	Mounting hole	M	Effective area [mm <sup>2</sup> ] <sup>*1</sup>	Weight [g]
				H1	H2						
ø1/8"	1/4	KQB2E01-N02-F	7/16-20UNF	17.46	14.29	32.8	15.3	12.5	12	3.4	34.1
ø5/32"	1/4	KQB2E03-N02-F	7/16-20UNF	17.46	14.29	32.6	15.3	12.5	12.6	5.6	33.5
ø1/4"	1/4	KQB2E07-N02-F	1/2-20UNF	17.46	17.46	33.1	14.8	14	13.5	13.1	36.5
ø5/16"	3/8	KQB2E09-N03-F	5/8-18UNF	22.23	22.23	35.8	15.1	17	16.1	26.1	56.1
ø3/8"	3/8	KQB2E11-N03-F	3/4-16UNF	22.23	22.23	35.2	13.7	20.5	16.6	41.5	62.9
ø1/2"	3/8	KQB2E13-N03-F	7/8-14UNF	23.81	25.4	34.6	11	23.5	18.5	58.3	76.6
	1/2	KQB2E13-N04-F				42.2	18.6				80.2

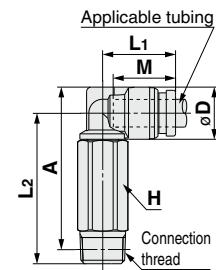


\*1 Value of FEP tubing

### Extended Male Elbow: KQB2W



Applicable tubing O.D. [inch]	Connection thread NPT	Model	H (Width across flats)	øD	L1	L2	A <sup>*1</sup>	M	Effective area [mm <sup>2</sup> ] <sup>*2</sup>	Weight [g]
	1/4	KQB2W01-N02-F	14.29	35.4	36.4	37.3				
ø5/32"	1/8	KQB2W03-N01-F	11.11	9.1	14.4	32	34.6	12.6	4	20.3
		1/4	KQB2W03-N02-F			14.29	35.8			37.2
ø1/4"	1/8	KQB2W07-N01-F	11.11	11.7	15.9	33.3	37.2	13.5	10.9	22.1
		1/4	KQB2W07-N02-F			14.29	37.1			39.8
ø5/16"	3/8	KQB2W07-N03-F	17.46	13.7	19.1	38.9	41.3	16.1	20.5	65.6
		1/8	KQB2W09-N01-F			12.7	18.6			34.7
ø1/4"	1/4	KQB2W09-N02-F	14.29	13.7	19.1	40.2	43.9	16.1	20.5	41.6
		3/8	KQB2W09-N03-F			17.46	42			45.4
ø3/8"	1/4	KQB2W11-N02-F	14.29	16	21	47.2	52.1	16.6	33.5	44.9
		3/8	KQB2W11-N03-F			17.46	45.4			50
ø1/2"	1/2	KQB2W11-N04-F	22.23	19.6	23.7	49.2	52.1	18.5	47.7	124.2
		1/4	KQB2W13-N02-F			14.29	49			55.7
	3/8	KQB2W13-N03-F	17.46	19.6	23.7	50.7	57.1	18.5	47.7	66
	1/2	KQB2W13-N04-F	22.23			54.5	59.2			125.9



\*1 Reference dimensions after installation of NPT thread  
\*2 Value of FEP tubing

EHEDG  
Compliant

Metric M, G  
KFG2H□-E

Clean  
Design

Metric M, G  
KFG2H□-C

FDA  
Compliant

Metric M, R, Rc  
KQG2-F

Inch UNF, NPT  
KQG2-F

Metric G  
KQG2-F

Metric M, R, Rc  
KQB2-F

Inch UNF, NPT  
KQB2-F

Metric G  
KQB2-F

Metric R, Rc  
KFG2-F

Inch NPT  
KFG2-F

Metric G  
KFG2-F

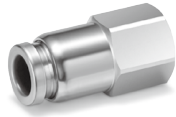
Precautions

# KQB2-F Series

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

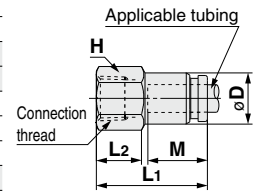
## Dimensions

### Female Connector: KQB2F



Applicable tubing O.D. [inch]	Connection thread NPT	Model	H (Width across flats)	øD*1	L1	L2	M	Effective area [mm <sup>2</sup> ]*2	Weight [g]
ø1/8"	1/8	KQB2F01-N01-F	12.7	8	24.1	10.4	12	3.4	11.3
	1/4	KQB2F01-N02-F	17.46		29.1	13.7			25.4
ø5/32"	1/8	KQB2F03-N01-F	12.7	8.7	24.6	10.5	12.6	5.6	11.8
	1/4	KQB2F03-N02-F	17.46		29.6	13.8			25.9
ø1/4"	1/8	KQB2F07-N01-F	12.7	11.2	25	10.7	13.5	13.1	13
	1/4	KQB2F07-N02-F	17.46		30	14.1			27.5
	3/8	KQB2F07-N03-F	22.23		31.2	14.6			41.1
ø5/16"	1/8	KQB2F09-N01-F	14.29	13.4	27.2	10.3	16.1	26.1	18.8
	1/4	KQB2F09-N02-F	17.46		32.2	14.3			30.1
	3/8	KQB2F09-N03-F	22.23		33.4	14.8			44
ø3/8"	1/4	KQB2F11-N02-F	17.46	16	32.1	14.4	16.6	41.5	32.9
	3/8	KQB2F11-N03-F	22.23		33.3	14.9			47
	1/2	KQB2F11-N04-F	23.81		38.6	18.6			50.4
ø1/2"	3/8	KQB2F13-N03-F	22.23	19.3	34.6	14.7	18.5	58.3	51.3
	1/2	KQB2F13-N04-F	23.81		39.9	18.8			55.1

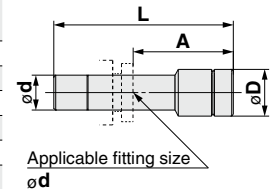
\*1 For the ø3/8", this dimension refers to the O.D. of the release button.  
\*2 Value of FEP tubing



### Plug: KQB2P



Applicable fitting size ød	Model	øD	L	A	Weight [g]
ø1/8"	KQB2P-01-F	5	28.9	16.9	2.8
ø5/32"	KQB2P-03-F	6	29.6	17	4.3
ø1/4"	KQB2P-07-F	8	30.3	16.8	9.4
ø5/16"	KQB2P-09-F	10	33.7	17.6	16.3
ø3/8"	KQB2P-11-F	11	34.1	17.5	22.2
ø1/2"	KQB2P-13-F	14	36.4	17.9	40.7





## FDA Compliant Fittings

### KQB2-F Series

# Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions and pages 75 to 79 for fittings & 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 tubing or the tubing may result in being fallen out.
2. If using a fluororesin tubing 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 tubing.
3. The particle generation of the KQB2-F 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.

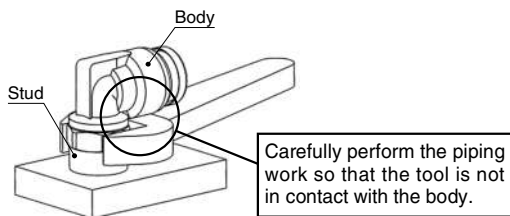
The components of the KQB2-F series may slide due to changes in the internal pressure, which may generate particles. When using male elbow, male branch tee, and extended male elbow fittings, particles may be generated by rotation for positioning after connecting.

#### Mounting

### ⚠ Caution

1. When performing the piping work, turn the tightening tool in the horizontal direction to the hexagon across flats of the stud so that any moment is not applied to the body.

If the tool is in contact with the body, this may cause the stud to come off.



2. The union elbow, union tee, union "Y", different diameter tee and different diameter union "Y" 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.

3. The male elbow, male branch tee, and extended male elbow can be turned for positioning after connecting, but they cannot be used while turning them.

Doing so may cause worn out metallic particles to enter the fluid or the fitting to break.

4. If the connection tube oscillates or turns, do not use this product.

Doing so may cause the fitting to break. In particular, for the product with the stud, this may cause the stud to come off.

#### Cleaning Method

### ⚠ Warning

1. Check the connection before cleaning.  
Clean the fittings with the tube and plug connected and the screw tightened.
2. Review the conditions before cleaning.  
Make sure that the fitting material is not affected or damaged by chemical solution, temperature, and water pressure before use.
3. Do not use a metal brush or tool that may damage or scratch the fitting.

#### Operating Environment

### ⚠ Caution

1. The table below shows material of parts. Please refer to the relevant standards for parts when determining suitability in applications and operating conditions.

Item	Material	Compliant standards
Pressing parts	Stainless steel	AISI304
Cutting parts	Brass	The NSF/ANSI 51 lead content requirement is satisfied.
Surface treatment	Electroless nickel plating	ASTM corrosion resistance, Intermediate Grade
MIM parts	Stainless steel	AISI316L equivalent
Rubber parts	Fluoropolymer	FDA 21CFR 177.2600
Grease	Paraffin oil	NSF H1

#### Installation and Removal of Tubing

### ⚠ Caution

1. Removal of tubing  
1) For tubing 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 tubing and replace it with a new one.

#### Proper Tightening Torque of Fittings

### ⚠ Caution

1. Connection thread tightening method: M5, 10-32UNF  
Tighten fittings with a tightening torque of 1 to 1.5 N·m.
2. Connection thread tightening method: G  
Tighten fittings with sealant using the proper tightening torques in the table below. If tightened using a torque exceeding the proper torque level, this may cause the fitting to break. In particular, for the product with the stud, the stud may come off.

#### G Thread Proper Tightening Torque

Connection thread size	Proper tightening torque [N·m]
G1/8	2.9 to 3.2
G1/4	5.7 to 6.3
G3/8	9.5 to 10.5
G1/2	14.3 to 15.8