

FDA Compliant Fittings

Stainless Steel 316 One-touch Fittings

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

KQG2-F Series



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



Applicable Tubing

| | |
|-------------------|---|
| Tubing material*1 | FEP, PFA, Nylon, Soft nylon, Polyurethane, Polyolefin |
| Tubing O.D. | Ø 3.2, Ø 4, Ø 6, Ø 8, Ø 10, Ø 12, Ø 16 |

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

Specifications

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

*1 Deionised 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 Please contact SMC for applicable tubing separately.

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

*4 Check the operating pressure range and operating temperature range of the tubing.

*5 It is recommended that you use the inner sleeve in the following conditions. (Except Ø 3.2)

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

* Temperature Condition of Mounting the Inner Sleeve

| 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 | — | M-5-F | FDA compliant FKM |
| Bulkhead nut | Ø 3.2, Ø 4 | KQG223-P01 | Stainless steel 316 |
| | Ø 6 | KQG206-P01 | |
| | Ø 8 | KQG208-P01 | |
| | Ø 10 | KQG210-P01 | |
| | Ø 12 | KQG212-P01 | |
| | Ø 16 | KQG216-P01 | |

Cross Reference Table of the Inner Sleeve

| Tubing O.D. | Tubing material | | | Applicable inner sleeve | |
|-------------|-------------------------|--------------|--------------------|-------------------------|--------|
| | TUS (Soft polyurethane) | TH/THI (FEP) | TL/TIL (Super PFA) | Part no. | Length |
| Ø 4 | — | TH0402 | — | TJG-0402 | 18 |
| | TUS0425 | TH0425 | — | TJG-0425 | 18 |
| | — | — | TL0403 | TJG-0403 | 18 |
| Ø 6 | TUS0604 | TH0604 | TL0604 | TJG-0604 | 19 |
| | TUS0805 | — | — | TJG-0805 | 20.5 |
| Ø 8 | — | TH0806 | TL0806 | TJG-0806 | 20.5 |
| | TUS1065 | — | — | TJG-1065 | 23 |
| Ø 10 | — | TH1075 | — | TJG-1075 | 23 |
| | — | TH1008 | TL1008 | TJG-1008 | 23 |
| | TUS1208 | — | — | TJG-1208 | 24 |
| Ø 12 | — | TH1209 | — | TJG-1209 | 24 |
| | — | TH1210 | TL1210 | TJG-1210 | 24 |
| | — | — | — | — | — |

* Stainless steel 316 is used for the TJG series.



KQG2-F Series

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

How to Order

KQG2 H 04 - 02 - F

Body type

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

* Plugs are excluded as the standard plug is FDA-compliant.

Tubing size (Metric)

| Symbol | Size |
|-----------|-------|
| 23 | Ø 3.2 |
| 04 | Ø 4 |
| 06 | Ø 6 |
| 08 | Ø 8 |
| 10 | Ø 10 |
| 12 | Ø 12 |
| 16 | Ø 16 |

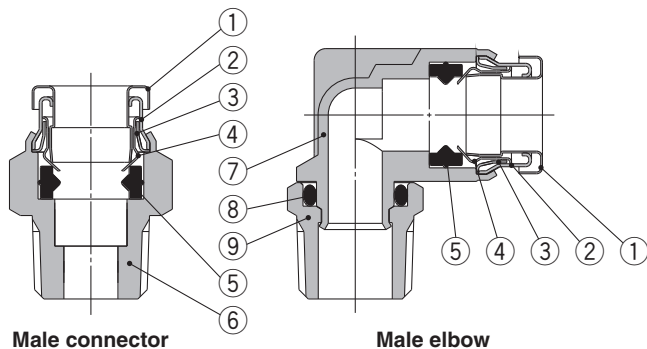
FDA compliant

Thread size, Tubing size

| Symbol | Size | |
|-----------|------------------|-------------|
| M5 | M5 x 0.8 | Thread size |
| 01 | R1/8, Rc1/8 | |
| 02 | R1/4, Rc1/4 | |
| 03 | R3/8, Rc3/8 | |
| 04 | R1/2, Rc1/2 | |
| 00 | Same tubing O.D. | Tubing size |
| 04 | Ø 4 | |
| 06 | Ø 6 | |
| 08 | Ø 8 | |
| 10 | Ø 10 | |
| 12 | Ø 12 | |
| 16 | Ø 16 | |

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

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 | FDA compliant FKM (NSF H1 grease) |
| 6 | Male connector body | Stainless steel 316 |
| 7 | Male elbow body | Stainless steel 316 (NSF H1 grease) |
| 8 | O-ring | FDA compliant FKM (NSF H1 grease) |
| 9 | Stud | Stainless steel 316 |

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

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

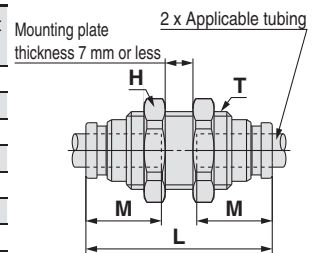
Dimensions

Bulkhead Union: KQG2E



| Applicable tubing O.D. [mm] | Model | T (M) | H (Width across flats) | L | Mounting hole | M | Effective area [mm ²] ^{*1} | Weight [g] |
|-----------------------------|--------------|---------|------------------------|------|---------------|------|---|------------|
| Ø 3.2 | KQG2E23-00-F | M10 x 1 | 12 | 32.2 | 11 | 12 | 3.4 | 14 |
| Ø 4 | KQG2E04-00-F | M10 x 1 | 12 | 32.4 | 11 | 12.6 | 5.6 | 14 |
| Ø 6 | KQG2E06-00-F | M14 x 1 | 17 | 33.6 | 15 | 13.6 | 13.1 | 25.8 |
| Ø 8 | KQG2E08-00-F | M15 x 1 | 19 | 36.4 | 16 | 16.1 | 26.1 | 30.4 |
| Ø 10 | KQG2E10-00-F | M18 x 1 | 21 | 37.2 | 19 | 17 | 41.5 | 40.3 |
| Ø 12 | KQG2E12-00-F | M20 x 1 | 24 | 39.2 | 21 | 18.6 | 58.3 | 49.9 |
| Ø 16 | KQG2E16-00-F | M27 x 1 | 30 | 42.6 | 28 | 20.8 | 113 | 87.3 |

*1 Value of FEP tubing
Value of nylon tubing for Ø 16 only

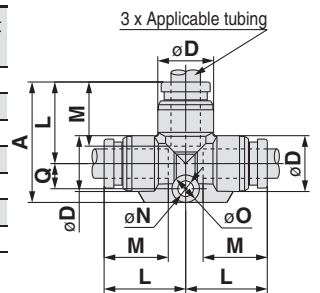


Union Tee: KQG2T



| Applicable tubing O.D. [mm] | Model | Ø ^{*1} | L | A | Q | M | ØN | ØO | Effective area [mm ²] ^{*2} | Weight [g] |
|-----------------------------|--------------|-----------------|------|------|------|------|-----|-----|---|------------|
| Ø 3.2 | KQG2T23-00-F | 8.3 | 13.6 | 20.5 | 4.1 | 12 | 3.2 | 5.6 | 3.4 | 7.9 |
| Ø 4 | KQG2T04-00-F | 9.1 | 14.6 | 21.8 | 4.4 | 12.6 | 3.2 | 5.6 | 6.4 | 9.5 |
| Ø 6 | KQG2T06-00-F | 11.4 | 16.6 | 24.6 | 5.2 | 13.6 | 3.2 | 5.6 | 13.4 | 14.2 |
| Ø 8 | KQG2T08-00-F | 13.7 | 20.1 | 31.1 | 7 | 16.1 | 4.2 | 8 | 25.6 | 24.4 |
| Ø 10 | KQG2T10-00-F | 16.6 | 22 | 34 | 8 | 17 | 4.2 | 8 | 40 | 36.8 |
| Ø 12 | KQG2T12-00-F | 18.7 | 24.6 | 37.7 | 9.1 | 18.6 | 4.2 | 8 | 57.4 | 46.9 |
| Ø 16 | KQG2T16-00-F | 24.6 | 28.8 | 43.4 | 10.6 | 20.8 | 4.2 | 8 | 100 | 75.5 |

*1 For the Ø 16, this dimension refers to the O.D. of the release button.
*2 Value of FEP tubing
Value of nylon tubing for Ø 16 only

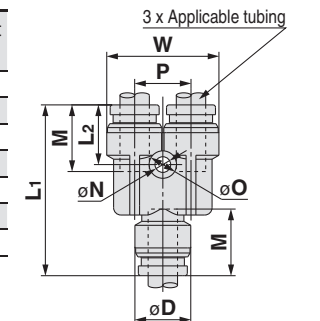


Union "Y": KQG2U



| Applicable tubing O.D. [mm] | Model | Ø ^{*1} | W | L ₁ | L ₂ | P | M | ØN | ØO | Effective area [mm ²] ^{*2} | Weight [g] |
|-----------------------------|--------------|-----------------|------|----------------|----------------|------|------|-----|-----|---|------------|
| Ø 3.2 | KQG2U23-00-F | 8.3 | 16.4 | 29 | 11 | 8.1 | 12 | 3.2 | 5.6 | 3.4 | 9.2 |
| Ø 4 | KQG2U04-00-F | 9.1 | 18.2 | 30.4 | 11.3 | 9.1 | 12.6 | 3.2 | 5.6 | 4.2 | 11.1 |
| Ø 6 | KQG2U06-00-F | 11.4 | 22.9 | 34.9 | 12.2 | 11.5 | 13.6 | 3.2 | 5.6 | 13.4 | 18.8 |
| Ø 8 | KQG2U08-00-F | 13.7 | 28.3 | 40.1 | 14.1 | 14.6 | 16.1 | 4.2 | 8 | 25.6 | 29.7 |
| Ø 10 | KQG2U10-00-F | 16.6 | 34.2 | 44 | 14.4 | 17.6 | 17 | 4.2 | 8 | 40 | 47.4 |
| Ø 12 | KQG2U12-00-F | 18.7 | 38.5 | 48.4 | 15.8 | 19.8 | 18.6 | 4.2 | 8 | 57.4 | 62.1 |
| Ø 16 | KQG2U16-00-F | 24.6 | 49.3 | 56.6 | 17.3 | 26 | 20.8 | 4.2 | 8 | 113 | 110.2 |

*1 For the Ø 16, this dimension refers to the O.D. of the release button.
*2 Value of FEP tubing
Value of nylon tubing for Ø 16 only

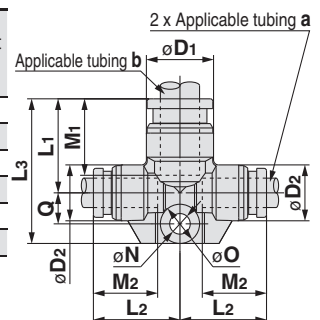


Different Diameter Tee: KQG2T



| Applicable tubing O.D. [mm] | | Model | Ø ^{*1} | Ø ^{*1} | L ₁ | L ₂ | L ₃ | Q | M ₁ | M ₂ | ØN | ØO | Effective area [mm ²] ^{*2} | Weight [g] |
|-----------------------------|------|--------------|-----------------|-----------------|----------------|----------------|----------------|-----|----------------|----------------|-----|-----|---|------------|
| a | b | | Ø _{D1} | Ø _{D2} | | | | | | | | | | |
| Ø 3.2 | Ø 4 | KQG2T23-04-F | 9.1 | 8.3 | 14.2 | 14.1 | 21.1 | 4.1 | 12.6 | 12 | 3.2 | 5.6 | 3.8 | 8.5 |
| Ø 4 | Ø 6 | KQG2T04-06-F | 11.4 | 9.1 | 15.6 | 15.7 | 22.8 | 4.4 | 13.6 | 12.6 | 3.2 | 5.6 | 7.1 | 11.5 |
| Ø 6 | Ø 8 | KQG2T06-08-F | 13.7 | 11.4 | 19.1 | 17.7 | 29.5 | 6.4 | 16.1 | 13.6 | 4.2 | 8 | 16.4 | 20 |
| Ø 8 | Ø 10 | KQG2T08-10-F | 16.6 | 13.7 | 21 | 21.2 | 32.1 | 7.1 | 17 | 16.1 | 4.2 | 8 | 36 | 29.8 |
| Ø 10 | Ø 12 | KQG2T10-12-F | 18.7 | 16.6 | 23.6 | 23.1 | 35.7 | 8.1 | 18.6 | 17 | 4.2 | 8 | 56 | 41.3 |
| Ø 12 | Ø 16 | KQG2T12-16-F | 24.6 | 18.7 | 26.8 | 26.7 | 39.9 | 9.1 | 20.8 | 18.6 | 4.2 | 8 | 108.5 | 58 |

*1 For the Ø 16, this dimension refers to the O.D. of the release button.
*2 Value of FEP tubing

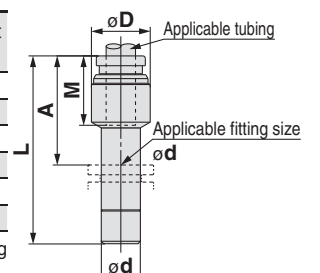


Plug-in Reducer: KQG2R



| Applicable tubing O.D. [mm] | Applicable fitting size Ø d | Model | Ø D | L | A | M | Effective area [mm ²] ^{*1} | Weight [g] |
|-----------------------------|-----------------------------|--------------|-----|------|------|------|---|------------|
| Ø 3.2 | Ø 4 | KQG2R23-04-F | 9 | 32.9 | 20.3 | 12 | 3.4 | 4.7 |
| Ø 4 | Ø 6 | KQG2R04-06-F | 9 | 34.4 | 20.8 | 12.6 | 5.6 | 6.7 |
| Ø 6 | Ø 8 | KQG2R06-08-F | 12 | 38.4 | 22.3 | 13.6 | 13.1 | 12.1 |
| Ø 8 | Ø 10 | KQG2R08-10-F | 14 | 41.9 | 24.9 | 16.1 | 26.1 | 18.3 |
| Ø 10 | Ø 12 | KQG2R10-12-F | 17 | 44.8 | 26.2 | 17 | 41.5 | 26.5 |
| Ø 12 | Ø 16 | KQG2R12-16-F | 19 | 42.9 | 22.1 | 18.6 | 58.3 | 35.4 |

*1 Value of FEP tubing



EHEHG 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 KQG2-F

Inch UNF, NPT KQG2-F

Metric G KQG2-F

Metric R, Rc KQG2-F

Inch NPT KQG2-F

Metric G KQG2-F

Precautions

KQG2-F Series

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

Dimensions

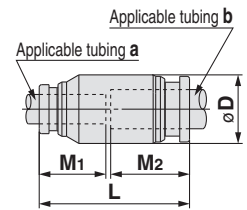
Different Diameter Straight: KQG2H



| Applicable tubing O.D. [mm] | | Model | Ø D*1 | L | M1 | M2 | Effective area [mm ²] ^{*2} | Weight [g] |
|-----------------------------|------|--------------|-------|------|------|------|---|------------|
| a | b | | | | | | | |
| Ø 3.2 | Ø 4 | KQG2H23-04-F | 9 | 25.6 | 12 | 12.6 | 3.4 | 6.5 |
| Ø 4 | Ø 6 | KQG2H04-06-F | 12 | 27.2 | 12.6 | 13.6 | 5.6 | 11.6 |
| Ø 6 | Ø 8 | KQG2H06-08-F | 14 | 30.7 | 13.6 | 16.1 | 13.1 | 16.3 |
| Ø 8 | Ø 10 | KQG2H08-10-F | 17 | 34.1 | 16.1 | 17 | 26.1 | 26 |
| Ø 10 | Ø 12 | KQG2H10-12-F | 19 | 36.6 | 17 | 18.6 | 41.5 | 33.3 |
| Ø 12 | Ø 16 | KQG2H12-16-F | 24.6 | 40.4 | 18.6 | 20.8 | 58.3 | 54.7 |

*1 For the Ø 16, this dimension refers to the O.D. of the release button.

*2 Value of FEP tubing



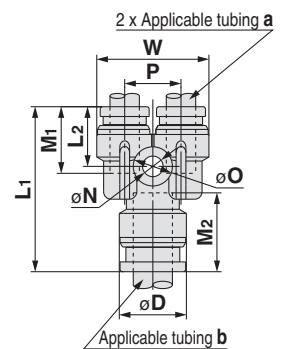
Different Diameter Union "Y": KQG2U



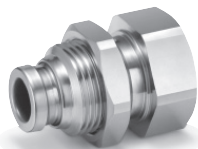
| Applicable tubing O.D. [mm] | | Model | Ø D*1 | L1 | L2 | P | W | M1 | M2 | Ø N | Ø O | Effective area [mm ²] ^{*2} | Weight [g] |
|-----------------------------|------|--------------|-------|------|------|------|------|------|------|-----|-----|---|------------|
| a | b | | | | | | | | | | | | |
| Ø 3.2 | Ø 4 | KQG2U23-04-F | 9.1 | 27 | 10.8 | 8.1 | 16.4 | 12 | 12.6 | 3.2 | 5.6 | 3.2 | 8.5 |
| Ø 4 | Ø 6 | KQG2U04-06-F | 11.4 | 29.3 | 11.2 | 9.1 | 18.2 | 12.6 | 13.6 | 3.2 | 5.6 | 4.2 | 11.9 |
| Ø 6 | Ø 8 | KQG2U06-08-F | 13.7 | 33.7 | 12.2 | 11.5 | 22.9 | 13.6 | 16.1 | 4.2 | 8 | 13.4 | 19.3 |
| Ø 8 | Ø 10 | KQG2U08-10-F | 16.6 | 38.3 | 13.8 | 14.6 | 28.3 | 16.1 | 17 | 4.2 | 8 | 25.6 | 31.6 |
| Ø 10 | Ø 12 | KQG2U10-12-F | 18.7 | 43 | 14 | 17.6 | 34.2 | 17 | 18.6 | 4.2 | 8 | 40 | 47.6 |
| Ø 12 | Ø 16 | KQG2U12-16-F | 24.6 | 47.4 | 15.6 | 19.8 | 38.5 | 18.6 | 20.8 | 4.2 | 8 | 57.4 | 67.6 |

*1 For the Ø 16, this dimension refers to the O.D. of the release button.

*2 Value of FEP tubing



Bulkhead Connector: KQG2E



| Applicable tubing O.D. [mm] | Connection thread Rc | Model | T (M) | Width across flats | | L1 | L2 | Mounting hole | M | Effective area [mm ²] ^{*1} | Weight [g] | | |
|-----------------------------|----------------------|--------------|---------|--------------------|----|------|------|---------------|------|---|------------|-------|------|
| | | | | H1 | H2 | | | | | | | | |
| Ø 3.2 | 1/4 | KQG2E23-02-F | M10 x 1 | 17 | 12 | 31 | 14.8 | 11 | 12 | 3.4 | 26.1 | | |
| Ø 4 | 1/8 | KQG2E04-01-F | M10 x 1 | 14 | 12 | 25.8 | 9.7 | 11 | 12.6 | 5.6 | 16 | | |
| | 1/4 | KQG2E04-02-F | | 17 | 12 | 30.9 | 14.8 | | | | 25.6 | | |
| Ø 6 | 1/8 | KQG2E06-01-F | M14 x 1 | 17 | 17 | 24.2 | 7 | 15 | 13.6 | 13.1 | 24.4 | | |
| | 1/4 | KQG2E06-02-F | | | | 30.9 | 13.7 | | | | 30.9 | | |
| | 3/8 | KQG2E06-03-F | | | | 19 | 14.9 | | | | 32.1 | 14.9 | 32 |
| Ø 8 | 1/8 | KQG2E08-01-F | M15 x 1 | 17 | 19 | 26.3 | 8.1 | 16 | 16.1 | 26.1 | 28 | | |
| | 1/4 | KQG2E08-02-F | | | | 31.3 | 13.1 | | | | 31.3 | 13.1 | 31.2 |
| | 3/8 | KQG2E08-03-F | | | | 19 | 14.6 | | | | 32.8 | 14.6 | 32.7 |
| Ø 10 | 1/4 | KQG2E10-02-F | M18 x 1 | 19 | 21 | 31.6 | 13 | 19 | 17 | 41.5 | 42.8 | | |
| | 3/8 | KQG2E10-03-F | | | | 33 | 14.4 | | | | 33 | 14.4 | 37.5 |
| Ø 12 | 3/8 | KQG2E12-03-F | M20 x 1 | 21 | 24 | 34 | 14.4 | 21 | 18.6 | 58.3 | 50.3 | | |
| | 1/2 | KQG2E12-04-F | | 24 | 24 | 39.3 | 19.7 | | | | 60.7 | | |
| Ø 16 | 3/8 | KQG2E16-03-F | M27 x 1 | 29 | 30 | 35.3 | 13.3 | 28 | 20.8 | 96 | 107.8 | | |
| | 1/2 | KQG2E16-04-F | | | | 40.6 | 18.6 | | | | 113 | 114.6 | |

*1 Value of FEP tubing
Value of nylon tubing for Ø 16 only

