

# One-touch Fittings

RoHS

New

## Improved tube insertion/removal



\* Tube pulling out strength is ensured to be equivalent to existing model.

## Compact and lightweight

Dimensions

Height direction

**24%\***  
shorter

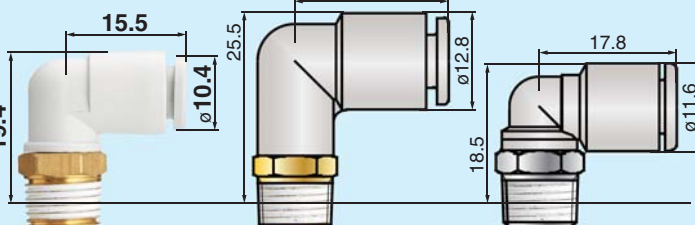
Dimensions

Horizontal direction

**23%\***  
shorter

Weight

**57%\***  
lighter



New KQ2

Existing model KQ2

Existing model KJ

\* Existing model KQ2 series Male elbow/Applicable tubing O.D.: ø6/Connection thread: R1/8

To **New "KQ2"**

KQ, KQ2 and KJ consolidated into "KQ2"



Miniature One-touch Fittings  
Series KJ

Body type: totaled **51** models

Seal method: **2** types

Thread material/Surface treatment: **2** types\*

\* Brass, Brass + Electroless nickel plated

| Applicable tubing O.D. | Connection thread | Seal method |             |
|------------------------|-------------------|-------------|-------------|
|                        |                   | Sealant     | Gasket seal |
| Metric size            | M                 |             |             |
|                        | R                 |             |             |
|                        | Uni               |             |             |
| Inch size              | UNF               |             |             |
|                        | NPT               |             |             |
|                        | M                 |             |             |
|                        | R                 |             |             |
|                        | Uni               |             |             |

P.1

P.63

P.33

P.57

P.69

**Series KQ2**



CAT.EUS50-37A-UK

# Metric Size One-touch Fittings

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

## Series KQ2

### Guide

### Chuck

Suitable for use with nylon and urethane. Large retaining force.

The chuck provides secure retention and the collet increases the holding force on the tube.

### Seal

Can be used for a wide range of pressures from a low vacuum up to a pressure of 1 MPa.

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

### Release button (Light gray)

Requires little force for removal.

Releases the chuck collet to remove the tube as well as to prevent the chuck from biting too deeply into the tubing.

### Body

### O-ring

### Stud

Effective when piping in a confined space.

Body part rotates allowing for positioning.

### Connection thread

M, R, Rc

### Guide

### Chuck

### Release button (Light gray)

### Body

### Seal

\* Fittings with all resin body material (KQ2□□-□A) are copper free specification.

**One-touch IN/OUT connection.**  
**Possible to use in vacuum to -100 kPa**



### Applicable Tubing

|                 |                                                               |
|-----------------|---------------------------------------------------------------|
| Tubing material | FEP, PFA, Nylon, Soft nylon <sup>Note 1)</sup> , Polyurethane |
| Tubing O.D.     | ø2, ø3.2, ø4, ø6, ø8, ø10, ø12, ø16                           |

Note 1) For soft nylon tubing, water cannot be used.

### Specifications

|                                             |                  |                                                                         |
|---------------------------------------------|------------------|-------------------------------------------------------------------------|
| Fluid                                       |                  | Air/Water <sup>Note 2)</sup>                                            |
| Operating pressure range <sup>Note 3)</sup> |                  | -100 kPa to 1 MPa                                                       |
| Proof pressure                              |                  | 3 MPa                                                                   |
| Ambient and fluid temperature               |                  | -5 to 60°C, Water: 0 to 40°C (No freezing)                              |
| Thread                                      | Mounting section | JIS B0203 (Taper thread for piping)<br>JIS B0205 (Metric coarse thread) |
|                                             | Nut section      | JIS B0205 (Metric fine thread)                                          |
| Seal on the threads                         |                  | With sealant                                                            |



Note 2) The surge pressure must be under the maximum operating pressure.

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

### Principal Parts Material

|                |                                                              |
|----------------|--------------------------------------------------------------|
| Body           | C3604, PBT, PP, Stainless steel 303                          |
| Stud           | C3604 (Thread portion), Stainless steel 303 (Thread portion) |
| Chuck          | Stainless steel 304                                          |
| Guide          | Stainless steel 304                                          |
| Release button | POM                                                          |
| Seal, O-ring   | NBR                                                          |
| Gasket         | Stainless steel 304, NBR                                     |

## How to Order

### Threaded Type

**KQ2 H 06 - 01 A S**

One-touch fittings

Model

| Symbol | Model                                    |
|--------|------------------------------------------|
| H      | Male connector                           |
| S      | Hexagon socket head male connector       |
| F      | Female connector                         |
| L      | Union elbow                              |
| LU     | Male branch connector                    |
| K      | 45° male elbow                           |
| V      | Universal male elbow                     |
| VS     | Hexagon socket head universal male elbow |
| VF     | Universal female elbow                   |
| LF     | Female elbow                             |
| VD     | Double universal male elbow              |
| VT     | Triple universal male elbow              |
| Z      | Branch universal male elbow              |
| ZF     | Branch universal female elbow            |
| ZD     | Double branch universal male elbow       |
| ZT     | Triple branch universal male elbow       |
| W      | Extended male elbow                      |
| T      | Male branch tee                          |
| Y      | Male run tee                             |
| D      | Male delta union                         |
| U      | Branch "Y"                               |
| UD     | Delta branch                             |
| E      | Bulkhead union                           |
| LE     | Bulkhead connector                       |
| N      | Adaptor                                  |

Male thread seal method

| Symbol | Seal method         |
|--------|---------------------|
| —      | None                |
| S      | With thread sealant |

Thread material/Surface treatment

| Symbol               | Thread material/Surface treatment                                  |
|----------------------|--------------------------------------------------------------------|
| A                    | Brass                                                              |
| N <sup>Note 1)</sup> | Brass + Electroless nickel plated                                  |
| G                    | Stainless steel 303<br>(Connection thread/Only male thread and M3) |
| Bulkhead union       | Interchangeable with KJE                                           |

Note 1) Refer to the Dimensions to check the electroless nickel plated availability of each model.

Note 2) □/A, N

Port size/Applicable tubing O.D.

| Symbol            | Size                 |
|-------------------|----------------------|
| Tubing connection | 00* Same dia. tubing |
| M3                | M3 x 0.5             |
| M5                | M5 x 0.8             |
| M6                | M6 x 1.0             |
| 01                | R1/8, Rc1/8          |
| 02                | R1/4, Rc1/4          |
| 03                | R3/8, Rc3/8          |
| 04                | R1/2, Rc1/2          |

\* Only for "Bulkhead union" and "Bulkhead male elbow".

Applicable tubing O.D.

| Symbol | Size |
|--------|------|
| 02     | ø2   |
| 23     | ø3.2 |
| 04     | ø4   |
| 06     | ø6   |
| 08     | ø8   |
| 10     | ø10  |
| 12     | ø12  |
| 16     | ø16  |

### Spare Parts

Use the part number below to order the gasket for M3, M5 and M6 threads.

Gasket for M3 thread: M-3G2  
 Gasket for M5 thread: M-5G2  
 Gasket for M6 thread: M-6G

### Tube - Tube Type

**KQ2 H 06 - 00 A**

One-touch fittings

Model

| Symbol | Model                               |
|--------|-------------------------------------|
| H      | Straight union                      |
|        | Different diameter straight         |
| L      | Union elbow                         |
|        | Plug-in elbow                       |
|        | Reducer elbow                       |
| LU     | Branch union elbow                  |
| W      | Extended plug-in elbow              |
| T      | Union tee                           |
|        | Different diameter tee              |
| TW     | Cross                               |
| TX     | Different diameter cross            |
| TY     | Different diameter cross            |
| D      | Delta union                         |
| U      | Union "Y"                           |
|        | Plug-in "Y"                         |
|        | Different diameter union "Y"        |
| UD     | Different diameter double union "Y" |
| X      | Different diameter plug-in "Y"      |
| R      | Plug-in reducer                     |
| XD     | Double plug-in "Y"                  |

Port size/Applicable tubing O.D.

| Symbol | Size                 |
|--------|----------------------|
| 00     | Same diameter tubing |
| 99     | Same diameter rod    |
| 23     | ø3.2                 |
| 04     | ø4                   |
| 06     | ø6                   |
| 08     | ø8                   |
| 10     | ø10                  |
| 12     | ø12                  |
| 16     | ø16                  |

Applicable tubing O.D.

| Symbol | Size |
|--------|------|
| 02     | ø2   |
| 23     | ø3.2 |
| 04     | ø4   |
| 06     | ø6   |
| 08     | ø8   |
| 10     | ø10  |
| 12     | ø12  |
| 16     | ø16  |

### Accessory

| Symbol | Name           |
|--------|----------------|
| KQ2N   | Nipple         |
| KQ2C   | Reducer nipple |
| KQ2P   | Tube cap       |
|        | Plug           |

Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Metric Size One-touch Fittings

## Variations

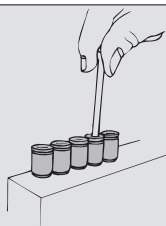
### Hexagon socket head male connector

KQ2S

P.7



Internal hexagon socket allows tightening with a hexagon wrench in confined spaces.



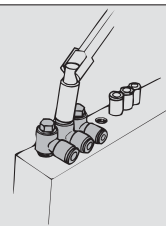
### Universal male elbow

KQ2V

P.12



Hexagon head of the body allows tightening with a box wrench in confined spaces.



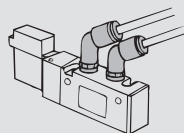
### 45° male elbow

KQ2K

P.11



Use to pipe a female thread at a 45° angle. Model inbetween of male connector and male elbow.



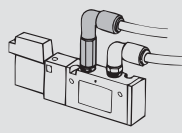
### Extended male elbow

KQ2W

P.18



Basically, it is used together with male elbow. Different point is that it is used for fittings to avoid interfering with each other by making the piping multi-level.



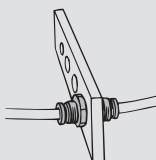
### Bulkhead union

KQ2E

P.28



Use to connect tubing through a panel, etc.



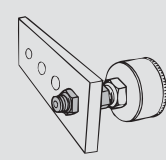
### Bulkhead connector

KQ2E

P.28



Use to connect male thread and tubing through a panel, etc.



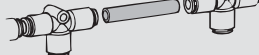
### Nipple

KQ2N

P.30



Use to connect One-touch fittings.



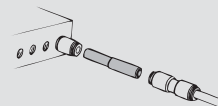
### Reducer nipple

KQ2N

P.30



Use to connect One-touch fittings of different sizes.



### Universal female elbow

KQ2VF

P.13



Use to branch a male or female thread at a 90° angle. Multiple connections possible.

### Branch universal female elbow

KQ2ZF

P.15



Use to two-branch a male or female thread at a 90° angle. Multiple connections possible.

### Male connector

KQ2H

P.5



Use to pipe a female thread. Most general model.

### Cross

KQ2TW

P.21



Use to four-branch line.

### Reducer elbow

KQ2L

P.9



Use to change the tube direction from One-touch fittings by 90° and to reduce size.

### Female connector

KQ2F

P.6



Use to pipe a male thread of a pressure gauge, etc.

### Male elbow

KQ2L

P.8



Use to pipe a female thread at right angles. Most general model.

### Different diameter cross

KQ2TX

P.21



Use to branch tubing with size reduced at both 90° angles.

### Straight union

KQ2H

P.5



Use to connect tubing in the same direction.

### Union elbow

KQ2L

P.9



Use to connect tubing at right angles.

### Male branch tee

KQ2T

P.19



Use to branch a female thread at both 90° angles.

### Different diameter straight

KQ2H

P.6



Use to connect tubing of different sizes.

### Plug-in elbow

KQ2L

P.9



Use to change the tube direction from One-touch fittings by 90°.

### Union tee

KQ2T

P.20



Use to branch tubing at both 90° angles.

## Different diameter tee KQ2T P.20



Use to connect tubing for branching at both 90° angles with size reduced.

## Different diameter tee KQ2T P.20



Use to connect tubing for branching at 90° angle with size reduced from the same piping.

## Different diameter cross KQ2TY P.21



Use to connect tubing for branching in three directions with size reduced.

## Hexagon socket head universal male elbow KQ2VS P.12



Hexagon socket on the top allows tightening with a hexagon wrench in confined spaces.

## Male branch connector KQ2LU P.10



Use to branch a female thread at right angles.

## Female elbow KQ2LF P.17



Use to pipe a male thread at right angles.

## Double universal male elbow KQ2VD P.14



Use to branch a female thread at right angles. Two individual parts rotate 360°.

## Triple universal male elbow KQ2VT P.14



Use to three-branch a female thread at right angles. Three individual parts rotate 360°.

## Branch universal male elbow KQ2Z P.15



Hexagon head of the body allows tightening with a box wrench. Use for branch connections.

## Double branch universal male elbow KQ2ZD P.16



Use to four-branch a female thread at right angles. Two individual parts rotate 360°.

## Male run tee KQ2Y P.22



Use to branch a female thread at a 90° angle.

## Triple branch universal male elbow KQ2ZT P.16



Use to six-branch a female thread at right angles. Three individual parts rotate 360°.

## Branch union elbow KQ2LU P.9



Use to branch tubing at right angles.

## Extended plug-in elbow KQ2W P.17



Use to change the tube direction of One-touch fittings by 90°. Multi-level piping is also possible with the plug-in elbow.

## Male delta union KQ2D P.23



Use to branch a female thread at two right angles.

## Delta union KQ2D P.24



Use to branch tubing at three right angles.

## Delta branch KQ2UD P.26



Use to four-branch a female thread.

## Different diameter double union "Y" KQ2UD P.26



Use to four-branch tubing with size reduced.

## Different diameter plug-in "Y" KQ2X P.27



Use to branch One-touch fittings with size reduced.

## Double plug-in "Y" KQ2XD P.27



Use to four-branch One-touch fittings.

## Union "Y" KQ2U P.25



Use to branch tubing in the same direction.

## Different diameter union "Y" KQ2U P.25



Use to connect tubing for branching with size reduced.

## Plug-in "Y" KQ2U P.25



Use to branch One-touch fittings.

## Branch "Y" KQ2U P.24



Use to branch a female thread.

## Plug-in reducer KQ2R P.28



Use to change size of One-touch fittings.

## Bulkhead male elbow KQ2LE P.29



Use to connect tubing through a panel, etc. and to change the tube direction by 90°.

## Adaptor KQ2N P.29



Use to connect One-touch fittings and R female thread.

## Tube cap KQ2C P.30



Use to plug unused tubing.

## Plug KQ2P P.29



Use to plug unused One-touch fittings.

Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

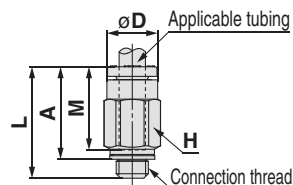
## Dimensions

### Male Connector: KQ2H (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H<br>(Width across flats) | øD  | L    | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|---------------------------|-----|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                           |     |      |      |      | Nylon                             | Urethane |                |            |
| ø2                          | M3 x 0.5            | KQ2H02-M3G | 7                         | 5.5 | 15.6 | 13   | 11.9 | —                                 | 0.9      | 1.2            | 1.5        |
|                             | M5 x 0.8            | KQ2H02-M5□ | 7                         | 5.5 | 13.8 | 10.8 | 11.9 | —                                 | 0.9      | 1.4            | 2          |
| ø3.2                        | M3 x 0.5            | KQ2H23-M3G | 7                         | 6.7 | 17   | 14.4 | 13.3 | 0.9                               | 0.9      | 1.2            | 2.4        |
|                             | M5 x 0.8            | KQ2H23-M5□ | 7                         | 6.7 | 17.3 | 14.3 | 13.3 | 3                                 | 2.5      | 2.5            | 2.7        |
| ø4                          | M3 x 0.5            | KQ2H04-M3G | 8                         | 7.7 | 17.1 | 14.5 | 13.3 | 0.9                               | 0.9      | 1.2            | 2.9        |
|                             | M5 x 0.8            | KQ2H04-M5□ | 8                         | 7.7 | 17.7 | 14.7 | 13.3 | 4                                 | 4        | 2.5            | 3.3        |
|                             | M6 x 1.0            | KQ2H04-M6A | 8                         | 7.7 | 18.7 | 14.7 | 13.3 | 4                                 | 4        | 3              | 3.6        |
| ø6                          | M5 x 0.8            | KQ2H06-M5□ | 10                        | 9.7 | 17.7 | 14.7 | 13.3 | 4                                 | 4        | 2.5            | 4.1        |
|                             | M6 x 1.0            | KQ2H06-M6A | 10                        | 9.7 | 18.8 | 14.8 | 13.3 | 4                                 | 4        | 3              | 4.4        |

□/A: Brass, N: Brass + Electroless nickel plated

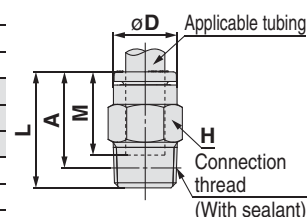


### Male Connector: KQ2H (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model       | H<br>(Width across flats) | øD   | L    | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|---------------------------|------|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                           |      |      |      |      | Nylon                             | Urethane |                |            |
| ø3.2                        | 1/8                 | KQ2H23-01□S | 10                        | 6.7  | 14   | 10.9 | 13.3 | 3.4                               | 2.9      | 2.5            | 6          |
|                             | 1/4                 | KQ2H23-02AS | 14                        | 6.7  | 16.7 | 12   | 13.3 | 3.4                               | 2.9      | 2.5            | 15.3       |
| ø4                          | 1/8                 | KQ2H04-01□S | 10                        | 7.7  | 14.3 | 11.2 | 13.3 | 5.6                               | 4        | 3              | 5.6        |
|                             | 1/4                 | KQ2H04-02AS | 14                        | 7.7  | 16.7 | 12   | 13.3 | 5.6                               | 4        | 3              | 14.6       |
| ø6                          | 1/8                 | KQ2H06-01□S | 10                        | 9.7  | 18.4 | 15.3 | 13.3 | 13.1                              | 10.4     | 4.5            | 5.8        |
|                             | 1/4                 | KQ2H06-02AS | 14                        | 9.7  | 16.7 | 12   | 13.3 | 13.1                              | 10.4     | 4.5            | 12.5       |
|                             | 3/8                 | KQ2H06-03AS | 17                        | 9.7  | 18.1 | 13   | 13.3 | 13.1                              | 10.4     | 4.5            | 24.5       |
| ø8                          | 1/8                 | KQ2H08-01AS | 14                        | 12.2 | 22.5 | 19.4 | 14.2 | 26.1                              | 18       | 6              | 11.9       |
|                             | 1/4                 | KQ2H08-02AS | 14                        | 12.2 | 22   | 17.3 | 14.2 | 26.1                              | 18       | 6              | 13.9       |
|                             | 3/8                 | KQ2H08-03AS | 17                        | 12.2 | 18.1 | 13   | 14.2 | 26.1                              | 18       | 6              | 21         |
| ø10                         | 1/8                 | KQ2H10-01AS | 17                        | 14.6 | 23.8 | 20.7 | 15.6 | 26.1                              | 26.1     | 6              | 16.9       |
|                             | 1/4                 | KQ2H10-02AS | 17                        | 14.6 | 27.3 | 22.6 | 15.6 | 41.5                              | 29.5     | 7.5            | 22.1       |
|                             | 3/8                 | KQ2H10-03AS | 17                        | 14.6 | 23.5 | 18.4 | 15.6 | 41.5                              | 29.5     | 7.5            | 22.5       |
| ø12                         | 1/2                 | KQ2H10-04AS | 22                        | 14.6 | 22.3 | 15.9 | 15.6 | 41.5                              | 29.5     | 7.5            | 44.7       |
|                             | 1/4                 | KQ2H12-02AS | 19                        | 17   | 28.7 | 24   | 17   | 58.3                              | 46.1     | 9              | 24.3       |
|                             | 3/8                 | KQ2H12-03AS | 19                        | 17   | 25.9 | 20.8 | 17   | 58.3                              | 46.1     | 9              | 25.2       |
| ø16                         | 1/2                 | KQ2H12-04AS | 22                        | 17   | 22.3 | 15.9 | 17   | 58.3                              | 46.1     | 9              | 37.7       |
|                             | New 1/4             | KQ2H16-02AS | 24                        | 21.8 | 32.5 | 27.8 | 20.6 | 58.3                              | 46.1     | 9              | 37.4       |
|                             | 3/8                 | KQ2H16-03AS | 24                        | 21.8 | 33.1 | 28   | 20.6 | 81                                | 67       | 11             | 42.4       |
| ø16                         | 1/2                 | KQ2H16-04AS | 24                        | 21.8 | 32.1 | 25.7 | 20.6 | 113                               | 67       | 13             | 44.6       |

□/A: Brass, N: Brass + Electroless nickel plated \* Reference dimensions after installation of R thread

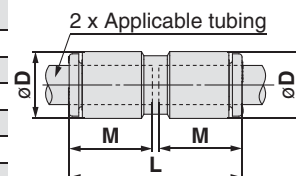


### Straight Union: KQ2H



| Applicable tubing O.D. [mm] | Model      | øD (Note) | L    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|------------|-----------|------|------|-----------------------------------|----------|----------------|------------|
|                             |            |           |      |      | Nylon                             | Urethane |                |            |
| ø2                          | KQ2H02-00A | 5.8       | 24.8 | 11.9 | —                                 | 0.9      | 1.4            | 0.8        |
| ø3.2                        | KQ2H23-00A | 7.1       | 27.6 | 13.3 | 3.4                               | 2.9      | 2.5            | 2.7        |
| ø4                          | KQ2H04-00A | 8.2       | 27.6 | 13.3 | 5.6                               | 4        | 3              | 3.2        |
| ø6                          | KQ2H06-00A | 10.4      | 27.6 | 13.3 | 13.1                              | 10.4     | 4.5            | 4.2        |
| ø8                          | KQ2H08-00A | 13.2      | 29.4 | 14.2 | 26.1                              | 18       | 6              | 3.7        |
| ø10                         | KQ2H10-00A | 15.9      | 32.2 | 15.6 | 41.5                              | 29.5     | 7.5            | 5.5        |
| ø12                         | KQ2H12-00A | 18.5      | 35   | 17   | 58.3                              | 46.1     | 9              | 8.2        |
| ø16                         | KQ2H16-00A | 23.8      | 42.2 | 20.6 | 113                               | 67       | 13             | 15.2       |

Note) øD is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

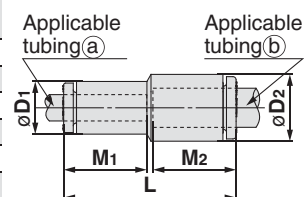
## Dimensions

### Different Diameter Straight: KQ2H



| Applicable tubing O.D.<br>[mm] |      | Model      | Note<br>øD1 | Note<br>øD2 | L    | M1   | M2   | Effective area<br>[mm <sup>2</sup> ] |          | Min.<br>port<br>size | Weight<br>[g] |
|--------------------------------|------|------------|-------------|-------------|------|------|------|--------------------------------------|----------|----------------------|---------------|
| (a)                            | (b)  |            |             |             |      |      |      | Nylon                                | Urethane |                      |               |
| ø2                             | ø3.2 | KQ2H02-23A | 5.8         | 7.1         | 26.2 | 11.9 | 13.3 | —                                    | 0.9      | 1.4                  | 1.1           |
| ø2                             | ø4   | KQ2H02-04A | 5.8         | 8.2         | 26.2 | 11.9 | 13.3 | —                                    | 0.9      | 1.4                  | 1.2           |
| ø3.2                           | ø4   | KQ2H23-04A | 7.1         | 8.2         | 27.6 | 13.3 | 13.3 | 3.4                                  | 2.9      | 2.5                  | 3             |
| ø3.2                           | ø6   | KQ2H23-06A | 7.1         | 10.4        | 27.6 | 13.3 | 13.3 | 3.4                                  | 2.9      | 2.5                  | 1.8           |
| ø4                             | ø6   | KQ2H04-06A | 8.2         | 10.4        | 27.6 | 13.3 | 13.3 | 5.6                                  | 5.6      | 3                    | 3.9           |
| ø6                             | ø8   | KQ2H06-08A | 10.4        | 13.2        | 28.5 | 13.3 | 14.2 | 13.1                                 | 10.4     | 4.5                  | 2.9           |
| ø8                             | ø10  | KQ2H08-10A | 13.2        | 15.9        | 30.8 | 14.2 | 15.6 | 26.1                                 | 18       | 6                    | 4.9           |
| ø10                            | ø12  | KQ2H10-12A | 15.9        | 18.5        | 33.6 | 15.6 | 17   | 41.5                                 | 29.5     | 7.5                  | 7.2           |
| ø12                            | ø16  | KQ2H12-16A | 18.5        | 23.8        | 38.6 | 17   | 20.6 | 58.3                                 | 46.1     | 9                    | 12.4          |

Note) øD1, øD2 are maximum diameters.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

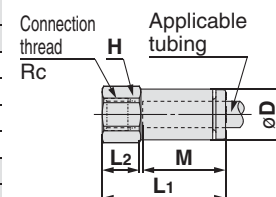
### Female Connector: KQ2F



| Applicable<br>tubing O.D.<br>[mm] | Connection<br>thread<br>Rc | Model      | H<br>(Width<br>across<br>flats) | øD Note | L1   | L2   | M    | Effective area<br>[mm <sup>2</sup> ] |          | Min.<br>port<br>size | Weight<br>[g] |
|-----------------------------------|----------------------------|------------|---------------------------------|---------|------|------|------|--------------------------------------|----------|----------------------|---------------|
|                                   |                            |            |                                 |         |      |      |      | Nylon                                | Urethane |                      |               |
| ø3.2                              | M3 x 0.5                   | KQ2F23-M3□ | 7                               | 6.9     | 17.3 | 5.7  | 13.3 | 3                                    | 2.5      | 2.5                  | 3.1           |
|                                   | M5 x 0.8                   | KQ2F23-M5□ | 7                               | 6.9     | 19.7 | 5.7  | 13.3 | 3                                    | 2.5      | 2.5                  | 3.3           |
| ø4                                | M3 x 0.5                   | KQ2F04-M3□ | 8                               | 7.9     | 17.3 | 5.7  | 13.3 | 4                                    | 4        | 2.5                  | 4.1           |
|                                   | M5 x 0.8                   | KQ2F04-M5□ | 8                               | 7.9     | 19.6 | 5.7  | 13.3 | 4                                    | 4        | 3                    | 4.5           |
|                                   | 1/8                        | KQ2F04-01A | 14                              | 7.9     | 24.1 | 8.5  | 13.3 | 5.6                                  | 4        | 3                    | 12            |
|                                   | 1/4                        | KQ2F04-02A | 17                              | 7.9     | 29   | 12.9 | 13.3 | 5.6                                  | 4        | 3                    | 21.5          |
| ø6                                | M5 x 0.8                   | KQ2F06-M5□ | 10                              | 9.9     | 17.6 | 5.7  | 13.3 | 10                                   | 10       | 4.1                  | 5.5           |
|                                   | 1/8                        | KQ2F06-01A | 14                              | 9.9     | 23.6 | 8.5  | 13.3 | 13.1                                 | 10.4     | 4.5                  | 12.2          |
|                                   | 1/4                        | KQ2F06-02A | 17                              | 9.9     | 28.5 | 12.9 | 13.3 | 13.1                                 | 10.4     | 4.5                  | 21.6          |
|                                   | 3/8                        | KQ2F06-03A | 19                              | 9.9     | 29.9 | 12.7 | 13.3 | 13.1                                 | 10.4     | 4.5                  | 22.7          |
| ø8                                | 1/8                        | KQ2F08-01A | 14                              | 12.4    | 24.1 | 8.5  | 14.2 | 26.1                                 | 18       | 6                    | 12.9          |
|                                   | 1/4                        | KQ2F08-02A | 17                              | 12.4    | 29   | 12.2 | 14.2 | 26.1                                 | 18       | 6                    | 22.1          |
|                                   | 3/8                        | KQ2F08-03A | 19                              | 12.4    | 30.4 | 13.4 | 14.2 | 26.1                                 | 18       | 6                    | 30.7          |
| ø10                               | 1/4                        | KQ2F10-02A | 17                              | 14.8    | 30   | 12.9 | 15.6 | 41.5                                 | 29.5     | 7.5                  | 24.2          |
|                                   | 3/8                        | KQ2F10-03A | 19                              | 14.8    | 31.3 | 13.3 | 15.6 | 41.5                                 | 29.5     | 7.5                  | 25.5          |
| ø12                               | 1/4                        | KQ2F12-02A | 19                              | 17.2    | 30.9 | 12.1 | 17   | 58.3                                 | 46.1     | 9                    | 32.6          |
|                                   | 3/8                        | KQ2F12-03A | 19                              | 17.2    | 32.3 | 13.3 | 17   | 58.3                                 | 46.1     | 9                    | 27.6          |
|                                   | 1/2                        | KQ2F12-04A | 24                              | 17.2    | 36.3 | 15.9 | 17   | 58.3                                 | 46.1     | 9                    | 46.3          |
| ø16                               | 3/8                        | KQ2F16-03A | 24                              | 22      | 34.7 | 12.6 | 20.6 | 81                                   | 67       | 13                   | 53.8          |
|                                   | 1/2                        | KQ2F16-04A | 24                              | 22      | 38.7 | 15.9 | 20.6 | 113                                  | 67       | 13                   | 51.6          |

□/A: Brass, N: Brass + Electroless nickel plated

Note) øD is maximum diameter.



Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

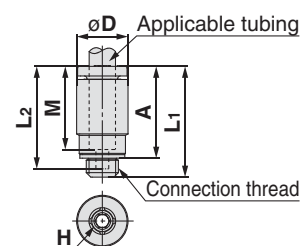
## Dimensions

### Hexagon Socket Head Male Connector: KQ2S (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | Note) øD | L1   | L2   | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|----------|------|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |          |      |      |      |      | Nylon                             | Urethane |                |            |
| ø2                          | M3 x 0.5            | KQ2S02-M3G | 1.5                    | 6        | 15.7 | 14.7 | 13.1 | 11.9 | —                                 | 0.9      | 1.5            | 1.7        |
| ø3.2                        | M3 x 0.5            | KQ2S23-M3G | 1.5                    | 7        | 17.1 | 16.1 | 14.5 | 13.3 | 1.4                               | 1.4      | 1.5            | 2.2        |
|                             | M5 x 0.8            | KQ2S23-M5A | 2                      | 7        | 17.5 | 16.3 | 14.5 | 13.3 | 2.5                               | 2.5      | 2              | 2.6        |
| ø4                          | M3 x 0.5            | KQ2S04-M3G | 1.5                    | 8        | 17.1 | 16.1 | 14.5 | 13.3 | 1.4                               | 1.4      | 1.5            | 2.3        |
|                             | M5 x 0.8            | KQ2S04-M5A | 2                      | 8        | 17.6 | 16.3 | 14.6 | 13.3 | 4                                 | 4        | 2              | 3          |
|                             | M6 x 1.0            | KQ2S04-M6A | 3                      | 8        | 20.6 | 19.6 | 16.6 | 13.3 | 4                                 | 4        | 3.1            | 4.1        |
| ø6                          | M5 x 0.8            | KQ2S06-M5A | 2                      | 10       | 17.8 | 16.3 | 14.8 | 13.3 | 4                                 | 4        | 2              | 3.5        |
|                             | M6 x 1.0            | KQ2S06-M6A | 3                      | 10       | 20.6 | 19.6 | 16.6 | 13.3 | 4                                 | 4        | 3.1            | 5.1        |

Note) øD is maximum diameter.



### Hexagon Socket Head Male Connector: KQ2S (Sealant)

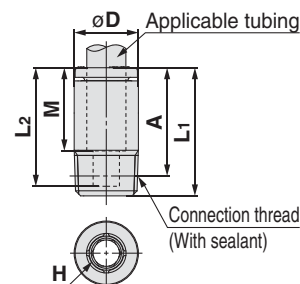


| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | Note) øD | L1   | L2   | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|----------|------|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |          |      |      |      |      | Nylon                             | Urethane |                |            |
| ø4                          | 1/8                 | KQ2S04-01□S | 3                      | 10       | 20.6 | 19.6 | 17.5 | 13.3 | 4.1                               | 3.6      | 3.1            | 8.1        |
| ø6                          | 1/8                 | KQ2S06-01□S | 4                      | 10       | 20.3 | 18.8 | 17.2 | 13.3 | 10                                | 9.9      | 4.1            | 6.5        |
|                             | 1/4                 | KQ2S06-02AS | 4                      | 14       | 19.8 | 18.8 | 15.1 | 13.3 | 10.7                              | 10       | 4.1            | 13.4       |
| ø8                          | 1/8                 | KQ2S08-01AS | 5                      | 13       | 22.9 | 19.7 | 19.8 | 14.2 | 17.2                              | 16.2     | 5.1            | 10.2       |
|                             | 1/4                 | KQ2S08-02AS | 6                      | 14       | 23.2 | 19.5 | 18.5 | 14.2 | 23.3                              | 16.2     | 6.1            | 14.3       |
|                             | 3/8                 | KQ2S08-03AS | 6                      | 17       | 20.7 | 19.7 | 15.6 | 14.2 | 23.3                              | 16.2     | 6.1            | 21.1       |
| ø10                         | 1/8                 | KQ2S10-01AS | 5                      | 15       | 24.3 | 21.1 | 21.2 | 15.6 | 17.2                              | 16.2     | 5.1            | 12         |
|                             | 1/4                 | KQ2S10-02AS | 8                      | 15       | 24.6 | 20.1 | 19.9 | 15.6 | 39                                | 26.6     | 8.1            | 12.4       |
|                             | 3/8                 | KQ2S10-03AS | 8                      | 17       | 25.1 | 20.1 | 20   | 15.6 | 39                                | 26.6     | 8.1            | 23.2       |
|                             | 1/2                 | KQ2S10-04AS | 8                      | 22       | 21.1 | 20.1 | 14.7 | 15.6 | 39                                | 26.6     | 8.1            | 37.4       |
| ø12                         | 1/4                 | KQ2S12-02AS | 8                      | 18       | 29   | 21.5 | 24.3 | 17   | 46                                | 44.5     | 8.1            | 21         |
|                             | 3/8                 | KQ2S12-03AS | 10                     | 18       | 26.4 | 21.8 | 21.3 | 17   | 60                                | 44.5     | 10.1           | 21.2       |
|                             | 1/2                 | KQ2S12-04AS | 10                     | 22       | 22.8 | 21.8 | 16.4 | 17   | 60                                | 44.5     | 10.1           | 30.5       |
| ø16                         | New 1/4             | KQ2S16-02AS | 8                      | 23       | 32.5 | 25.1 | 27.8 | 20.6 | 44                                | 44       | 8.1            | 25.7       |
|                             | 3/8                 | KQ2S16-03AS | 10                     | 23       | 33.5 | 25.4 | 28.4 | 20.6 | 81                                | 67       | 10.1           | 38.3       |
|                             | 1/2                 | KQ2S16-04AS | 12                     | 23       | 33.4 | 26.1 | 27   | 20.6 | 113                               | 67       | 12.1           | 43.5       |

□/A: Brass, N: Brass + Electroless nickel plated

\* Reference dimensions after installation of R thread

Note) øD is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

## Dimensions

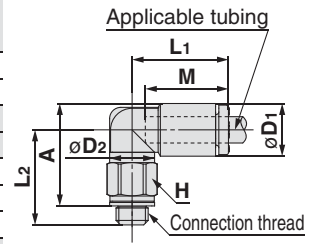
### Male Elbow: KQ2L (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|-------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                   |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 2$                    | M3 x 0.5            | KQ2L02-M3G | 5.5                    | 5.8               | 5.5        | 12.6           | 12.5           | 12.8 | 11.9 | —                                 | 0.8      | 1.2            | 1.6        |
|                             | M5 x 0.8            | KQ2L02-M5□ | 7                      | 5.8               | 5.5        | 12.6           | 13             | 12.9 | 11.9 | —                                 | 0.8      | 1.4            | 2.7        |
| $\phi 3.2$                  | M3 x 0.5            | KQ2L23-M3G | 7                      | 7.1               | 7          | 15.3           | 13.8           | 14.8 | 13.3 | 0.8                               | 0.8      | 1.2            | 2.7        |
|                             | M5 x 0.8            | KQ2L23-M5□ | 7                      | 7.1               | 7          | 15.3           | 14.3           | 14.9 | 13.3 | 2.6                               | 2.2      | 2.5            | 3.1        |
| $\phi 4$                    | M3 x 0.5            | KQ2L04-M3G | 7                      | 8.2               | 7          | 15.4           | 14.3           | 15.8 | 13.3 | 0.8                               | 0.8      | 1.2            | 2.7        |
|                             | M5 x 0.8            | KQ2L04-M5□ | 7                      | 8.2               | 7          | 15.4           | 14.8           | 15.9 | 13.3 | 3.5                               | 3.5      | 2.5            | 3.1        |
|                             | M6 x 1.0            | KQ2L04-M6A | 8                      | 8.2               | 7          | 15.4           | 15.8           | 15.9 | 13.3 | 3.5                               | 3.5      | 2.5            | 4.2        |
| $\phi 6$                    | M5 x 0.8            | KQ2L06-M5□ | 7                      | 10.4              | 7          | 14.55          | 16.5           | 18.7 | 13.3 | 3.5                               | 3.5      | 2.5            | 3.2        |
|                             | M6 x 1.0            | KQ2L06-M6A | 8                      | 10.4              | 7          | 14.55          | 17.5           | 18.7 | 13.3 | 3.5                               | 3.5      | 2.5            | 4.3        |

□/A: Brass, N: Brass + Electroless nickel plated

(Note)  $\phi D_1$  is maximum diameter.



### Male Elbow: KQ2L (Sealant)

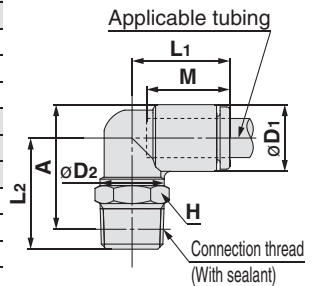


| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|-------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                   |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | 1/8                 | KQ2L23-01□S | 10                     | 7.1               | 10         | 14.5           | 16.7           | 17.2 | 13.3 | 3                                 | 2.5      | 2.5            | 4.6        |
|                             | 1/4                 | KQ2L23-02AS | 14                     | 7.1               | 10         | 14.5           | 21.2           | 20.1 | 13.3 | 3                                 | 2.5      | 2.5            | 14.1       |
| $\phi 4$                    | 1/8                 | KQ2L04-01AS | 10                     | 8.2               | 10         | 14.8           | 16.2           | 17.2 | 13.3 | 4.2                               | 4.2      | 3              | 4.8        |
|                             | 1/4                 | KQ2L04-02AS | 14                     | 8.2               | 10         | 14.8           | 21.7           | 21.1 | 13.3 | 4.2                               | 4.2      | 3              | 14.3       |
| $\phi 6$                    | 1/8                 | KQ2L06-01AS | 10                     | 10.4              | 10         | 15.5           | 17.3           | 19.4 | 13.3 | 11.4                              | 9        | 4.5            | 5.2        |
|                             | 1/4                 | KQ2L06-02AS | 14                     | 10.4              | 10         | 15.5           | 22.8           | 23.3 | 13.3 | 11.4                              | 9        | 4.5            | 14.7       |
|                             | 3/8                 | KQ2L06-03AS | 17                     | 10.4              | 10         | 15.5           | 24.1           | 24.2 | 13.3 | 11.4                              | 9        | 4.5            | 26.5       |
| $\phi 8$                    | 1/8                 | KQ2L08-01AS | 10                     | 13.2              | 10         | 16.4           | 18.7           | 22.2 | 14.2 | 11.4                              | 11.4     | 4.5            | 6.1        |
|                             | 1/4                 | KQ2L08-02AS | 14                     | 13.2              | 12         | 17.2           | 25.4           | 27.3 | 14.2 | 21.6                              | 14.9     | 6              | 17.7       |
|                             | 3/8                 | KQ2L08-03AS | 17                     | 13.2              | 12         | 17.2           | 25.5           | 27.0 | 14.2 | 21.6                              | 14.9     | 6              | 24.7       |
| $\phi 10$                   | 1/8                 | KQ2L10-01AS | 12                     | 15.9              | 12         | 18.6           | 23.6           | 28.4 | 15.6 | 21.6                              | 14.9     | 6              | 11.1       |
|                             | 1/4                 | KQ2L10-02AS | 17                     | 15.9              | 17         | 19.3           | 28.7           | 31.9 | 15.6 | 35.2                              | 25       | 7.5            | 21.7       |
|                             | 3/8                 | KQ2L10-03AS | 17                     | 15.9              | 17         | 19.3           | 29.6           | 32.4 | 15.6 | 35.2                              | 25       | 7.5            | 22.2       |
|                             | 1/2                 | KQ2L10-04AS | 22                     | 15.9              | 17         | 19.3           | 33.6           | 35.1 | 15.6 | 35.2                              | 25       | 7.5            | 44.6       |
| $\phi 12$                   | 1/4                 | KQ2L12-02AS | 17                     | 18.5              | 17         | 21.5           | 30.0           | 34.5 | 17   | 50.2                              | 39.7     | 9              | 23.5       |
|                             | 3/8                 | KQ2L12-03AS | 17                     | 18.5              | 17         | 21.5           | 30.9           | 35.0 | 17   | 50.2                              | 39.7     | 9              | 24.1       |
|                             | 1/2                 | KQ2L12-04AS | 22                     | 18.5              | 17         | 21.5           | 34.9           | 37.7 | 17   | 50.2                              | 39.7     | 9              | 46.5       |
| $\phi 16$                   | <sup>New</sup> 1/4  | KQ2L16-02AS | 17                     | 23.8              | 17         | 25.1           | 32.6           | 39.8 | 20.6 | 50.2                              | 50.2     | 9              | 27.8       |
|                             | 3/8                 | KQ2L16-03AS | 22                     | 23.8              | 21         | 27.1           | 35.4           | 42.2 | 20.6 | 71                                | 71       | 11             | 40.8       |
|                             | 1/2                 | KQ2L16-04AS | 22                     | 23.8              | 21         | 27.1           | 34.1           | 39.6 | 20.6 | 100                               | 84       | 13             | 44.5       |

□/A: Brass, N: Brass + Electroless nickel plated

\* Reference dimensions after installation of R thread

(Note)  $\phi D_1$  is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

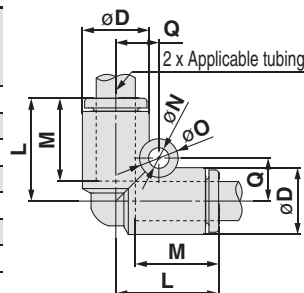
## Dimensions

### Union Elbow: KQ2L



| Applicable tubing O.D. [mm] | Model      | Note) $\phi D$ | L    | Q    | M    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight (g) |
|-----------------------------|------------|----------------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |            |                |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | KQ2L23-00A | 7.1            | 14.9 | 5.4  | 13.3 | 6        | 3.2      | 3                                 | 2.5      | 2.5            | 3.1        |
| $\phi 4$                    | KQ2L04-00A | 8.2            | 15.3 | 5.7  | 13.3 | 6        | 3.2      | 4.2                               | 4.2      | 3              | 3.8        |
| $\phi 6$                    | KQ2L06-00A | 10.4           | 16.3 | 6.8  | 13.3 | 6        | 3.2      | 11.4                              | 9        | 4.5            | 5.3        |
| $\phi 8$                    | KQ2L08-00A | 13.2           | 18.2 | 8.4  | 14.2 | 8        | 4.2      | 21.6                              | 14.9     | 6              | 4.7        |
| $\phi 10$                   | KQ2L10-00A | 15.9           | 20.6 | 9.6  | 15.6 | 8        | 4.2      | 35.2                              | 25       | 7.5            | 7.1        |
| $\phi 12$                   | KQ2L12-00A | 18.5           | 23   | 10.7 | 17   | 8        | 4.2      | 50.2                              | 39.7     | 9              | 10.3       |
| $\phi 16$                   | KQ2L16-00A | 23.8           | 28.6 | 13.4 | 20.6 | 8        | 4.2      | 100                               | 84       | 13             | 19.7       |

Note)  $\phi D$  is maximum diameter.

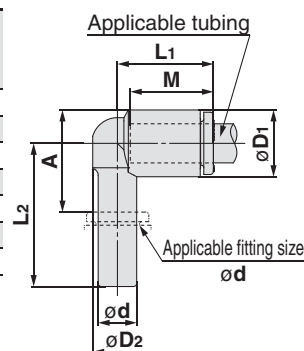


### Plug-in Elbow: KQ2L



| Applicable tubing O.D. [mm] | Applicable fitting size $\phi d$ | Model      | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight (g) |
|-----------------------------|----------------------------------|------------|------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                                  |            |                  |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | $\phi 3.2$                       | KQ2L23-99A | 7.1              | 6.4        | 14.4           | 20.9           | 11.1 | 13.3 | 3                                 | 2.5      | 2.2            | 1.8        |
| $\phi 4$                    | $\phi 4$                         | KQ2L04-99A | 8.2              | 7.2        | 14.5           | 21.1           | 11.9 | 13.3 | 4.2                               | 4.2      | 2.5            | 2.3        |
| $\phi 6$                    | $\phi 6$                         | KQ2L06-99A | 10.4             | 8          | 15.3           | 22.3           | 14.2 | 13.3 | 9                                 | 9        | 4              | 3.5        |
| $\phi 8$                    | $\phi 8$                         | KQ2L08-99A | 13.2             | 10         | 17.2           | 26.2           | 18.6 | 14.2 | 21.6                              | 14.9     | 6              | 3          |
| $\phi 10$                   | $\phi 10$                        | KQ2L10-99A | 15.9             | 12         | 19.3           | 28.2           | 20.5 | 15.6 | 35.2                              | 25       | 7.5            | 4.7        |
| $\phi 12$                   | $\phi 12$                        | KQ2L12-99A | 18.5             | 14         | 21.5           | 31             | 23.2 | 17   | 50.2                              | 39.7     | 9              | 7          |
| $\phi 16$                   | $\phi 16$                        | KQ2L16-99A | 23.8             | 20         | 27.1           | 36.8           | 28.1 | 20.6 | 100                               | 84       | 13             | 13.7       |

Note)  $\phi D_1$  is maximum diameter.

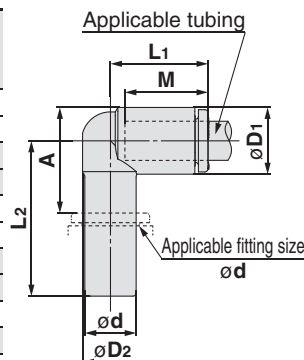


### Reducer Elbow: KQ2L



| Applicable tubing O.D. [mm] | Applicable fitting size $\phi d$ | Model      | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight (g) |
|-----------------------------|----------------------------------|------------|------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                                  |            |                  |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | $\phi 4$                         | KQ2L23-04A | 7.1              | 6.4        | 14.5           | 23.9           | 14.1 | 13.3 | 3                                 | 2.5      | 2.5            | 2.1        |
|                             | $\phi 6$                         | KQ2L23-06A | 7.1              | 6.4        | 14.5           | 24.1           | 14.3 | 13.3 | 3                                 | 2.5      | 2.5            | 1.3        |
| $\phi 4$                    | $\phi 6$                         | KQ2L04-06A | 8.2              | 7.2        | 14.8           | 24.6           | 15.4 | 13.3 | 4.2                               | 4.2      | 3              | 2.9        |
|                             | $\phi 8$                         | KQ2L04-08A | 8.2              | 7.2        | 14.8           | 29.5           | 19.4 | 13.3 | 4.2                               | 4.2      | 3              | 1.8        |
| $\phi 6$                    | $\phi 8$                         | KQ2L06-08A | 10.4             | 9          | 15.5           | 24.2           | 15.2 | 13.3 | 11.4                              | 9        | 4.5            | 2.1        |
|                             | $\phi 10$                        | KQ2L06-10A | 10.4             | 9          | 15.5           | 31.6           | 21.2 | 13.3 | 11.4                              | 9        | 4.5            | 2.7        |
| $\phi 8$                    | $\phi 10$                        | KQ2L08-10A | 13.2             | 10         | 18.8           | 27.1           | 18.1 | 14.2 | 21.6                              | 14.9     | 6              | 3.5        |
|                             | $\phi 12$                        | KQ2L08-12A | 13.2             | 10         | 18.8           | 34             | 23.6 | 14.2 | 21.6                              | 14.9     | 6              | 4.9        |
| $\phi 10$                   | $\phi 12$                        | KQ2L10-12A | 15.9             | 12         | 19.3           | 35.6           | 26.5 | 15.6 | 35.2                              | 25       | 7.5            | 5.6        |
| $\phi 12$                   | $\phi 16$                        | KQ2L12-16A | 18.5             | 14         | 21.5           | 42.6           | 31.2 | 17   | 50.2                              | 39.7     | 9              | 8.7        |

Note)  $\phi D_1$  is maximum diameter.

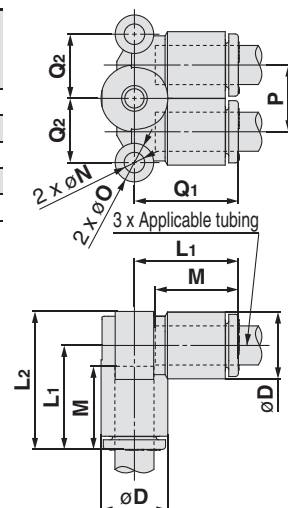


### Branch Union Elbow: KQ2LU



| Applicable tubing O.D. [mm] | Model       | Note) $\phi D$ | L <sub>1</sub> | L <sub>2</sub> | Q <sub>1</sub> | Q <sub>2</sub> | M    | P    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight (g) |
|-----------------------------|-------------|----------------|----------------|----------------|----------------|----------------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |             |                |                |                |                |                |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | KQ2LU04-00A | 8.2            | 15.8           | 15.8           | 15.8           | 7.9            | 13.3 | 8.2  | 6        | 3.2      | 6                                 | 4.1      | 3              | 3.1        |
| $\phi 6$                    | KQ2LU06-00A | 10.4           | 16.5           | 16.5           | 16.5           | 10             | 13.3 | 10.4 | 6        | 3.2      | 13.9                              | 11       | 4.5            | 4.4        |
| $\phi 8$                    | KQ2LU08-00A | 13.2           | 18.2           | 18.2           | 18.2           | 13.1           | 14.2 | 13.2 | 8        | 4.2      | 26.3                              | 18.2     | 6              | 8          |
| $\phi 10$                   | KQ2LU10-00A | 15.9           | 20.3           | 20.3           | 20.3           | 15.9           | 15.6 | 15.9 | 8        | 4.2      | 40.8                              | 29       | 7.5            | 12.2       |
| $\phi 12$                   | KQ2LU12-00A | 18.5           | 22.5           | 22.5           | 22.5           | 17.9           | 17   | 18.5 | 8        | 4.2      | 57.2                              | 45.2     | 9              | 18.1       |

Note)  $\phi D$  is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

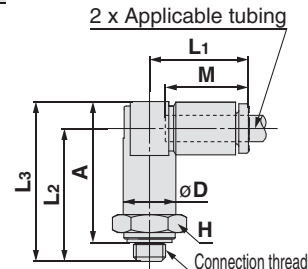
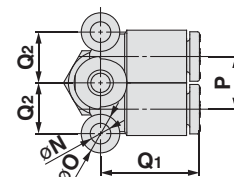
## Dimensions

### Male Branch Connector: KQ2LU (Gasket seal)



| Applicable tubing O.D.<br>[mm] | Connection thread<br>M | Model       | H<br>(Width across flats) | Note)<br>ØD | L1   | L2   | L3   | A    | M    | P    | ØO | ØN  | Q1   | Q2  | Effective area<br>[mm²]<br>Nylon Urethane | Min. port size | Weight<br>[g] |      |
|--------------------------------|------------------------|-------------|---------------------------|-------------|------|------|------|------|------|------|----|-----|------|-----|-------------------------------------------|----------------|---------------|------|
| ø4                             | M5 x 0.8               | KQ2LU04-M5A | 10                        | 8.2         | 15.8 | 20.7 | 24.8 | 21.8 | 13.3 | 8.2  | 6  | 3.2 | 15.8 | 7.9 | 4.3                                       | 4.1            | 1.8           | 6.9  |
|                                | M6 x 1.0               | KQ2LU04-M6A | 10                        | 8.2         | 15.8 | 21.7 | 25.8 | 21.8 | 13.3 | 8.2  | 6  | 3.2 | 15.8 | 7.9 | 4.3                                       | 4.1            | 3             | 6.8  |
| ø6                             | M5 x 0.8               | KQ2LU06-M5A | 12                        | 10.4        | 16.5 | 21.4 | 26.6 | 23.6 | 13.3 | 10.4 | 6  | 3.2 | 16.5 | 10  | 4.3                                       | 4.3            | 1.8           | 10.3 |
|                                | M6 x 0.8               | KQ2LU06-M6A | 12                        | 10.4        | 16.5 | 21.4 | 26.6 | 23.6 | 13.3 | 10.4 | 6  | 3.2 | 16.5 | 10  | 4.3                                       | 4.3            | 3             | 10.3 |

Note) ØD is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

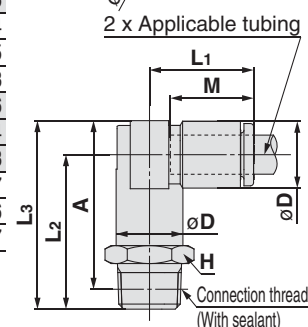
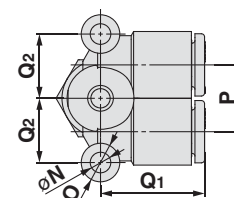
### Male Branch Connector: KQ2LU (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model        | H (Width across flats) | Note) ØD | L1   | L2   | L3   | A*   | M    | P    | ØO | ØN  | Q1   | Q2   | Effective area [mm²]<br>Nylon Urethane | Min. port size | Weight [g] |
|-----------------------------|---------------------|--------------|------------------------|----------|------|------|------|------|------|------|----|-----|------|------|----------------------------------------|----------------|------------|
| ø4                          | 1/8                 | KQ2LU04-01AS | 10                     | 8.2      | 15.8 | 23.3 | 27.4 | 24.3 | 13.3 | 8.2  | 6  | 3.2 | 15.8 | 7.9  | 6                                      | 4.1            | 9.5        |
|                             | 1/4                 | KQ2LU04-02AS | 14                     | 8.2      | 15.8 | 27.7 | 31.8 | 27.1 | 13.3 | 8.2  | 6  | 3.2 | 15.8 | 7.9  | 6                                      | 4.1            | 19.3       |
| ø6                          | 1/8                 | KQ2LU06-01AS | 12                     | 10.4     | 16.5 | 24   | 29.2 | 26.1 | 13.3 | 10.4 | 6  | 3.2 | 16.5 | 10   | 13.9                                   | 11             | 10.6       |
|                             | 1/4                 | KQ2LU06-02AS | 14                     | 10.4     | 16.5 | 28.4 | 33.6 | 28.9 | 13.3 | 10.4 | 6  | 3.2 | 16.5 | 10   | 13.9                                   | 11             | 19.5       |
|                             | 3/8                 | KQ2LU06-03AS | 17                     | 10.4     | 16.5 | 29.8 | 35   | 29.9 | 13.3 | 10.4 | 6  | 3.2 | 16.5 | 10   | 13.9                                   | 11             | 31.5       |
| ø8                          | 1/8                 | KQ2LU08-01AS | 14                     | 13.2     | 18.2 | 25.7 | 32.3 | 29.2 | 14.2 | 13.2 | 8  | 4.2 | 18.2 | 13.1 | 26.3                                   | 18.2           | 16.4       |
|                             | 1/4                 | KQ2LU08-02AS | 14                     | 13.2     | 18.2 | 30.1 | 36.7 | 32   | 14.2 | 13.2 | 8  | 4.2 | 18.2 | 13.1 | 26.3                                   | 18.2           | 21.5       |
| ø10                         | 3/8                 | KQ2LU08-03AS | 17                     | 13.2     | 18.2 | 31.5 | 38.1 | 33   | 14.2 | 13.2 | 8  | 4.2 | 18.2 | 13.1 | 26.3                                   | 18.2           | 33.3       |
|                             | 1/4                 | KQ2LU10-02AS | 17                     | 15.9     | 20.3 | 32.2 | 40.2 | 35.5 | 15.6 | 15.9 | 8  | 4.2 | 20.3 | 15.9 | 40.8                                   | 29             | 26.6       |
|                             | 3/8                 | KQ2LU10-03AS | 17                     | 15.9     | 20.3 | 33.6 | 41.6 | 36.5 | 15.6 | 15.9 | 8  | 4.2 | 20.3 | 15.9 | 40.8                                   | 29             | 34.4       |
| ø12                         | 1/2                 | KQ2LU10-04AS | 22                     | 15.9     | 20.3 | 37.8 | 45.8 | 39.4 | 15.6 | 15.9 | 8  | 4.2 | 20.3 | 15.9 | 40.8                                   | 29             | 62.3       |
|                             | 1/4                 | KQ2LU12-02AS | 19                     | 18.5     | 22.5 | 34.4 | 43.6 | 38.9 | 17   | 18.5 | 8  | 4.2 | 22.5 | 17.9 | 57.2                                   | 45.2           | 37.7       |
|                             | 3/8                 | KQ2LU12-03AS | 19                     | 18.5     | 22.5 | 35.8 | 45   | 39.9 | 17   | 18.5 | 8  | 4.2 | 22.5 | 17.9 | 57.2                                   | 45.2           | 40.6       |
|                             | 1/2                 | KQ2LU12-04AS | 22                     | 18.5     | 22.5 | 40   | 49.2 | 42.8 | 17   | 18.5 | 8  | 4.2 | 22.5 | 17.9 | 57.2                                   | 45.2           | 62.7       |

\* Reference dimensions after installation of R thread

Note) ØD is maximum diameter.



Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

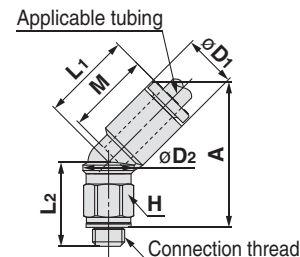
## Dimensions

### 45° Male Elbow: KQ2K (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|-------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                   |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | M5 x 0.8            | KQ2K04-M5A | 7                      | 8.2               | 7          | 14.4           | 13.1           | 22.8 | 13.3 | 3.4                               | 3.4      | 2.5            | 3          |
|                             | M6 x 1.0            | KQ2K04-M6A | 8                      | 8.2               | 7          | 14.4           | 14.1           | 22.8 | 13.3 | 3.4                               | 3.4      | 2.5            | 4.1        |
| $\phi 6$                    | M5 x 0.8            | KQ2K06-M5A | 7                      | 10.4              | 7          | 14.4           | 17             | 27.4 | 13.3 | 3.4                               | 3.4      | 2.5            | 3.5        |
|                             | M6 x 1.0            | KQ2K06-M6A | 8                      | 10.4              | 7          | 14.4           | 18             | 27.4 | 13.3 | 3.4                               | 3.4      | 2.5            | 4.5        |

(Note)  $\phi D_1$  is maximum diameter.



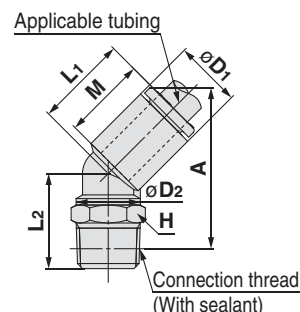
### 45° Male Elbow: KQ2K (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|-------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                   |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2K04-01AS | 10                     | 8.2               | 10         | 14.4           | 12.7           | 22.3 | 13.3 | 3.4                               | 3.4      | 4.5            | 4.6        |
|                             | 1/4                 | KQ2K04-02AS | 14                     | 8.2               | 10         | 14.4           | 17.2           | 25.2 | 13.3 | 3.4                               | 3.4      | 4.5            | 14.1       |
| $\phi 6$                    | 1/8                 | KQ2K06-01AS | 10                     | 10.4              | 10         | 14.7           | 14.8           | 25.3 | 13.3 | 8.7                               | 6.9      | 4.5            | 5          |
|                             | 1/4                 | KQ2K06-02AS | 14                     | 10.4              | 10         | 14.7           | 19.3           | 28.2 | 13.3 | 8.7                               | 6.9      | 4.5            | 14.5       |
|                             | 3/8                 | KQ2K06-03AS | 17                     | 10.4              | 10         | 14.7           | 20.6           | 29.1 | 13.3 | 8.7                               | 6.9      | 4.5            | 26.2       |
| $\phi 8$                    | 1/8                 | KQ2K08-01AS | 10                     | 13.2              | 10         | 16             | 15.7           | 28   | 14.2 | 8.7                               | 8.7      | 4.5            | 6          |
|                             | 1/4                 | KQ2K08-02AS | 17                     | 13.2              | 12         | 16             | 22.4           | 33.1 | 14.2 | 19.7                              | 19.7     | 6              | 17.5       |
|                             | 3/8                 | KQ2K08-03AS | 17                     | 13.2              | 12         | 16             | 22.5           | 32.8 | 14.2 | 19.7                              | 19.7     | 6              | 24.5       |
| $\phi 10$                   | 1/8                 | KQ2K10-01AS | 12                     | 15.9              | 12         | 18.2           | 21.5           | 36.2 | 15.6 | 30.9                              | 23.2     | 6              | 11.1       |
|                             | 1/4                 | KQ2K10-02AS | 17                     | 15.9              | 17         | 17.6           | 29.1           | 41.8 | 15.6 | 30.9                              | 23.2     | 7.5            | 21.8       |
|                             | 3/8                 | KQ2K10-03AS | 17                     | 15.9              | 17         | 17.6           | 24.3           | 36.6 | 15.6 | 30.9                              | 23.2     | 7.5            | 21.7       |
|                             | 1/2                 | KQ2K10-04AS | 22                     | 15.9              | 17         | 17.6           | 28.3           | 39.3 | 15.6 | 30.9                              | 23.2     | 7.5            | 44.1       |
| $\phi 12$                   | 1/4                 | KQ2K12-02AS | 17                     | 18.5              | 17         | 19.4           | 29             | 43.8 | 17   | 44.5                              | 35.1     | 9              | 23.3       |
|                             | 3/8                 | KQ2K12-03AS | 17                     | 18.5              | 17         | 19.4           | 24.2           | 38.6 | 17   | 44.5                              | 35.1     | 9              | 23.2       |
|                             | 1/2                 | KQ2K12-04AS | 22                     | 18.5              | 17         | 19.4           | 28.2           | 41.3 | 17   | 44.5                              | 35.1     | 9              | 45.7       |
| $\phi 16$                   | <sup>New</sup> 1/4  | KQ2K16-02AS | 17                     | 23.8              | 17         | 24.3           | 29.6           | 49.2 | 20.6 | 44.5                              | 44.5     | 9              | 27.7       |
|                             | 3/8                 | KQ2K16-03AS | 22                     | 23.8              | 21         | 23.8           | 31.4           | 50.2 | 20.6 | 65.8                              | 58       | 11             | 39.2       |
|                             | 1/2                 | KQ2K16-04AS | 22                     | 23.8              | 21         | 23.8           | 30.1           | 47.6 | 20.6 | 91.9                              | 58       | 13             | 42.9       |

\* Reference dimensions after installation of R thread

(Note)  $\phi D_1$  is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

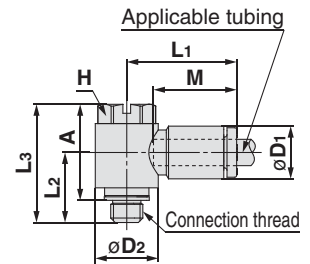
## Dimensions

### Universal Male Elbow: KQ2V (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                  |            |                |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | M5 x 0.8            | KQ2V04-M5A | 8                      | 8.2              | 9.8        | 17.5           | 10.9           | 18.4           | 14.9 | 13.3 | 2.9                               | 2.9      | 2.5            | 5.4        |
| $\phi 6$                    | M5 x 0.8            | KQ2V06-M5A | 8                      | 10.4             | 9.8        | 18.3           | 10.9           | 18.4           | 14.9 | 13.3 | 3.8                               | 3.8      | 2.5            | 5.7        |

Note)  $\phi D_1$  is maximum diameter.



Metric Size  
M, R, Rc

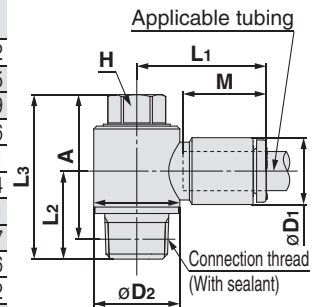
### Universal Male Elbow: KQ2V (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                  |            |                |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2V04-01AS | 8                      | 8.2              | 13.4       | 19.3           | 13.7           | 25.6           | 22.5 | 13.3 | 2.9                               | 2.9      | 3              | 13.2       |
| $\phi 6$                    | 1/8                 | KQ2V06-01AS | 8                      | 10.4             | 13.4       | 20.5           | 13.7           | 25.6           | 22.5 | 13.3 | 7.5                               | 5.9      | 4.5            | 13.5       |
|                             | 1/4                 | KQ2V06-02AS | 10                     | 10.4             | 15.3       | 19.9           | 17.9           | 30.5           | 25.8 | 13.3 | 7.5                               | 5.9      | 4.5            | 24.9       |
| $\phi 8$                    | 1/8                 | KQ2V08-01AS | 12                     | 13.2             | 17.6       | 23.5           | 15.1           | 27.6           | 24.5 | 14.2 | 16                                | 11.2     | 6              | 22.6       |
|                             | 1/4                 | KQ2V08-02AS | 12                     | 13.2             | 17.6       | 23.5           | 18.5           | 31             | 26.3 | 14.2 | 16                                | 11.2     | 6              | 29.1       |
|                             | 3/8                 | KQ2V08-03AS | 14                     | 13.2             | 20.6       | 23.1           | 19.5           | 35.3           | 30.2 | 14.2 | 16                                | 11.2     | 6              | 44.4       |
| $\phi 10$                   | 1/4                 | KQ2V10-02AS | 14                     | 15.9             | 20.6       | 25.9           | 19.9           | 34.9           | 30.2 | 15.6 | 27                                | 20.3     | 7.5            | 38.1       |
|                             | 3/8                 | KQ2V10-03AS | 14                     | 15.9             | 20.6       | 25.9           | 20.3           | 35.3           | 30.2 | 15.6 | 27                                | 20.3     | 7.5            | 45.7       |
| $\phi 12$                   | 3/8                 | KQ2V12-03AS | 17                     | 18.5             | 25.2       | 28.5           | 21.4           | 37.6           | 32.5 | 17   | 39                                | 30.8     | 9              | 59.6       |
|                             | 1/2                 | KQ2V12-04AS | 17                     | 18.5             | 25.2       | 28.5           | 24.6           | 40.8           | 34.4 | 17   | 39                                | 30.8     | 9              | 78.2       |
| $\phi 16$                   | 3/8                 | KQ2V16-03AS | 21                     | 23.8             | 32.3       | 34.2           | 25.1           | 45.4           | 40.3 | 20.6 | 55                                | 46       | 11             | 99.5       |
|                             | 1/2                 | KQ2V16-04AS | 21                     | 23.8             | 32.3       | 34.2           | 28.3           | 48.6           | 42.2 | 20.6 | 78                                | 46       | 13             | 107.9      |

\* Reference dimensions after installation of R thread

Note)  $\phi D_1$  is maximum diameter.



Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

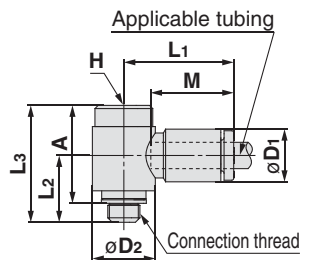
Metric Size  
Uni

### Hexagon Socket Head Universal Male Elbow: KQ2VS (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model       | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                  |            |                |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | M5 x 0.8            | KQ2VS04-M5A | 4                      | 8.2              | 9.8        | 17.5           | 10.7           | 18.2           | 15.2 | 13.3 | 2.9                               | 2.9      | 2.5            | 5.3        |
| $\phi 6$                    | M5 x 0.8            | KQ2VS06-M5A | 4                      | 10.4             | 9.8        | 18.3           | 10.7           | 18.2           | 15.2 | 13.3 | 3.8                               | 3.8      | 2.5            | 5.6        |

Note)  $\phi D_1$  is maximum diameter.



Inch Size  
Uni

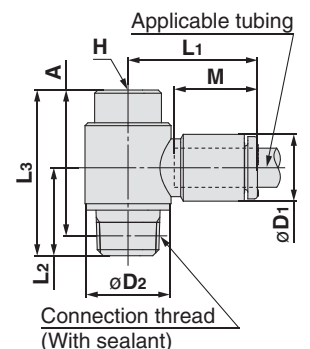
### Hexagon Socket Head Universal Male Elbow: KQ2VS (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model        | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|--------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |              |                        |                  |            |                |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2VS04-01AS | 6                      | 8.2              | 13.4       | 19.3           | 13.7           | 25.8           | 22.7 | 13.3 | 2.9                               | 2.9      | 3              | 13.2       |
| $\phi 6$                    | 1/8                 | KQ2VS06-01AS | 6                      | 10.4             | 13.4       | 20.5           | 13.7           | 25.8           | 22.7 | 13.3 | 7.5                               | 5.9      | 4.5            | 13.5       |
|                             | 1/4                 | KQ2VS06-02AS | 6                      | 10.4             | 15.3       | 19.9           | 17.9           | 26.5           | 21.8 | 13.3 | 7.5                               | 5.9      | 4.5            | 20.8       |
| $\phi 8$                    | 1/8                 | KQ2VS08-01AS | 8                      | 13.2             | 17.6       | 23.5           | 15.1           | 26             | 22.9 | 14.2 | 16                                | 11.2     | 6              | 19.2       |
|                             | 1/4                 | KQ2VS08-02AS | 8                      | 13.2             | 17.6       | 23.5           | 18.5           | 29.5           | 24.8 | 14.2 | 16                                | 11.2     | 6              | 25.7       |
|                             | 3/8                 | KQ2VS08-03AS | 8                      | 13.2             | 20.6       | 23.1           | 19.5           | 31.4           | 26.3 | 14.2 | 16                                | 11.2     | 6              | 37         |
| $\phi 10$                   | 1/4                 | KQ2VS10-02AS | 8                      | 15.9             | 20.6       | 25.9           | 19.7           | 30.8           | 26.1 | 15.6 | 27                                | 20.3     | 7.5            | 30.4       |
|                             | 3/8                 | KQ2VS10-03AS | 8                      | 15.9             | 20.6       | 25.9           | 20.3           | 31.4           | 26.3 | 15.6 | 27                                | 20.3     | 7.5            | 38.3       |
| $\phi 12$                   | 3/8                 | KQ2VS12-03AS | 10                     | 18.5             | 25.2       | 28.5           | 21.4           | 35.1           | 30   | 17   | 39                                | 30.8     | 9              | 51.4       |
|                             | 1/2                 | KQ2VS12-04AS | 10                     | 18.5             | 25.2       | 28.5           | 24.6           | 38.3           | 31.9 | 17   | 39                                | 30.8     | 9              | 70         |

\* Reference dimensions after installation of R thread

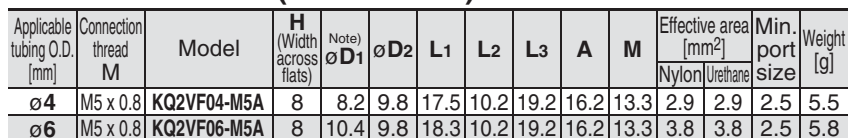
Note)  $\phi D_1$  is maximum diameter.



Inch Size  
Uni

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

### Universal Female Elbow: KQ2VF (Gasket seal)

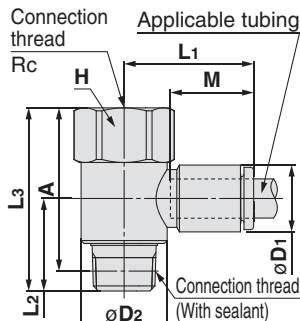


Technical drawing of a Tee fitting (1/2" NPT x 1/2" NPT). The drawing shows the fitting with dimensions and labels:

- Connection thread M5 x 0.8**: Label for the top connection thread.
- Applicable tubing**: Label for the tubing connected to the side port.
- L<sub>1</sub>**: Dimension for the length of the side port.
- M**: Dimension for the length of the side port.
- H**: Dimension for the height of the side port.
- L<sub>3</sub>**: Dimension for the total length of the fitting.
- A**: Dimension for the length of the main body.
- L<sub>2</sub>**: Dimension for the length of the main body.
- ØD<sub>1</sub>**: Dimension for the outer diameter of the side port.
- ØD<sub>2</sub>**: Dimension for the outer diameter of the main body.
- Connection thread**: Label for the bottom connection thread.

| Applicable tubing O.D.<br>[mm] | Connection thread<br>R, Rc | Model        | H<br>(Width across flats) | (Note)<br>øD1 | øD2  | L1   | L2   | L3   | A*   | M    | Effective area<br>[mm <sup>2</sup> ] |          | Min. port size | Weight<br>[g] |
|--------------------------------|----------------------------|--------------|---------------------------|---------------|------|------|------|------|------|------|--------------------------------------|----------|----------------|---------------|
|                                |                            |              |                           |               |      |      |      |      |      |      | Nylon                                | Urethane |                |               |
| ø4                             | 1/8                        | KQ2VF04-01AS | 14                        | 8.2           | 13.4 | 19.3 | 13   | 28.5 | 25.4 | 13.3 | 2.9                                  | 2.9      | 3              | 17.3          |
|                                | 1/8                        | KQ2VF06-01AS | 14                        | 10.4          | 13.4 | 20.5 | 13   | 28.5 | 25.4 | 13.3 | 7.5                                  | 5.9      | 4.5            | 17.6          |
| ø6                             | 1/4                        | KQ2VF06-02AS | 17                        | 10.4          | 17.6 | 21.2 | 17.3 | 37.9 | 33.2 | 13.3 | 7.5                                  | 5.9      | 6              | 37            |
|                                | 1/8                        | KQ2VF08-01AS | 17                        | 13.2          | 17.6 | 23.5 | 14.4 | 30   | 26.9 | 14.2 | 16                                   | 11.2     | 6              | 27.5          |
| ø8                             | 1/4                        | KQ2VF08-02AS | 17                        | 13.2          | 17.6 | 23.5 | 17.8 | 37.9 | 33.2 | 14.2 | 16                                   | 11.2     | 6              | 38.1          |
|                                | 3/8                        | KQ2VF08-03AS | 22                        | 13.2          | 25.2 | 24.9 | 19.2 | 44   | 38.9 | 14.2 | 16                                   | 11.2     | 6              | 64.5          |
| ø10                            | 1/4                        | KQ2VF10-02AS | 19                        | 15.9          | 20.6 | 25.9 | 19.2 | 40.3 | 35.6 | 15.6 | 27                                   | 20.3     | 7.5            | 46.4          |
|                                | 3/8                        | KQ2VF10-03AS | 22                        | 15.9          | 25.2 | 26.3 | 20   | 44   | 38.9 | 15.6 | 27                                   | 20.3     | 9              | 65.3          |
| ø12                            | 3/8                        | KQ2VF12-03AS | 22                        | 18.5          | 25.2 | 28.5 | 20.7 | 44   | 38.9 | 17   | 39                                   | 30.8     | 9              | 67.2          |
|                                | 1/2                        | KQ2VF12-04AS | 24                        | 18.5          | 27   | 29   | 22.7 | 48.9 | 42.5 | 17   | 39                                   | 30.8     | 9              | 95.6          |

Note)  $\varnothing D_1$  is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

## Dimensions

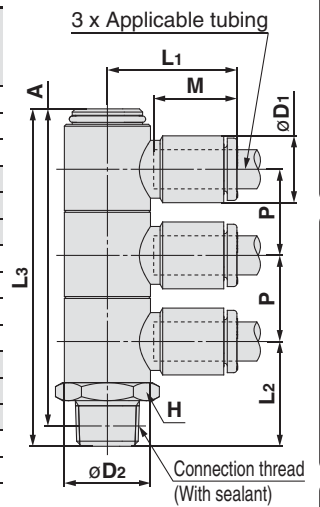
### Triple Universal Male Elbow: KQ2VT (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model        | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A*   | M    | P    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|--------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |              |                        |                  |            |                |                |                |      |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2VT04-01AS | 14                     | 8.2              | 13.4       | 19.3           | 16.3           | 52.5           | 49.4 | 13.3 | 13.4 | 2.9                               | 2.9      | 3              | 25.3       |
|                             | 1/4                 | KQ2VT04-02AS | 14                     | 8.2              | 13.4       | 19.3           | 20.7           | 56.9           | 52.2 | 13.3 | 13.4 | 2.9                               | 2.9      | 3              | 32.9       |
|                             | 3/8                 | KQ2VT04-03AS | 17                     | 8.2              | 13.4       | 19.3           | 22.1           | 58.3           | 53.2 | 13.3 | 13.4 | 2.9                               | 2.9      | 3              | 44.8       |
| $\phi 6$                    | 1/8                 | KQ2VT06-01AS | 14                     | 10.4             | 13.4       | 20.5           | 16.3           | 52.5           | 49.4 | 13.3 | 13.4 | 7.5                               | 5.9      | 4.5            | 26.2       |
|                             | 1/4                 | KQ2VT06-02AS | 14                     | 10.4             | 13.4       | 20.5           | 20.7           | 56.9           | 52.2 | 13.3 | 13.4 | 7.5                               | 5.9      | 4.5            | 33.9       |
|                             | 3/8                 | KQ2VT06-03AS | 17                     | 10.4             | 13.4       | 20.5           | 22.1           | 58.3           | 53.2 | 13.3 | 13.4 | 7.5                               | 5.9      | 4.5            | 45.8       |
| $\phi 8$                    | 1/8                 | KQ2VT08-01AS | 19                     | 13.2             | 17.6       | 23.7           | 19             | 61.8           | 58.7 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 59.6       |
|                             | 1/4                 | KQ2VT08-02AS | 19                     | 13.2             | 17.6       | 23.7           | 22.4           | 65.2           | 60.5 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 56.8       |
|                             | 3/8                 | KQ2VT08-03AS | 19                     | 13.2             | 17.6       | 23.7           | 23             | 65.8           | 60.7 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 64.9       |
| $\phi 10$                   | 1/2                 | KQ2VT08-04AS | 22                     | 13.2             | 17.6       | 23.7           | 27.2           | 70             | 63.6 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 91.5       |
|                             | 1/4                 | KQ2VT10-02AS | 21                     | 15.9             | 20.6       | 25.7           | 24.3           | 75.5           | 70.8 | 15.6 | 19.2 | 27                                | 20.3     | 7.5            | 82         |
|                             | 3/8                 | KQ2VT10-03AS | 21                     | 15.9             | 20.6       | 25.7           | 24.7           | 75.9           | 70.8 | 15.6 | 19.2 | 27                                | 20.3     | 7.5            | 81.9       |
| $\phi 12$                   | 1/2                 | KQ2VT10-04AS | 22                     | 15.9             | 20.6       | 25.7           | 28.7           | 79.9           | 73.5 | 15.6 | 19.2 | 27                                | 20.3     | 7.5            | 103.9      |
|                             | 1/4                 | KQ2VT12-02AS | 26                     | 18.5             | 25.2       | 28.9           | 26.5           | 84.1           | 79.4 | 17   | 21.6 | 39                                | 30.8     | 9              | 139.3      |
|                             | 3/8                 | KQ2VT12-03AS | 26                     | 18.5             | 25.2       | 28.9           | 26.9           | 84.5           | 79.4 | 17   | 21.6 | 39                                | 30.8     | 9              | 129.7      |
|                             | 1/2                 | KQ2VT12-04AS | 26                     | 18.5             | 25.2       | 28.9           | 30.1           | 87.7           | 81.3 | 17   | 21.6 | 39                                | 30.8     | 9              | 142.2      |

\* Reference dimensions after installation of R thread

Note)  $\phi D_1$  is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

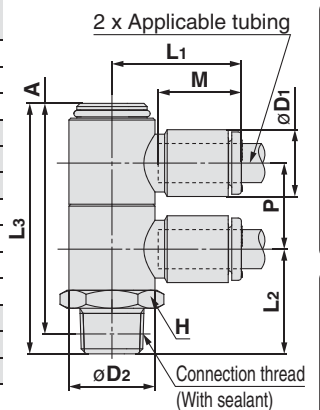
### Double Universal Male Elbow: KQ2VD (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model        | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A*   | M    | P    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|--------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |              |                        |                  |            |                |                |                |      |      |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2VD04-01AS | 14                     | 8.2              | 13.4       | 19.3           | 16.3           | 39             | 35.9 | 13.3 | 13.4 | 2.9                               | 2.9      | 3              | 19.7       |
|                             | 1/4                 | KQ2VD04-02AS | 14                     | 8.2              | 13.4       | 19.3           | 20.7           | 43.4           | 38.7 | 13.3 | 13.4 | 2.9                               | 2.9      | 3              | 27.4       |
|                             | 3/8                 | KQ2VD04-03AS | 17                     | 8.2              | 13.4       | 19.3           | 22.1           | 44.8           | 39.7 | 13.3 | 13.4 | 2.9                               | 2.9      | 3              | 39.3       |
| $\phi 6$                    | 1/8                 | KQ2VD06-01AS | 14                     | 10.4             | 13.4       | 20.5           | 16.3           | 39             | 35.9 | 13.3 | 13.4 | 7.5                               | 5.9      | 4.5            | 20.3       |
|                             | 1/4                 | KQ2VD06-02AS | 14                     | 10.4             | 13.4       | 20.5           | 20.7           | 43.4           | 38.7 | 13.3 | 13.4 | 7.5                               | 5.9      | 4.5            | 28         |
|                             | 3/8                 | KQ2VD06-03AS | 17                     | 10.4             | 13.4       | 20.5           | 22.1           | 44.8           | 39.7 | 13.3 | 13.4 | 7.5                               | 5.9      | 4.5            | 39.9       |
| $\phi 8$                    | 1/8                 | KQ2VD08-01AS | 19                     | 13.2             | 17.6       | 23.7           | 19             | 45.8           | 42.7 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 45.1       |
|                             | 1/4                 | KQ2VD08-02AS | 19                     | 13.2             | 17.6       | 23.7           | 22.4           | 49.2           | 44.5 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 44.3       |
|                             | 3/8                 | KQ2VD08-03AS | 19                     | 13.2             | 17.6       | 23.7           | 23             | 49.8           | 44.7 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 52.3       |
| $\phi 10$                   | 1/2                 | KQ2VD08-04AS | 22                     | 13.2             | 17.6       | 23.7           | 27.2           | 54             | 47.6 | 14.2 | 15.9 | 16                                | 11.2     | 6              | 78.4       |
|                             | 1/4                 | KQ2VD10-02AS | 21                     | 15.9             | 20.6       | 25.7           | 24.3           | 56.2           | 51.5 | 15.6 | 19.2 | 27                                | 20.3     | 7.5            | 63.1       |
|                             | 3/8                 | KQ2VD10-03AS | 21                     | 15.9             | 20.6       | 25.7           | 24.7           | 56.6           | 51.5 | 15.6 | 19.2 | 27                                | 20.3     | 7.5            | 65.1       |
| $\phi 12$                   | 1/2                 | KQ2VD10-04AS | 22                     | 15.9             | 20.6       | 25.7           | 28.1           | 60             | 53.6 | 15.6 | 19.2 | 27                                | 20.3     | 7.5            | 87         |
|                             | 1/4                 | KQ2VD12-02AS | 26                     | 18.5             | 25.2       | 28.9           | 26.5           | 62.4           | 57.7 | 17   | 21.6 | 39                                | 30.8     | 9              | 107        |
|                             | 3/8                 | KQ2VD12-03AS | 26                     | 18.5             | 25.2       | 28.9           | 26.9           | 62.8           | 57.7 | 17   | 21.6 | 39                                | 30.8     | 9              | 102.1      |
|                             | 1/2                 | KQ2VD12-04AS | 26                     | 18.5             | 25.2       | 28.9           | 30.1           | 66             | 59.6 | 17   | 21.6 | 39                                | 30.8     | 9              | 116.1      |

\* Reference dimensions after installation of R thread

Note)  $\phi D_1$  is maximum diameter.



Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

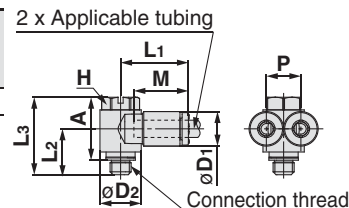
## Dimensions

### Branch Universal Male Elbow: KQ2Z (Gasket seal)



| Applicable tubing O.D.<br>[mm] | Connection thread<br>M | Model      | H<br>(Width across flats) | Note<br>ØD1 | ØD2 | L1   | L2   | L3   | A    | M    | P   | Effective area<br>[mm²] |          | Min. port size | Weight<br>[g] |
|--------------------------------|------------------------|------------|---------------------------|-------------|-----|------|------|------|------|------|-----|-------------------------|----------|----------------|---------------|
|                                |                        |            |                           |             |     |      |      |      |      |      |     | Nylon                   | Urethane |                |               |
| ø4                             | M5 x 0.8               | KQ2Z04-M5A | 8                         | 8.2         | 9.8 | 16.5 | 10.9 | 18.4 | 15.4 | 13.3 | 8.2 | 3.4                     | 3.4      | 2.5            | 6.2           |

Note) ØD1 is maximum diameter.



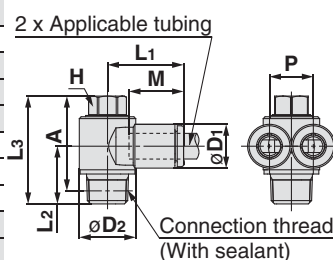
### Branch Universal Male Elbow: KQ2Z (Sealant)



| Applicable tubing O.D.<br>(mm) | Connection thread<br>R | Model       | H<br>(Width across flats) | Note<br>ØD1 | ØD2  | L1   | L2   | L3   | A*   | M    | P    | Effective area<br>[mm²] |          | Min. port size | Weight<br>[g] |
|--------------------------------|------------------------|-------------|---------------------------|-------------|------|------|------|------|------|------|------|-------------------------|----------|----------------|---------------|
|                                |                        |             |                           |             |      |      |      |      |      |      |      | Nylon                   | Urethane |                |               |
| Ø4                             | 1/8                    | KQ2Z04-01AS | 8                         | 8.2         | 13.4 | 18.5 | 13.7 | 25.6 | 22.5 | 13.3 | 8.2  | 4.7                     | 4.7      | 3              | 14            |
|                                | 1/8                    | KQ2Z06-01AS | 8                         | 10.4        | 13.4 | 18.4 | 13.7 | 25.6 | 22.5 | 13.3 | 10.4 | 10.8                    | 8.6      | 4.5            | 14.6          |
| Ø6                             | 1/4                    | KQ2Z06-02AS | 14                        | 10.4        | 20.6 | 21.5 | 19.1 | 34.9 | 30.2 | 13.3 | 10.4 | 10.8                    | 8.6      | 4.5            | 37            |
|                                | 3/8                    | KQ2Z06-03AS | 14                        | 10.4        | 20.6 | 21.5 | 19.5 | 35.3 | 30.2 | 13.3 | 10.4 | 10.8                    | 8.6      | 4.5            | 44.6          |
| Ø8                             | 1/8                    | KQ2Z08-01AS | 12                        | 13.2        | 17.6 | 21.2 | 15.1 | 27.6 | 24.5 | 14.2 | 13.2 | 20.5                    | 14.2     | 6              | 24.3          |
|                                | 1/4                    | KQ2Z08-02AS | 12                        | 13.2        | 17.6 | 21.2 | 18.5 | 31   | 26.3 | 14.2 | 13.2 | 20.5                    | 14.2     | 6              | 30.8          |
|                                | 3/8                    | KQ2Z08-03AS | 14                        | 13.2        | 20.6 | 22.3 | 19.5 | 35.3 | 30.2 | 14.2 | 13.2 | 20.5                    | 14.2     | 6              | 46.3          |
| Ø10                            | 1/4                    | KQ2Z10-02AS | 14                        | 15.9        | 21.6 | 23.6 | 19.9 | 34.9 | 30.2 | 15.6 | 15.9 | 31.8                    | 22.6     | 7.5            | 41.7          |
|                                | 3/8                    | KQ2Z10-03AS | 14                        | 15.9        | 21.6 | 23.6 | 20.3 | 35.3 | 30.2 | 15.6 | 15.9 | 31.8                    | 22.6     | 7.5            | 49.3          |
| Ø12                            | 3/8                    | KQ2Z12-03AS | 17                        | 18.5        | 24.1 | 26.9 | 21.2 | 37.6 | 32.5 | 17   | 18.5 | 44.6                    | 35.3     | 9              | 63.4          |
|                                | 1/2                    | KQ2Z12-04AS | 17                        | 18.5        | 24.1 | 26.9 | 24.4 | 40.8 | 34.4 | 17   | 18.5 | 44.6                    | 35.3     | 9              | 82            |

\* Reference dimensions after installation of R thread

Note) ØD1 is maximum diameter.

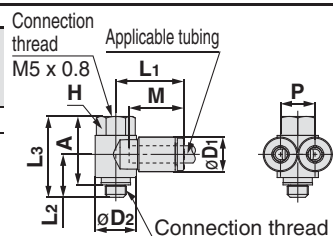


### Branch Universal Female Elbow: KQ2ZF (Gasket seal)



| Applicable tubing O.D. (mm) | Connection thread M | Model       | H (Width across flats) | Note) | øD1 | øD2  | L1   | L2   | L3   | A    | M   | P   | Effective area (mm <sup>2</sup> ) |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|-------|-----|------|------|------|------|------|-----|-----|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |       |     |      |      |      |      |      |     |     | Nylon                             | Urethane |                |            |
| ø4                          | M5 x 0.8            | KQ2ZF04-M5A | 8                      | 8.2   | 9.8 | 16.5 | 10.2 | 19.2 | 16.2 | 13.3 | 8.2 | 8.2 | 3.4                               | 3.4      | 2.5            | 6.3        |

Note) ØD1 is maximum diameter.



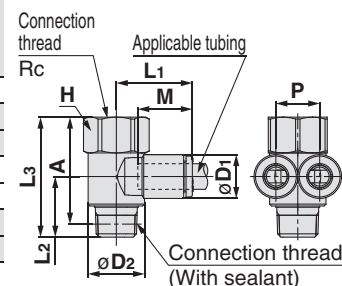
### Branch Universal Female Elbow: KQ2ZF (Sealant)



| Applicable tubing O.D.<br>[mm] | Connection thread<br>R, Rc | Model        | H<br>(Width across flats) | Note<br>ØD1 | ØD2  | L1   | L2   | L3   | A*   | M    | P    | Effective area<br>[mm²] |          | Min. port size | Weight<br>[g] |
|--------------------------------|----------------------------|--------------|---------------------------|-------------|------|------|------|------|------|------|------|-------------------------|----------|----------------|---------------|
|                                |                            |              |                           |             |      |      |      |      |      |      |      | Nylon                   | Urethane |                |               |
| Ø4                             | 1/8                        | KQ2ZF04-01AS | 14                        | 8.2         | 13.4 | 18.5 | 13   | 28.5 | 25.4 | 13.3 | 8.2  | 4.7                     | 4.7      | 3              | 18.1          |
| Ø6                             | 1/8                        | KQ2ZF06-01AS | 14                        | 10.4        | 13.4 | 18.4 | 13   | 28.5 | 25.4 | 13.3 | 10.4 | 10.8                    | 8.6      | 4.5            | 18.7          |
|                                | 1/4                        | KQ2ZF06-02AS | 19                        | 10.4        | 20.6 | 21.5 | 18.4 | 40.3 | 35.6 | 13.3 | 10.4 | 10.8                    | 8.6      | 4.5            | 45.3          |
| Ø8                             | 1/8                        | KQ2ZF08-01AS | 17                        | 13.2        | 17.6 | 21.2 | 14.4 | 30   | 26.9 | 14.2 | 13.2 | 20.5                    | 14.2     | 6              | 29.3          |
|                                | 1/4                        | KQ2ZF08-02AS | 19                        | 13.2        | 20.6 | 22.3 | 18.4 | 40.3 | 35.6 | 14.2 | 13.2 | 20.5                    | 14.2     | 6              | 47            |
| Ø10                            | 1/4                        | KQ2ZF10-02AS | 19                        | 15.9        | 21.6 | 23.6 | 19.2 | 40.3 | 35.6 | 15.6 | 15.9 | 31.8                    | 22.6     | 7.5            | 49.9          |
|                                | 3/8                        | KQ2ZF10-03AS | 22                        | 15.9        | 25.2 | 25.5 | 20   | 44   | 38.9 | 15.6 | 15.9 | 31.8                    | 22.6     | 9              | 68.4          |
| Ø12                            | 3/8                        | KQ2ZF12-03AS | 22                        | 18.5        | 24.1 | 26.9 | 20.5 | 44   | 38.9 | 17   | 18.5 | 44.6                    | 35.3     | 9              | 71            |
|                                | 1/2                        | KQ2ZF12-04AS | 24                        | 18.5        | 27   | 29.9 | 22.7 | 48.9 | 42.5 | 17   | 18.5 | 44.6                    | 35.3     | 9              | 100.5         |

\* Reference dimensions after installation of R thread

Note) ØD1 is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

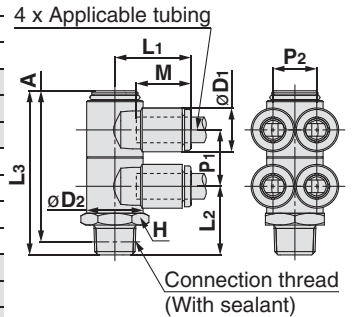
## Dimensions

### Double Branch Universal Male Elbow: KQ2ZD (Sealant)



| Applicable tubing O.D.<br>[mm] | Connection thread<br>R | Model        | H<br>(Width across flats) | Note)<br>øD1 | øD2  | L1   | L2   | L3   | A*   | M    | P1   | P2   | Effective area<br>[mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|--------------------------------|------------------------|--------------|---------------------------|--------------|------|------|------|------|------|------|------|------|--------------------------------------|----------|----------------|------------|
|                                |                        |              |                           |              |      |      |      |      |      |      |      |      | Nylon                                | Urethane |                |            |
| ø4                             | 1/8                    | KQ2ZD04-01AS | 14                        | 8.2          | 13.4 | 18.5 | 16.3 | 39   | 35.9 | 13.3 | 13.4 | 8.2  | 4.7                                  | 4.7      | 3              | 21.3       |
|                                | 1/4                    | KQ2ZD04-02AS | 14                        | 8.2          | 13.4 | 18.5 | 20.7 | 43.4 | 38.7 | 13.3 | 13.4 | 8.2  | 4.7                                  | 4.7      | 3              | 29         |
|                                | 3/8                    | KQ2ZD04-03AS | 17                        | 8.2          | 13.4 | 18.5 | 22.1 | 44.8 | 39.7 | 13.3 | 13.4 | 8.2  | 4.7                                  | 4.7      | 3              | 40.9       |
| ø6                             | 1/8                    | KQ2ZD06-01AS | 14                        | 10.4         | 13.4 | 18.4 | 16.3 | 39   | 35.9 | 13.3 | 13.4 | 10.4 | 10.8                                 | 8.6      | 4.5            | 22.5       |
|                                | 1/4                    | KQ2ZD06-02AS | 14                        | 10.4         | 13.4 | 18.4 | 20.7 | 43.4 | 38.7 | 13.3 | 13.4 | 10.4 | 10.8                                 | 8.6      | 4.5            | 30.2       |
|                                | 3/8                    | KQ2ZD06-03AS | 17                        | 10.4         | 13.4 | 18.4 | 22.1 | 44.8 | 39.7 | 13.3 | 13.4 | 10.4 | 10.8                                 | 8.6      | 4.5            | 42.1       |
| ø8                             | 1/8                    | KQ2ZD08-01AS | 19                        | 13.2         | 17.6 | 21.2 | 19   | 45.8 | 42.7 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 48.7       |
|                                | 1/4                    | KQ2ZD08-02AS | 19                        | 13.2         | 17.6 | 21.2 | 22.4 | 49.2 | 44.5 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 48         |
|                                | 3/8                    | KQ2ZD08-03AS | 19                        | 13.2         | 17.6 | 21.2 | 23   | 49.8 | 44.7 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 55.9       |
| ø10                            | 1/2                    | KQ2ZD08-04AS | 22                        | 13.2         | 17.6 | 21.2 | 27.2 | 54   | 47.6 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 82.1       |
|                                | 1/4                    | KQ2ZD10-02AS | 21                        | 15.9         | 20.6 | 23.6 | 24.3 | 56.2 | 51.5 | 15.6 | 19.2 | 15.9 | 31.8                                 | 21.6     | 9              | 69         |
|                                | 3/8                    | KQ2ZD10-03AS | 21                        | 15.9         | 20.6 | 23.6 | 24.7 | 56.6 | 51.5 | 15.6 | 19.2 | 15.9 | 31.8                                 | 21.6     | 10             | 71         |
| ø12                            | 1/2                    | KQ2ZD10-04AS | 22                        | 15.9         | 20.6 | 23.6 | 28.1 | 60   | 53.6 | 15.6 | 19.2 | 15.9 | 31.8                                 | 21.6     | 10             | 92.9       |
|                                | 1/4                    | KQ2ZD12-02AS | 26                        | 18.5         | 25.2 | 26.8 | 26.5 | 62.4 | 57.7 | 17   | 21.6 | 18.5 | 44.6                                 | 35.3     | 9              | 115.6      |
|                                | 3/8                    | KQ2ZD12-03AS | 26                        | 18.5         | 25.2 | 26.8 | 26.9 | 62.8 | 57.7 | 17   | 21.6 | 18.5 | 44.6                                 | 35.3     | 11             | 110.7      |
| ø12                            | 1/2                    | KQ2ZD12-04AS | 26                        | 18.5         | 25.2 | 26.8 | 30.1 | 66   | 59.6 | 17   | 21.6 | 18.5 | 44.6                                 | 35.3     | 11.5           | 124.7      |

\* Reference dimensions after installation of R thread  
Note) øD1 is maximum diameter.

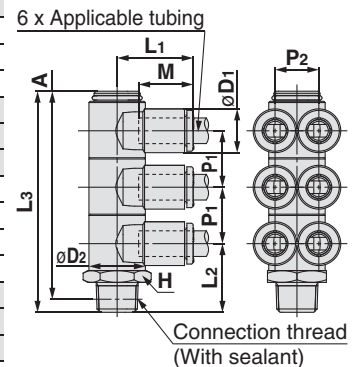


### Triple Branch Universal Male Elbow: KQ2ZT (Sealant)



| Applicable tubing O.D.<br>[mm] | Connection thread<br>R | Model        | H<br>(Width across flats) | Note)<br>øD1 | øD2  | L1   | L2   | L3   | A*   | M    | P1   | P2   | Effective area<br>[mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|--------------------------------|------------------------|--------------|---------------------------|--------------|------|------|------|------|------|------|------|------|--------------------------------------|----------|----------------|------------|
|                                |                        |              |                           |              |      |      |      |      |      |      |      |      | Nylon                                | Urethane |                |            |
| ø4                             | 1/8                    | KQ2ZT04-01AS | 14                        | 8.2          | 13.4 | 18.5 | 16.3 | 52.5 | 49.4 | 13.3 | 13.4 | 8.2  | 4.7                                  | 4.7      | 3              | 27.7       |
|                                | 1/4                    | KQ2ZT04-02AS | 14                        | 8.2          | 13.4 | 18.5 | 20.7 | 56.9 | 52.2 | 13.3 | 13.4 | 8.2  | 4.7                                  | 4.7      | 3              | 35.3       |
|                                | 3/8                    | KQ2ZT04-03AS | 17                        | 8.2          | 13.4 | 18.5 | 22.1 | 58.3 | 53.2 | 13.3 | 13.4 | 8.2  | 4.7                                  | 4.7      | 3              | 47.2       |
| ø6                             | 1/8                    | KQ2ZT06-01AS | 14                        | 10.4         | 13.4 | 18.4 | 16.3 | 52.5 | 49.4 | 13.3 | 13.4 | 10.4 | 10.8                                 | 8.6      | 4.5            | 29.5       |
|                                | 1/4                    | KQ2ZT06-02AS | 14                        | 10.4         | 13.4 | 18.4 | 20.7 | 56.9 | 52.2 | 13.3 | 13.4 | 10.4 | 10.8                                 | 8.6      | 4.5            | 37.2       |
|                                | 3/8                    | KQ2ZT06-03AS | 17                        | 10.4         | 13.4 | 18.4 | 22.1 | 58.3 | 53.2 | 13.3 | 13.4 | 10.4 | 10.8                                 | 8.6      | 4.5            | 49.1       |
| ø8                             | 1/8                    | KQ2ZT08-01AS | 19                        | 13.2         | 17.6 | 21.2 | 19   | 61.8 | 58.7 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 65.1       |
|                                | 1/4                    | KQ2ZT08-02AS | 19                        | 13.2         | 17.6 | 21.2 | 22.4 | 65.2 | 60.5 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 62.3       |
|                                | 3/8                    | KQ2ZT08-03AS | 19                        | 13.2         | 17.6 | 21.2 | 23   | 65.8 | 60.7 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 70.4       |
| ø10                            | 1/2                    | KQ2ZT08-04AS | 22                        | 13.2         | 17.6 | 21.2 | 27.2 | 70   | 63.6 | 14.2 | 15.9 | 13.2 | 20.5                                 | 14.2     | 6              | 97         |
|                                | 1/4                    | KQ2ZT10-02AS | 21                        | 15.9         | 20.6 | 23.6 | 24.3 | 75.5 | 70.8 | 15.6 | 19.2 | 15.9 | 31.8                                 | 21.6     | 9              | 90.9       |
|                                | 3/8                    | KQ2ZT10-03AS | 21                        | 15.9         | 20.6 | 23.6 | 24.7 | 75.9 | 70.8 | 15.6 | 19.2 | 15.9 | 31.8                                 | 21.6     | 10             | 90.7       |
| ø12                            | 1/2                    | KQ2ZT10-04AS | 22                        | 15.9         | 20.6 | 23.6 | 28.7 | 79.9 | 73.5 | 15.6 | 19.2 | 15.9 | 31.8                                 | 21.6     | 10             | 112.7      |
|                                | 1/4                    | KQ2ZT12-02AS | 26                        | 18.5         | 25.2 | 26.8 | 26.5 | 84.1 | 79.4 | 17   | 21.6 | 18.5 | 44.6                                 | 35.3     | 9              | 152.2      |
|                                | 3/8                    | KQ2ZT12-03AS | 26                        | 18.5         | 25.2 | 26.8 | 26.9 | 84.5 | 79.4 | 17   | 21.6 | 18.5 | 44.6                                 | 35.3     | 11             | 142.6      |
| ø12                            | 1/2                    | KQ2ZT12-04AS | 26                        | 18.5         | 25.2 | 26.8 | 30.1 | 87.7 | 81.3 | 17   | 21.6 | 18.5 | 44.6                                 | 35.3     | 11.5           | 155.1      |

\* Reference dimensions after installation of R thread  
Note) øD1 is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

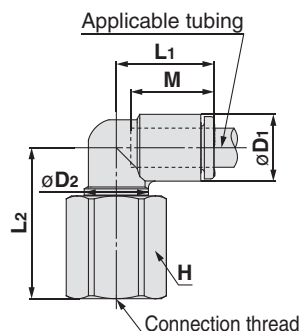
## Dimensions

### Female Elbow: KQ2LF



| Applicable tubing O.D. [mm] | Connection thread M, Rc | Model       | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-------------------------|-------------|------------------------|------------------|------------|----------------|----------------|------|-----------------------------------|----------|----------------|------------|
|                             |                         |             |                        |                  |            |                |                |      | Nylon                             | Urethane |                |            |
| $\phi 4$                    | M5 x 0.8                | KQ2LF04-M5A | 8                      | 8.2              | 7          | 15.4           | 15.3           | 13.3 | 3.5                               | 3.5      | 2.5            | 4.7        |
|                             | M6 x 1.0                | KQ2LF04-M6A | 8                      | 8.2              | 7          | 15.4           | 16.1           | 13.3 | 3.5                               | 3.5      | 2.5            | 4.6        |
|                             | 1/8                     | KQ2LF04-01A | 14                     | 8.2              | 10         | 14.8           | 22.4           | 13.3 | 4.2                               | 4.2      | 3              | 17.6       |
|                             | 1/4                     | KQ2LF04-02A | 17                     | 8.2              | 10         | 14.8           | 26.9           | 13.3 | 4.2                               | 4.2      | 3              | 29.6       |
| $\phi 6$                    | M5 x 0.8                | KQ2LF06-M5A | 8                      | 10.4             | 7          | 14.5           | 17             | 13.3 | 3.5                               | 3.5      | 2.5            | 4.8        |
|                             | M6 x 1.0                | KQ2LF06-M6A | 8                      | 10.4             | 7          | 14.5           | 17.8           | 13.3 | 3.5                               | 3.5      | 2.5            | 4.7        |
|                             | 1/8                     | KQ2LF06-01A | 14                     | 10.4             | 10         | 15.5           | 23.5           | 13.3 | 11.4                              | 9        | 4.5            | 18         |
|                             | 1/4                     | KQ2LF06-02A | 17                     | 10.4             | 10         | 15.5           | 28             | 13.3 | 11.4                              | 9        | 4.5            | 30.1       |
| $\phi 8$                    | 3/8                     | KQ2LF06-03A | 19                     | 10.4             | 10         | 15.5           | 28.5           | 13.3 | 11.4                              | 9        | 4.5            | 34         |
|                             | 1/8                     | KQ2LF08-01A | 14                     | 13.2             | 10         | 16.4           | 24.9           | 14.2 | 11.4                              | 11.4     | 4.5            | 18.8       |
|                             | 1/4                     | KQ2LF08-02A | 17                     | 13.2             | 12         | 17.2           | 28.8           | 14.2 | 21.6                              | 14.9     | 6              | 28.7       |
| $\phi 10$                   | 3/8                     | KQ2LF08-03A | 19                     | 13.2             | 12         | 17.2           | 29.3           | 14.2 | 21.6                              | 14.9     | 6              | 32.3       |
|                             | 1/4                     | KQ2LF10-02A | 17                     | 15.9             | 17         | 19.3           | 27.4           | 15.6 | 21.6                              | 14.9     | 7.5            | 26.4       |
|                             | 3/8                     | KQ2LF10-03A | 19                     | 15.9             | 17         | 19.3           | 33.5           | 15.6 | 35.2                              | 25       | 7.5            | 31         |
| $\phi 12$                   | 1/2                     | KQ2LF10-04A | 24                     | 15.9             | 17         | 19.3           | 36.5           | 15.6 | 35.2                              | 25       | 7.5            | 57.6       |
|                             | 1/4                     | KQ2LF12-02A | 17                     | 18.5             | 17         | 21.5           | 28.7           | 17   | 50.2                              | 39.7     | 9              | 28.2       |
|                             | 3/8                     | KQ2LF12-03A | 19                     | 18.5             | 17         | 21.5           | 34.8           | 17   | 50.2                              | 39.7     | 9              | 32.9       |
| $\phi 12$                   | 1/2                     | KQ2LF12-04A | 24                     | 18.5             | 17         | 21.5           | 37.8           | 17   | 50.2                              | 39.7     | 9              | 59.5       |

Note)  $\phi D_1$  is maximum diameter.

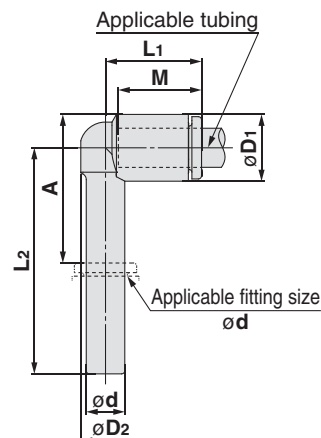


### Extended Plug-in Elbow: KQ2W



| Applicable tubing O.D. [mm] | Applicable fitting size $\phi d$ | Model      | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------------------------------|------------|------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                                  |            |                  |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | $\phi 3.2$                       | KQ2W23-99A | 7.1              | 6.4        | 14.4           | 30.5           | 20.8 | 13.3 | 3                                 | 2.5      | 2.5            | 1          |
| $\phi 4$                    | $\phi 4$                         | KQ2W04-99A | 8.2              | 7.2        | 14.5           | 31.8           | 22.6 | 13.3 | 4.2                               | 4.2      | 3              | 1.3        |
| $\phi 6$                    | $\phi 6$                         | KQ2W06-99A | 10.4             | 8          | 15.3           | 35.2           | 27.1 | 13.3 | 9                                 | 9        | 4              | 2          |
| $\phi 8$                    | $\phi 8$                         | KQ2W08-99A | 13.2             | 10         | 17.2           | 41.9           | 34.3 | 14.2 | 21.6                              | 14.9     | 6              | 3.5        |
| $\phi 10$                   | $\phi 10$                        | KQ2W10-99A | 15.9             | 12         | 19.3           | 46.6           | 38.9 | 15.6 | 35.2                              | 25       | 7.5            | 5.5        |
| $\phi 12$                   | $\phi 12$                        | KQ2W12-99A | 18.5             | 14         | 21.5           | 52             | 44.2 | 17   | 50.2                              | 39.7     | 9              | 8.4        |

Note)  $\phi D_1$  is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

## Dimensions

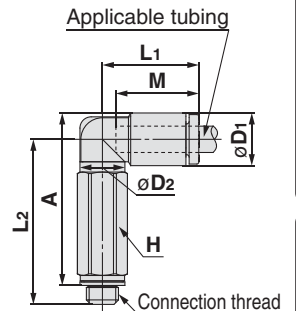
### Extended Male Elbow: KQ2W (Gasket seal)



| Applicable tubing O.D.<br>[mm] | Connection thread<br>M | Model      | H<br>(Width across flats) | (Note)<br>øD1 | øD2 | L1   | L2   | A    | M    | Effective area<br>[mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|--------------------------------|------------------------|------------|---------------------------|---------------|-----|------|------|------|------|--------------------------------------|----------|----------------|------------|
|                                |                        |            |                           |               |     |      |      |      |      | Nylon                                | Urethane |                |            |
| ø2                             | M3 x 0.5               | KQ2W02-M3G | 5.5                       | 5.8           | 5.5 | 12.6 | 18.8 | 19.1 | 11.9 | —                                    | 0.8      | 1.2            | 2.6        |
|                                | M5 x 0.8               | KQ2W02-M5□ | 7                         | 5.8           | 5.5 | 12.6 | 19.3 | 19.2 | 11.9 | —                                    | 0.8      | 1.2            | 4.6        |
| ø3.2                           | M3 x 0.5               | KQ2W23-M3G | 7                         | 7.1           | 7   | 15.3 | 22.5 | 23.4 | 13.3 | 0.8                                  | 0.8      | 1.2            | 4.8        |
|                                | M5 x 0.8               | KQ2W23-M5□ | 7                         | 7.1           | 7   | 15.3 | 25.2 | 25.7 | 13.3 | 2.8                                  | 2.4      | 2.5            | 5.8        |
| ø4                             | M3 x 0.5               | KQ2W04-M3G | 7                         | 8.2           | 7   | 15.4 | 23   | 24.5 | 13.3 | 0.8                                  | 0.8      | 1.2            | 4.9        |
|                                | M5 x 0.8               | KQ2W04-M5□ | 7                         | 8.2           | 7   | 15.4 | 25.7 | 26.8 | 13.3 | 3                                    | 3        | 2.5            | 5.8        |
| ø6                             | M5 x 0.8               | KQ2W06-M5□ | 7                         | 10.4          | 7   | 14.5 | 27.4 | 29.6 | 13.3 | 3                                    | 3        | 2.5            | 5.9        |

□/A: Brass, N: Brass + Electroless nickel plated

(Note) øD1 is maximum diameter.



### Extended Male Elbow: KQ2W (Sealant)

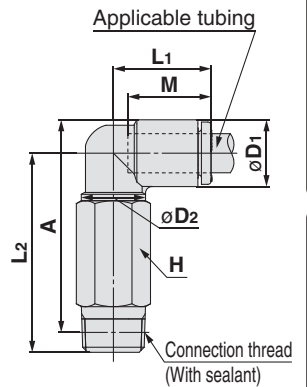


| Applicable tubing O.D.<br>[mm] | Connection thread<br>R | Model       | H<br>(Width across flats) | (Note)<br>øD1 | øD2 | L1   | L2   | A*   | M    | Effective area<br>[mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|--------------------------------|------------------------|-------------|---------------------------|---------------|-----|------|------|------|------|--------------------------------------|----------|----------------|------------|
|                                |                        |             |                           |               |     |      |      |      |      | Nylon                                | Urethane |                |            |
| ø3.2                           | 1/8                    | KQ2W23-01□S | 10                        | 7.1           | 10  | 14.5 | 30.3 | 30.8 | 13.3 | 2.8                                  | 2.4      | 2.5            | 10.8       |
|                                | 1/4                    | KQ2W23-02AS | 14                        | 7.1           | 10  | 14.5 | 32.8 | 31.7 | 13.3 | 2.8                                  | 2.4      | 2.5            | 27.3       |
| ø4                             | 1/8                    | KQ2W04-01□S | 10                        | 8.2           | 10  | 14.8 | 29.9 | 30.9 | 13.3 | 4                                    | 4        | 3              | 11         |
|                                | 1/4                    | KQ2W04-02AS | 14                        | 8.2           | 10  | 14.8 | 33.3 | 32.7 | 13.3 | 4                                    | 4        | 3              | 27.5       |
| ø6                             | 1/8                    | KQ2W06-01□S | 10                        | 10.4          | 10  | 15.5 | 31   | 33.1 | 13.3 | 10.9                                 | 8.6      | 4.5            | 11.4       |
|                                | 1/4                    | KQ2W06-02AS | 14                        | 10.4          | 10  | 15.5 | 34.4 | 34.9 | 13.3 | 10.9                                 | 8.6      | 4.5            | 28         |
|                                | 3/8                    | KQ2W06-03AS | 17                        | 10.4          | 10  | 15.5 | 35.7 | 35.8 | 13.3 | 10.9                                 | 8.6      | 4.5            | 47.4       |
| ø8                             | 1/8                    | KQ2W08-01AS | 10                        | 13.2          | 10  | 16.4 | 32.4 | 35.9 | 14.2 | 10.9                                 | 10.9     | 4.5            | 12.2       |
|                                | 1/4                    | KQ2W08-02AS | 14                        | 13.2          | 12  | 17.2 | 39.1 | 41   | 14.2 | 20.5                                 | 14.2     | 6              | 40         |
|                                | 3/8                    | KQ2W08-03AS | 17                        | 13.2          | 12  | 17.2 | 39.2 | 40.7 | 14.2 | 20.5                                 | 14.2     | 6              | 47         |
| ø10                            | 1/4                    | KQ2W10-02AS | 17                        | 15.9          | 17  | 19.3 | 52.9 | 56.2 | 15.6 | 33.5                                 | 23.8     | 7.5            | 59         |
|                                | 3/8                    | KQ2W10-03AS | 17                        | 15.9          | 17  | 19.3 | 48.5 | 51.4 | 15.6 | 33.5                                 | 23.8     | 7.5            | 51.3       |
|                                | 1/2                    | KQ2W10-04AS | 22                        | 15.9          | 17  | 19.3 | 52.5 | 54.1 | 15.6 | 33.5                                 | 23.8     | 7.5            | 92         |
| ø12                            | 1/4                    | KQ2W12-02AS | 17                        | 18.5          | 17  | 21.5 | 54.2 | 58.8 | 17   | 47.7                                 | 37.7     | 9              | 60.7       |
|                                | 3/8                    | KQ2W12-03AS | 17                        | 18.5          | 17  | 21.5 | 49.8 | 54   | 17   | 47.7                                 | 37.7     | 9              | 53.2       |
|                                | 1/2                    | KQ2W12-04AS | 22                        | 18.5          | 17  | 21.5 | 53.8 | 56.7 | 17   | 47.7                                 | 37.7     | 9              | 93.9       |
| ø16                            | <sup>New</sup> 1/4     | KQ2W16-02AS | 17                        | 23.8          | 21  | 27.1 | 59   | 66.2 | 20.6 | 47.7                                 | 47.7     | 9              | 67.4       |
|                                | 3/8                    | KQ2W16-03AS | 22                        | 23.8          | 21  | 27.1 | 59.7 | 66.5 | 20.6 | 71                                   | 71       | 11             | 105.5      |
|                                | 1/2                    | KQ2W16-04AS | 22                        | 23.8          | 21  | 27.1 | 58.4 | 63.9 | 20.6 | 100                                  | 84       | 13             | 101.7      |

□/A: Brass, N: Brass + Electroless nickel plated

\* Reference dimensions after installation of R thread

(Note) øD1 is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

## Dimensions

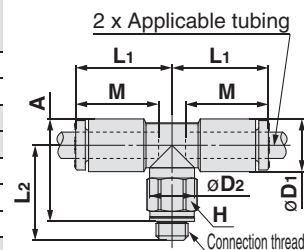
### Male Branch Tee: KQ2T (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|-------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                   |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 2$                    | M3 x 0.5            | KQ2T02-M3G | 5.5                    | 5.8               | 5.5        | 12.6           | 12.5           | 12.8 | 11.9 | —                                 | 0.9      | 1.2            | 1.9        |
|                             | M5 x 0.8            | KQ2T02-M5□ | 7                      | 5.8               | 5.5        | 12.6           | 13             | 12.9 | 11.9 | —                                 | 0.9      | 1.4            | 3          |
| $\phi 3.2$                  | M3 x 0.5            | KQ2T23-M3G | 7                      | 7.1               | 7          | 15.3           | 13.8           | 14.7 | 13.3 | 0.9                               | 0.9      | 1.2            | 3.1        |
|                             | M5 x 0.8            | KQ2T23-M5□ | 7                      | 7.1               | 7          | 15.3           | 14.3           | 14.8 | 13.3 | 3.2                               | 2.7      | 2.5            | 3.5        |
| $\phi 4$                    | M3 x 0.5            | KQ2T04-M3G | 7                      | 8.2               | 7          | 15.4           | 14.3           | 15.8 | 13.3 | 0.9                               | 0.9      | 1.2            | 3.4        |
|                             | M5 x 0.8            | KQ2T04-M5□ | 7                      | 8.2               | 7          | 15.4           | 14.8           | 15.9 | 13.3 | 4.5                               | 4.5      | 2.5            | 3.9        |
|                             | M6 x 1.0            | KQ2T04-M6A | 8                      | 8.2               | 7          | 15.4           | 15.8           | 15.9 | 13.3 | 4.5                               | 4.5      | 2.5            | 4.9        |
| $\phi 6$                    | M5 x 0.8            | KQ2T06-M5□ | 7                      | 10.4              | 7          | 14.55          | 16.5           | 18.7 | 13.3 | 4.5                               | 4.5      | 2.5            | 4.4        |
|                             | M6 x 1.0            | KQ2T06-M6A | 8                      | 10.4              | 7          | 14.55          | 17.5           | 18.7 | 13.3 | 4.5                               | 4.5      | 2.5            | 5.4        |

□/A: Brass, N: Brass + Electroless nickel plated

(Note)  $\phi D_1$  is maximum diameter.



### Male Branch Tee: KQ2T (Sealant)

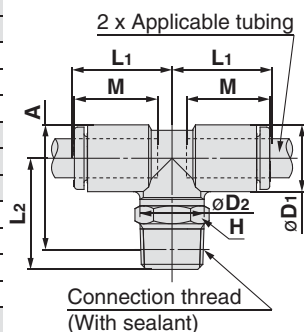


| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|-------------------|------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                   |            |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | 1/8                 | KQ2T23-01□S | 10                     | 7.1               | 10         | 14.5           | 16.6           | 17.1 | 13.3 | 3.4                               | 2.9      | 2.5            | 5.2        |
|                             | 1/4                 | KQ2T23-02AS | 14                     | 7.1               | 10         | 14.5           | 21.1           | 20   | 13.3 | 3.4                               | 2.9      | 2.5            | 14.7       |
| $\phi 4$                    | 1/8                 | KQ2T04-01□S | 10                     | 8.2               | 10         | 14.8           | 16.2           | 17.2 | 13.3 | 6                                 | 4.1      | 3              | 5.5        |
|                             | 1/4                 | KQ2T04-02AS | 14                     | 8.2               | 10         | 14.8           | 21.7           | 21.1 | 13.3 | 6                                 | 4.1      | 3              | 15         |
| $\phi 6$                    | 1/8                 | KQ2T06-01□S | 10                     | 10.4              | 10         | 15.5           | 17.3           | 19.4 | 13.3 | 13.9                              | 11       | 4.5            | 6.1        |
|                             | 1/4                 | KQ2T06-02AS | 14                     | 10.4              | 10         | 15.5           | 22.8           | 23.3 | 13.3 | 13.9                              | 11       | 4.5            | 15.6       |
|                             | 3/8                 | KQ2T06-03AS | 17                     | 10.4              | 10         | 15.5           | 24.1           | 24.2 | 13.3 | 13.9                              | 11       | 4.5            | 27.4       |
| $\phi 8$                    | 1/8                 | KQ2T08-01AS | 10                     | 13.2              | 10         | 16.4           | 18.7           | 22.2 | 14.2 | 14                                | 14       | 4.5            | 7.9        |
|                             | 1/4                 | KQ2T08-02AS | 14                     | 13.2              | 12         | 17.2           | 25.4           | 27.3 | 14.2 | 26.3                              | 18.2     | 6              | 19.4       |
|                             | 3/8                 | KQ2T08-03AS | 17                     | 13.2              | 12         | 17.2           | 25.5           | 27   | 14.2 | 26.3                              | 18.2     | 6              | 26.5       |
| $\phi 10$                   | 1/8                 | KQ2T10-01AS | 12                     | 15.9              | 12         | 18.6           | 23.5           | 28.4 | 15.6 | 21.6                              | 14.9     | 6              | 13.9       |
|                             | 1/4                 | KQ2T10-02AS | 17                     | 15.9              | 17         | 19.3           | 28.6           | 31.9 | 15.6 | 35.2                              | 25       | 7.5            | 24.3       |
|                             | 3/8                 | KQ2T10-03AS | 17                     | 15.9              | 17         | 19.3           | 29.5           | 32.4 | 15.6 | 35.2                              | 25       | 7.5            | 24.8       |
|                             | 1/2                 | KQ2T10-04AS | 22                     | 15.9              | 17         | 19.3           | 33.5           | 35.1 | 15.6 | 35.2                              | 25       | 7.5            | 47.3       |
| $\phi 12$                   | 1/4                 | KQ2T12-02AS | 17                     | 18.5              | 17         | 21.5           | 29.9           | 34.5 | 17   | 57.2                              | 45.2     | 9              | 27.3       |
|                             | 3/8                 | KQ2T12-03AS | 17                     | 18.5              | 17         | 21.5           | 30.8           | 35   | 17   | 57.2                              | 45.2     | 9              | 28         |
|                             | 1/2                 | KQ2T12-04AS | 22                     | 18.5              | 17         | 21.5           | 34.8           | 37.7 | 17   | 57.2                              | 45.2     | 9              | 50.4       |
| $\phi 16$                   | New 1/4             | KQ2T16-02AS | 17                     | 23.8              | 17         | 25.1           | 32.6           | 39.8 | 20.6 | 57.2                              | 57.2     | 9              | 35.5       |
|                             | 3/8                 | KQ2T16-03AS | 22                     | 23.8              | 21         | 27.1           | 35.4           | 42.2 | 20.6 | 71                                | 71       | 11             | 47.7       |
|                             | 1/2                 | KQ2T16-04AS | 22                     | 23.8              | 21         | 27.1           | 34.1           | 39.6 | 20.6 | 100                               | 84       | 13             | 51.4       |

□/A: Brass, N: Brass + Electroless nickel plated

\* Reference dimensions after installation of R thread

(Note)  $\phi D_1$  is maximum diameter.



# Metric Size One-touch Fittings *Series KQ2*

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

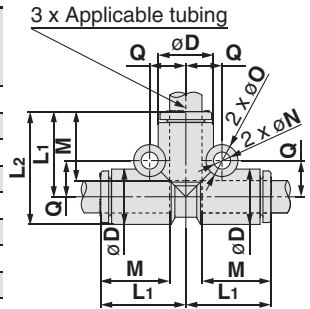
## Dimensions

### Union Tee: KQ2T



| Applicable tubing O.D. [mm] | Model      | Note) $\phi D$ | $L_1$ | $L_2$ | M    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|------------|----------------|-------|-------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |            |                |       |       |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 2$                    | KQ2T02-00A | 5.8            | 12.9  | 15.8  | 11.9 | 4.5  | 6        | 3.2      | —                                 | 0.9      | 1.4            | 1.4        |
| $\phi 3.2$                  | KQ2T23-00A | 7.1            | 14.9  | 18.5  | 13.3 | 5.4  | 6        | 3.2      | 3.4                               | 2.9      | 2.5            | 4.6        |
| $\phi 4$                    | KQ2T04-00A | 8.2            | 15.3  | 19.4  | 13.3 | 5.7  | 6        | 3.2      | 6.4                               | 4.4      | 3              | 5.5        |
| $\phi 6$                    | KQ2T06-00A | 10.4           | 16.3  | 21.5  | 13.3 | 6.8  | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 7.6        |
| $\phi 8$                    | KQ2T08-00A | 13.2           | 18.6  | 25.2  | 14.2 | 8.4  | 8        | 4.2      | 25.6                              | 17.7     | 6              | 7          |
| $\phi 10$                   | KQ2T10-00A | 15.9           | 22.4  | 30.4  | 15.6 | 9.6  | 8        | 4.2      | 40                                | 28.4     | 7.5            | 11         |
| $\phi 12$                   | KQ2T12-00A | 18.5           | 24.4  | 33.7  | 17   | 10.7 | 8        | 4.2      | 57.4                              | 45.4     | 9              | 15.7       |
| $\phi 16$                   | KQ2T16-00A | 23.8           | 31    | 42.9  | 20.6 | 13.4 | 8        | 4.2      | 100                               | 84       | 13             | 29.8       |

Note)  $\phi D$  is maximum diameter.



Metric Size  
M, R, Rc

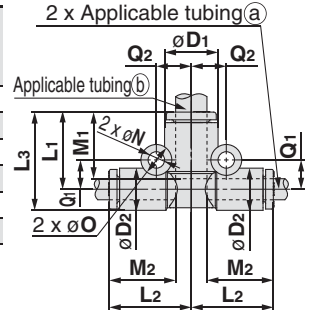
Inch Size  
UNF, NPT

### Different Diameter Tee: KQ2T



| Applicable tubing O.D. [mm] |           | Model      | Note) $\phi D_1$ | $\phi D_2$ | $L_1$ | $L_2$ | $L_3$ | M <sub>1</sub> | M <sub>2</sub> | Q <sub>1</sub> | Q <sub>2</sub> | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-----------|------------|------------------|------------|-------|-------|-------|----------------|----------------|----------------|----------------|----------|----------|-----------------------------------|----------|----------------|------------|
| (a)                         | (b)       |            |                  |            |       |       |       |                |                |                |                |          |          | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | $\phi 4$  | KQ2T23-04A | 8.2              | 7.1        | 14.9  | 15.3  | 18.5  | 13.3           | 13.3           | 5.4            | 5.8            | 6        | 3.2      | 3.8                               | 3.5      | 2.5            | 5.1        |
| $\phi 4$                    | $\phi 6$  | KQ2T04-06A | 10.4             | 8.2        | 15.3  | 16.3  | 19.4  | 13.3           | 13.3           | 5.7            | 6.8            | 6        | 3.2      | 7.1                               | 6.6      | 3              | 6.5        |
| $\phi 6$                    | $\phi 8$  | KQ2T06-08A | 13.2             | 10.4       | 17.2  | 17.3  | 22.4  | 14.2           | 13.3           | 7.3            | 8.4            | 8        | 4.2      | 16.4                              | 16.4     | 4.5            | 5.3        |
| $\phi 8$                    | $\phi 10$ | KQ2T08-10A | 15.9             | 13.2       | 19.6  | 19.2  | 26.2  | 15.6           | 14.2           | 8.4            | 9.6            | 8        | 4.2      | 36                                | 27.2     | 6              | 8.3        |
| $\phi 10$                   | $\phi 12$ | KQ2T10-12A | 18.5             | 15.9       | 22    | 21.6  | 30    | 17             | 15.6           | 9.6            | 10.7           | 8        | 4.2      | 56                                | 44.5     | 7.5            | 12.2       |
| $\phi 12$                   | $\phi 16$ | KQ2T12-16A | 23.8             | 18.5       | 26.6  | 25    | 35.9  | 20.6           | 17             | 10.7           | 13.4           | 8        | 4.2      | 108.5                             | 74       | 9              | 20.1       |

Note)  $\phi D_1$  is maximum diameter.



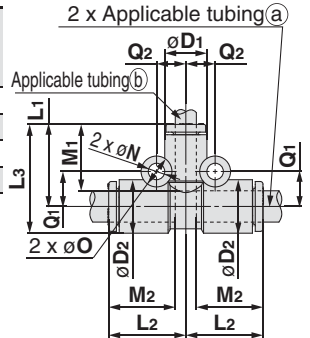
Inch Size  
M, R, Rc

### Different Diameter Tee: KQ2T



| Applicable tubing O.D. [mm] |           | Model      | Note) $\phi D_1$ | $\phi D_2$ | $L_1$ | $L_2$ | $L_3$ | M <sub>1</sub> | M <sub>2</sub> | Q <sub>1</sub> | Q <sub>2</sub> | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-----------|------------|------------------|------------|-------|-------|-------|----------------|----------------|----------------|----------------|----------|----------|-----------------------------------|----------|----------------|------------|
| (a)                         | (b)       |            |                  |            |       |       |       |                |                |                |                |          |          | Nylon                             | Urethane |                |            |
| $\phi 6$                    | $\phi 4$  | KQ2T06-04A | 8.2              | 10.4       | 16.3  | 15.3  | 21.5  | 13.3           | 13.3           | 6.8            | 5.7            | 6        | 3.2      | 6.4                               | 4.4      | 3              | 3.5        |
| $\phi 8$                    | $\phi 6$  | KQ2T08-06A | 10.4             | 13.2       | 17.3  | 17.2  | 23.9  | 13.3           | 14.2           | 8.4            | 7.3            | 8        | 4.2      | 13.4                              | 10.6     | 4.5            | 6          |
| $\phi 10$                   | $\phi 8$  | KQ2T10-08A | 13.2             | 15.9       | 19.2  | 19.6  | 27.2  | 14.2           | 15.6           | 9.6            | 8.4            | 8        | 4.2      | 25.6                              | 17.7     | 6              | 9.5        |
| $\phi 12$                   | $\phi 10$ | KQ2T12-10A | 15.9             | 18.5       | 21.6  | 22    | 30.9  | 15.6           | 17             | 10.7           | 9.6            | 8        | 4.2      | 40                                | 28.4     | 7.5            | 13.4       |

Note)  $\phi D_1$  is maximum diameter.



Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

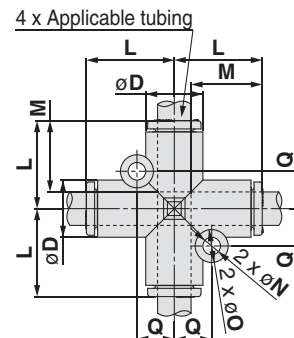
## Dimensions

### Cross: KQ2TW



| Applicable tubing O.D. [mm] | Model       | Note) $\phi D$ | L    | Q    | M    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-------------|----------------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |             |                |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | KQ2TW04-00A | 8.2            | 15.3 | 5.7  | 13.3 | 6        | 3.2      | 6.4                               | 4.4      | 3              | 3.5        |
| $\phi 6$                    | KQ2TW06-00A | 10.4           | 16.3 | 6.8  | 13.3 | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 4.9        |
| $\phi 8$                    | KQ2TW08-00A | 13.2           | 18.2 | 8.4  | 14.2 | 8        | 4.2      | 25.6                              | 17.7     | 6              | 8.5        |
| $\phi 10$                   | KQ2TW10-00A | 15.9           | 20.6 | 9.6  | 15.6 | 8        | 4.2      | 40                                | 28.4     | 7.5            | 12.7       |
| $\phi 12$                   | KQ2TW12-00A | 18.5           | 23   | 10.7 | 17   | 8        | 4.2      | 57.4                              | 45.4     | 9              | 18.4       |

Note)  $\phi D$  is maximum diameter.

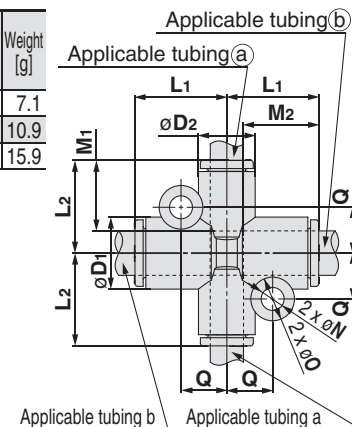


### Different Diameter Cross: KQ2TX



| Applicable tubing O.D. [mm] |           | Model       | Note) $\phi D_1$ | Note) $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | Q    | M <sub>1</sub> | M <sub>2</sub> | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-----------|-------------|------------------|------------------|----------------|----------------|------|----------------|----------------|----------|----------|-----------------------------------|----------|----------------|------------|
| (a)                         | (b)       |             |                  |                  |                |                |      |                |                |          |          | Nylon                             | Urethane |                |            |
| $\phi 6$                    | $\phi 8$  | KQ2TX06-08A | 10.4             | 13.2             | 17.2           | 17.3           | 8.4  | 13.3           | 14.2           | 8        | 4.2      | 13.4                              | 10.6     | 4.5            | 7.1        |
| $\phi 8$                    | $\phi 10$ | KQ2TX08-10A | 13.2             | 15.9             | 19.6           | 19.2           | 9.6  | 14.2           | 15.6           | 8        | 4.2      | 25.6                              | 17.7     | 6              | 10.9       |
| $\phi 10$                   | $\phi 12$ | KQ2TX10-12A | 15.9             | 18.5             | 22             | 21.6           | 10.7 | 15.6           | 17             | 8        | 4.2      | 40                                | 28.4     | 7.5            | 15.9       |

Note)  $\phi D_1$ ,  $\phi D_2$  are maximum diameters.

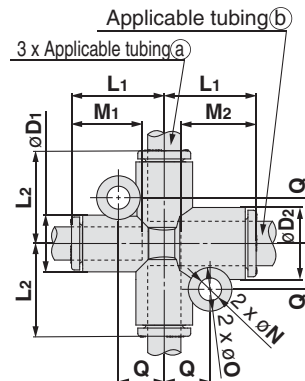


### Different Diameter Cross: KQ2TY



| Applicable tubing O.D. [mm] |           | Model       | Note) $\phi D_1$ | Note) $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | Q    | M <sub>1</sub> | M <sub>2</sub> | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-----------|-------------|------------------|------------------|----------------|----------------|------|----------------|----------------|----------|----------|-----------------------------------|----------|----------------|------------|
| (a)                         | (b)       |             |                  |                  |                |                |      |                |                |          |          | Nylon                             | Urethane |                |            |
| $\phi 6$                    | $\phi 8$  | KQ2TY06-08A | 10.4             | 13.2             | 17.3           | 17.2           | 8.4  | 13.3           | 14.2           | 8        | 4.2      | 13.4                              | 10.6     | 4.5            | 6.5        |
| $\phi 8$                    | $\phi 10$ | KQ2TY08-10A | 13.2             | 15.9             | 19.2           | 19.6           | 9.6  | 14.2           | 15.6           | 8        | 4.2      | 25.6                              | 17.7     | 6              | 10.2       |
| $\phi 10$                   | $\phi 12$ | KQ2TY10-12A | 15.9             | 18.5             | 21.6           | 22             | 10.7 | 15.6           | 17             | 8        | 4.2      | 40                                | 28.4     | 7.5            | 14.9       |

Note)  $\phi D_1$ ,  $\phi D_2$  are maximum diameters.



# Metric Size One-touch Fittings *Series KQ2*

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

## Dimensions

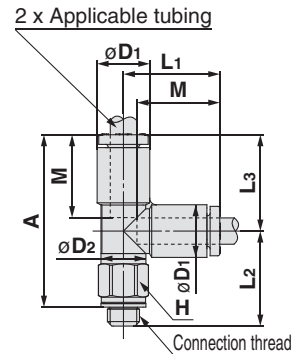
### Male Run Tee: KQ2Y (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                  |            |                |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 2$                    | M3 x 0.5            | KQ2Y02-M3G | 5.5                    | 5.8              | 5.5        | 12.9           | 12.5           | 12.9           | 22.8 | 11.9 | —                                 | 0.9      | 1.2            | 2          |
|                             | M5 x 0.8            | KQ2Y02-M5□ | 7                      | 5.8              | 5.5        | 12.9           | 13             | 12.9           | 22.9 | 11.9 | —                                 | 0.9      | 1.4            | 3.1        |
| $\phi 3.2$                  | M3 x 0.5            | KQ2Y23-M3G | 7                      | 7.1              | 7          | 15.3           | 13.8           | 15.3           | 26.5 | 13.3 | 0.9                               | 0.9      | 1.2            | 3.1        |
|                             | M5 x 0.8            | KQ2Y23-M5□ | 7                      | 7.1              | 7          | 15.3           | 14.3           | 15.3           | 26.6 | 13.3 | 3.2                               | 2.7      | 2.5            | 3.5        |
| $\phi 4$                    | M3 x 0.5            | KQ2Y04-M3G | 7                      | 8.2              | 7          | 15.4           | 14.3           | 15.4           | 27.1 | 13.3 | 0.9                               | 0.9      | 1.2            | 3.4        |
|                             | M5 x 0.8            | KQ2Y04-M5□ | 7                      | 8.2              | 7          | 15.4           | 14.8           | 15.4           | 27.2 | 13.3 | 4.5                               | 4.5      | 2.5            | 3.9        |
|                             | M6 x 1.0            | KQ2Y04-M6A | 8                      | 8.2              | 7          | 15.4           | 15.8           | 15.4           | 27.2 | 13.3 | 4.5                               | 4.5      | 2.5            | 4.9        |
| $\phi 6$                    | M5 x 0.8            | KQ2Y06-M5□ | 7                      | 10.4             | 7          | 16.35          | 16.5           | 16.3           | 29.8 | 13.3 | 4.5                               | 4.5      | 2.5            | 4.6        |
|                             | M6 x 1.0            | KQ2Y06-M6A | 8                      | 10.4             | 7          | 16.35          | 17.5           | 16.3           | 29.8 | 13.3 | 4.5                               | 4.5      | 2.5            | 5.7        |

□/A: Brass, N: Brass + Electroless nickel plated

Note)  $\phi D_1$  is maximum diameter.



### Male Run Tee: KQ2Y (Sealant)

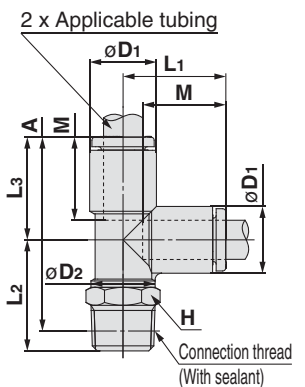


| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | A*   | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|------------------|------------|----------------|----------------|----------------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                  |            |                |                |                |      |      | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | 1/8                 | KQ2Y23-01□S | 10                     | 7.1              | 10         | 14.9           | 16.6           | 14.9           | 28.5 | 13.3 | 3.4                               | 2.9      | 2.5            | 5.3        |
|                             | 1/4                 | KQ2Y23-02AS | 14                     | 7.1              | 10         | 14.9           | 21.1           | 14.9           | 31.4 | 13.3 | 3.4                               | 2.9      | 2.5            | 14.7       |
| $\phi 4$                    | 1/8                 | KQ2Y04-01□S | 10                     | 8.2              | 10         | 15.3           | 16.2           | 15.3           | 28.4 | 13.3 | 6.4                               | 4.4      | 3              | 5.6        |
|                             | 1/4                 | KQ2Y04-02AS | 14                     | 8.2              | 10         | 15.3           | 21.7           | 15.3           | 32.3 | 13.3 | 6.4                               | 4.4      | 3              | 15         |
| $\phi 6$                    | 1/8                 | KQ2Y06-01□S | 10                     | 10.4             | 10         | 16.3           | 17.3           | 16.3           | 30.5 | 13.3 | 13.4                              | 10.6     | 4.5            | 6.2        |
|                             | 1/4                 | KQ2Y06-02AS | 14                     | 10.4             | 10         | 16.3           | 22.8           | 16.3           | 34.4 | 13.3 | 13.4                              | 10.6     | 4.5            | 15.8       |
|                             | 3/8                 | KQ2Y06-03AS | 17                     | 10.4             | 10         | 16.3           | 24.1           | 16.3           | 35.3 | 13.3 | 13.4                              | 10.6     | 4.5            | 27.5       |
| $\phi 8$                    | 1/8                 | KQ2Y08-01AS | 10                     | 13.2             | 10         | 18.2           | 18.7           | 18.2           | 33.8 | 14.2 | 13.4                              | 13.4     | 4.5            | 8          |
|                             | 1/4                 | KQ2Y08-02AS | 14                     | 13.2             | 12         | 18.2           | 25.4           | 18.2           | 38.9 | 14.2 | 25.6                              | 17.7     | 6              | 19.5       |
|                             | 3/8                 | KQ2Y08-03AS | 17                     | 13.2             | 12         | 18.2           | 25.5           | 18.2           | 38.6 | 14.2 | 25.6                              | 17.7     | 6              | 26.5       |
| $\phi 10$                   | 1/8                 | KQ2Y10-01AS | 12                     | 15.9             | 12         | 20.6           | 23.5           | 20.6           | 41.1 | 15.6 | 40                                | 28.4     | 6              | 14         |
|                             | 1/4                 | KQ2Y10-02AS | 17                     | 15.9             | 17         | 20.6           | 28.6           | 20.6           | 44.6 | 15.6 | 40                                | 28.4     | 7.5            | 24.5       |
|                             | 3/8                 | KQ2Y10-03AS | 17                     | 15.9             | 17         | 20.6           | 29.5           | 20.6           | 45.1 | 15.6 | 40                                | 28.4     | 7.5            | 25         |
|                             | 1/2                 | KQ2Y10-04AS | 22                     | 15.9             | 17         | 20.6           | 33.5           | 20.6           | 47.8 | 15.6 | 40                                | 28.4     | 7.5            | 47.4       |
| $\phi 12$                   | 1/4                 | KQ2Y12-02AS | 17                     | 18.5             | 17         | 23             | 29.9           | 23             | 48.3 | 17   | 57.4                              | 45.4     | 9              | 27.6       |
|                             | 3/8                 | KQ2Y12-03AS | 17                     | 18.5             | 17         | 23             | 30.8           | 23             | 48.8 | 17   | 57.4                              | 45.4     | 9              | 28.2       |
|                             | 1/2                 | KQ2Y12-04AS | 22                     | 18.5             | 17         | 23             | 34.8           | 23             | 51.5 | 17   | 57.4                              | 45.4     | 9              | 50.7       |
| $\phi 16$                   | New 1/4             | KQ2Y16-02AS | 17                     | 23.8             | 17         | 28.6           | 32.6           | 28.6           | 56.5 | 20.6 | 57.4                              | 45.4     | 9              | 36         |
|                             | 3/8                 | KQ2Y16-03AS | 22                     | 23.8             | 21         | 28.6           | 35.4           | 28.6           | 58.9 | 20.6 | 81                                | 60       | 11             | 48.3       |
|                             | 1/2                 | KQ2Y16-04AS | 22                     | 23.8             | 21         | 28.6           | 34.1           | 28.6           | 56.3 | 20.6 | 113                               | 60       | 13             | 52         |

□/A: Brass, N: Brass + Electroless nickel plated

\* Reference dimensions after installation of R thread

Note)  $\phi D_1$  is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

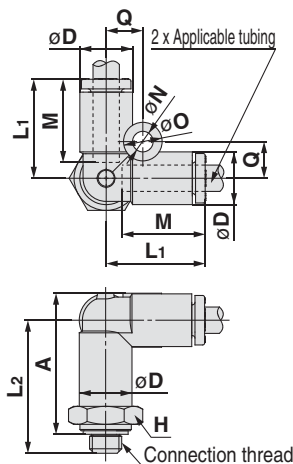
## Dimensions

### Male Delta Union: KQ2D (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | (Note) $\phi D$ | L1   | L2   | A    | M    | Q   | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|-----------------|------|------|------|------|-----|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                 |      |      |      |      |     |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | M5 x 0.8            | KQ2D04-M5A | 10                     | 8.2             | 15.8 | 20.7 | 21.8 | 13.3 | 5.7 | 6        | 3.2      | 2.2                               | 2.2      | 1.8            | 6.6        |
|                             | M6 x 1.0            | KQ2D04-M6A | 10                     | 8.2             | 15.8 | 21.7 | 21.8 | 13.3 | 5.7 | 6        | 3.2      | 4.3                               | 4.3      | 3              | 6.4        |
| $\phi 6$                    | M5 x 0.8            | KQ2D06-M5A | 12                     | 10.4            | 16.8 | 21.7 | 23.9 | 13.3 | 6.7 | 6        | 3.2      | 4.3                               | 4.3      | 1.8            | 9.8        |
|                             | M6 x 1.0            | KQ2D06-M6A | 12                     | 10.4            | 16.8 | 22.7 | 23.9 | 13.3 | 6.7 | 6        | 3.2      | 4.3                               | 4.3      | 3              | 9.7        |

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



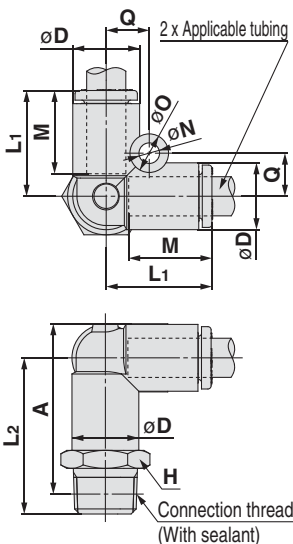
### Male Delta Union: KQ2D (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | (Note) $\phi D$ | L1   | L2   | A*   | M    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|-----------------|------|------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                 |      |      |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2D04-01AS | 10                     | 8.2             | 15.8 | 23.3 | 24.3 | 13.3 | 5.7  | 6        | 3.2      | 6                                 | 6        | 3              | 9.2        |
|                             | 1/4                 | KQ2D04-02AS | 14                     | 8.2             | 15.8 | 27.7 | 27.1 | 13.3 | 5.7  | 6        | 3.2      | 6                                 | 6        | 3              | 19         |
| $\phi 6$                    | 1/8                 | KQ2D06-01AS | 12                     | 10.4            | 16.8 | 24.3 | 26.4 | 13.3 | 6.7  | 6        | 3.2      | 13.9                              | 11       | 4.5            | 10.2       |
|                             | 1/4                 | KQ2D06-02AS | 14                     | 10.4            | 16.8 | 28.7 | 29.2 | 13.3 | 6.7  | 6        | 3.2      | 13.9                              | 11       | 4.5            | 19.1       |
|                             | 3/8                 | KQ2D06-03AS | 17                     | 10.4            | 16.8 | 30.1 | 30.2 | 13.3 | 6.7  | 6        | 3.2      | 13.9                              | 11       | 4.5            | 31         |
| $\phi 8$                    | 1/8                 | KQ2D08-01AS | 14                     | 13.2            | 18.8 | 26.3 | 29.8 | 14.2 | 8.4  | 8        | 4.2      | 26.3                              | 18.2     | 6              | 15.3       |
|                             | 1/4                 | KQ2D08-02AS | 14                     | 13.2            | 18.8 | 30.7 | 32.6 | 14.2 | 8.4  | 8        | 4.2      | 26.3                              | 18.2     | 6              | 20.4       |
|                             | 3/8                 | KQ2D08-03AS | 17                     | 13.2            | 18.8 | 32.1 | 33.6 | 14.2 | 8.4  | 8        | 4.2      | 26.3                              | 18.2     | 6              | 32.1       |
| $\phi 10$                   | 1/4                 | KQ2D10-02AS | 17                     | 15.9            | 21.2 | 33.1 | 36.3 | 15.6 | 9.6  | 8        | 4.2      | 40.8                              | 29       | 7.5            | 24.9       |
|                             | 3/8                 | KQ2D10-03AS | 17                     | 15.9            | 21.2 | 34.5 | 37.3 | 15.6 | 9.6  | 8        | 4.2      | 40.8                              | 29       | 7.5            | 32.7       |
|                             | 1/2                 | KQ2D10-04AS | 22                     | 15.9            | 21.2 | 38.7 | 40.2 | 15.6 | 9.6  | 8        | 4.2      | 40.8                              | 29       | 7.5            | 60.6       |
| $\phi 12$                   | 1/4                 | KQ2D12-02AS | 19                     | 18.5            | 23.6 | 35.5 | 40   | 17   | 10.7 | 8        | 4.2      | 57.2                              | 45.2     | 9              | 35         |
|                             | 3/8                 | KQ2D12-03AS | 19                     | 18.5            | 23.6 | 36.9 | 41   | 17   | 10.7 | 8        | 4.2      | 57.2                              | 45.2     | 9              | 38         |
|                             | 1/2                 | KQ2D12-04AS | 22                     | 18.5            | 23.6 | 41.1 | 43.9 | 17   | 10.7 | 8        | 4.2      | 57.2                              | 45.2     | 9              | 60         |

\* Reference dimensions after installation of R thread

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



# Metric Size One-touch Fittings *Series KQ2*

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

## Dimensions

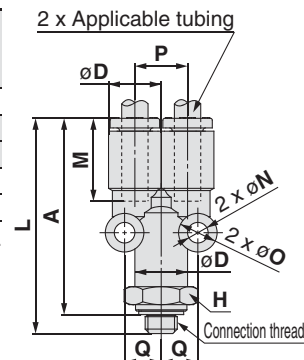
### Branch “Y”: KQ2U (Gasket seal)



| Applicable tubing O.D. [mm] | Connection thread M | Model      | H (Width across flats) | Note) $\phi D$ | L    | A    | M    | P    | Q   | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|------------|------------------------|----------------|------|------|------|------|-----|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                     |            |                        |                |      |      |      |      |     |          |          | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | M5 x 0.8            | KQ2U23-M5□ | 10                     | 7.1            | 33.8 | 30.8 | 13.3 | 7.1  | 5.2 | 6        | 3.2      | 2.2                               | 2.2      | 1.8            | 5.8        |
| $\phi 4$                    | M5 x 0.8            | KQ2U04-M5□ | 10                     | 8.2            | 33.9 | 30.9 | 13.3 | 8.2  | 5.7 | 6        | 3.2      | 2.2                               | 2.2      | 1.8            | 6.7        |
|                             | M6 x 1.0            | KQ2U04-M6A | 10                     | 8.2            | 34.9 | 30.9 | 13.3 | 8.2  | 5.7 | 6        | 3.2      | 2.2                               | 2.2      | 3              | 6.6        |
| $\phi 6$                    | M5 x 0.8            | KQ2U06-M5□ | 12                     | 10.4           | 35   | 32   | 13.3 | 10.4 | 6.8 | 6        | 3.2      | 2.2                               | 2.2      | 1.8            | 10         |
|                             | M6 x 1.0            | KQ2U06-M6A | 12                     | 10.4           | 36   | 32   | 13.3 | 10.4 | 6.8 | 6        | 3.2      | 2.2                               | 2.2      | 3              | 9.8        |

□/A: Brass, N: Brass + Electroless nickel plated

Note)  $\phi D$  is maximum diameter.



### Branch “Y”: KQ2U (Sealant)

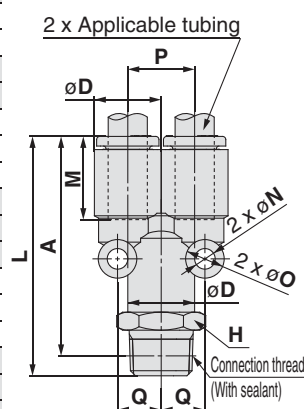


| Applicable tubing O.D. [mm] | Connection thread R | Model       | H (Width across flats) | Note) $\phi D$ | L    | A*   | M    | P    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|-------------|------------------------|----------------|------|------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                     |             |                        |                |      |      |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | 1/8                 | KQ2U23-01□S | 10                     | 7.1            | 36.4 | 33.3 | 13.3 | 7.1  | 5.2  | 6        | 3.2      | 3.4                               | 2.9      | 2.75           | 8.6        |
|                             | 1/4                 | KQ2U23-02AS | 14                     | 7.1            | 40.8 | 36.1 | 13.3 | 7.1  | 5.2  | 6        | 3.2      | 3.4                               | 2.9      | 2.75           | 19         |
| $\phi 4$                    | 1/8                 | KQ2U04-01□S | 10                     | 8.2            | 36.5 | 33.4 | 13.3 | 8.2  | 5.7  | 6        | 3.2      | 4.2                               | 4.2      | 3.6            | 9.3        |
|                             | 1/4                 | KQ2U04-02AS | 14                     | 8.2            | 40.9 | 36.2 | 13.3 | 8.2  | 5.7  | 6        | 3.2      | 4.2                               | 4.2      | 3.6            | 19.1       |
| $\phi 6$                    | 1/8                 | KQ2U06-01□S | 12                     | 10.4           | 37.6 | 34.5 | 13.3 | 10.4 | 6.8  | 6        | 3.2      | 13.4                              | 10.6     | 5.4            | 10.3       |
|                             | 1/4                 | KQ2U06-02AS | 14                     | 10.4           | 42   | 37.3 | 13.3 | 10.4 | 6.8  | 6        | 3.2      | 13.4                              | 10.6     | 5.4            | 19.2       |
|                             | 3/8                 | KQ2U06-03AS | 17                     | 10.4           | 43.4 | 38.3 | 13.3 | 10.4 | 6.8  | 6        | 3.2      | 13.4                              | 10.6     | 5.4            | 31.2       |
| $\phi 8$                    | 1/8                 | KQ2U08-01AS | 14                     | 13.2           | 40.7 | 37.6 | 14.2 | 13.2 | 8.7  | 8        | 4.2      | 25.6                              | 17.7     | 6              | 15.8       |
|                             | 1/4                 | KQ2U08-02AS | 14                     | 13.2           | 45.1 | 40.4 | 14.2 | 13.2 | 8.7  | 8        | 4.2      | 25.6                              | 17.7     | 7.3            | 20.9       |
|                             | 3/8                 | KQ2U08-03AS | 17                     | 13.2           | 46.5 | 41.4 | 14.2 | 13.2 | 8.7  | 8        | 4.2      | 25.6                              | 17.7     | 7.3            | 32.7       |
| $\phi 10$                   | 1/4                 | KQ2U10-02AS | 17                     | 15.9           | 49   | 44.3 | 15.6 | 15.9 | 10.1 | 8        | 4.2      | 40                                | 28.4     | 9              | 25.6       |
|                             | 3/8                 | KQ2U10-03AS | 17                     | 15.9           | 50.4 | 45.3 | 15.6 | 15.9 | 10.1 | 8        | 4.2      | 40                                | 28.4     | 9.4            | 33.4       |
|                             | 1/2                 | KQ2U10-04AS | 22                     | 15.9           | 54.6 | 48.2 | 15.6 | 15.9 | 10.1 | 8        | 4.2      | 40                                | 28.4     | 9.4            | 61.3       |
| $\phi 12$                   | 1/4                 | KQ2U12-02AS | 19                     | 18.5           | 53   | 48.3 | 17   | 18.5 | 11.4 | 8        | 4.2      | 57.4                              | 45.4     | 9              | 36         |
|                             | 3/8                 | KQ2U12-03AS | 19                     | 18.5           | 54.4 | 49.3 | 17   | 18.5 | 11.4 | 8        | 4.2      | 57.4                              | 45.4     | 11             | 38.9       |
|                             | 1/2                 | KQ2U12-04AS | 22                     | 18.5           | 58.6 | 52.2 | 17   | 18.5 | 11.4 | 8        | 4.2      | 57.4                              | 45.4     | 11.6           | 61         |
| $\phi 16$                   | New 1/4             | KQ2U16-02AS | 24                     | 23.8           | 62.4 | 57.7 | 20.6 | 23.8 | 14   | 8        | 4.2      | 57.4                              | 45.4     | 9              | 67.6       |
|                             | 3/8                 | KQ2U16-03AS | 24                     | 23.8           | 63.8 | 58.7 | 20.6 | 23.8 | 14   | 8        | 4.2      | 81                                | 60       | 11             | 71.5       |
|                             | 1/2                 | KQ2U16-04AS | 24                     | 23.8           | 68   | 61.6 | 20.6 | 23.8 | 14   | 8        | 4.2      | 113                               | 60       | 13             | 82.6       |

□/A: Brass, N: Brass + Electroless nickel plated

\* Reference dimensions after installation of R thread

Note)  $\phi D$  is maximum diameter.

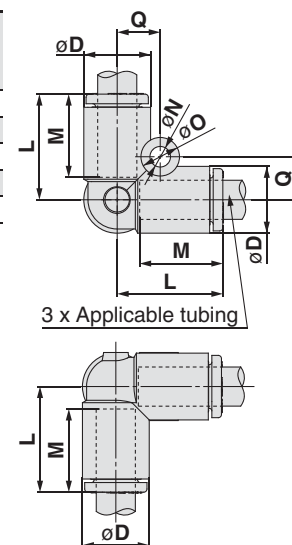


### Delta Union: KQ2D



| Applicable tubing O.D. [mm] | Model      | Note) $\phi D$ | L    | M    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|------------|----------------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |            |                |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | KQ2D04-00A | 8.2            | 15.8 | 13.3 | 5.7  | 6        | 3.2      | 6                                 | 4.1      | 3              | 2.7        |
| $\phi 6$                    | KQ2D06-00A | 10.4           | 16.8 | 13.3 | 6.7  | 6        | 3.2      | 13.9                              | 11       | 4.5            | 3.8        |
| $\phi 8$                    | KQ2D08-00A | 13.2           | 18.8 | 14.2 | 8.4  | 8        | 4.2      | 26.3                              | 18.2     | 6              | 6.8        |
| $\phi 10$                   | KQ2D10-00A | 15.9           | 21.2 | 15.6 | 9.6  | 8        | 4.2      | 40.8                              | 29       | 7.5            | 10.3       |
| $\phi 12$                   | KQ2D12-00A | 18.5           | 23.6 | 17   | 10.7 | 8        | 4.2      | 57.2                              | 45.2     | 9              | 15.2       |

Note)  $\phi D$  is maximum diameter.



# Series KQ2

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

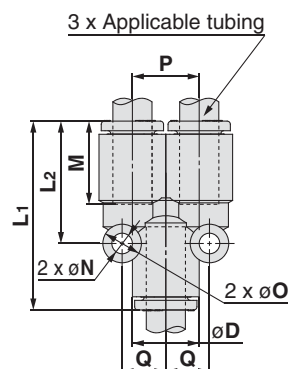
## Dimensions

### Union "Y": KQ2U



| Applicable tubing O.D. [mm] | Model      | Note) $\phi D$ | $L_1$ | $L_2$ | P    | M    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|------------|----------------|-------|-------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |            |                |       |       |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 2$                    | KQ2U02-00A | 5.8            | 25.8  | 16.1  | 5.8  | 11.9 | 4.5  | 6        | 3.2      | —                                 | 0.9      | 1.2            | 1.6        |
| $\phi 3.2$                  | KQ2U03-00A | 7.1            | 28.9  | 18    | 7.15 | 13.3 | 5.2  | 6        | 3.2      | 3.4                               | 2.9      | 2.5            | 4.8        |
| $\phi 4$                    | KQ2U04-00A | 8.2            | 29    | 18.2  | 8.2  | 13.3 | 5.7  | 6        | 3.2      | 4.2                               | 4.2      | 3              | 5.8        |
| $\phi 6$                    | KQ2U06-00A | 10.4           | 30.1  | 19.4  | 10.4 | 13.3 | 6.8  | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 8.1        |
| $\phi 8$                    | KQ2U08-00A | 13.2           | 33.2  | 22.3  | 13.2 | 14.2 | 8.7  | 8        | 4.2      | 25.6                              | 17.7     | 6              | 7.4        |
| $\phi 10$                   | KQ2U10-00A | 15.9           | 37.1  | 25    | 15.9 | 15.6 | 10.1 | 8        | 4.2      | 40                                | 28.4     | 7.5            | 11.2       |
| $\phi 12$                   | KQ2U12-00A | 18.5           | 41.1  | 27.8  | 18.5 | 17   | 11.4 | 8        | 4.2      | 57.4                              | 45.4     | 9              | 16.4       |
| $\phi 16$                   | KQ2U16-00A | 23.8           | 51.5  | 35    | 23.8 | 20.6 | 14   | 8        | 4.2      | 113                               | 60       | 13             | 30.6       |

Note)  $\phi D$  is maximum diameter.

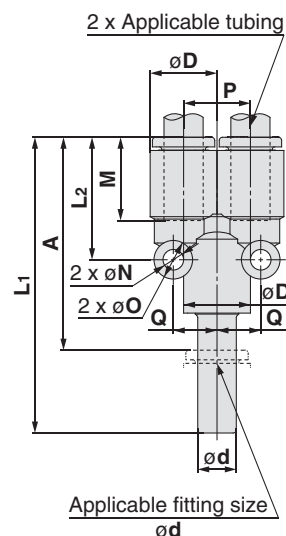


### Plug-in "Y": KQ2U



| Applicable tubing O.D. [mm] | Applicable fitting size $\phi d$ | Model      | Note) $\phi D$ | $L_1$ | $L_2$ | P    | A    | M    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------------------------------|------------|----------------|-------|-------|------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                                  |            |                |       |       |      |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | $\phi 3.2$                       | KQ2U03-99A | 7.1            | 45.1  | 18    | 7.15 | 31.8 | 13.3 | 5.2  | 6        | 3.2      | 3.4                               | 2.9      | 2              | 4.9        |
| $\phi 4$                    | $\phi 4$                         | KQ2U04-99A | 8.2            | 44.8  | 18.2  | 8.2  | 31.5 | 13.3 | 5.7  | 6        | 3.2      | 4.2                               | 4.2      | 2.5            | 6.1        |
| $\phi 6$                    | $\phi 6$                         | KQ2U06-99A | 10.4           | 46.3  | 19.4  | 10.4 | 33   | 13.3 | 6.8  | 6        | 3.2      | 13.4                              | 10.6     | 4              | 9          |
| $\phi 8$                    | $\phi 8$                         | KQ2U08-99A | 13.2           | 52.1  | 22.3  | 13.2 | 37.9 | 14.2 | 8.7  | 8        | 4.2      | 25.6                              | 17.7     | 6              | 8          |
| $\phi 10$                   | $\phi 10$                        | KQ2U10-99A | 15.9           | 57.3  | 25    | 15.9 | 41.7 | 15.6 | 10.1 | 8        | 4.2      | 40                                | 28.4     | 7.5            | 12.3       |
| $\phi 12$                   | $\phi 12$                        | KQ2U12-99A | 18.5           | 63    | 27.8  | 18.5 | 46   | 17   | 11.4 | 8        | 4.2      | 57.4                              | 45.4     | 9              | 18.3       |
| $\phi 16$                   | $\phi 16$                        | KQ2U16-99A | 23.8           | 75.9  | 35    | 23.8 | 55.3 | 20.6 | 14   | 8        | 4.2      | 113                               | 60       | 13             | 33.5       |

Note)  $\phi D$  is maximum diameter.

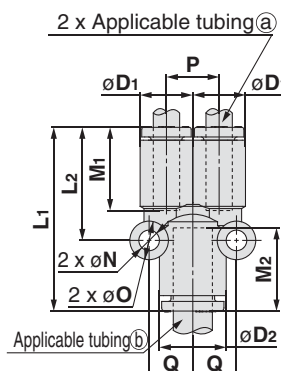


### Different Diameter Union "Y": KQ2U



| Applicable tubing O.D. [mm] |            | Model      | Note) $\phi D_1$ | Note) $\phi D_2$ | $L_1$ | $L_2$ | P    | $M_1$ | $M_2$ | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|------------|------------|------------------|------------------|-------|-------|------|-------|-------|------|----------|----------|-----------------------------------|----------|----------------|------------|
| (a)                         | (b)        |            |                  |                  |       |       |      |       |       |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 2$                    | $\phi 3.2$ | KQ2U02-23A | 5.8              | 7.1              | 28.2  | 16.6  | 5.8  | 11.9  | 13.3  | 5.2  | 6        | 3.2      | —                                 | 0.9      | 1.2            | 1.9        |
| $\phi 2$                    | $\phi 4$   | KQ2U02-04A | 5.8              | 8.2              | 27.6  | 15.7  | 5.8  | 11.9  | 13.3  | 5.7  | 6        | 3.2      | —                                 | 0.9      | 1.2            | 2.1        |
| $\phi 3.2$                  | $\phi 4$   | KQ2U03-04A | 7.1              | 8.2              | 28.9  | 18    | 7.1  | 13.3  | 13.3  | 5.7  | 6        | 3.2      | 3.2                               | 2.7      | 2.5            | 5.3        |
| $\phi 4$                    | $\phi 6$   | KQ2U04-06A | 8.2              | 10.4             | 29    | 18    | 8.2  | 13.3  | 13.3  | 6.8  | 6        | 3.2      | 4.2                               | 4.2      | 3              | 6.6        |
| $\phi 6$                    | $\phi 8$   | KQ2U06-08A | 10.4             | 13.2             | 31    | 19.3  | 10.4 | 13.3  | 14.2  | 8.2  | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 5          |
| $\phi 8$                    | $\phi 10$  | KQ2U08-10A | 13.2             | 15.9             | 34.6  | 22.3  | 13.2 | 14.2  | 15.6  | 10.1 | 8        | 4.2      | 25.6                              | 17.7     | 6              | 8.6        |
| $\phi 10$                   | $\phi 12$  | KQ2U10-12A | 15.9             | 18.5             | 38.5  | 25    | 15.9 | 15.6  | 17    | 11.4 | 8        | 4.2      | 40                                | 28.4     | 7.5            | 12.7       |
| $\phi 12$                   | $\phi 16$  | KQ2U12-16A | 18.5             | 23.8             | 47.9  | 31    | 18.5 | 17    | 20.6  | 14   | 8        | 4.2      | 57.4                              | 45.4     | 9              | 21.2       |

Note)  $\phi D_1$ ,  $\phi D_2$  are maximum diameters.



# Metric Size One-touch Fittings *Series KQ2*

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

## Dimensions

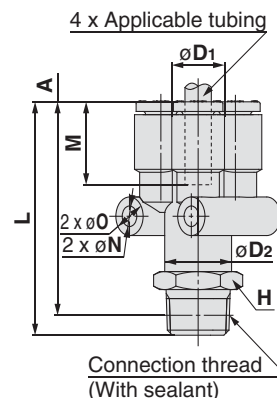
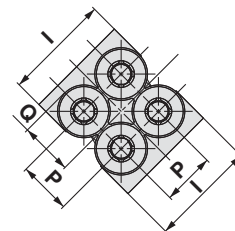
### Delta Branch: KQ2UD (Sealant)



| Applicable tubing O.D. [mm] | Connection thread R | Model        | H (Width across flats) | Note) $\phi D_1$ | $\phi D_2$ | L    | I    | A*   | M    | P    | Q   | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|---------------------|--------------|------------------------|------------------|------------|------|------|------|------|------|-----|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                     |              |                        |                  |            |      |      |      |      |      |     |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | 1/8                 | KQ2UD04-01AS | 12                     | 8.2              | 10.4       | 36.7 | 16.6 | 33.6 | 13.3 | 8.2  | 6.8 | 6        | 3.2      | 4.2                               | 4.2      | 3              | 11.7       |
|                             | 1/4                 | KQ2UD04-02AS | 14                     | 8.2              | 10.4       | 41.1 | 16.6 | 36.4 | 13.3 | 8.2  | 6.8 | 6        | 3.2      | 4.2                               | 4.2      | 3              | 20.6       |
| $\phi 6$                    | 1/8                 | KQ2UD06-01AS | 14                     | 10.4             | 13.2       | 39.5 | 21   | 36.4 | 13.3 | 10.4 | 8.2 | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 16.4       |
|                             | 1/4                 | KQ2UD06-02AS | 14                     | 10.4             | 13.2       | 43.9 | 21   | 39.2 | 13.3 | 10.4 | 8.2 | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 21.6       |

\* Reference dimensions after installation of R thread

Note)  $\phi D_1$  is maximum diameter.



Metric Size  
M, R, Rc

Inch Size  
UNF, NPT

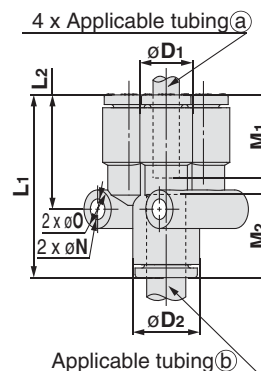
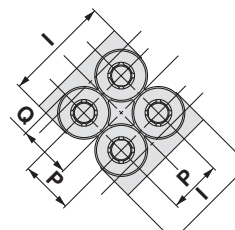
Inch Size  
M, R, Rc

### Different Diameter Double Union "Y": KQ2UD



| Applicable tubing O.D. [mm] |          | Model       | Note) $\phi D_1$ | Note) $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | P    | I    | M <sub>1</sub> | M <sub>2</sub> | Q   | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------|-------------|------------------|------------------|----------------|----------------|------|------|----------------|----------------|-----|----------|----------|-----------------------------------|----------|----------------|------------|
| (a)                         | (b)      |             |                  |                  |                |                |      |      |                |                |     |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | $\phi 6$ | KQ2UD04-06A | 8.2              | 10.4             | 29.2           | 18.2           | 8.2  | 16.6 | 13.3           | 13.3           | 6.8 | 6        | 3.2      | 4.2                               | 4.2      | 3              | 5.4        |
| $\phi 6$                    | $\phi 8$ | KQ2UD06-08A | 10.4             | 13.2             | 32             | 20.5           | 10.4 | 21   | 13.3           | 14.2           | 8.2 | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 8.1        |

Note)  $\phi D_1$ ,  $\phi D_2$  are maximum diameters.



Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

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

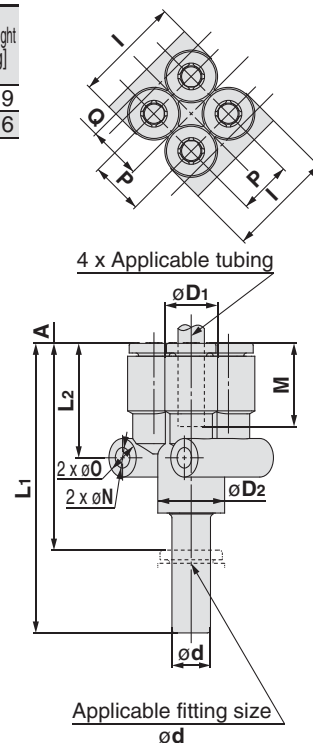
## Dimensions

### Plug-in "Y": KQ2XD



| Applicable tubing O.D. [mm] | Applicable fitting size $\phi d$ | Model       | (Note) $\phi D_1$ | $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | I    | P    | M    | Q   | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------------------------------|-------------|-------------------|------------|----------------|----------------|------|------|------|------|-----|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                                  |             |                   |            |                |                |      |      |      |      |     |          |          | Nylon                             | Urethane |                |            |
| $\phi 4$                    | $\phi 6$                         | KQ2XD04-06A | 8.2               | 10.4       | 45.4           | 18.2           | 32.1 | 16.6 | 8.2  | 13.3 | 6.8 | 6        | 3.2      | 4.2                               | 4.2      | 3              | 5.9        |
| $\phi 6$                    | $\phi 8$                         | KQ2XD06-08A | 10.4              | 13.2       | 50.9           | 20.5           | 36.7 | 21   | 10.4 | 13.3 | 8.2 | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 8.6        |

Note)  $\phi D_1$  is maximum diameter.

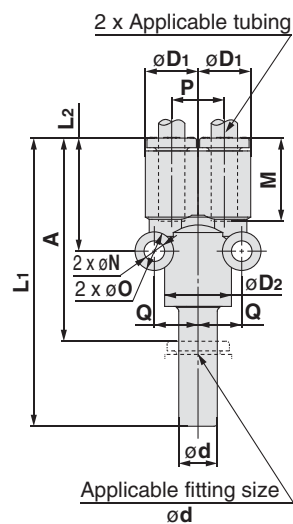


### Different Diameter Plug-in "Y": KQ2X



| Applicable tubing O.D. [mm] | Applicable fitting size $\phi d$ | Model      | (Note) $\phi D_1$ | (Note) $\phi D_2$ | L <sub>1</sub> | L <sub>2</sub> | A    | P    | M    | Q    | $\phi O$ | $\phi N$ | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------------------------------|------------|-------------------|-------------------|----------------|----------------|------|------|------|------|----------|----------|-----------------------------------|----------|----------------|------------|
|                             |                                  |            |                   |                   |                |                |      |      |      |      |          |          | Nylon                             | Urethane |                |            |
| $\phi 3.2$                  | $\phi 4$                         | KQ2X23-04A | 7.1               | 8.2               | 44.7           | 18             | 31.4 | 7.15 | 13.3 | 5.7  | 6        | 3.2      | 3.2                               | 2.7      | 2.5            | 2.8        |
| $\phi 4$                    | $\phi 6$                         | KQ2X04-06A | 8.2               | 10.4              | 45.2           | 18             | 31.9 | 8.2  | 13.3 | 6.8  | 6        | 3.2      | 4.2                               | 4.2      | 3              | 7.5        |
| $\phi 6$                    | $\phi 8$                         | KQ2X06-08A | 10.4              | 13.2              | 49.9           | 19.3           | 35.7 | 10.4 | 13.3 | 8.2  | 6        | 3.2      | 13.4                              | 10.6     | 4.5            | 5.5        |
| $\phi 8$                    | $\phi 10$                        | KQ2X08-10A | 13.2              | 15.9              | 54.8           | 22.3           | 39.2 | 13.2 | 14.2 | 10.1 | 8        | 4.2      | 25.6                              | 17.7     | 6              | 9.8        |
| $\phi 10$                   | $\phi 12$                        | KQ2X10-12A | 15.9              | 18.5              | 60.4           | 25             | 43.4 | 15.9 | 15.6 | 11.4 | 8        | 4.2      | 40                                | 28.4     | 7.5            | 14.6       |

Note)  $\phi D_1$ ,  $\phi D_2$  are maximum diameters.



# Metric Size One-touch Fittings *Series KQ2*

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

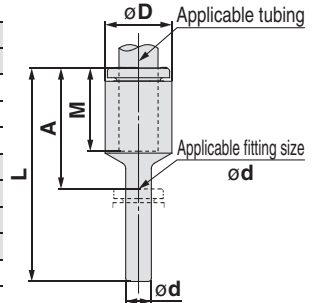
## Dimensions

### Plug-in Reducer: KQ2R



| Applicable tubing O.D. [mm] | Applicable fitting size ød | Model      | Note) øD | L    | A    | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------------------------|------------|----------|------|------|------|-----------------------------------|----------|----------------|------------|
|                             |                            |            |          |      |      |      | Nylon                             | Urethane |                |            |
| ø2                          | ø4                         | KQ2R02-04A | 5.8      | 27.8 | 14.5 | 11.9 | —                                 | 0.9      | 1.4            | 0.6        |
| ø3.2                        | ø4                         | KQ2R23-04A | 7.1      | 28.6 | 15.3 | 13.3 | 3.4                               | 2.9      | 2.5            | 1.6        |
|                             | ø6                         | KQ2R23-06A | 7.1      | 29.1 | 15.8 | 13.3 | 3.4                               | 2.9      | 2.5            | 1          |
| ø4                          | ø6                         | KQ2R04-06A | 8.2      | 28.6 | 15.3 | 13.3 | 5.6                               | 4        | 3              | 2.2        |
|                             | ø8                         | KQ2R04-08A | 8.2      | 29.6 | 15.4 | 13.3 | 5.6                               | 4        | 3              | 1.3        |
|                             | ø10                        | KQ2R04-10A | 10.4     | 31.7 | 16.1 | 13.3 | 5.6                               | 4        | 3              | 2.2        |
| ø6                          | ø4                         | KQ2R06-04A | 10.4     | 33.6 | 20.3 | 13.3 | 4                                 | 4        | 2.5            | 1.4        |
|                             | ø8                         | KQ2R06-08A | 10.4     | 31.6 | 17.4 | 13.3 | 13.1                              | 10.4     | 4.5            | 1.7        |
|                             | ø10                        | KQ2R06-10A | 10.4     | 33.9 | 18.3 | 13.3 | 13.1                              | 10.4     | 4.5            | 2.1        |
|                             | ø12                        | KQ2R06-12A | 12       | 35.7 | 18.7 | 13.3 | 13.1                              | 10.4     | 4.5            | 3.2        |
| ø8                          | ø10                        | KQ2R08-10A | 13.2     | 35.1 | 19.5 | 14.2 | 26.1                              | 18       | 6              | 2.9        |
|                             | ø12                        | KQ2R08-12A | 13.2     | 36.5 | 19.5 | 14.2 | 26.1                              | 18       | 6              | 3.4        |
| ø10                         | ø12                        | KQ2R10-12A | 15.9     | 39.2 | 22.2 | 15.6 | 41.5                              | 32.8     | 7.5            | 4.5        |
|                             | ø16                        | KQ2R10-16A | 16       | 44.7 | 24.1 | 15.6 | 41.5                              | 32.8     | 7.5            | 6          |
| ø12                         | ø16                        | KQ2R12-16A | 18.5     | 45.7 | 25.1 | 17   | 58.3                              | 46.1     | 9              | 7          |

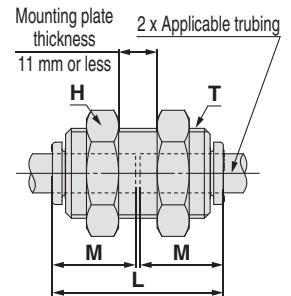
Note) øD is maximum diameter.



### Bulkhead Union: KQ2E (Interchangeable with KQ)



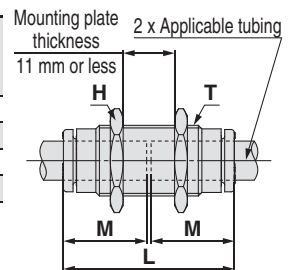
| Applicable tubing O.D. [mm] | Model      | T (M)     | H (Width across flats) | L    | Mounting hole | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|------------|-----------|------------------------|------|---------------|------|-----------------------------------|----------|----------------|------------|
|                             |            |           |                        |      |               |      | Nylon                             | Urethane |                |            |
| ø3.2                        | KQ2E23-00A | M12 x 1   | 14                     | 27.3 | 13            | 13.3 | 3.4                               | 2.9      | 2.5            | 24.1       |
| ø4                          | KQ2E04-00A | M12 x 1   | 14                     | 27.3 | 13            | 13.3 | 5.6                               | 4        | 3              | 22.9       |
| ø6                          | KQ2E06-00A | M14 x 1   | 17                     | 27.3 | 15            | 13.3 | 13.1                              | 10.4     | 4.5            | 28         |
| ø8                          | KQ2E08-00A | M16 x 1   | 19                     | 29.1 | 17            | 14.2 | 26.1                              | 18       | 6              | 34         |
| ø10                         | KQ2E10-00A | M20 x 1   | 24                     | 31.9 | 21            | 15.6 | 41.5                              | 29.5     | 7.5            | 64.4       |
| ø12                         | KQ2E12-00A | M22 x 1   | 27                     | 34.7 | 23            | 17   | 58.3                              | 46.1     | 9              | 63.8       |
| ø16                         | KQ2E16-00A | M28 x 1.5 | 32                     | 41.9 | 29            | 20.6 | 113                               | 67       | 13             | 120.1      |



### Bulkhead Union: KQ2E (Interchangeable with KJ)



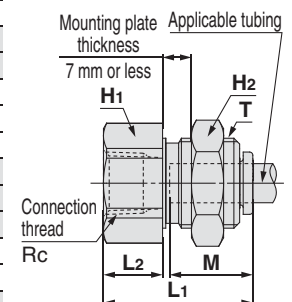
| Applicable tubing O.D. [mm] | Model       | T (M)      | H (Width across flats) | L    | Mounting hole | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|-------------|------------|------------------------|------|---------------|------|-----------------------------------|----------|----------------|------------|
|                             |             |            |                        |      |               |      | Nylon                             | Urethane |                |            |
| ø2                          | KQ2E02-00AJ | M7 x 0.75  | 9                      | 24.5 | 8             | 11.9 | —                                 | 0.9      | 1.4            | 5.2        |
| ø3.2                        | KQ2E23-00AJ | M8 x 0.75  | 10                     | 27.3 | 9             | 13.3 | 3                                 | 2.5      | 2.5            | 6.9        |
| ø4                          | KQ2E04-00AJ | M9 x 0.75  | 11                     | 27.3 | 10            | 13.3 | 4                                 | 4        | 3              | 8.3        |
| ø6                          | KQ2E06-00AJ | M11 x 0.75 | 14                     | 27.3 | 12            | 13.3 | 10                                | 10       | 4.5            | 11.2       |



### Bulkhead Connector: KQ2E



| Applicable tubing O.D. [mm] | Connection thread Rc | Model      | T (M)     | H1 (Width across flats) | H2 (Width across flats) | L1   | L2   | Mounting hole | M    | Effective area [mm <sup>2</sup> ] |          | Min. port size | Weight [g] |
|-----------------------------|----------------------|------------|-----------|-------------------------|-------------------------|------|------|---------------|------|-----------------------------------|----------|----------------|------------|
|                             |                      |            |           |                         |                         |      |      |               |      | Nylon                             | Urethane |                |            |
| ø3.2                        | 1/4                  | KQ2E23-02A | M12 x 1   | 17                      | 14                      | 28.7 | 14.3 | 13            | 13.3 | 3.4                               | 2.9      | 2.5            | 31.2       |
|                             | 1/8                  | KQ2E04-01A | M12 x 1   | 14                      | 14                      | 24.4 | 10   | 13            | 13.3 | 5.6                               | 4        | 3              | 21.2       |
| ø4                          | 1/4                  | KQ2E04-02A | M12 x 1   | 17                      | 14                      | 29   | 14.6 | 13            | 13.3 | 5.6                               | 4        | 3              | 30.9       |
|                             | 1/8                  | KQ2E06-01A | M14 x 1   | 17                      | 17                      | 23.6 | 9.2  | 15            | 13.3 | 13.1                              | 10.4     | 4.5            | 28.9       |
| ø6                          | 1/4                  | KQ2E06-02A | M14 x 1   | 17                      | 17                      | 28.4 | 14   | 15            | 13.3 | 13.1                              | 10.4     | 4.5            | 32.4       |
|                             | 3/8                  | KQ2E06-03A | M14 x 1   | 19                      | 17                      | 30.7 | 16.3 | 15            | 13.3 | 13.1                              | 10.4     | 4.5            | 35.9       |
| ø8                          | 1/8                  | KQ2E08-01A | M16 x 1   | 17                      | 19                      | 24.1 | 6.7  | 17            | 14.2 | 26.1                              | 18       | 6              | 30.5       |
|                             | 1/4                  | KQ2E08-02A | M16 x 1   | 17                      | 19                      | 28.4 | 11   | 17            | 14.2 | 26.1                              | 18       | 6              | 33.1       |
| ø10                         | 3/8                  | KQ2E08-03A | M16 x 1   | 19                      | 19                      | 31.7 | 14.3 | 17            | 14.2 | 26.1                              | 18       | 6              | 37.4       |
|                             | 1/4                  | KQ2E10-02A | M20 x 1   | 22                      | 24                      | 29.3 | 9.9  | 21            | 15.6 | 41.5                              | 29.5     | 7.5            | 63.8       |
| ø12                         | 3/8                  | KQ2E10-03A | M20 x 1   | 22                      | 24                      | 31.4 | 12   | 21            | 15.6 | 41.5                              | 29.5     | 7.5            | 71.6       |
|                             | 1/2                  | KQ2E12-03A | M22 x 1   | 24                      | 27                      | 32.3 | 11.9 | 23            | 17   | 58.3                              | 46.1     | 9              | 69.3       |
| ø16                         | 1/2                  | KQ2E12-04A | M22 x 1   | 24                      | 27                      | 37.7 | 17.3 | 23            | 17   | 58.3                              | 46.1     | 9              | 72.7       |
|                             | 3/8                  | KQ2E16-03A | M28 x 1.5 | 30                      | 32                      | 34.4 | 11.5 | 29            | 20.6 | 96                                | 67       | 13             | 122.2      |
|                             | 1/2                  | KQ2E16-04A | M28 x 1.5 | 30                      | 32                      | 38.8 | 15.9 | 29            | 20.6 | 113                               | 67       | 13             | 132.1      |



# Series KQ2

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

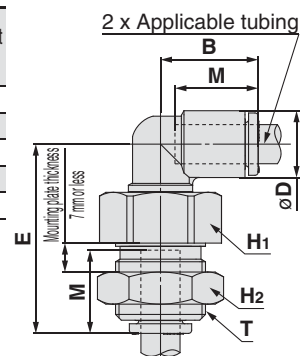
## Dimensions

### Bulkhead Male Elbow: KQ2LE



| Applicable tubing O.D. [mm] | Model       | T (M)   | H <sub>1</sub> (Width across flats) | H <sub>2</sub> (Width across flats) | B    | E    | Note) øD | Mounting hole | M    | Effective area [mm <sup>2</sup> ] |      | Min. port size | Weight [g] |
|-----------------------------|-------------|---------|-------------------------------------|-------------------------------------|------|------|----------|---------------|------|-----------------------------------|------|----------------|------------|
| ø4                          | KQ2LE04-00A | M12 x 1 | 14                                  | 14                                  | 14.8 | 28.5 | 8.2      | 13            | 13.3 | 4.2                               | 4.2  | 3              | 21.2       |
| ø6                          | KQ2LE06-00A | M14 x 1 | 17                                  | 17                                  | 15.5 | 29.6 | 10.4     | 15            | 13.3 | 11.4                              | 9    | 4.5            | 29.4       |
| ø8                          | KQ2LE08-00A | M16 x 1 | 17                                  | 19                                  | 17.2 | 32.3 | 13.2     | 17            | 14.2 | 21.6                              | 14.9 | 6              | 30.4       |
| ø10                         | KQ2LE10-00A | M20 x 1 | 22                                  | 24                                  | 19.3 | 35.8 | 15.9     | 21            | 15.6 | 35.2                              | 25   | 7.5            | 53.5       |
| ø12                         | KQ2LE12-00A | M22 x 1 | 24                                  | 27                                  | 21.5 | 44.5 | 18.5     | 23            | 17   | 50.2                              | 39.7 | 9              | 61         |

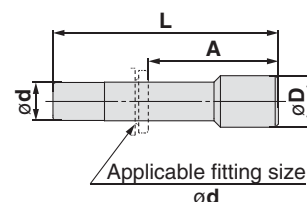
Note) øD is maximum diameter.



### Plug: KQ2P



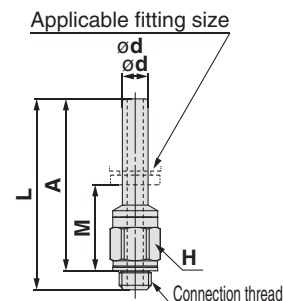
| Applicable fitting size ød | Model   | øD   | L    | A    | Weight [g] |
|----------------------------|---------|------|------|------|------------|
| ø2                         | KJP-02  | 3    | 22.3 | 10.4 | 0.1        |
| ø3.2                       | KQ2P-23 | 5    | 31.5 | 18.2 | 1          |
| ø4                         | KQ2P-04 | 6    | 32   | 18.7 | 1          |
| ø6                         | KQ2P-06 | 8    | 35   | 21.7 | 1          |
| ø8                         | KQ2P-08 | 10   | 39   | 24.8 | 2          |
| ø10                        | KQ2P-10 | 12   | 43   | 27.4 | 3.5        |
| ø12                        | KQ2P-12 | 14   | 45.5 | 28.5 | 5          |
| ø16                        | KQ2P-16 | 20.9 | 47   | 26.4 | 8          |



### Adaptor: KQ2N (Gasket seal)



| Applicable fitting size ød | Connection thread M | Model      | H (Width across flats) | L    | A    | M    | Min. port size | Weight [g] |
|----------------------------|---------------------|------------|------------------------|------|------|------|----------------|------------|
| ø4                         | M5 x 0.8            | KQ2N04-M5A | 7                      | 29.7 | 26.7 | 13.4 | 2.5            | 2.4        |
| ø6                         | M5 x 0.8            | KQ2N06-M5A | 7                      | 29.7 | 26.7 | 13.4 | 2.5            | 2.6        |

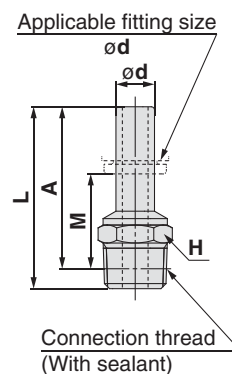


### Adaptor: KQ2N (Sealant)



| Applicable fitting size ød | Connection thread R | Model       | H (Width across flats) | L    | A*   | M    | Min. port size | Weight [g] |
|----------------------------|---------------------|-------------|------------------------|------|------|------|----------------|------------|
| ø4                         | 1/8                 | KQ2N04-01AS | 10                     | 28.3 | 25.2 | 11.9 | 2.5            | 4          |
| ø6                         | 1/8                 | KQ2N06-01AS | 10                     | 28.3 | 25.2 | 11.9 | 4              | 4.1        |
|                            | 1/4                 | KQ2N06-02AS | 14                     | 32.8 | 28.1 | 14.8 | 4              | 13.6       |
| ø8                         | 1/4                 | KQ2N08-02AS | 17                     | 35.9 | 31.2 | 17   | 6              | 15.7       |
|                            | 3/8                 | KQ2N08-03AS | 17                     | 36   | 30.9 | 16.7 | 6              | 22.7       |
| ø10                        | 3/8                 | KQ2N10-03AS | 17                     | 40.6 | 35.5 | 19.9 | 7.5            | 19.1       |

\* Reference dimensions after installation of R thread



# Metric Size One-touch Fittings *Series KQ2*

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

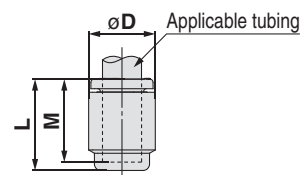
## Dimensions

### Tube Cap: KQ2C



| Applicable tubing O.D. [mm] | Model      | øD <sup>Note)</sup> | L    | M    | Weight [g] |
|-----------------------------|------------|---------------------|------|------|------------|
| ø4                          | KQ2C04-00A | 8.2                 | 14.5 | 13.3 | 0.8        |
| ø6                          | KQ2C06-00A | 10.4                | 14.6 | 13.3 | 1.1        |
| ø8                          | KQ2C08-00A | 13.2                | 15.7 | 14.2 | 2          |
| ø10                         | KQ2C10-00A | 15.9                | 17.3 | 15.6 | 2.9        |
| ø12                         | KQ2C12-00A | 18.5                | 18.9 | 17   | 4.5        |
| ø16                         | KQ2C16-00A | 23.8                | 23   | 20.6 | 8.4        |

Note) øD is maximum diameter.

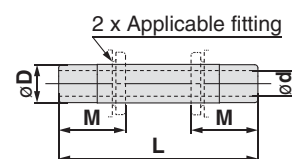


Metric Size  
M, R, Rc

### Nipple: KQ2N



| Applicable fitting øD | Model     | L  | M    | ød  | Min. port size | Weight [g] |
|-----------------------|-----------|----|------|-----|----------------|------------|
| ø4                    | KQ2N04-99 | 37 | 13.3 | 2.5 | 2.5            | 1          |
| ø6                    | KQ2N06-99 | 39 | 13.3 | 4   | 4              | 2          |
| ø8                    | KQ2N08-99 | 43 | 14.2 | 6   | 6              | 2          |
| ø10                   | KQ2N10-99 | 49 | 15.6 | 7.5 | 7.5            | 4          |
| ø12                   | KQ2N12-99 | 52 | 17   | 9   | 9              | 3.3        |
| ø16                   | KQ2N16-99 | 57 | 17   | 13  | 13             | 4.8        |

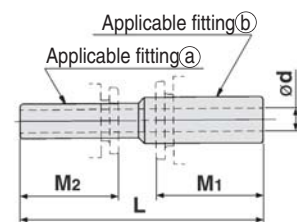


Inch Size  
UNF, NPT

### Reducer Nipple: KQ2N



| Applicable fitting |     | Model     | L  | M <sub>1</sub> | M <sub>2</sub> | ød<br>Min. port size | Weight [g] |
|--------------------|-----|-----------|----|----------------|----------------|----------------------|------------|
| (a)                | (b) |           |    |                |                |                      |            |
| ø4                 | ø6  | KQ2N04-06 | 38 | 13.3           | 13.3           | 2.5                  | 2          |
| ø6                 | ø8  | KQ2N06-08 | 42 | 14.2           | 13.3           | 4                    | 2          |
| ø8                 | ø10 | KQ2N08-10 | 47 | 15.6           | 14.2           | 6                    | 2          |
| ø10                | ø12 | KQ2N10-12 | 51 | 17             | 15.6           | 7.5                  | 3.1        |
| ø12                | ø16 | KQ2N12-16 | 55 | 20.6           | 17             | 9                    | 4.9        |



Inch Size  
M, R, Rc

Metric Size  
Uni

Inch Size  
Uni

# Series KQ2

## Spare Parts

Please contact SMC for detailed dimensions, specifications, and lead times.

### Spare Parts

| Description | Part no.     | Applicable thread |
|-------------|--------------|-------------------|
| Gasket      | <b>M-3G2</b> | M3                |
|             | <b>M-5G2</b> | M5                |
|             | <b>M-6G</b>  | M6                |

### Brass

| Description | Part no.          | Applicable model                    |
|-------------|-------------------|-------------------------------------|
| Pipe nut    | <b>KQ02-P01AJ</b> | KQ2E02-00AJ                         |
|             | <b>KQ23-P01AJ</b> | KQ2E23-00AJ                         |
|             | <b>KQ04-P01AJ</b> | KQ2E04-00AJ                         |
|             | <b>KQ06-P01AJ</b> | KQ2E06-00AJ                         |
|             | <b>KQ04-P01A</b>  | KQ2E23-00A, KQ2E04-00A, KQ2E23-02A  |
|             |                   | KQ2E04-01A, KQ2E04-02A, KQ2LE04-00A |
|             | <b>KQ06-P01A</b>  | KQ2E06-00A, KQ2E06-01A, KQ2E06-02A  |
|             |                   | KQ2E06-03A, KQ2LE06-00A             |
|             | <b>KQ08-P01A</b>  | KQ2E08-00A, KQ2E08-01A, KQ2E08-02A  |
|             |                   | KQ2E08-03A, KQ2LE08-00A             |
|             | <b>KQ10-P01A</b>  | KQ2E10-00A, KQ2E10-02A, KQ2E10-03A  |
|             |                   | KQ2LE10-00A                         |
|             | <b>KQ12-P01A</b>  | KQ2E12-00A, KQ2E12-03A, KQ2E12-04A  |
|             |                   | KQ2LE12-00A                         |
|             | <b>KQ16-P01A</b>  | KQ2E16-00A                          |
|             |                   | KQ2E16-03A, KQ2E16-04A              |

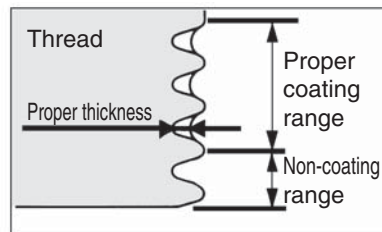
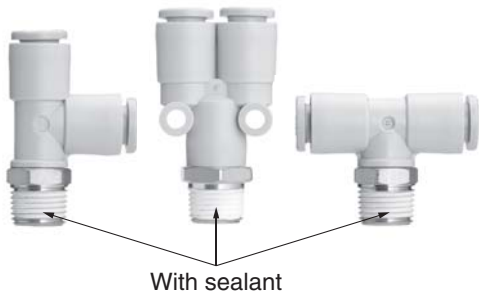
### Brass + Electroless nickel plated

| Description | Part no.          | Applicable model                    |
|-------------|-------------------|-------------------------------------|
| Pipe nut    | <b>KQ02-P01NJ</b> | KQ2E02-00NJ                         |
|             | <b>KQ23-P01NJ</b> | KQ2E23-00NJ                         |
|             | <b>KQ04-P01NJ</b> | KQ2E04-00NJ                         |
|             | <b>KQ06-P01NJ</b> | KQ2E06-00NJ                         |
|             | <b>KQ04-P01N</b>  | KQ2E23-00N, KQ2E04-00N, KQ2E23-02N  |
|             |                   | KQ2E04-01N, KQ2E04-02N, KQ2LE04-00N |
|             | <b>KQ06-P01N</b>  | KQ2E06-00N, KQ2E06-01N, KQ2E06-02N  |
|             |                   | KQ2E06-03N, KQ2LE06-00N             |
|             | <b>KQ08-P01N</b>  | KQ2E08-00N, KQ2E08-01N, KQ2E08-02N  |
|             |                   | KQ2E08-03N, KQ2LE08-00N             |
|             | <b>KQ10-P01N</b>  | KQ2E10-00N, KQ2E10-02N, KQ2E10-03N  |
|             |                   | KQ2LE10-00N                         |
|             | <b>KQ12-P01N</b>  | KQ2E12-00N, KQ2E12-03N, KQ2E12-04N  |
|             |                   | KQ2LE12-00N                         |
|             | <b>KQ16-P01N</b>  | KQ2E16-00N                          |
|             |                   | KQ2E16-03N, KQ2E16-04N              |

# For Pneumatic Piping/Fittings & Tubing Prior to Use

## Fittings with Sealant

Seal material (fluororesin) is coated on the thread part with the proper thickness and range, that reduces the piping work, such as coating the seal on the thread.





# Fittings & Tubing Precautions 1

Be sure to read this before handling.

## Design/Selection

### Warning

#### 1. Check the specifications.

The products in this catalogue are designed to be used in compressed air systems (including vacuum) only.

If the products are used in an environment where pressure or temperature is out of the specified range, damage and/or malfunction may result. Do not use under such conditions. (Refer to the specifications.)

Please consult with SMC when using a fluid other than compressed air (including vacuum).

We do not guarantee against any damage if the product is used outside of the specification range.

#### 2. Do not disassemble the product or make any modifications, including additional machining.

It may cause human injury and/or an accident.

#### 3. Check if PTFE can be used in application.

PTFE powder (Polytetrafluoroethylene resin) is included in the seal material. Confirm that the use of it will not cause any adverse affect on the system.

### Caution

#### 1. Keep the connection part of fittings and tubing from rotating or oscillating movement. Use Rotary One-touch Fittings Series KS or KX in these cases.

The fittings may be damaged if they are used in the above manner.

#### 2. The tubing bending radius in the vicinity of the fitting should be at least the minimum bending radius of the tubing.

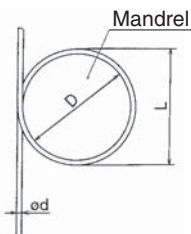
If the bending radius is less than the min. value, fittings may damage, or tubing may crack or be crushed. The minimum bending radius, with the exception of TS soft nylon tubing, TU polyurethane tubing, TUH hard polyurethane tubing, TUS soft polyurethane tubing, TRBU FR double layer polyurethane tubing, TH FEP tubing, TL PFA tubing, TD modified PTFE tubing, is measured as following in accordance with JIS B 8381-1995.

Tubing deformation ratio at the minimum bending radius is obtained through the following formula, based on tubing diameter and mandrel diameter by wrapping the same radius mandrel tube.

$$\eta = \left(1 - \frac{L - D}{2d}\right) \times 100$$

Tube deformation ratio at the minimum bending radius

Here,  $\eta$  : Deformation ratio (%)  
 $d$  : Tubing diameter [mm]  
 $L$  : Measured length [mm]  
 $D$  : Mandrel diameter [mm]  
 (Twice against the minimum bending radius)  
 Test temperature: 20 ± 5°C  
 Relative humidity: 65 ± 5%



#### 3. Do not use fluids other than listed on the specifications.

Applicable fluids are air and water. Please consult with SMC if using other fluids.

#### 4. When it is used with water, the fittings or tubing may be damaged depending on the surge pressure.

## Mounting/Piping

### Warning

#### 1. Operation manual

Install the products and operate them only after reading the operation manual carefully and understanding its contents. Also, keep the manual where it can be referred to as necessary.

#### 2. Ensure sufficient space for maintenance activities.

When installing the products, allow access for maintenance.

#### 3. Tighten threads with the proper tightening torque.

When installing the products, follow the listed torque specifications.

#### 4. There may be cases of the tubing detaching from the fitting and thrashing around uncontrollably due to tubing degradation or fitting breakage.

To prevent the situation from becoming uncontrollable, fit the tubing with a protective cover or fix it in place.

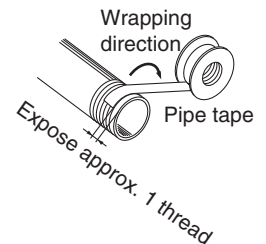
### Caution

#### 1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

#### 2. Wrapping of pipe tape

When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealing material do not get inside the pipe. Also, when the pipe tape is used, leave approx. 1 thread ridges exposed at the end of the threads.



#### 3. Check the model, type and size before installation.

Also, confirm that there is no scratches, gouges or cracks on the product.

#### 4. When connecting the tubing, take pressure or possible changes to the tubing length into account, and allow a sufficient margin.

Failure to do so may result in fitting breakage or detachment of the tubing. Refer to the recommended piping conditions.

#### 5. Do not apply unnecessary forces such as twisting, pulling, moment loads, vibration and impact, etc. on fittings or tubing.

This will cause damage to fittings and will crush, burst or release tubing.

#### 6. Tubing, with the exception of coiled tubing, requires stationary installation. Do not use standard tubing (non-coiled) in applications where tubing is required to travel. Tubing that travels may sustain abrasion, extension, or severance due to tensile force, or may result in removal of tubing from fitting. Use caution prior to use for proper application.

#### 7. To install the fitting, screw the fitting into the hexagonal face of the body, and tighten with an appropriate wrench.

Affix the wrench at the base of the thread. If the size of hexagonal face and wrench do not match, or tightening takes place near the tube side, it may cause collapse or deformation of the hexagonal face, or damage to the equipment. After installing, confirm that there is no damage to the fitting, etc.



# Fittings & Tubing Precautions 2

Be sure to read this before handling.

## Air Supply

### Warning

#### 1. Type of fluids

Please consult with SMC when using the product in applications other than compressed air.

Regarding products for general fluids, please contact SMC concerning applicable fluids.

#### 2. When there is a large amount of drainage.

Compressed air containing a large amount of drainage can cause malfunction of pneumatic equipment. An air dryer or water separator should be installed upstream from filters.

#### 3. Drain flushing

If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. It causes malfunction of pneumatic equipment.

If the drain bowl is difficult to check and remove, installation of a drain bowl with an auto drain option is recommended.

For details on the above compressed air quality, refer to our website [www.smc.eu](http://www.smc.eu).

#### 4. Use clean air.

Do not use compressed air that contains chemicals, synthetic oils including organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.

### Caution

#### 1. Install an air filter.

Install an air filter at the upstream side of valve.

Select an air filter with a filtration degree of 5 µm or finer.

#### 2. Install an after-cooler, air dryer or water droplet separator, etc.

Compressed air that contains a large amount of drainage can cause malfunction of pneumatic equipment. Therefore, take appropriate measures to ensure air quality, such as by providing an aftercooler, air dryer, or water droplet separator.

#### 3. Ensure that the fluid and ambient temperature are within the specified range.

If the fluid temperature is 5°C or less, the moisture in the circuit could freeze, causing damage to the seals and leading to equipment malfunction. Therefore, take appropriate measures to prevent freezing.

For details on the above compressed air quality, refer to our website [www.smc.eu](http://www.smc.eu).

## Operating Environment

### Warning

#### 1. Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.

Refer to each construction drawing on the fittings and tubing material.

#### 2. Do not expose the product to direct sunlight for an extended period of time.

#### 3. Do not use in a place subject to heavy vibration and/or shock.

#### 4. Do not mount the product in locations where it is exposed to radiant heat.

## Operating Environment

### Warning

#### 5. Do not use the ordinary fittings and tubing in locations where static electricity would be problematic.

It may result in the system failure and trouble. In such places, use of antistatic fittings (Series KA) and antistatic tubing (Series TA) are recommended.

#### 6. Do not use the ordinary fittings and tubing in locations where spatter is generated.

Spattering may result in a fire hazard. In such a place, use of flame resistant fittings (Series KR/KRM) and flame resistant tubing (Series TRS/TRB) are recommended.

#### 7. Do not use in an environment where the product is directly exposed to cutting oil, lubricant, coolant oil, etc.

Please contact SMC if using for an environment exposed to cutting oil, lubricant or coolant oil, etc.

#### 8. Take note that if nylon tubing and soft nylon tubing are used in a clean room.

The antioxidant on the surface of the soft nylon tubing may come off, thereby lowering the cleanliness level.

#### 9. Do not use in environments where foreign matter may stick to the product or get mixed in the product's interior.

This may cause leakage or disconnection of the tubing.

## Maintenance

### Warning

#### 1. Perform maintenance inspection according to the procedures indicated in the operation manual.

If handled improperly, malfunction and damage of machinery or equipment may occur.

#### 2. Maintenance work

If handled improperly, compressed air can be dangerous. Assembly, handling, repair and element replacement of pneumatic systems should be performed by a knowledgeable and experienced person.

#### 3. Drain flushing

Remove drainage from air filters regularly.

#### 4. Removal of equipment, and supply/exhaust of compressed air

When components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, cut off the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function.

When machinery is restarted, proceed with caution after confirming that appropriate measures are in place to prevent cylinders from sudden movement.



# Fittings & Tubing Precautions 3

Be sure to read this before handling.

## Maintenance

### Caution

1. Be certain to wear safety glasses at all times during periodical inspections.
2. Replace fittings or tubing having the following problems.
  - 1) Cracks, gouges, wearing, corrosion
  - 2) Air leakage
  - 3) Twists or crushing of tubing
  - 4) Hardening, deterioration, softening of tubing
3. When replacing tubes or fittings, do not try to mend or repair and then reuse them.

## One-touch Fittings Mounting/Piping

### Caution

#### 1. Installation and removal of tubing for One-touch fittings

##### 1) Installation of tubing

- (1) Cut the tubing perpendicularly, being careful not to damage the outside surface. Use an SMC tube cutter "TK-1", "TK-2" or "TK-3". Do not cut the tubing with pliers, nippers, scissors, etc., otherwise, the tubing will be deformed and trouble may result.
- (2) The outside diameter of the polyurethane tubing swells when internal pressure is applied to it. Therefore, it may be possible that the tubing cannot be re-inserted into the One-touch fitting. Check the tubing outside diameter, and when the accuracy of the outside diameter is +0.07 mm or larger for  $\phi 2$ , +0.15 mm or larger for other sizes, insert into the One-touch fitting again, without cutting the tubing to use it. When the tubing is re-inserted into the One-touch fitting, confirm that the tubing goes through the release button smoothly.
- (3) Grasp the tubing, slowly push it into the One-touch fitting until it comes to a stop.
- (4) Pull the tubing back gently to make sure it has a positive seal. Insufficient installation may cause air to leak or the tubing to release.

##### 2) Removal of tubing

- (1) Push the release button flange evenly and sufficiently to release the tube.
- (2) Pull out the tubing while keeping the release button depressed. If the release button is not held down sufficiently, the tubing cannot be withdrawn.
- (3) To reuse the tubing, remove the previously lodged portion of the tubing. If the lodged portion is left on without being removed, it may result in air leakage and removal of the tubing difficult.

#### 2. Connecting products with metal rods

Fittings with metal rod (Series KC and old Series KQ/KQ2) cannot be connected to One-touch fittings.

#### 3. When mounting tubing, resin plugs, metal rods, etc., do not press the release button before mounting.

Also, do not press the release button before mounting. This may result in detachment.

## Tightening the threaded portion of the connection thread

#### 1. Connection thread: M3

First, tighten it by hand, then give it an additional 1/4 turn with a wrench.

A reference value for the tightening torque is 0.4 to 0.5 N·m.

#### 2. Connection thread: M5, M6 and 10-32UNF

First, tighten it by hand, then give it an additional 1/6 turn to 1/4 turn with a wrench.

A reference value for the tightening torque is 1 to 1.5 N·m.

#### 3. M6

First, tighten it by hand, then give it an additional 1/6 turn to 1/4 turn with a wrench.

Note) Excessive tightening may damage the thread portion or deform the gasket and cause air leakage.

If the screw is too shallowly screwed in, it may come loose or air may leak.

#### 4. Fittings with sealant: R, NPT

1. The proper tightening torques of the fittings are as shown in the table below. As a guide, tighten by hand, then turn it two or three turns with a wrench.

| Connection thread size<br>(R, NPT) | Proper tightening torque<br>[N·m] |
|------------------------------------|-----------------------------------|
| 1/16, 1/8                          | 7 to 9                            |
| 1/4                                | 12 to 14                          |
| 3/8                                | 22 to 24                          |
| 1/2                                | 28 to 30                          |

2. If the fitting is tightened with excessive torque, a large amount of sealant will seep out. Remove the excess sealant.
3. Insufficient tightening may loosen the threads, or cause air leakage.
4. Reuse
  - 1) Normally, fittings with a sealant can be reused 2 to 3 times.
  - 2) To prevent air leakage through the sealant, remove any loose sealant stuck to the fitting by blowing air over the threaded portion.
  - 3) If the sealant no longer provides effective sealing, wrap sealing tape over the sealant before reusing. Do not use the sealant in any form other than a tape type.
  - 4) Once the fitting has been tightened, backing it out to its original position often causes the sealant to become defective. Air leakage will occur.



# Fittings & Tubing Precautions 4

Be sure to read this before handling.

## Tightening the threaded portion of the connection thread

### 5. Uni Thread Fittings

- 1) First tighten by hand, then use a proper wrench, which could be suitable for the hexagon across flats on the body to tighten with the proper tightening torque shown below.

#### Connection Female Thread: Rc, NPT, NPTF

| Uni thread size | Proper tightening torque [N·m] | Approx. wrench tightening angle after tightened by hand [deg] |
|-----------------|--------------------------------|---------------------------------------------------------------|
| 1/8             | 5 to 7                         | 30 to 60                                                      |
| 1/4             | 11 to 13                       | 30 to 60                                                      |
| 3/8             | 14 to 16                       | 15 to 45                                                      |
| 1/2             | 20 to 22                       | 15 to 30                                                      |

#### Connection Female Thread: G

| Uni thread size | Proper tightening torque [N·m] | Approx. wrench tightening angle after tightened by hand [deg] |
|-----------------|--------------------------------|---------------------------------------------------------------|
| 1/8             | 3 to 4                         | 30 to 45                                                      |
| 1/4             | 4 to 5                         | 15 to 30                                                      |
| 3/8             | 8 to 9                         | 15 to 30                                                      |
| 1/2             | 14 to 15                       | 15 to 30                                                      |

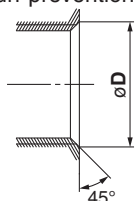
- 2) The gasket can be recycled up to 6 to 10 times. It can be replaced easily when it has sustained damage. A broken gasket can be removed by holding it and then turning it in the same direction as loosening the thread. If gasket is difficult to remove, cut it with nippers, etc. In such a case, use caution not to scratch the seat face because the seat face of 45° gasket of fitting is the sealing face.

## Chamfer Dimension for Female Thread

### ⚠ Caution

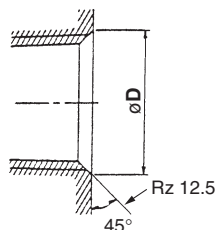
#### 1. Chamfer dimension for female thread of the connection thread M3, M5, 10-32UNF

Confirming to ISO 16030 (air pressure fluid dynamics – connection – ports and stud ends), the chamfer dimensions shown below are recommended. By chamfering as shown in the following table, machining of threads is easier and effective for burr prevention.



| Connection thread size | Chamfer dimension ØD (Recommended value) [mm] |
|------------------------|-----------------------------------------------|
| M3                     | 3.1 to 3.4                                    |
| M5                     | 5.1 to 5.4                                    |
| 10-32UNF               | 5.0 to 5.3                                    |

#### 2. Chamfer dimension of R and NPT thread with sealant, and Uni thread



| Connection thread size | Chamfer dimension ØD (Recommended value) |              |              |
|------------------------|------------------------------------------|--------------|--------------|
|                        | G                                        | Rc           | NPT, NPTF    |
| 1/16                   | —                                        | —            | 8.2 to 8.4   |
| 1/8                    | 10.2 to 10.6                             | 10.2 to 10.4 | 10.5 to 10.7 |
| 1/4                    | 13.6 to 14.0                             | 13.6 to 13.8 | 14.1 to 14.3 |
| 3/8                    | 17.1 to 17.5                             | 17.1 to 17.3 | 17.4 to 17.6 |
| 1/2                    | 21.4 to 21.8                             | 21.4 to 21.6 | 21.7 to 21.9 |

\* For Uni thread, Rz 12.5 is necessary for sealing at the chamfered part.

## Recommended Piping Conditions

### 1. When connecting piping to the One-touch fitting, use pipe length with sufficient margin, in accordance with the piping conditions shown in Fig. 1.

Also, when using a tying band, etc., to bind the piping together, make sure that external force does not come to bear on the fitting. (See Fig. 2.)

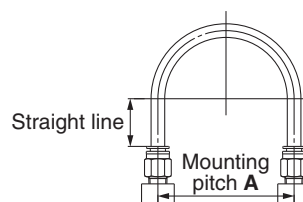


Fig. 1 Recommended piping

Unit: [mm]

| Tubing size | Mounting pitch A |                   |                     | Straight line length |
|-------------|------------------|-------------------|---------------------|----------------------|
|             | Nylon tubing     | Soft nylon tubing | Polyurethane tubing |                      |
| ø2          | —                | —                 | 13 or more          | 10 or more           |
| ø3.2, 1/8"  | 44 or more       | 35 or more        | 25 or more          | 16 or more           |
| ø4, 5/32"   | 56 or more       | 44 or more        | 26 or more          | 20 or more           |
| ø3/16"      | 67 or more       | 52 or more        | 38 or more          | 24 or more           |
| ø6          | 84 or more       | 66 or more        | 39 or more          | 30 or more           |
| ø1/4"       | 89 or more       | 70 or more        | 57 or more          | 32 or more           |
| ø8, 5/16"   | 112 or more      | 88 or more        | 52 or more          | 40 or more           |
| ø10         | 140 or more      | 110 or more       | 69 or more          | 50 or more           |
| ø3/8"       | 134 or more      | 105 or more       | 69 or more          | 48 or more           |
| ø12         | 168 or more      | 132 or more       | 88 or more          | 60 or more           |
| ø1/2"       | 178 or more      | 140 or more       | 93 or more          | 64 or more           |
| ø16         | 224 or more      | 176 or more       | 114 or more         | 80 or more           |

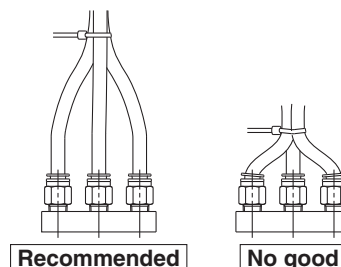


Fig. 2 When using a tying band to bind the piping together

## Tubing Design/Selection

### ⚠ Caution

#### 1. When using a tubing other than from SMC, be careful of the tolerance of the tubing O.D. and tubing material.

- 1) Nylon tubing Within ±0.1 mm
- 2) Soft nylon tubing Within ±0.1 mm
- 3) Polyurethane tubing Within +0.15 mm, Within -0.2 mm

Do not use the tubing which does not satisfy the specified tubing O.D. accuracy, or if the tubing has a different I.D., material, hardness, or surface roughness from those of SMC's tubing. Please consult SMC if there is anything unclear. It may cause difficulty in connecting the tubing, leakage, disconnection of the tubing, or fitting damage.

When used with tubing other than those from SMC, due to their properties, the products listed below are not subject to warranty.

KQG2, KQB2, KFG2, KF, ø2M

#### 2. When using fittings other than those from SMC, be certain to confirm that operating conditions are such that no problems will arise.

## 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

- 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.
- 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.
- 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.
- 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

- 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, whichever is first.\*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.

### SMC Corporation (Europe)

|                |                    |                       |                         |
|----------------|--------------------|-----------------------|-------------------------|
| Austria        | ☎+43 (0)2262622800 | www.smc.at            | office@smc.at           |
| Belgium        | ☎+32 (0)33551464   | www.smc-pneumatics.be | info@smc-pneumatics.be  |
| Bulgaria       | ☎+359 (0)2807670   | www.smc.bg            | office@smc.bg           |
| Croatia        | ☎+385 (0)13707288  | www.smc.hr            | office@smc.hr           |
| Czech Republic | ☎+420 541424611    | www.smc.cz            | office@smc.cz           |
| Denmark        | ☎+45 70252900      | www.smc.dk.com        | smc@smcdk.com           |
| Estonia        | ☎+372 6510370      | www.smc-pneumatics.ee | smc@smc-pneumatics.ee   |
| Finland        | ☎+358 207513513    | www.smc.fi            | smc.fi@smc.fi           |
| France         | ☎+33 (0)164761000  | www.smc-france.fr     | promotion@smc-france.fr |
| Germany        | ☎+49 (0)61034020   | www.smc.de            | info@smc.de             |
| Greece         | ☎+30 210 2717265   | www.smc-hellas.gr     | sales@smc-hellas.gr     |
| Hungary        | ☎+36 23511390      | www.smc.hu            | office@smc.hu           |
| Ireland        | ☎+353 (0)14039000  | www.smc-pneumatics.ie | sales@smc-pneumatics.ie |
| Italy          | ☎+39 0292711       | www.smc-italia.it     | mailbox@smc-italia.it   |
| Latvia         | ☎+371 67817700     | www.smc.lv            | info@smc.lv             |

|             |                      |                          |                            |
|-------------|----------------------|--------------------------|----------------------------|
| Lithuania   | ☎+370 5 2308118      | www.smclt.lt             | info@smclt.lt              |
| Netherlands | ☎+31 (0)205318888    | www.smc-pneumatics.nl    | info@smc-pneumatics.nl     |
| Norway      | ☎+47 67129020        | www.smc-norge.no         | post@smc-norge.no          |
| Poland      | ☎+48 (0)222119616    | www.smc.pl               | office@smc.pl              |
| Portugal    | ☎+351 226166570      | www.smc.eu               | postpt@smc-smces.es        |
| Romania     | ☎+40 213205111       | www.smc-romania.ro       | smcromania@smcromania.ro   |
| Russia      | ☎+7 8127185445       | www.smc-pneumatik.ru     | info@smc-pneumatik.ru      |
| Slovakia    | ☎+421 (0)413213212   | www.smc.sk               | office@smc.sk              |
| Slovenia    | ☎+386 (0)73885412    | www.smc.si               | office@smc.si              |
| Spain       | ☎+34 902184100       | www.smc.eu               | post@smc-smces.es          |
| Sweden      | ☎+46 (0)86031200     | www.smc.nu               | post@smc.nu                |
| Switzerland | ☎+41 (0)523963131    | www.smc.ch               | info@smc.ch                |
| Turkey      | ☎+90 212 489 0 440   | www.smc-pneumatik.com.tr | info@smc-pneumatik.com.tr  |
| UK          | ☎+44 (0)845 121 5122 | www.smc-pneumatics.co.uk | sales@smc-pneumatics.co.uk |