

Oval Type Metric Size One-touch Fittings

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

KQ2 Series

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.

Guide

Chuck

Body

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

Release button (Light gray)

Seal

* Fittings without thread portion, and with all resin body material 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, Polyurethane
Tubing O.D.	ø3.2, ø4, ø6

Specifications

Fluid		Air, Water*1
Operating pressure range*2		-100 kPa to 1 MPa
Proof pressure (at 23°C)		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) JIS B0205 (Metric coarse thread)
	Nut section	JIS B0205 (Metric fine thread)
Seal on the threads		With sealant

*1 The surge pressure must be under the maximum operating pressure.

*2 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



Made to Order
(Refer to page 27 for details.)

How to Order

Threaded Type

KQ2 H 06 - 01 A S 1

One-touch fittings

Model

Symbol	Model
H	Male connector
S	Hexagon socket head male connector
F	Female connector
L	Male elbow
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
W	Extended male elbow
T	Male branch tee
Y	Male run tee
D	Male delta union
E	Bulkhead union
	Bulkhead connector
LE	Bulkhead male elbow
N	Adapter

Oval type release button

Male thread seal method

Symbol	Seal method
Nil	None
S	With thread sealant

Thread material/Surface treatment

Symbol	Thread material/Surface treatment
A	Brass
N	Brass + Electroless nickel plating
G	Stainless steel 303 (Connection thread: Only male thread and M3)

Port size/Applicable tubing O.D.

Symbol	Size
Tubing connection	00 *1 Same dia. tubing
Thread connection	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

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

Applicable tubing O.D.

Symbol	Size
23	ø3.2
04	ø4
06	ø6

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

For details on applicable tubing O.D. and port size combinations for each model, refer to the charts on the Dimensions page.

Tube - Tube Type

KQ2 H 06 - 00 A 1

One-touch fittings

Model

Symbol	Model
H	Straight union
	Different diameter straight
L	Union elbow
	Plug-in elbow
	Reducer 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
R	Plug-in reducer

Oval type release button

Port size/Applicable tubing O.D.

Symbol	Size
Tubing (Rod) connection	00 Same diameter tubing
	99 Same diameter rod
Different dia. tubing (Reducer)	23 ø3.2
	04 ø4
	06 ø6
	08 ø8

Applicable tubing O.D.

Symbol	Size
23	ø3.2
04	ø4
06	ø6

Accessories

Symbol	Name
KQ2N	Nipple
KQ2C	Reducer nipple
KQ2P	Plug

Oval Type

Metric Size M, R, Rc

Sealant/Gasket Seal

Inch Size UNF, NPT

Inch Size M, R, Rc

Metric Size G

Metric Size R, Rc

Face Seal

Inch Size NPT

Inch Size R

Gasket Seal

Metric Size Uni

Inch Size Uni

Metric Size One-touch Fittings

Oval Type Variations

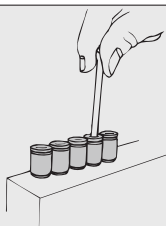
Hexagon socket head male connector

KQ2S

P.10



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



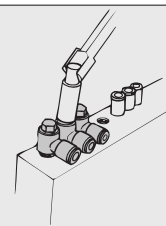
Universal male elbow

KQ2V

P.13



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



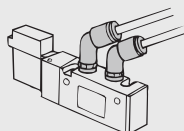
45° male elbow

KQ2K

P.13



Use to pipe a female thread at a 45° angle. Its direction is in-between that of the male connector and male elbow.



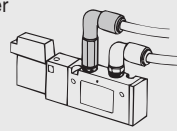
Extended male elbow

KQ2W

P.17



Basically, it is used together with a male elbow. Its extended height allows for multi-leveled piping and prevents interference among fittings.



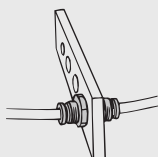
Bulkhead union

KQ2E

P.24



Use to connect tubing through a panel, etc.



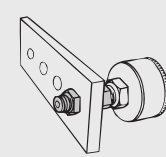
Bulkhead connector

KQ2E

P.24



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



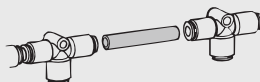
Nipple

KQ2N

P.26



Use to connect One-touch fittings.



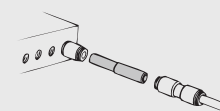
Reducer nipple

KQ2N

P.26



Use to connect One-touch fittings of different sizes.



Universal female elbow

KQ2VF

P.14



Use to branch a male or female thread in the same direction and at a 90° angle. Multiple connections possible.

Male connector

KQ2H

P.9



Use to pipe a female thread in the same direction. Most general model.

Cross

KQ2TW

P.20



Use to four-branch a line.

Reducer elbow

KQ2L

P.12



Use to change the tube direction of One-touch fittings by 90° and connect tubing of reduced size.

Female connector

KQ2F

P.10



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

Male elbow

KQ2L

P.11



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

Different diameter cross

KQ2TX

P.20



Use to four-branch a line and connect tubing of reduced size at both 90° angles.

Straight union

KQ2H

P.9



Use to connect tubing in the same direction.

Union elbow

KQ2L

P.11



Use to connect tubing at right angles.

Male branch tee

KQ2T

P.18



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

Different diameter straight

KQ2H

P.9



Use to connect tubing of different sizes.

Plug-in elbow

KQ2L

P.12



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

Union tee

KQ2T

P.19



Use to branch tubing at both 90° angles.

Different diameter tee

KQ2T

P.19



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

Triple universal male elbow

KQ2VT

P.15



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

Bulkhead male elbow

KQ2LE

P.24



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

Different diameter tee

KQ2T

P.19



Use to connect tubing of reduced size for branching at a 90° angle from two pipes running in the same direction.

Male run tee

KQ2Y

P.21



Use to branch a female thread in the same direction and at a 90° angle.

Adapter

KQ2N

P.25



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

Different diameter cross

KQ2TY

P.20



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

Extended plug-in elbow

KQ2W

P.16



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

Tube cap

KQ2C

P.25



Use to plug unused tubing.

Hexagon socket head universal male elbow

KQ2VS

P.14



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

Male delta union

KQ2D

P.22



Use to branch a female thread at two right angles.

Color cap

KQ2C

P.26



Mount onto the release button and use different colors for piping according to applications.

Female elbow

KQ2LF

P.16



Use to pipe a male thread at right angles.

Delta union

KQ2D

P.23



Use to branch tubing at three right angles.

Plug

KQ2P

P.25



Use to plug unused One-touch fittings.

Double universal male elbow

KQ2VD

P.15



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

Plug-in reducer

KQ2R

P.23



Use to change size of One-touch fittings.

The following models do not support oval type release buttons. Refer to the round type (from page 101).

Branch universal female elbow

KQ2ZF

P.115



Branch male elbow

KQ2LU

P.110



Branch universal male elbow

KQ2Z

P.115



Double branch universal male elbow

KQ2ZD

P.116



Triple branch universal male elbow

KQ2ZT

P.116



Branch union elbow

KQ2LU

P.109



Double branch "Y"

KQ2UD

P.126



Different diameter double union "Y"

KQ2UD

P.126



Different diameter plug-in "Y"

KQ2X

P.127



Double plug-in "Y"

KQ2XD

P.127



Union "Y"

KQ2U

P.125



Different diameter union "Y"

KQ2U

P.125



Plug-in "Y"

KQ2U

P.125



Branch "Y"

KQ2U

P.124



⚠ Box wrenches and socket wrenches may interfere with oval type release buttons. Refer to page 217 for details.

Dimensions

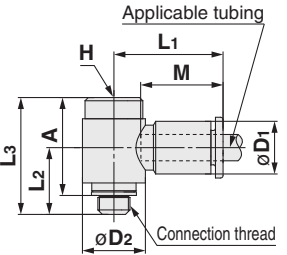
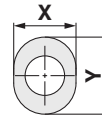
Hexagon Socket Head Universal Male Elbow: KQ2VS (Gasket seal)



Applicable tubing O.D. [mm]	Connection thread M	Model	H (Width across flats)	øD1	Release button dimensions		øD2	L1	L2	L3	A	M	Effective area [mm ²]		Min. port size	Weight [g]
					X	Y							Nylon	Urethane		
ø4	M5 x 0.8	KQ2VS04-M5□1	4	8.2	7.7	10	9.8	17.5	10.4	18.2	15.2	13.3	2.9	2.9	2.5	5.3
ø6	M5 x 0.8	KQ2VS06-M5□1	4	10.4	9.7	12	9.8	18.3	10.4	18.2	15.2	13.3	3.8	3.8	2.5	5.6

□: A (Brass), N (Brass + Electroless nickel plating)

Release button dimensions



Hexagon Socket Head Universal Male Elbow: KQ2VS (Sealant)

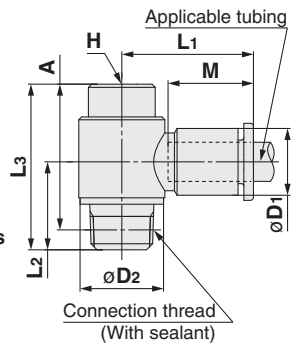
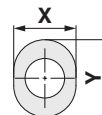


Applicable tubing O.D. [mm]	Connection thread R	Model	H (Width across flats)	øD1	Release button dimensions		øD2	L1	L2	L3	A*1	M	Effective area [mm ²]		Min. port size	Weight [g]
					X	Y							Nylon	Urethane		
ø4	1/8	KQ2VS04-01□S1	6	8.2	7.7	10	13.4	19.3	13.7	25.8	22.7	13.3	2.9	2.9	3	13.2
ø6	1/8	KQ2VS06-01□S1	6	10.4	9.7	12	13.4	20.5	13.7	25.8	22.7	13.3	7.5	5.9	4.5	13.5
	1/4	KQ2VS06-02□S1	6	10.4	9.7	12	15.3	19.9	17.9	26.5	21.8	13.3	7.5	5.9	4.5	20.8

□: A (Brass), N (Brass + Electroless nickel plating)

*1 Reference dimensions after installation of R thread

Release button dimensions



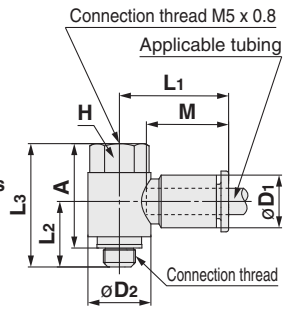
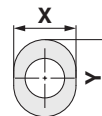
Universal Female Elbow: KQ2VF (Gasket seal)



Applicable tubing O.D. [mm]	Connection thread M	Model	H (Width across flats)	øD1	Release button dimensions		øD2	L1	L2	L3	A	M	Effective area [mm ²]		Min. port size	Weight [g]
					X	Y							Nylon	Urethane		
ø4	M5 x 0.8	KQ2VF04-M5□1	8	8.2	7.7	10	9.8	17.5	10.2	19.2	16.2	13.3	2.9	2.9	2.5	5.5
ø6	M5 x 0.8	KQ2VF06-M5□1	8	10.4	9.7	12	9.8	18.3	10.2	19.2	16.2	13.3	3.8	3.8	2.5	5.8

□: A (Brass), N (Brass + Electroless nickel plating)

Release button dimensions



Universal Female Elbow: KQ2VF (Sealant)

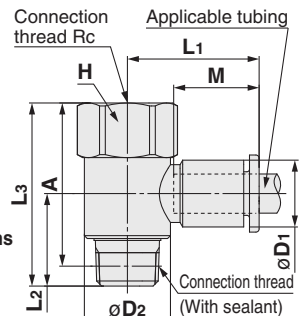
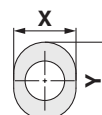


Applicable tubing O.D. [mm]	Connection thread Rc, R	Model	H (Width across flats)	øD1	Release button dimensions		øD2	L1	L2	L3	A*1	M	Effective area [mm ²]		Min. port size	Weight [g]
					X	Y							Nylon	Urethane		
ø4	1/8	KQ2VF04-01□S1	14	8.2	7.7	10	13.4	19.3	14.4	28.5	25.4	13.3	2.9	2.9	3	17.3
ø6	1/8	KQ2VF06-01□S1	14	10.4	9.7	12	13.4	20.5	14.4	28.5	25.4	13.3	7.5	5.9	4.5	17.6
	1/4	KQ2VF06-02□S1	17	10.4	9.7	12	17.6	21.2	19.4	37.9	33.2	13.3	7.5	5.9	4.5	37

□: A (Brass), N (Brass + Electroless nickel plating)

*1 Reference dimensions after installation of R thread

Release button dimensions



KQ2 Series

Made to Order/Clean Series/Spare Parts

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

1 Made to Order

Symbol	Specifications
X12	Lubricant: White vaseline Release button color: White
X35 *1	Body color: Black Release button color: Light gray
X41	With fixed orifice*2

*1 The following models are not available as made-to-order: Hexagon socket head male connector/KQ2S, Bulkhead union/KQ2E, Bulkhead connector/KQ2E, Nipple/KQ2N, Reducer nipple/KQ2N, Male connector/KQ2H, Female connector/KQ2F, Color cap/KQ2C, Plug/KQ2P

*2 Please contact SMC for availability.

The following made-to-order products will be provided based on previous models (KQ2 series). Please contact SMC separately.

Symbol	Specifications
X17	Grease-free Rubber material: NBR (With fluorine coating) Release button color: Light blue
X29	Grease-free Rubber material: NBR (With fluorine coating) Release button color: Light blue Copper-free (With electroless nickel plating)
X34	Rubber material: FKM
X39	Grease-free Rubber material: NBR (With fluorine coating) Release button color: Light blue Clean (Copper-free, air blow, double packaging, resin body: white)
X94	Grease-free Rubber material: FKM (With fluorine coating) Release button color: Light blue

2 Clean Series

Please consult with SMC separately for applicable models.

Symbol	Specifications
10-	Brass parts: With electroless nickel plating Lubricant: Fluorine grease Air blow in a clean room Double packaging Resin body, Release button color: White

Example) **10-KQ2H06-02NS1** (With thread)
10-KQ2H06-00A1 (Without thread)

3 Spare Parts

Description	Part no.	Applicable thread
Gasket	M-3G2	M3
	M-5G2	M5
	M-6G	M6

Brass

Description	Part no.	Applicable model
Pipe nut	KQ04-P01A	KQ2E23-00A1, KQ2E04-00A1, KQ2E23-02A1
		KQ2E04-01A1, KQ2E04-02A1, KQ2LE04-00A1
	KQ06-P01A	KQ2E06-00A1, KQ2E06-01A1, KQ2E06-02A1
		KQ2E06-03A1, KQ2LE06-00A1

Brass + Electroless nickel plating

Description	Part no.	Applicable model
Pipe nut	KQ04-P01N	KQ2E23-00N1, KQ2E04-00N1, KQ2E23-02N1
		KQ2E04-01N1, KQ2E04-02N1, KQ2LE04-00N1
	KQ06-P01N	KQ2E06-00N1, KQ2E06-01N1, KQ2E06-02N1
		KQ2E06-03N1, KQ2LE06-00N1