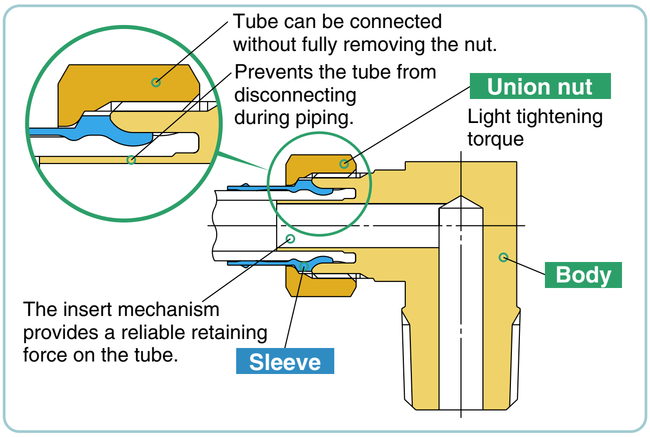
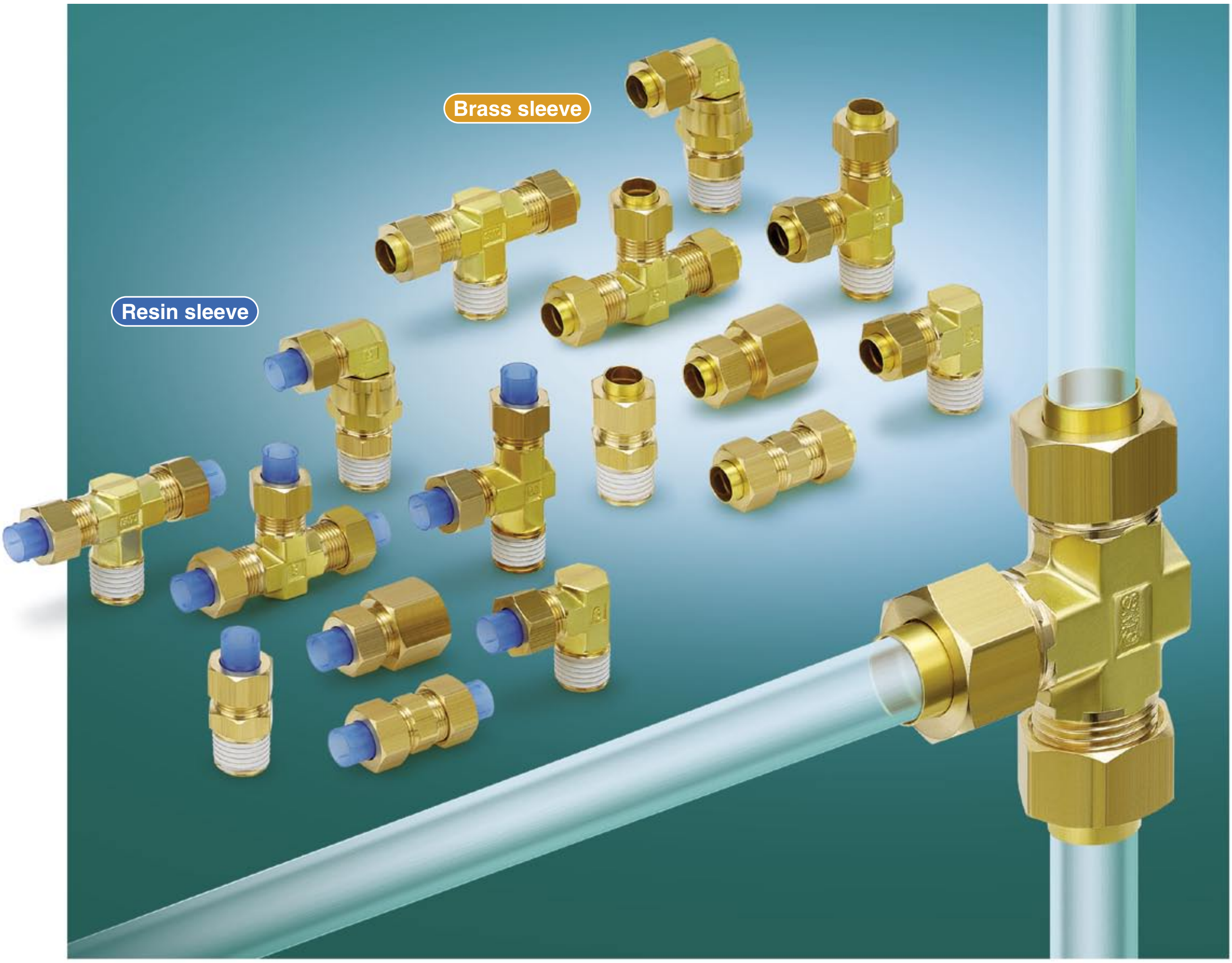
Insert Fittings

Brass sleeve type is now available!

- Material / Body, Union nut: Brass
  Sleeve: Resin or Brass
- Fluid temperature /
  –5 to 150°C (Brass sleeve)
  –5 to 60°C (Resin sleeve)
- Can be used with steam. (For brass sleeve)
- Grease-free
- Applicable tubing material / FEP, PFA, Nylon, Soft nylon, Polyurethane, Polyolefin





Series KF

SMC

CAT.EUS50-27A-UK

Male Connector

Used to pipe tube in the same direction as a female thread. Most general type

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/8	KFH04-01S	KFH04B-01S
		R1/4	KFH04-02S	KFH04B-02S
ø6	ø4	R1/8	KFH06-01S	KFH06B-01S
		R1/4	KFH06-02S	KFH06B-02S
		R3/8	KFH06-03S	KFH06B-03S
ø8	ø5	R1/8	KFH08U-01S	—
		R1/4	KFH08U-02S	—
		R3/8	KFH08U-03S	—
	ø6	R1/8	KFH08N-01S	KFH08B-01S
		R1/4	KFH08N-02S	KFH08B-02S
		R3/8	KFH08N-03S	KFH08B-03S
ø10	ø6.5	R1/4	KFH10U-02S	—
		R3/8	KFH10U-03S	—
		R1/2	KFH10U-04S	—
	ø7.5	R1/4	KFH10N-02S	KFH10B-02S
		R3/8	KFH10N-03S	KFH10B-03S
		R1/2	KFH10N-04S	KFH10B-04S
ø12	ø8	R1/4	KFH12U-02S	—
		R3/8	KFH12U-03S	—
		R1/2	KFH12U-04S	—
	ø9	R1/4	KFH12N-02S	KFH12B-02S
		R3/8	KFH12N-03S	KFH12B-03S
		R1/2	KFH12N-04S	KFH12B-04S


Male Branch Tee

Used to pipe a branch line at right angles in both directions from a female thread.

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/8	KFT04-01S	KFT04B-01S
		R1/4	KFT04-02S	KFT04B-02S
ø6	ø4	R1/8	KFT06-01S	KFT06B-01S
		R1/4	KFT06-02S	KFT06B-02S
		R3/8	KFT06-03S	KFT06B-03S
ø8	ø5	R1/8	KFT08U-01S	—
		R1/4	KFT08U-02S	—
		R3/8	KFT08U-03S	—
	ø6	R1/8	KFT08N-01S	KFT08B-01S
		R1/4	KFT08N-02S	KFT08B-02S
		R3/8	KFT08N-03S	KFT08B-03S
ø10	ø6.5	R1/4	KFT10U-02S	—
		R3/8	KFT10U-03S	—
		R1/2	KFT10U-04S	—
	ø7.5	R1/4	KFT10N-02S	KFT10B-02S
		R3/8	KFT10N-03S	KFT10B-03S
		R1/2	KFT10N-04S	KFT10B-04S
ø12	ø8	R1/4	KFT12U-02S	—
		R3/8	KFT12U-03S	—
		R1/2	KFT12U-04S	—
	ø9	R1/4	KFT12N-02S	KFT12B-02S
		R3/8	KFT12N-03S	KFT12B-03S
		R1/2	KFT12N-04S	KFT12B-04S


Male Elbow

Used to pipe tube at right angles to a female thread. Most general type

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/8	KFL04-01S	KFL04B-01S
		R1/4	KFL04-02S	KFL04B-02S
ø6	ø4	R1/8	KFL06-01S	KFL06B-01S
		R1/4	KFL06-02S	KFL06B-02S
		R3/8	KFL06-03S	KFL06B-03S
ø8	ø5	R1/8	KFL08U-01S	—
		R1/4	KFL08U-02S	—
		R3/8	KFL08U-03S	—
	ø6	R1/8	KFL08N-01S	KFL08B-01S
		R1/4	KFL08N-02S	KFL08B-02S
		R3/8	KFL08N-03S	KFL08B-03S
ø10	ø6.5	R1/4	KFL10U-02S	—
		R3/8	KFL10U-03S	—
		R1/2	KFL10U-04S	—
	ø7.5	R1/4	KFL10N-02S	KFL10B-02S
		R3/8	KFL10N-03S	KFL10B-03S
		R1/2	KFL10N-04S	KFL10B-04S
ø12	ø8	R1/4	KFL12U-02S	—
		R3/8	KFL12U-03S	—
		R1/2	KFL12U-04S	—
	ø9	R1/4	KFL12N-02S	KFL12B-02S
		R3/8	KFL12N-03S	KFL12B-03S
		R1/2	KFL12N-04S	KFL12B-04S


Male Run Tee

Used to pipe a branch line at right angles and in the same direction from a female thread.

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/8	KFY04-01S	KFY04B-01S
		R1/4	KFY04-02S	KFY04B-02S
ø6	ø4	R1/8	KFY06-01S	KFY06B-01S
		R1/4	KFY06-02S	KFY06B-02S
		R3/8	KFY06-03S	KFY06B-03S
ø8	ø5	R1/8	KFY08U-01S	—
		R1/4	KFY08U-02S	—
		R3/8	KFY08U-03S	—
	ø6	R1/8	KFY08N-01S	KFY08B-01S
		R1/4	KFY08N-02S	KFY08B-02S
		R3/8	KFY08N-03S	KFY08B-03S
ø10	ø6.5	R1/4	KFY10U-02S	—
		R3/8	KFY10U-03S	—
		R1/2	KFY10U-04S	—
	ø7.5	R1/4	KFY10N-02S	KFY10B-02S
		R3/8	KFY10N-03S	KFY10B-03S
		R1/2	KFY10N-04S	KFY10B-04S
ø12	ø8	R1/4	KFY12U-02S	—
		R3/8	KFY12U-03S	—
		R1/2	KFY12U-04S	—
	ø9	R1/4	KFY12N-02S	KFY12B-02S
		R3/8	KFY12N-03S	KFY12B-03S
		R1/2	KFY12N-04S	KFY12B-04S


Female Connector

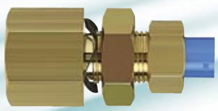
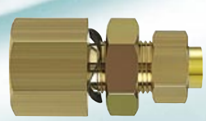
Used to pipe tube from a male thread such as pressure gauge.

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/4	KFF04-02	KFF04B-02
ø6	ø4	R1/4	KFF06-02	KFF06B-02
		R3/8	KFF06-03	KFF06B-03
ø8	ø5	R1/4	KFF08U-02	—
	ø6		KFF08N-02	KFF08B-02
ø10	ø6.5	R1/4	KFF10U-02	—
	ø7.5		KFF10N-02	KFF10B-02
ø12	ø8	R1/4	KFF12U-02	—
	ø9		KFF12N-02	KFF12B-02


Bulkhead Connector

Used to pipe tube to a male thread.

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø6	ø4	R1/4	KFE06-02	KFE06B-02
ø8	ø5	R3/8	KFE08U-03	—
	ø6		KFE08N-03	KFE08B-03
ø10	ø6.5	R3/8	KFE10U-03	—
	ø7.5		KFE10N-03	KFE10B-03
ø12	ø8	R3/8	KFE12U-03	—
	ø9		KFE12N-03	KFE12B-03

Swivel Elbow

Used to pipe tube at right angles to a female thread. Can be swiveled in any direction.

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/8	KFV04-01S	KFV04B-01S
		R1/4	KFV04-02S	KFV04B-02S
ø6	ø4	R1/8	KFV06-01S	KFV06B-01S
		R1/4	KFV06-02S	KFV06B-02S
		R3/8	KFV06-03S	KFV06B-03S
ø8	ø5	R1/8	KFV08U-01S	—
		R1/4	KFV08U-02S	—
		R3/8	KFV08U-03S	—
	ø6	R1/8	KFV08N-01S	KFV08B-01S
		R1/4	KFV08N-02S	KFV08B-02S
		R3/8	KFV08N-03S	KFV08B-03S
ø10	ø6.5	R1/4	KFV10U-02S	—
		R3/8	KFV10U-03S	—
		R1/2	KFV10U-04S	—
	ø7.5	R1/4	KFV10N-02S	KFV10B-02S
		R3/8	KFV10N-03S	KFV10B-03S
		R1/2	KFV10N-04S	KFV10B-04S
ø12	ø8	R1/4	KFV12U-02S	—
		R3/8	KFV12U-03S	—
		R1/2	KFV12U-04S	—
	ø9	R1/4	KFV12N-02S	KFV12B-02S
		R3/8	KFV12N-03S	KFV12B-03S
		R1/2	KFV12N-04S	KFV12B-04S

Swivel Extended Elbow

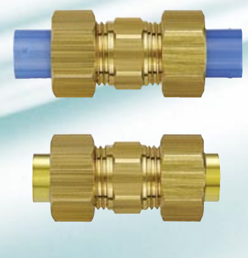
Used to pipe tube at right angles to a female thread. Can be swiveled at any direction. Solid section moves fittings up above a workpiece.

Applicable tubing size (mm)		Connection thread	Model	
O.D.	I.D.		Resin sleeve	Brass sleeve
ø4	ø2.5	R1/8	KFW04-01S	KFW04B-01S
		R1/4	KFW04-02S	KFW04B-02S
ø6	ø4	R1/8	KFW06-01S	KFW06B-01S
		R1/4	KFW06-02S	KFW06B-02S
		R3/8	KFW06-03S	KFW06B-03S
ø8	ø5	R1/8	KFW08U-01S	—
		R1/4	KFW08U-02S	—
		R3/8	KFW08U-03S	—
	ø6	R1/8	KFW08N-01S	KFW08B-01S
		R1/4	KFW08N-02S	KFW08B-02S
		R3/8	KFW08N-03S	KFW08B-03S
ø10	ø6.5	R1/4	KFW10U-02S	—
		R3/8	KFW10U-03S	—
		R1/2	KFW10U-04S	—
	ø7.5	R1/4	KFW10N-02S	KFW10B-02S
		R3/8	KFW10N-03S	KFW10B-03S
		R1/2	KFW10N-04S	KFW10B-04S
ø12	ø8	R1/4	KFW12U-02S	—
		R3/8	KFW12U-03S	—
		R1/2	KFW12U-04S	—
	ø9	R1/4	KFW12N-02S	KFW12B-02S
		R3/8	KFW12N-03S	KFW12B-03S
		R1/2	KFW12N-04S	KFW12B-04S

Straight Union

Used to pipe tubes in the same direction.

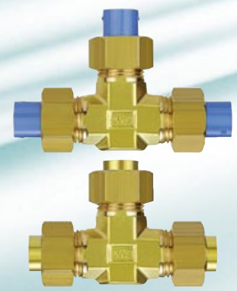
Applicable tubing size (mm)		Model	
O.D.	I.D.	Resin sleeve	Brass sleeve
ø4	ø2.5	KFH04-00	KFH04B-00
ø6	ø4	KFH06-00	KFH06B-00
ø8	ø5	KFH08U-00	—
	ø6	KFH08N-00	KFH08B-00
ø10	ø6.5	KFH10U-00	—
	ø7.5	KFH10N-00	KFH10B-00
ø12	ø8	KFH12U-00	—
	ø9	KFH12N-00	KFH12B-00



Union Tee

Used to pipe tubes in both 90° directions.

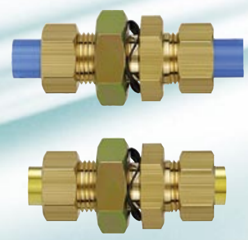
Applicable tubing size (mm)		Model	
O.D.	I.D.	Resin sleeve	Brass sleeve
ø4	ø2.5	KFT04-00	KFT04B-00
ø6	ø4	KFT06-00	KFT06B-00
ø8	ø5	KFT08U-00	—
	ø6	KFT08N-00	KFT08B-00
ø10	ø6.5	KFT10U-00	—
	ø7.5	KFT10N-00	KFT10B-00
ø12	ø8	KFT12U-00	—
	ø9	KFT12N-00	KFT12B-00



Bulkhead Union

Used to pipe tubes through a panel.

Applicable tubing size (mm)		Model	
O.D.	I.D.	Resin sleeve	Brass sleeve
ø4	ø2.5	KFE04-00	KFE04B-00
ø6	ø4	KFE06-00	KFE06B-00
ø8	ø5	KFE08U-00	—
	ø6	KFE08N-00	KFE08B-00
ø10	ø6.5	KFE10U-00	—
	ø7.5	KFE10N-00	KFE10B-00
ø12	ø8	KFE12U-00	—
	ø9	KFE12N-00	KFE12B-00



Plug

Used to plug unused fittings.

Applicable tubing size (mm)	Model
ø4	KFP-04
ø6	KFP-06
ø8	KFP-08
ø10	KFP-10
ø12	KFP-12

Insert Fittings
Series KF

Resin sleeve

Brass sleeve

Specifications

Sleeve material	Resin	Brass
Fluid	Air	Air, Steam
Ambient and fluid temperature	–5 to 60°C (No freezing)	–5 to 150°C (No freezing)
Maximum operating pressure	1.0 MPa	
Operating vacuum pressure Note)	–101.3 kPa	
Proof pressure	7.0 MPa (at 60°C)	
Lubricant	Grease-free	
Seal (Thread portion)	None or with sealant	

Note) Please avoid using in a vacuum holding application such as a leak tester, as leakage may occur.

Applicable Tubing

Series	Tubing O.D.	Tubing O.D. x I.D. (mm)							
		ø4 x ø2.5	ø6 x ø4	ø8 x ø5	ø8 x ø6	ø10 x ø6.5	ø10 x ø7.5	ø12 x ø8	ø12 x ø9
T	Nylon	●	●	—	●	—	●	—	●
TS	Soft nylon	●	●	—	●	—	●	—	●
TU	Polyurethane	●	●	●	—	●	—	●	—
TP	Polyolefin	●	●	—	●	—	●	—	●
TPS	Soft polyolefin	●	●	●	—	●	—	●	—
TH	FEP	●	●	—	●	—	●	—	●
TL	Super PFA	—	●	—	●	—	—	—	—

How to Order

KF H 06 ☐ – 01 S

Type

H	Male connector
	Straight union
L	Male elbow
T	Male branch tee
	Union tee
F	Female connector
E	Bulkhead connector
	Bulkhead union
Y	Male run tee
V	Swivel elbow
W	Swivel extended elbow

Applicable tubing O.D.

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Sealant

-	None
S	With sealant

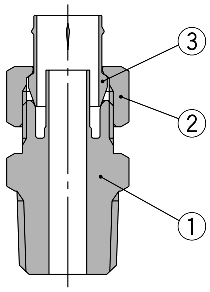
Bore size
Applicable tubing O.D.

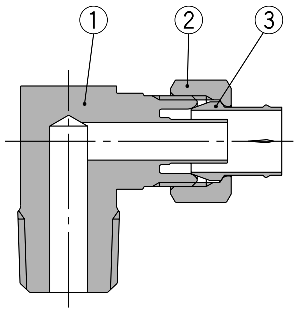
Thread connection	**01**	R1/8
	02	R1/4, Rc1/4
	03	R3/8, Rc3/8
	04	R1/2, Rc1/2
Tubing connection	**00**	Same tubing size

Applicable tubing / Sleeve material

Applicable tubing material	Sleeve material	Tubing size (O.D. x I.D.)							
		ø4/ø2.5	ø6/ø4	ø8/ø5	ø8/ø6	ø10/ø6.5	ø10/ø7.5	ø12/ø8	ø12/ø9
Nylon	Resin	**-**		—	**N**	—	**N**	—	**N**
	Brass	**B**		—	**B**	—	**B**	—	**B**
Soft nylon	Resin	**-**		—	**N**	—	**N**	—	**N**
	Brass	**B**		—	**B**	—	**B**	—	**B**
Polyurethane	Resin	**-**		**U**	—	**U**	—	**U**	—
Polyolefin	Resin	**-**		—	**N**	—	**N**	—	**N**
	Brass	**B**		—	**B**	—	**B**	—	**B**
Soft polyolefin	Resin	**-**		**U**	—	**U**	—	**U**	—
FEP	Resin	**-**		—	**N**	—	**N**	—	**N**
	Brass	**B**		—	**B**	—	**B**	—	**B**
Super PFA	Resin	—	**-**	—	**N**	—	—	—	—
	Brass	—	**B**	—	**B**	—	—	—	—

Construction



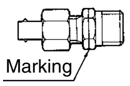
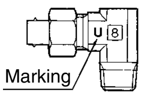


Principal Parts Material

No	Part no.	Material
1	**Body**	C3604, C3771
2	**Union nut**	C3604
3	**Resin sleeve, plug**	Nylon 66
	Brass sleeve	C2700

Identification of Fittings by Applicable Tubing

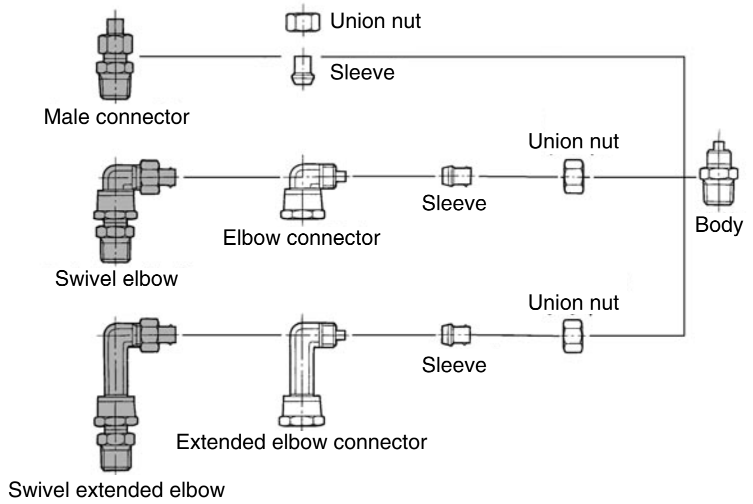
- Fittings used only with polyurethane and soft polyolefin tubes (Tube O.D. ø8, ø10 and ø12) are identified by the following marks on the body.
- Unmarked fittings sre used with nylon, soft nylon, polyolefin, FEP and super PFA tubes, or when used with compatible polyurethane and soft polyolefin tubes (Tube O.D. ø4 and ø6).
- Union nut and sleeve are compatible with all tube types.

Marking for polyurethane tube	Model
	Male connector: KFH Female connector: KFF Bulkhead connector: KFE Bulkhead union: KFE Straight union: KFH
	Male elbow: KFL Male branch tee: KFT Male run tee: KFY Union tee: KFT Swivel elbow: KFV Swivel extended elbow: KFW

Swivel Type / Part No.

Swivel type fitting parts lineup

The bodies of elbow connectors and extended elbow connectors are compatible with almost any fitting. (Exceptions are "KFV-04" and "KFW-04" which are for the body of a ø6 tube.) Swivel fittings, elbow (KFV) and (KFW) constitute the combination with a male connector (KFH) and connector as shown in the diagram.



Elbow Connector: KFV

Part no.	Applicable tubing O.D./I.D.
KFV-04	ø4/ø2.5
KFV-06	ø6/ø4
KFV-08U	ø8/ø5
KFV-08N	ø8/ø6
KFV-10U	ø10/ø6.5
KFV-10N	ø10/ø7.5
KFV-12U	ø12/ø8
KFV-12N	ø12/ø9

Union Nut: KFN

Part no.	Applicable tubing O.D
KFN-04	ø4
KFN-06	ø6
KFN-08	ø8
KFN-10	ø10
KFN-12	ø12

Extended Elbow Connector: KFW

Part no.	Applicable tubing O.D./I.D.
KFW-04	ø4/ø2.5
KFW-06	ø6/ø4
KFW-08U	ø8/ø5
KFW-08N	ø8/ø6
KFW-10U	ø10/ø6.5
KFW-10N	ø10/ø7.5
KFW-12U	ø12/ø8
KFW-12N	ø12/ø9

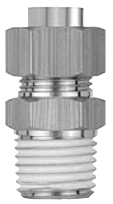
Sleeve: KFS

Part no.		Applicable tubing O.D.
Resin sleeve	Brass sleeve	
KFS-04	**KFSB-04**	ø4
KFS-06	**KFSB-06**	ø6
KFS-08	**KFSB-08**	ø8
KFS-10	**KFSB-10**	ø10
KFS-12	**KFSB-12**	ø12

Dimensions

Male Connector: KFH

Resin sleeve

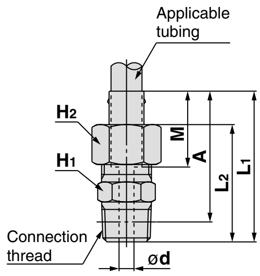


Brass sleeve

(mm)

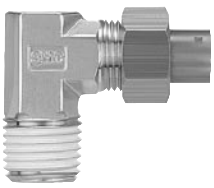
Applicable tubing size (mm)		Connection thread	Model	Width across flats		L_1	L_2	M	ød	A*	Effective area (mm^2)	Weight (g)
O.D.	I.D.			H_1	H_2							
ø4	ø2.5	R1/8	**KFH04-01S**	10	10	30.5	23.8	15.5	1.5	26.5	1.6	13
		R1/4	**KFH04-02S**	14		34.5	27.8			28.5		23
		R1/8	**KFH04B-01S**	10		27.4	24.4	12.4		23.4		14
		R1/4	**KFH04B-02S**	14		31.4	28.4			25.4		24
ø6	ø4	R1/8	**KFH06-01S**	10	12	30.2	23.5	15.2	3	26.2	6	14
		R1/4	**KFH06-02S**	14		34.2	27.5			28.2		25
		R3/8	**KFH06-03S**	17		35.2	28.5			28.9		36
		R1/8	**KFH06B-01S**	10		27.2	24.2	12.2		23.2		15
		R1/4	**KFH06B-02S**	14		31.2	28.2			25.2		26
		R3/8	**KFH06B-03S**	17		32.2	29.2			25.9		37
ø8	ø5	R1/8	**KFH08U-01S**	12	14	30.2	23.5	16.2	4	26.2	11	16
		R1/4	**KFH08U-02S**	14		34.2	27.5			28.2		25
		R3/8	**KFH08U-03S**	17		35.2	28.5			28.9		37
	ø6	R1/8	**KFH08N-01S**	12		30.2	23.5		5	26.2	17	16
		R1/4	**KFH08N-02S**	14		34.2	27.5			28.2		24
		R3/8	**KFH08N-03S**	17		35.2	28.5			28.9		36
		R1/8	**KFH08B-01S**	12		27.3	24.3	13.3		23.3		17
		R1/4	**KFH08B-02S**	14		31.3	28.3			25.3		25
		R3/8	**KFH08B-03S**	17		32.3	29.3			26.0		37
ø10	ø6.5	R1/4	**KFH10U-02S**	17	17	35.8	28.5	18.8	5.5	29.8	21	32
		R3/8	**KFH10U-03S**			36.8	29.5			30.5		40
		R1/2	**KFH10U-04S**	22		39.8	32.5			31.6		65
	ø7.5	R1/4	**KFH10N-02S**	17		35.8	28.5		6.5	29.8	30	31
		R3/8	**KFH10N-03S**			36.8	29.5			30.5		39
		R1/2	**KFH10N-04S**	22		39.8	32.5			31.6		64
		R1/4	**KFH10B-02S**	17		32.0	29.0	15.0		26.0		33
		R3/8	**KFH10B-03S**			33.0	30.0			26.7		41
		R1/2	**KFH10B-04S**	22		36.0	33.0			27.8		66
ø12	ø8	R1/4	**KFH12U-02S**	17	19	36.3	29.5	19.3	7	30.3	35	33
		R3/8	**KFH12U-03S**			37.3	30.5			31.0		41
		R1/2	**KFH12U-04S**	22		40.3	33.5			32.1		65
	ø9	R1/4	**KFH12N-02S**	17		36.3	29.5		8	30.3	45	31
		R3/8	**KFH12N-03S**			37.3	30.5			31.0		39
		R1/2	**KFH12N-04S**	22		40.3	33.5			32.1		64
		R1/4	**KFH12B-02S**	17		32.6	29.6	15.5		26.6		33
		R3/8	**KFH12B-03S**			33.6	30.6			27.3		41
		R1/2	**KFH12B-04S**	22		36.6	33.5			28.4		66

* Reference dimensions after installation of R thread

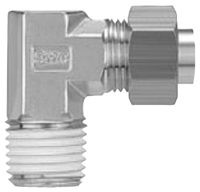


Dimensions

Male Elbow: KFL



Resin sleeve

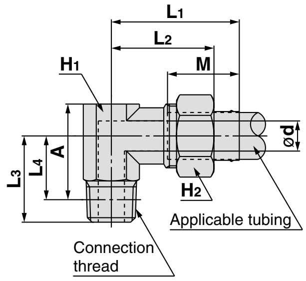


Brass sleeve

(mm)

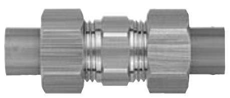
Applicable tubing size (mm) O.D.	Applicable tubing size (mm) I.D.	Connection thread	Model	Width across flats H1	Width across flats H2	L1	L2	L3	L4	M	ød	A*	Effective area (mm²)	Weight (g)
ø4	ø2.5	R1/8	**KFL04-01S**	10	10	27.5	20.8	17	13	15.5	1.5	19.3	1.6	21
		R1/4	**KFL04-02S**					19						25
		R1/8	**KFL04B-01S**			24.4	21.4	17		12.4				22
		R1/4	**KFL04B-02S**					19						26
ø6	ø4	R1/8	**KFL06-01S**	10	12	27.2	20.5	17	13	15.2	3	19.3	6.0	22
		R1/4	**KFL06-02S**					19						27
		R3/8	**KFL06-03S**	12		30.2	23.5	20	13.7			21		38
		R1/8	**KFL06B-01S**	10	12	24.2	21.2	17	13	12.2		19.3		23
		R1/4	**KFL06B-02S**					19						28
		R3/8	**KFL06B-03S**	12		27.2	24.2	20	13.7			21		39
ø8	ø5	R1/8	**KFL08U-01S**	12	14	28.2	21.5	18	14	16.2	4	21.3	9.5	30
		R1/4	**KFL08U-02S**					21	15			22.3	11	32
		R3/8	**KFL08U-03S**			30.2	23.5	20	13.7			21		39
	ø6	R1/8	**KFL08N-01S**			28.2	21.5	18	14		5	21.3	12	31
		R1/4	**KFL08N-02S**					21	15			22.3	16	32
		R3/8	**KFL08N-03S**			30.2	23.5	20	13.7			21		37
		R1/8	**KFL08B-01S**			25.3	22.3	18	14	13.3		21.3	12	32
		R1/4	**KFL08B-02S**					21	15			22.3	16	33
		R3/8	**KFL08B-03S**			27.3	24.3	20	13.7			21		38
ø10	ø6.5	R1/4	**KFL10U-02S**	12	17	31.8	24.5	22	16	18.8	5.5	23.3	18	38
		R3/8	**KFL10U-03S**					21	14.7			22	20	44
		R1/2	**KFL10U-04S**	14		33.8	26.5	25	16.8			25.3		66
	ø7.5	R1/4	**KFL10N-02S**	12		31.8	24.5	22	16		6.5	23.3	23	38
		R3/8	**KFL10N-03S**					21	14.7			22	26	43
		R1/2	**KFL10N-04S**	14		33.8	26.5	25	16.8			25.3		65
		R1/4	**KFL10B-02S**	12		28.0	25.0	22	16	15.0		23.3	23	39
		R3/8	**KFL10B-03S**					21	14.7			22	26	44
		R1/2	**KFL10B-04S**	14		30.0	27.0	25	16.8			25.3		66
ø12	ø8	R1/4	**KFL12U-02S**	14	19	34.3	27.5	23	17	19.3	7	25.5	24	53
		R3/8	**KFL12U-03S**					22	15.7			24.2	30	53
		R1/2	**KFL12U-04S**					25	16.8			25.3		68
	ø9	R1/4	**KFL12N-02S**					23	17		8	25.5	27	51
		R3/8	**KFL12N-03S**					22	15.7			24.2	35	52
		R1/2	**KFL12N-04S**					25	16.8			25.3		67
		R1/4	**KFL12B-02S**			30.6	27.6	23	17	15.5		25.5	27	53
		R3/8	**KFL12B-03S**					22	15.7			24.2	35	54
		R1/2	**KFL12B-04S**					25	16.8			25.3		69

* Reference dimensions after installation of R thread



Dimensions

Straight Union: KFH



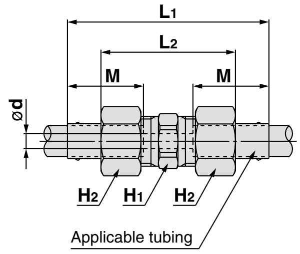
Resin sleeve

Brass sleeve

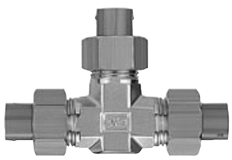
(mm)

Applicable tubing size (mm) O.D.	I.D.	Model	Width across flats H_1	H_2	L_1	L_2	M	ød	Effective area (mm^2)	Weight (g)
ø4	ø2.5	KFH04-00	8	10	40.9	27.6	15.5	1.5	1.6	13
		KFH04B-00			34.7	28.8	12.4			14
ø6	ø4	KFH06-00	10	12	40.3	27	15.2	3	6	17
		KFH06B-00			34.3	28.4	12.2			19
ø8	ø5	KFH08U-00	12	14	41.3	28	16.2	4	11	23
	ø6	KFH08N-00						5	17	22
		KFH08B-00			35.5	29.6	13			24
ø10	ø6.5	KFH10U-00	17	17	44.6	30	18.8	5.5	21	36
	ø7.5	KFH10N-00						6.5	30	
		KFH10B-00			37.0	31.0	15.0			39
ø12	ø8	KFH12U-00	17	19	45.5	32	19.3	7	35	42
	ø9	KFH12N-00						8	45	41
		KFH12B-00			38.1	32.2	15.5			44

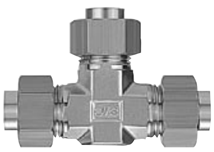
∗ Reference dimensions after installation of R thread



Union tee: KFT



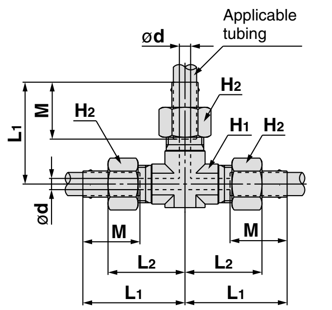
Resin sleeve



Brass sleeve

(mm)

Applicable tubing size (mm) O.D.	I.D.	Model	Width across flats H_1	H_2	L_1	L_2	M	ød	Effective area (mm^2)	Weight (g)
ø4	ø2.5	KFT04-00	10	10	27.5	20.8	15.5	1.5	1.6	33
		KFT04B-00			24.4	21.4	12.4			35
ø6	ø4	KFT06-00	10	12	27.2	20.5	15.2	3	6	37
		KFT06B-00			24.2	21.2	12.2			39
ø8	ø5	KFT08U-00	12	14	30.2	23.5	16.2	4	11	54
	ø6	KFT08N-00						5	17	53
		KFT08B-00			27.3	24.3	13.3			56
ø10	ø6.5	KFT10U-00	12	17	31.8	24.5	18.8	5.5	21	65
	ø7.5	KFT10N-00						6.5	30	63
		KFT10B-00			28.0	25.0	15.0			67
ø12	ø8	KFT12U-00	14	19	34.3	27.5	19.3	7	35	89
	ø9	KFT12N-00						8	45	85
		KFT12B-00			30.6	27.6	15.5			90



Dimensions

Male Branch Tee: KFT

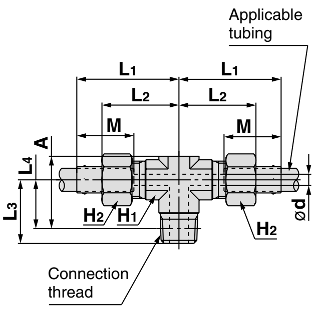
Resin sleeve

Brass sleeve

(mm)

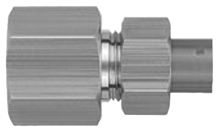
Applicable tubing size (mm) O.D.	Applicable tubing size (mm) I.D.	Connection thread	Model	Width across flats H1	Width across flats H2	L1	L2	L3	L4	M	ød	A*	Effective area (mm²)	Weight (g)
ø4	ø2.5	R1/8	**KFT04-01S**	10	10	27.5	20.8	17	13	15.5	1.5	19.3	3	29
		R1/4	**KFT04-02S**					19						34
		R1/8	**KFT04B-01S**			24.4	21.4	17		12.4				30
		R1/4	**KFT04B-02S**					19						35
ø6	ø4	R1/8	**KFT06-01S**	10	12	27.2	20.5	17	13	15.2	3	19.3	10	32
		R1/4	**KFT06-02S**					19						37
		R3/8	**KFT06-03S**	12		30.2	23.5	22	15.7			23	12	53
		R1/8	**KFT06B-01S**	10		24.2	21.2	17	13	12.2		19.3	10	34
		R1/4	**KFT06B-02S**					19						39
		R3/8	**KFT06B-03S**	12		27.2	24.2	22	15.7			23	12	55
ø8	ø5	R1/8	**KFT08U-01S**	12	14	30.2	23.5	20	16	16.2	4	23.3	14	49
		R1/4	**KFT08U-02S**					23	17			24.3	19	50
		R3/8	**KFT08U-03S**					22	15.7			23		56
	ø6	R1/8	**KFT08N-01S**					20	16		5	23.3	16	46
		R1/4	**KFT08N-02S**					23	17			24.3	25	49
		R3/8	**KFT08N-03S**					22	15.7			23		54
		R1/8	**KFT08B-01S**			27.3	24.3	20	16	13.3		23.3	16	48
		R1/4	**KFT08B-02S**					23	17			24.3	25	51
		R3/8	**KFT08B-03S**					22	15.7			23		56
ø10	ø6.5	R1/4	**KFT10U-02S**	12	17	31.8	24.5	23	17	18.8	5.5	24.3	27	46
		R3/8	**KFT10U-03S**					22	15.7			23	34	63
		R1/2	**KFT10U-04S**	14		33.8	26.5	27	18.8			27.3		90
	ø7.5	R1/4	**KFT10N-02S**	12		31.8	24.5	23	17		6.5	24.3	30	57
		R3/8	**KFT10N-03S**					22	15.7			23		62
		R1/2	**KFT10N-04S**	14		33.8	26.5	27	18.8			27.3	41	88
		R1/4	**KFT10B-02S**	12		28.0	25.0	23	17	15.0		24.3	30	60
		R3/8	**KFT10B-03S**					22	15.7			23		65
		R1/2	**KFT10B-04S**	14		30.0	27.0	27	18.8			27.3	41	91
ø12	ø8	R1/4	**KFT12U-02S**	14	19	34.3	27.5	25	19	19.3	7	27.5	31	79
		R3/8	**KFT12U-03S**					24	17.7			26.2	44	81
		R1/2	**KFT12U-04S**					27	18.8			27.3		94
	ø9	R1/4	**KFT12N-02S**					25	19		8	27.5	32	75
		R3/8	**KFT12N-03S**					24	17.7			26.2	48	78
		R1/2	**KFT12N-04S**					27	18.8			27.3		93
		R1/4	**KFT12B-02S**			30.6	27.6	25	19	15.5		27.5	32	78
		R3/8	**KFT12B-03S**					24	17.7			26.2	48	81
		R1/2	**KFT12B-04S**					27	18.8			27.3		96

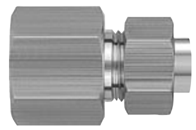
∗ Reference dimensions after installation of R thread



Dimensions

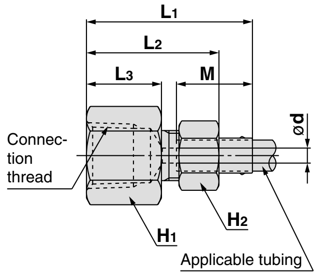
Female Connector: KFF


Resin sleeve

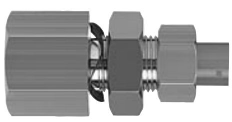

Brass sleeve

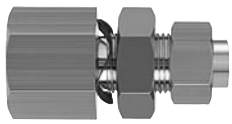
(mm)

Applicable tubing size (mm) O.D.	Applicable tubing size (mm) I.D.	Connection thread	Model	Width across flats H_1	Width across flats H_2	L_1	L_2	L_3	M	ød	Effective area (mm^2)	Weight (g)
ø4	ø2.5	R1/4	**KFF04-02**	17	10	33.5	26.8	15	15.5	1.5	1.6	25
			KFF04B-02			30.4	27.4		12.4			26
ø6	ø4	R1/4	**KFF06-02**	17	12	33.2	26.5	15	15.2	3	6	27
		R3/8	**KFF06-03**	19		35.2	28.5	17				30
		R1/4	**KFF06B-02**	17		30.2	27.2	15	12.2			28
		R3/8	**KFF06B-03**	19		32.2	29.2	17				31
ø8	ø5	R1/4	**KFF08U-02**	17	14	33.2	26.5	15	16.2	4	11	28
	ø6		**KFF08N-02**							5	17	
			KFF08B-02			30.3	27.3		13.3			29
ø10	ø6.5	R1/4	**KFF10U-02**	17	17	34.8	27.5	15	18.8	5.5	21	32
	ø7.5		**KFF10N-02**							6.5	30	
			KFF10B-02			31.0	28.0		15.0			33
ø12	ø8	R1/4	**KFF12U-02**	17	19	35.3	28.5	15	19.3	7	35	35
	ø9		**KFF12N-02**							8	45	36
			KFF12B-02			31.6	28.6		15.5			38



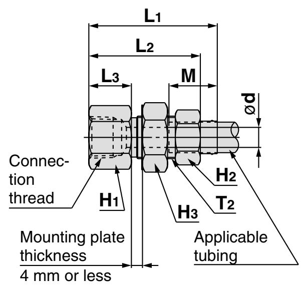
Bulkhead Connector: KFE


Resin sleeve

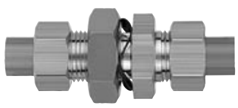

Brass sleeve

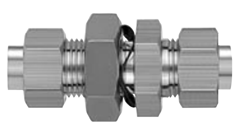
(mm)

Applicable tubing size (mm) O.D.	Applicable tubing size (mm) I.D.	Connection thread	Model	Width across flats H_1	Width across flats H_2	Width across flats H_3	L_1	L_2	L_3	M	ød	T_2	Mounting hole	Effective area (mm^2)	Weight (g)
ø6	ø4	R1/4	**KFE06-02**	17	12	17	44.2	37.5	16	15.2	3	M10 x 1	11	6	41
			KFE06B-02				41.2	38.2		12.2					42
ø8	ø5	R3/8	**KFE08U-03**	19	14	19	46.2	39.5	17	16.2	4	M12 x 1	13	11	49
	ø6		**KFE08N-03**								5			17	50
			KFE08B-03				43.3	40.3		13.3					51
ø10	ø6.5	R3/8	**KFE10U-03**	19	17	22	48.8	41.5	17	18.8	5.5	M15 x 1	16	21	63
	ø7.5		**KFE10N-03**								6.5			30	62
			KFE10B-03				45.0	42.0		15.0					63
ø12	ø8	R3/8	**KFE12U-03**	22	19	24	51.3	44.5	17	19.3	7	M17 x 1	18	35	93
	ø9		**KFE12N-03**								8			45	91
			KFE12B-03				47.6	44.6		15.5					93



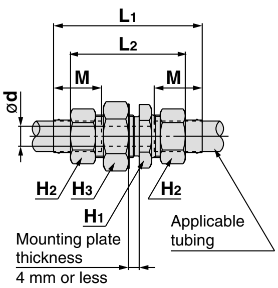
Bulkhead Union: KFE


Resin sleeve


Brass sleeve

(mm)

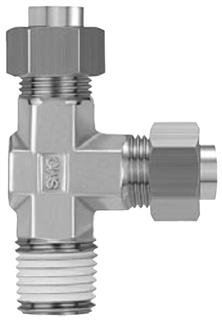
Applicable tubing size (mm) O.D.	Applicable tubing size (mm) I.D.	Model	Width across flats H_1	Width across flats H_2	Width across flats H_3	L_1	L_2	M	ød	Mounting hole	Effective area (mm^2)	Weight (g)
ø4	ø2.5	**KFE04-00**	12	10	13	50.9	37.6	15.5	1.5	9	1.6	23
		KFE04B-00				44.7	38.8	12.4				24
ø6	ø4	**KFE06-00**	14	12	17	51.3	38	15.2	3	11	6	34
		KFE06B-00				45.3	39.4	12.2				36
ø8	ø5	**KFE08U-00**	17	14	19	52.3	39	16.2	4	13	11	47
	ø6	**KFE08N-00**							5		17	46
		KFE08B-00				46.5	40.6	13				48
ø10	ø6.5	**KFE10U-00**	19	17	22	56.6	42	18.8	5.5	16	21	67
	ø7.5	**KFE10N-00**							6.5		30	66
		KFE10B-00				49.0	43.0	15.0				69
ø12	ø8	**KFE12U-00**	22	19	24	59.5	46	19.3	7	18	35	87
	ø9	**KFE12N-00**							8		45	85
		KFE12B-00				52.1	46.2	15.5				88



Dimensions

Male Run Tee: KFY

Resin sleeve

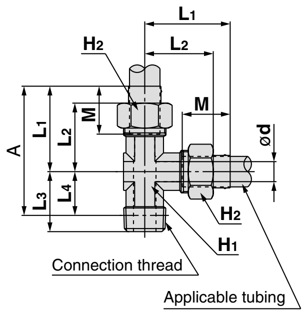


Brass sleeve

(mm)

Applicable tubing size (mm) O.D.	I.D.	Connection thread	Model	Width across flats H_1	H_2	L_1	L_2	L_3	L_4*	M	ød	A*	Effective area (mm^2)	Weight (g)
ø4	ø2.5	R1/8	**KFY04-01S**	10	10	27.5	20.8	17	13	15.5	1.5	40.5	3.5	28
		R1/4	**KFY04-02S**					19						32
		R1/8	**KFY04B-01S**			24.4	21.4	17		12.4		37.4		29
		R1/4	**KFY04B-02S**					19						33
ø6	ø4	R1/8	**KFY06-01S**	10	12	27.2	20.5	17	13	15.2	3	40.2	11	31
		R1/4	**KFY06-02S**					19						37
		R3/8	**KFY06-03S**	12		30.2	23.5	22	15.7			45.8	13	51
		R1/8	**KFY06B-01S**	10	12	24.2	21.2	17	13	12.2		37.2	11	33
		R1/4	**KFY06B-02S**					19						39
		R3/8	**KFY06B-03S**	12		27.2	24.2	22	15.7			42.8	13	53
ø8	ø5	R1/8	**KFY08U-01S**	12	14	30.2	23.5	20	16	16.2	4	46.2	15	48
		R1/4	**KFY08U-02S**					23	17			47.2	21	50
		R3/8	**KFY08U-03S**					22	15.7			45.8		55
	ø6	R1/8	**KFY08N-01S**					20	16		5	46.2	18	47
		R1/4	**KFY08N-02S**					23	17			47.2	27	48
		R3/8	**KFY08N-03S**					22	15.7			45.8		53
		R1/8	**KFY08B-01S**			27.3	24.3	20	16	13.3		43.3	18	49
		R1/4	**KFY08B-02S**					23	17			44.3	27	50
		R3/8	**KFY08B-03S**					22	15.7			42.9		55
ø10	ø6.5	R1/4	**KFY10U-02S**	12	17	31.8	24.5	23	17	18.8	5.5	48.8	30	58
		R3/8	**KFY10U-03S**					22	15.7			47.4	38	63
		R1/2	**KFY10U-04S**	14		33.8	26.5	27	18.8			52.6		89
	ø7.5	R1/4	**KFY10N-02S**	12		31.8	24.5	23	17		6.5	48.8	33	57
		R3/8	**KFY10N-03S**					22	15.7			47.4	46	62
		R1/2	**KFY10N-04S**	14		33.8	26.5	27	18.8			52.6		88
		R1/4	**KFY10B-02S**	12		28.0	25.0	23	17	15.0		45.0	33	60
		R3/8	**KFY10B-03S**					22	15.7			43.6	46	65
		R1/2	**KFY10B-04S**	14		30.0	27.0	27	18.8			48.8		91
ø12	ø8	R1/4	**KFY12U-02S**	14	19	34.3	27.5	25	19	19.3	7	53.3	34	79
		R3/8	**KFY12U-03S**					24	17.7			51.9	49	79
		R1/2	**KFY12U-04S**					27	18.8			53.1		93
	ø9	R1/4	**KFY12N-02S**					25	19		8	53.3	36	76
		R3/8	**KFY12N-03S**					24	17.7			51.9	54	78
		R1/2	**KFY12N-04S**					27	18.8			53.1		92
		R1/4	**KFY12B-02S**			30.6	27.6	25	19	15.5		49.6	36	79
		R3/8	**KFY12B-03S**					24	17.7			48.2	54	81
		R1/2	**KFY12B-04S**					27	18.8			49.4		95

∗ Reference dimensions after installation of R thread



Dimensions

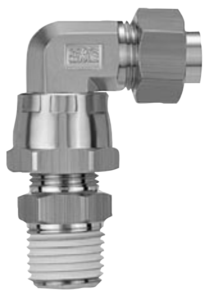
Swivel Elbow: KFV

(mm)

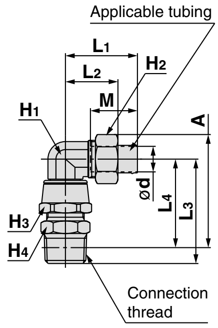
Applicable tubing size (mm)		Connection thread	Model	Width across flats				L_1	L_2	L_3	L_4*	M	ød	A*	Effective area (mm^2)	Weight (g)
O.D.	I.D.			H_1	H_2	H_3	H_4									
ø4	ø2.5	R1/8	**KFV04-01S**	10	10	14	10	26	19.3	33.7	29.7	15.5	1.5	35.5	1.4	40
		R1/4	**KFV04-02S**				14			37.7	31.7			37.5		50
		R1/8	**KFV04B-01S**				10	22.9	19.9	33.7	29.7	12.4		35.5		41
		R1/4	**KFV04B-02S**				14			37.7	31.7			37.5		51
ø6	ø4	R1/8	**KFV06-01S**	10	12	14	10	25.7	19	33.7	29.7	15.2	3	36.6	5	42
		R1/4	**KFV06-02S**				14			37.7	31.7			38.6		52
		R3/8	**KFV06-03S**				17			38.7	32.4			39.3		64
		R1/8	**KFV06B-01S**				10	22.7	19.7	33.7	29.7	12.2		36.6		43
		R1/4	**KFV06B-02S**				14			37.7	31.7			38.6		53
		R3/8	**KFV06B-03S**				17			38.7	32.4			39.3		65
ø8	ø5	R1/8	**KFV08U-01S**	12	14	17	12	27.2	20.5	34.7	30.7	16.2	4	38.8	9.4	52
		R1/4	**KFV08U-02S**				14			38.7	32.7			40.8		61
		R3/8	**KFV08U-03S**				17			39.7	33.4			41.5		73
	ø6	R1/8	**KFV08N-01S**				12			34.7	30.7		5	38.8	14	57
		R1/4	**KFV08N-02S**				14			38.7	32.7			40.8		60
		R3/8	**KFV08N-03S**				17			39.7	33.4			41.5		72
		R1/8	**KFV08B-01S**				12	24.3	21.3	34.7	30.7	13.3		38.8		58
		R1/4	**KFV08B-02S**				14			38.7	32.7			40.8		61
		R3/8	**KFV08B-03S**				17			39.7	33.4			41.5		73
ø10	ø6.5	R1/4	**KFV10U-02S**	14	17	19	17	28.8	21.5	40.7	34.7	18.8	5.5	44.5	18	73
		R3/8	**KFV10U-03S**							41.7	35.4			45.2		81
		R1/2	**KFV10U-04S**				22			44.7	36.5			46.3		104
	ø7.5	R1/4	**KFV10N-02S**				17			40.7	34.7		6.5	44.5	25	72
		R3/8	**KFV10N-03S**							41.7	35.4			45.2		80
		R1/2	**KFV10N-04S**				22			44.7	36.5			46.3		104
		R1/4	**KFV10B-02S**				17	25.0	22.0	40.7	34.7	15.0		44.5		73
		R3/8	**KFV10B-03S**							41.7	35.4			45.2		81
		R1/2	**KFV10B-04S**				22			44.7	36.5			46.3		105
ø12	ø8	R1/4	**KFV12U-02S**	17	19	22	17	30.3	23.5	41.7	35.7	19.3	7	46.7	30	92
		R3/8	**KFV12U-03S**							42.7	36.4			47.4		100
		R1/2	**KFV12U-04S**				22			45.7	37.5			48.5		124
	ø9	R1/4	**KFV12N-02S**				17			41.7	35.7		8	46.7	38	90
		R3/8	**KFV12N-03S**							42.7	36.4			47.4		98
		R1/2	**KFV12N-04S**				22			45.7	37.5			48.5		123
		R1/4	**KFV12B-02S**				17	26.6	23.6	41.7	35.7	15.5		46.7		92
		R3/8	**KFV12B-03S**							42.7	36.4			47.4		100
		R1/2	**KFV12B-04S**				22			45.7	37.5			48.5		125

* Reference dimensions after installation of R thread

Resin sleeve



Brass sleeve



Dimensions

Swivel Extended Elbow: KFW

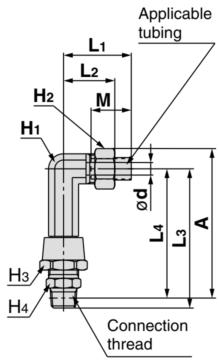
Resin sleeve

Brass sleeve

(mm)

Applicable tubing size (mm) O.D.	I.D.	Connection thread	Model	Width across flats H_1	H_2	H_3	H_4	L_1	L_2	L_3	L_4*	M	ød	A*	Effective area (mm^2)	Weight (g)
ø4	ø2.5	R1/8	**KFW04-01S**	10	10	14	10	26	19.3	53.7	49.7	15.5	1.5	55.5	1.4	58
		R1/4	**KFW04-02S**				14			57.7	51.7			57.5		63
		R1/8	**KFW04B-01S**				10	22.9	19.9	53.7	49.7	12.4		55.5		59
		R1/4	**KFW04B-02S**				14			57.7	51.7			57.5		64
ø6	ø4	R1/8	**KFW06-01S**	10	12	14	10	25.7	19.0	54.7	50.7	15.2	3	57.6	5.0	61
		R1/4	**KFW06-02S**				14			58.7	52.7			59.6		66
		R3/8	**KFW06-03S**				17			59.7	53.4			60.3		77
		R1/8	**KFW06B-01S**				10	22.7	19.7	54.7	50.7	12.2		57.6		62
		R1/4	**KFW06B-02S**				14			58.7	52.7			59.6		67
		R3/8	**KFW06B-03S**				17			59.7	53.4			60.3		78
ø8	ø5	R1/8	**KFW08U-01S**	12	14	17	12	27.2	20.5	55.7	51.7	16.2	4	59.8	9.4	81
		R1/4	**KFW08U-02S**				14			59.7	53.7			61.8		83
		R3/8	**KFW08U-03S**				17			60.7	54.4			62.5		90
	ø6	R1/8	**KFW08N-01S**				12			55.7	51.7		5	59.8	14	81
		R1/4	**KFW08N-02S**				14			59.7	53.7			61.8		83
		R3/8	**KFW08N-03S**				17			60.7	54.4			62.5		88
		R1/8	**KFW08B-01S**				12	24.3	21.3	55.7	51.7	13.3		59.8		82
		R1/4	**KFW08B-02S**				14			59.7	53.7			61.8		84
		R3/8	**KFW08B-03S**				17			60.7	54.4			62.5		89
ø10	ø6.5	R1/4	**KFW10U-02S**	14	17	19	17	28.8	21.5	61.7	55.7	18.8	5.5	65.5	18	100
		R3/8	**KFW10U-03S**							62.7	56.4			66.2		106
		R1/2	**KFW10U-04S**				22			65.7	57.5			67.3		128
	ø7.5	R1/4	**KFW10N-02S**				17			61.7	55.7		6.5	65.5	25	99
		R3/8	**KFW10N-03S**							62.7	56.4			66.2		104
		R1/2	**KFW10N-04S**				22			65.7	57.5			67.3		126
		R1/4	**KFW10B-02S**				17	25.0	22.0	61.7	55.7	15.0		65.5		100
		R3/8	**KFW10B-03S**							62.7	56.4			66.2		105
		R1/2	**KFW10B-04S**				22			65.7	57.5			67.3		127
ø12	ø8	R1/4	**KFW12U-02S**	17	19	22	17	30.3	23.5	64.7	58.7	19.3	7	69.7	30	146
		R3/8	**KFW12U-03S**							65.7	59.4			70.4		146
		R1/2	**KFW12U-04S**				22			68.7	60.5			71.5		161
	ø9	R1/4	**KFW12N-02S**				17			64.7	58.7		8	69.7	38	144
		R3/8	**KFW12N-03S**							65.7	59.4			70.4		145
		R1/2	**KFW12N-04S**				22			68.7	60.5			71.5		159
		R1/4	**KFW12B-02S**				17	26.6	23.6	64.7	58.7	15.5		69.7		146
		R3/8	**KFW12B-03S**							65.7	59.4			70.4		147
		R1/2	**KFW12B-04S**				22			68.7	60.5			71.5		161

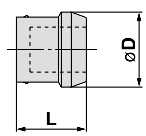
* Reference dimensions after installation of R thread



Plug: KFP

(mm)

Applicable tubing size (mm)	Model	L_1	ød	Weight (g)
ø4	**KFP-04**	12	6.5	0.3
ø6	**KFP-06**	12	8.5	0.5
ø8	**KFP-08**	12	10.4	0.7
ø10	**KFP-10**	13.5	13	1.0
ø12	**KFP-12**	14	15	1.4

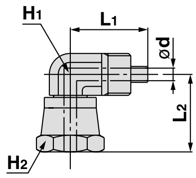


Dimensions

Elbow Connector: KFV

(mm)

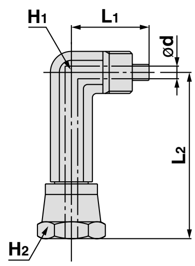
Applicable tubing size (mm) O.D.	I.D.	Model	Width across flats H1	Width across flats H2	L1	L2	ød	Weight (g)
ø4	ø2.5	KFV-04	10	14	18.5	18.5	1.5	21.1
ø6	ø4	KFV-06	10	14	18.5	18.5	3	21.6
ø8	ø5	KFV-08U	12	17	20	19.5	4	32.8
	ø6	KFV-08N					5	32.9
ø10	ø6.5	KFV-10U	14	19	21	21.5	5.5	41.9
	ø7.5	KFV-10N					6.5	41.7
ø12	ø8	KFV-12U	17	22	22	22.5	7	61.8
	ø9	KFV-12N					8	61.6



Extended Elbow Connector: KFW

(mm)

Applicable tubing size (mm) O.D.	I.D.	Model	Width across flats H1	Width across flats H2	L1	L2	ød	Weight (g)
ø4	ø2.5	KFW-04	10	14	18.5	38.5	1.5	31.7
ø6	ø4	KFW-06	10	14	18.5	39.5	3	33.0
ø8	ø5	KFW-08U	12	17	20	40.5	4	48.0
	ø6	KFW-08N					5	46.8
ø10	ø6.5	KFW-10U	14	19	21	42.5	5.5	62.4
	ø7.5	KFW-10N					6.5	63.4
ø12	ø8	KFW-12U	17	22	22	45.5	7	94.0
	ø9	KFW-12N					8	94.5



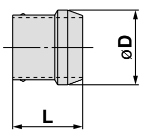
Sleeve: KFS

Resin sleeve

Brass sleeve

(mm)

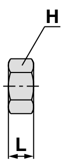
Applicable tubing size (mm)	Model	L	ød	Weight (g)
ø4	KFS-04	12	6.5	0.1
	KFSB-04	8.7		0.6
ø6	KFS-06	12	8.5	0.1
	KFSB-06	8.8		0.9
ø8	KFS-08	12	10.5	0.2
	KFSB-08	8.8		1.2
ø10	KFS-10	13.5	13	0.3
	KFSB-10	9.6		1.7
ø12	KFS-12	14	15	0.4
	KFSB-12	10.1		2.1



Union Nut: KFN

(mm)

Applicable tubing size (mm)	Model	Width across flats H	L	Weight (g)
ø4	KFN-04	10	8	3.0
ø6	KFN-06	12	8	3.8
ø8	KFN-08	14	8	4.7
ø10	KFN-10	17	9	7.0
ø12	KFN-12	19	10	9.5



Series KF

Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of **"Caution", "Warning"** or **"Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

■ Explanation of the Labels

Labels	Explanation of the labels
⚠ **Danger**	In extreme conditions, there is a possible result of serious injury or loss of life.
⚠ **Warning**	Operator error could result in serious injury or loss of life.
⚠ **Caution**	Operator error could result in injury Note 3) or equipment damage. Note 4)

Note 1) ISO 4414: Pneumatic fluid power – General rules relating to systems
Note 2) JIS B 8370: General Rules for Pneumatic Equipment
Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalisation or hospital visits for long-term medical treatment.
Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

■ Selection/Handling/Applications

1. **The compatibility of the pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.**
   Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.
2. **Only trained personnel should operate pneumatic machinery and equipment.**
   Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of the systems using pneumatic equipment should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)
3. **Do not service the machinery/equipment or attempt to remove components until safety is confirmed.**
   1. Inspection and maintenance of the machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
   2. If the equipment must be removed, confirm the safety process as mentioned above. Turn off the supply pressure for the equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
   3. Before the machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.
4. **If the equipment will be used in the following conditions or environment, please contact SMC first and be sure to take all necessary safety precautions.**
   1. Conditions and environments beyond the given specifications, or if product is used outdoors.
   2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
   3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
   4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■ Exemption from Liability

1. **SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquakes or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.**
2. **SMC, its officers and employees shall be exempted from liability for any direct or indirect loss or damage, including consequential loss or damage, loss of profits, or loss of chance, claims, demands, proceedings, costs, expenses, awards, judgments and any other liability whatsoever including legal costs and expenses, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.**
3. **SMC is exempted from liability for any damages caused by operations not contained in the catalogues and/or instruction manuals, and operations outside of the specification range.**
4. **SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.**

Series KF
Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions, refer to the back of page 1. For Fittings and Tubing Precautions, refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A).

Selection

⚠ Caution

1. Do not use in locations where the connecting threads and tubing connection will slide or rotate. The connecting threads and tubing connection will come apart under these conditions.
2. Please consult with SMC regarding fluids other than air and steam.

Mounting

⚠ Caution

1. Before mounting, please confirm that the model, size, etc. are correct. In addition, please confirm that there are no blemishes, nicks or cracks in the product.
2. When tubing is connected, consider factors such as changes in the tubing length due to pressure, and give adequate space.
3. Mount so that the fittings and tubing are not subjected to strain or moment loads. This can cause damage to the fittings and flattening, bursting or disconnection of the tubing, etc.
4. Mount so that the tubing is not damaged due to tangling and abrasion. This can cause flattening, bursting or disconnection of the tubing, etc.
5. Use tubing at or above the minimum bending radius. Using below the minimum bending radius can cause breakage or flattening of the tube.

Installation of Threads

⚠ Caution

1. Taper threads
   When installing, tighten with the proper torque shown in the table below. As a rule, this corresponds to two or three turns with a tool after being tightened by hand.

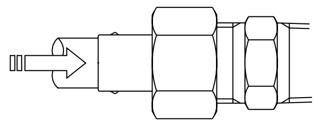
Connection thread size	Proper tightening torque N•m
R 1/8	7 to 9
R 1/4	12 to 14
R 3/8	22 to 24
R 1/2	28 to 30

2. Tightening tools
   Tighten with an appropriate wrench using the hexagon wrench flats on the body.
   Tighten by placing an appropriate wrench firmly against the fitting body. Position the wrench on the base as close as possible to the threads. If the wrench size is not correct, the fitting body may be damaged.

Piping

⚠ Caution

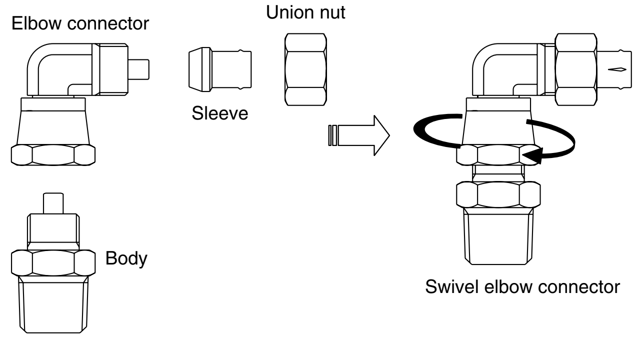
1. Installation of tubing
   1) Take a tube with no flaws on its periphery and cut it off at right angles. Do not use pinchers, nippers or scissors, etc. The tubing might be cut diagonally or flattened, making installation impossible or causing problems such as disconnection and leakage.
   2) Without loosening the union nut, grab the tube and gently push it thoroughly into the fitting.
   3) After insertion, confirm that the tube will not disconnect.



   4) When the union nut is loose, tighten it additionally, temporarily by hand.
   5) After fixing the body with the tightening tool, tighten the union nut with an appropriate wrench, applying the torque as shown below. After tightening the clearance between the union nut and the body in the axial direction is about 2

Fitting size	Sleeve material			
	Resin		Brass	
	Appropriate tightening rotations	Equivalent tightening torque (N•m)	Appropriate tightening rotations	Equivalent tightening torque (N•m)
KF□04	1.5 to 2.0	2 to 7	1.5	2 to 4
KF□06	1.5 to 2.0	3 to 8	1.5	4 to 6
KF□08	1.5 to 2.0	4 to 9	1.5	6 to 9
KF□10	1.5 to 2.0	6 to 9	1.5	10 to 12
KF□12	1.5 to 2.0	9 to 12	1.5	10 to 12

2. How to connect elbow type connector
   1) First tighten by hand, then use an appropriate wrench to tighten 1/6 to 1/3 turns additionally.



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Series KF
Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructions, refer to the back of page 1. For Fittings and Tubing Precautions, refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A).

Operating Environment

⚠ Warning

1. Do not use in environments or locations where there is danger of damage to the fittings and tubing.
   For fitting and tubing materials, refer to specifications and construction drawings, etc.
2. Do not operate in locations where vibration or impact occurs because this can cause leakage, damage to fittings, etc. Please contact SMC regarding use in these environments.

Maintenance

⚠ Caution

1. Pre-maintenance inspection
   When the product is to be removed, turn off the power, cut off the supply pressure, and confirm that fluid in the piping has been discharged.
2. During regular maintenance, check for the following and replace any components as necessary.
   a) Scratches, gouges, abrasion, corrosion
   b) Leakage
   c) Flattening or distortion of tubing
   d) Hardening, deterioration or softness of tubing
3. Do not repair the fittings or patch the tubing for reuse.
4. Using this product for extended periods of time can result in leaks due to the material change. In such cases, perform additional tightening to the union nut.
   A guide for the additional tightening is 1/6 to 1/4 turns. But in case of the brass sleeve, the limit for additional tightening is 1/2 turns.
   When there is a leak even after additional tightening, replace the sleeve with new one.
5. The sleeve is not reusable. Replace it every time piping is performed.

Precautions on Use of Other Tubing Brands

⚠ Caution

1. Our product warranty is not valid if tubing brands other than from SMC are used.

EUROPEAN SUBSIDIARIES:

Austria
SMC Pneumatik GmbH (Austria).
Girakstrasse 8, A-2100 Korneuburg
Phone: +43 2262-62280, Fax: +43 2262-62285
E-mail: office@smc.at
http://www.smc.at

France
SMC Pneumatique, S.A.
1, Boulevard de Strasbourg, Parc Gustave Eiffel
Bussy Saint Georges F-77607 Marne La Vallee Cedex 3
Phone: +33 (0)1-6476 1000, Fax: +33 (0)1-6476 1010
E-mail: contact@smc-france.fr
http://www.smc-france.fr

Netherlands
SMC Pneumatics BV
De Ruyterkade 120, NL-1011 AB Amsterdam
Phone: +31 (0)20-5318888, Fax: +31 (0)20-5318880
E-mail: info@smcpneumatics.nl
http://www.smcpneumatics.nl

Spain
SMC España, S.A.
Zuazobidea 14, 01015 Vitoria
Phone: +34 945-184 100, Fax: +34 945-184 124
E-mail: post@smc.smces.es
http://www.smces.es

Belgium
SMC Pneumatics N.V./S.A.
Nijverheidsstraat 20, B-2160 Wommelgem
Phone: +32 (0)3-355-1464, Fax: +32 (0)3-355-1466
E-mail: post@smcpneumatics.be
http://www.smcpneumatics.be

Germany
SMC Pneumatik GmbH
Boschring 13-15, D-63329 Egelsbach
Phone: +49 (0)6103-4020, Fax: +49 (0)6103-402139
E-mail: info@smc-pneumatik.de
http://www.smc-pneumatik.de

Norway
SMC Pneumatics Norway A/S
Vollsveien 13 C, Granfos Næringspark N-1366 Lysaker
Tel: +47 67 12 90 20, Fax: +47 67 12 90 21
E-mail: post@smc-norge.no
http://www.smc-norge.no

Sweden
SMC Pneumatics Sweden AB
Ekhagsvägen 29-31, S-141 71 Huddinge
Phone: +46 (0)8-603 12 00, Fax: +46 (0)8-603 12 90
E-mail: post@smcpneumatics.se
http://www.smc.nu

Bulgaria
SMC Industrial Automation Bulgaria EOOD
16 kliment Ohridski Blvd., fl.13 BG-1756 Sofia
Phone:+359 2 9744492, Fax:+359 2 9744519
E-mail: office@smc.bg
http://www.smc.bg

Greece
SMC Hellas EPE
Anagenniseos 7-9 - P.C. 14342. N. Philadelphia, Athens, Greece
Phone: +30-210-2717265, Fax: +30-210-2717766
E-mail: sales@smchellas.gr
http://www.smchellas.gr

Poland
SMC Industrial Automation Polska Sp.z.o.o.
ul. Konstruktorska 11A, PL-02-673 Warszawa,
Phone: +48 22 548 5085, Fax: +48 22 548 5087
E-mail: office@smc.pl
http://www.smc.pl

Switzerland
SMC Pneumatik AG
Dorfstrasse 7, CH-8484 Weisslingen
Phone: +41 (0)52-396-3131, Fax: +41 (0)52-396-3191
E-mail: info@smc.ch
http://www.smc.ch

Croatia
SMC Industrijska automatika d.o.o.
Crnomerec 12, 10000 ZAGREB
Phone: +385 1 377 66 74, Fax: +385 1 377 66 74
E-mail: office@smc.hr
http://www.smc.hr

Hungary
SMC Hungary Ipari Automatizálási Kft.
Budafoki ut 107-113, H-1117 Budapest
Phone: +36 1 371 1343, Fax: +36 1 371 1344
E-mail: office@smc.hu
http://www.smc.hu

Portugal
SMC Sucursal Portugal, S.A.
Rua de Engº Ferreira Dias 452, 4100-246 Porto
Phone: +351 22-610-89-22, Fax: +351 22-610-89-36
E-mail: postpt@smc.smces.es
http://www.smces.es

Turkey
Entek Pnömatik San. ve Tic Ltd. Sti.
Perpa Tic. Merkezi Kat: 11 No: 1625, TR-80270 Okmeydani Istanbul
Phone: +90 (0)212-221-1512, Fax: +90 (0)212-221-1519
E-mail: smc-entek@entek.com.tr
http://www.entek.com.tr

Czech Republic
SMC Industrial Automation CZ s.r.o.
Hudcova 78a, CZ-61200 Brno
Phone: +420 5 414 24611, Fax: +420 5 412 18034
E-mail: office@smc.cz
http://www.smc.cz

Ireland
SMC Pneumatics (Ireland) Ltd.
2002 Citywest Business Campus, Naas Road, Saggart, Co. Dublin
Phone: +353 (0)1-403 9000, Fax: +353 (0)1-464-0500
E-mail: sales@smcpneumatics.ie
http://www.smcpneumatics.ie

Romania
SMC Romania srl
Str Frunzei 29, Sector 2, Bucharest
Phone: +40 213205111, Fax: +40 213261489
E-mail: smcromania@smcromania.ro
http://www.smcromania.ro

UK
SMC Pneumatics (UK) Ltd
Vincent Avenue, Crownhill, Milton Keynes, MK8 0AN
Phone: +44 (0)800 1382930 Fax: +44 (0)1908-555064
E-mail: sales@smcpneumatics.co.uk
http://www.smcpneumatics.co.uk

Denmark
SMC Pneumatik A/S
Knudsminde 4B, DK-8300 Odder
Phone: +45 70252900, Fax: +45 70252901
E-mail: smc@smc-pneumatik.dk
http://www.smcdk.com

Italy
SMC Italia S.p.A
Via Garibaldi 62, I-20061Carugate, (Milano)
Phone: +39 (0)2-92711, Fax: +39 (0)2-9271365
E-mail: mailbox@smcitalia.it
http://www.smcitalia.it

Russia
SMC Pneumatik LLC.
4B Sverdlovskaja nab, St. Petersburg 195009
Phone.:+812 718 5445, Fax:+812 718 5449
E-mail: info@smc-pneumatik.ru
http://www.smc-pneumatik.ru

Estonia
SMC Pneumatics Estonia OÜ
Laki 12-101, 106 21 Tallinn
Phone: +372 (0)6 593540, Fax: +372 (0)6 593541
E-mail: smc@smcpneumatics.ee
http://www.smcpneumatics.ee

Latvia
SMC Pneumatics Latvia SIA
Smerla 1-705, Riga LV-1006, Latvia
Phone: +371 781-77-00, Fax: +371 781-77-01
E-mail: info@smclv.lv
http://www.smclv.lv

Slovakia
SMC Priemyselná Automatizáciá, s.r.o.
Námestie Martina Benku 10, SK-81107 Bratislava
Phone: +421 2 444 56725, Fax: +421 2 444 56028
E-mail: office@smc.sk
http://www.smc.sk

Finland
SMC Pneumatics Finland Oy
PL72, Tiistinniityntie 4, SF-02031 ESPOO
Phone: +358 207 513513, Fax: +358 207 513595
E-mail: smcfi@smc.fi
http://www.smc.fi

Lithuania
SMC Pneumatics Lietuva, UAB
Savanoriu pr. 180, LT-01354 Vilnius, Lithuania
Phone: +370 5 264 81 26, Fax: +370 5 264 81 26

Slovenia
SMC industrijska Avtomatika d.o.o.
Grajski trg 15, SLO-8360 Zuzemberk
Phone: +386 738 85240 Fax: +386 738 85249
E-mail: office@smc.si
http://www.smc.si

OTHER SUBSIDIARIES WORLDWIDE:

ARGENTINA, AUSTRALIA, BOLIVIA, BRASIL, CANADA, CHILE, CHINA, HONG KONG, INDIA, INDONESIA, MALAYSIA, MEXICO, NEW ZEALAND, PHILIPPINES, SINGAPORE, SOUTH KOREA, TAIWAN, THAILAND, USA, VENEZUELA

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SMC CORPORATION Akihabara UDX 15F, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN Phone: 03-5207-8249 FAX: 03-5298-5362

1st printing KY printing KY 05 UK Printed in Spain