S Couplers
Series KK

The pulling strength for the plugs and sockets has been improved.

Twice

as strong as the conventional models

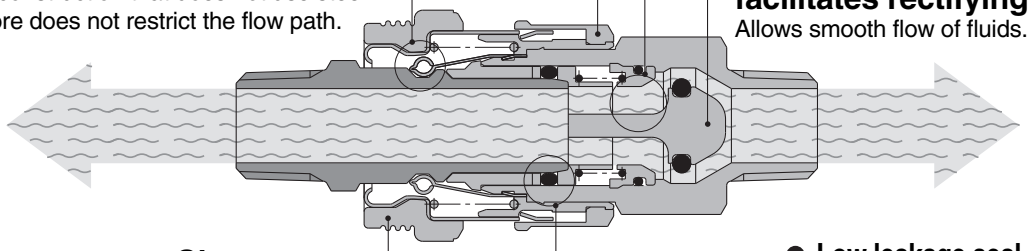
We standardized the product with a sleeve cover. Changing the the lock ring material to a shock absorbent PBT further improved the shock absorbent performance.

Lock ring
Shock absorbent PBT

No spring located in the flow path
Loss of effective area is minimised because there is no valve spring to block the flow path.

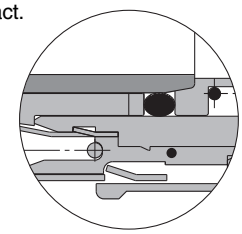
Employs a unique connection method
A slim body design and large effective area are achieved with a construction that does not use steel balls and therefore does not restrict the flow path.

Check valve end configuration facilitates rectifying effect
Allows smooth flow of fluids.



Sleeve cover
(Except for Series KK2)

Low leakage seal construction
Reliable sealing is achieved by surface contact.



●Light weight

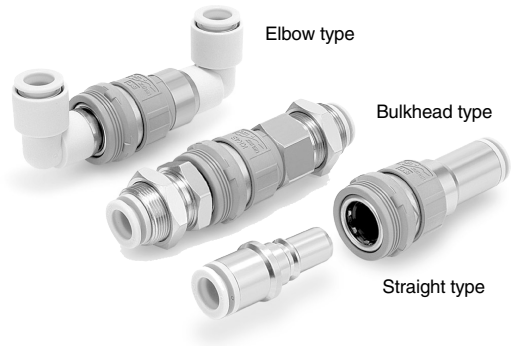
Together with a reduction of the body size, pressing parts and resin parts are used to achieve an overall weight reduction.

Series	Plug no.	Socket no.	Effective area mm² Note 1)	Body O.D. mm	Weight g Note 2)
Series **KK2**	KK2P-M5M	KK2S-M5M	3.8	ø10.0	6.1
Series **KK3**	KK3P-01MS	KK3S-01MS	20	ø20.2	20.1
Series **KK4**	KK4P-02MS	KK4S-02MS	39	ø28.0	44.1
Series **KK6**	KK6P-04MS	KK6S-04MS	82	ø31.6	90.1

Note 1) Values when plug and socket are connected.
Note 2) Values for socket only.

■ One-touch fitting type standardized

Three types from ø4 to ø16 added to series.

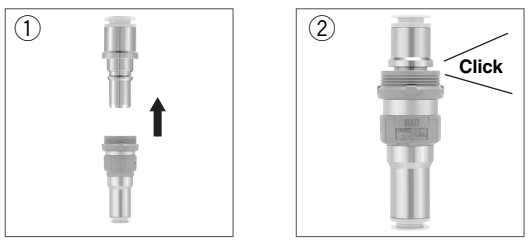


■ Flow is possible from the plug side or socket side.

■ Fluids: Air and Water

■ One-touch connection

Simple connection with one hand simplifies work.



■ Sleeve lock mechanism

Prevents accidents caused by unexpected separation.

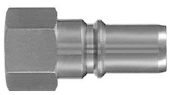
Note) Except for M5 type (Series KK2).

Plug (P)

Male thread type

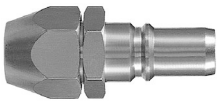
Body size	Port size	Part no.
M5	M5	KK2P-M5M
	R 1/8	-01MS
1/8	R 1/8	KK3P-01MS
	R 1/4	-02MS
	R 3/8	-03MS
1/4	R 1/8	KK4P-01MS
	R 1/4	-02MS
	R 3/8	-03MS
	R 1/2	-04MS
1/2	R 3/8	KK6P-03MS
	R 1/2	-04MS
	R 3/4	-06MS

Female thread type



Body size	Port size	Part no.
M5	M5	KK2P-M5F
1/8	Rc 1/8	KK3P-01F
	Rc 1/4	-02F
	Rc 3/8	-03F
1/4	Rc 1/4	KK4P-02F
	Rc 3/8	-03F
1/2	Rc 3/8	KK6P-03F
	Rc 1/2	-04F

Nut fitting type (for fiber reinforced urethane hose)

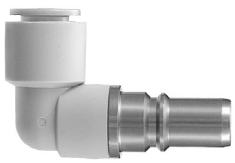


Body size	Applicable hose I.D./O.D. mm	Part no.
1/8	5/8	KK3P-50N
	6/9	-60N
	6.5/10	-65N
1/4	5/8	KK4P-50N
	6/9	-60N
	6.5/10	-65N
	8/12	-80N
	8.5/12.5	-85N
1/2	8/12	KK6P-80N
	8.5/12.5	-85N
	11/16	-110N

Straight type with One-touch fitting

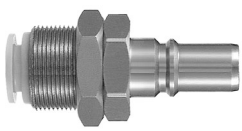
Body size	Applicable tubing O.D. mm	Part no.
M5	3.2	KK2P-23H
	4	-04H
	6	-06H
1/8	4	KK3P-04H
	6	-06H
	8	-08H
	10	-10H
1/4	6	KK4P-06H
	8	-08H
	10	-10H
	12	-12H
1/2	12	KK6P-12H
	16	-16H

Elbow type with One-touch fitting



Body size	Applicable tubing O.D. mm	Part no.
M5	3.2	KK2P-23L
	4	-04L
	6	-06L
1/8	4	KK3P-04L
	6	-06L
	8	-08L
	10	-10L
1/4	6	KK4P-06L
	8	-08L
	10	-10L
	12	-12L
1/2	12	KK6P-12L
	16	-16L

Bulkhead type with One-touch fitting



Body size	Applicable tubing O.D. mm	Part no.
M5	3.2	KK2P-23E
	4	-04E
	6	-06E
1/8	4	KK3P-04E
	6	-06E
	8	-08E
	10	-10E
1/4	6	KK4P-06E
	8	-08E
	10	-10E
	12	-12E
1/2	12	KK6P-12E
	16	-16E

Socket (S)

Male thread type

Body size	Port size	Part no.
M5	M5	KK2S-M5M
	R 1/8	-01MS
1/8	R 1/8	KK3S-01MS
	R 1/4	-02MS
	R 3/8	-03MS
1/4	R 1/8	KK4S-01MS
	R 1/4	-02MS
	R 3/8	-03MS
	R 1/2	-04MS
1/2	R 3/8	KK6S-03MS
	R 1/2	-04MS
	R 3/4	-06MS

Female thread type

Body size	Port size	Part no.
M5	M5	KK2S-M5F
1/8	Rc 1/8	KK3S-01F
	Rc 1/4	-02F
	Rc 3/8	-03F
1/4	Rc 1/4	KK4S-02F
	Rc 3/8	-03F
1/2	Rc 3/8	KK6S-03F
	Rc 1/2	-04F

Nut fitting type (for fiber reinforced urethane hose)

Body size	Applicable hose I.D./O.D. mm	Part no.
1/8	5/8	KK3S-50N
	6/9	-60N
	6.5/10	-65N
1/4	5/8	KK4S-50N
	6/9	-60N
	6.5/10	-65N
	8/12	-80N
	8.5/12.5	-85N
1/2	8/12	KK6S-80N
	8.5/12.5	-85N
	11/16	-110N

Straight type with One-touch fitting

Body size	Applicable tubing O.D. mm	Part no.
M5	3.2	KK2S-23H
	4	-04H
	6	-06H
1/8	4	KK3S-04H
	6	-06H
	8	-08H
	10	-10H
1/4	6	KK4S-06H
	8	-08H
	10	-10H
	12	-12H
1/2	12	KK6S-12H
	16	-16H

Elbow type with One-touch fitting

Body size	Applicable tubing O.D. mm	Part no.
M5	3.2	KK2S-23L
	4	-04L
	6	-06L
1/8	4	KK3S-04L
	6	-06L
	8	-08L
	10	-10L
1/4	6	KK4S-06L
	8	-08L
	10	-10L
	12	-12L
1/2	12	KK6S-12L
	16	-16L

Bulkhead type with One-touch fitting

Body size	Applicable tubing O.D. mm	Part no.
M5	3.2	KK2S-23E
	4	-04E
	6	-06E
1/8	4	KK3S-04E
	6	-06E
	8	-08E
	10	-10E
1/4	6	KK4S-06E
	8	-08E
	10	-10E
	12	-12E
1/2	12	KK6S-12E
	16	-16E

S Couplers
Series KK

Series KK2

Series KK3/4/6

Specifications

Fluid	Air, Water (standard industrial water)
Operating pressure range Note)	KK2:–100 kPa to 1.0 MPa KK3: –90 kPa to 1.0 MPa KK4/6: 0 to 1.0 MPa
Proof pressure	1.5 MPa
Ambient and fluid temperature	Air: –5 to 60°C Water: 5 to 40°C (with no freezing)
Plating, Sealant	Electroless nickel plated (copper-free application), With male thread sealant

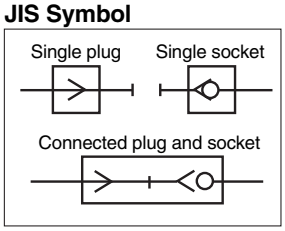
Note) Do not use the S couplers with a leak tester or for vacuum retention because they are not guaranteed for zero leakage.

Performance

Plug and socket connection	One-touch connection and release
Check valve	Socket: Built-in check valve (standard)
Sleeve lock mechanism Note)	Manual locking type (standard)

Note) Series KK2 is not provided with lock mechanism.

JIS Symbol



Effective Area

Body size	Plug	Socket	Effective area mm²
M5	**KK2P-M5M**	**KK2S-M5M**	3.8
1/8	**KK3P-01MS**	**KK3S-01MS**	20
1/4	**KK4P-02MS**	**KK4S-02MS**	39
1/2	**KK6P-04MS**	**KK6S-04MS**	82

How to Order

KK 4 S – 02 M S

Body size

2	M5
3	1/8
4	1/4
6	1/2

Socket/Plug designation

S	Socket
P	Plug

With sealant (male thread)

Connection type

Symbol	Type
M	Male thread
F	Female thread
N	With nut fitting
H	Straight with One-touch fitting
L	Elbow with One-touch fitting
E	Bulkhead with One-touch fitting

Piping port size variation

Male/Female thread type

Symbol	Thread size
M5	M5
01	R, Rc 1/8
02	R, Rc 1/4
03	R, Rc 3/8
04	R, Rc 1/2
06	R, Rc 3/4

One-touch fitting type

Symbol	Applicable tubing O.D. mm
23	ø3.2
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
16	ø16

Nut fitting type

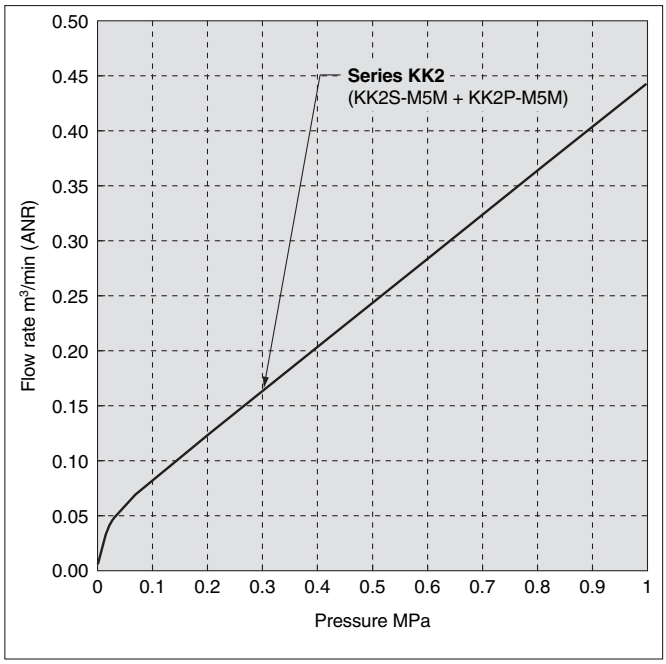
Symbol	Applicable hose I.D./O.D. mm
50	5/8
60	6/9
65	6.5/10
80	8/12
85	8.5/12.5
110	11/16

Note) Please refer to the previous page to confirm the right conbination.

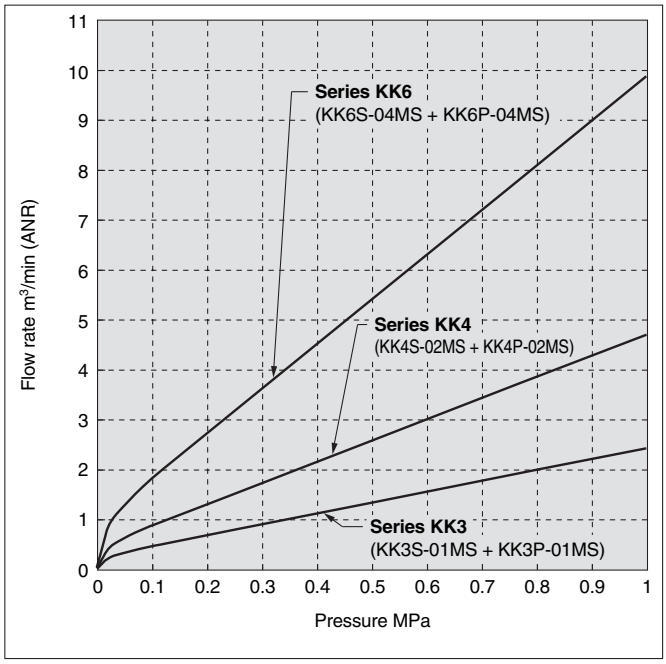
Flow Characteristics

Air (0 to 1 MPa)

KK2

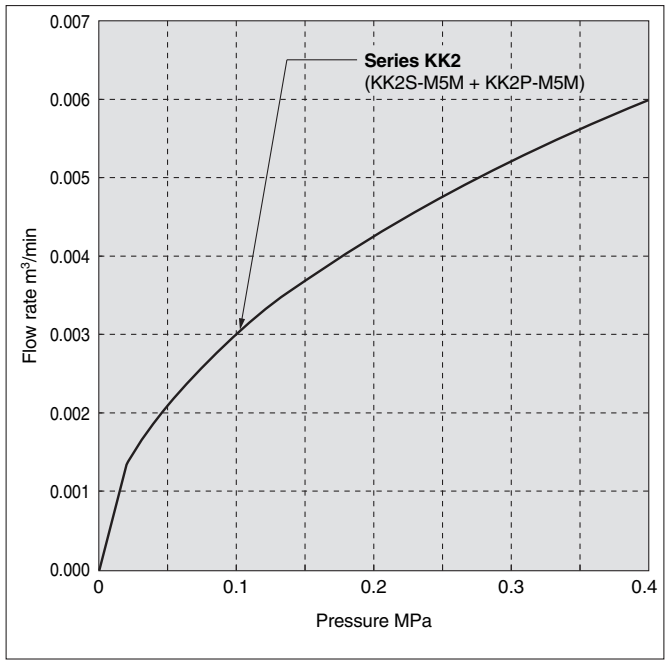


KK3/4/6

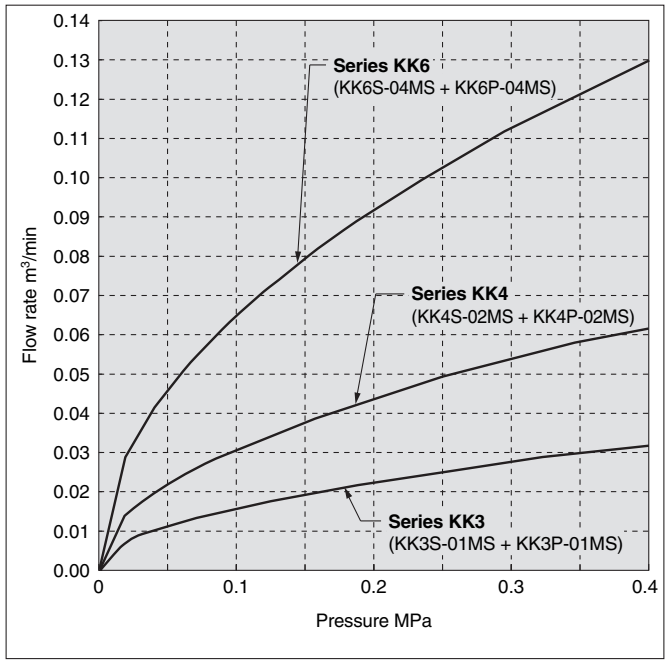


Water (0 to 0.4 MPa)

KK2

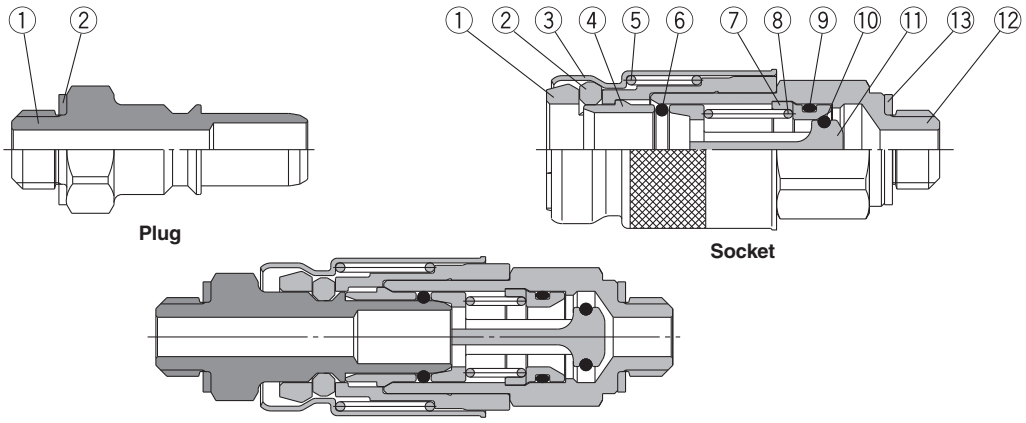


KK3/4/6



Construction

KK2



Plug

No.	Description	Material	Note
1	**Stem**	Brass	Electroless nickel plated
2	**Gasket**	Stainless steel, NBR	

KK2 Series Spare Parts

Description	Part no.	No.
Gasket	M-5G2	Plug ②
		Socket ⑬

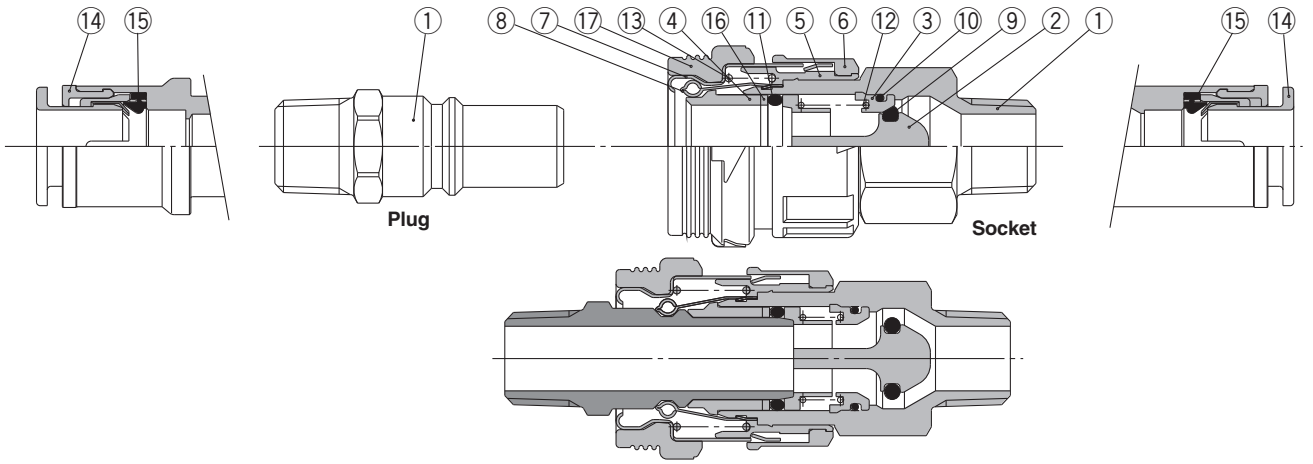
Socket

No.	Description	Material	Note
1	**Spacer**	PBT	
2	**Chuck**	PBT	
3	**Sleeve**	Brass	Electroless nickel plated
4	**Collar**	Brass	Electroless nickel plated
5	**Sleeve spring**	Stainless steel	
6	**Plug O-ring**	NBR	
7	**Valve seat**	PBT	
8	**Valve spring**	Stainless steel	
9	**Valve seat O-ring**	NBR	
10	**Valve O-ring**	FKM	
11	**Valve**	PBT	
12	**Socket body**	Brass	Electro nickel plated
13	**Gasket**	Stainless steel, NBR	

KK3/4/6

<With One-touch fitting >

<With One-touch fitting >



Plug

No.	Description	Material	Note
1	**Stem**	Brass	Electroless nickel plated
14	**Cassette**	—	
15	**Seal**	NBR	

KK/KKH Series Spare Parts

Description	Part no.	No.
Sleeve cover	KK3S-P01	Socket ⑰
	KK4S-P01	
	KK6S-P01	

Socket

No.	Description	Material	Note
1	**Body**	Brass	Electroless nickel plated
2	**Valve**	PBT	
3	**Valve seat**	PBT	
4	**Collar**	PBT	
5	**Spacer**	PBT	
6	**Lock ring**	Shock absorbent PBT	
7	**Sleeve**	Cold rolled carbon steel sheet	Electroless nickel plated
8	**Chuck**	Stainless steel	
9	**Valve O-ring**	FKM	
10	**Valve seat O-ring**	NBR	
11	**Plug O-ring**	NBR	
12	**Valve spring**	Stainless steel	
13	**Sleeve spring**	Stainless steel	
14	**Cassette**	—	
15	**Seal**	NBR	
16	**Collar 2**	Stainless steel	
17	**Sleeve cover**	Weather resistant NBR	

Dimensions/Plug (P)

Male thread type

(mm)

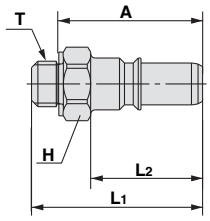
KK2

KK3/4/6

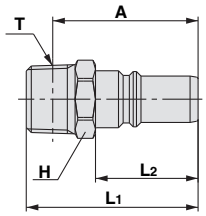
Body size	Model	T Connection port size	H Width across flats	L_1	L_2	A*	Min. bore size	Effective area mm²	Weight g
M5	**KK2P-M5M**	M5 x 0.8	7	18.8	12.3	15.8	2.5	4.4	2.6
	-01MS	R 1/8	10	22.3		19.2	3.4	8.1	3.0
1/8	**KK3P-01MS**	R 1/8		29.5	18.4	26.4	6.0	22.6	8.4
	-02MS	R 1/4	14	32.9		27.4			14.2
	-03MS	R 3/8	17	34.3		28.9			28.1
1/4	**KK4P-01MS**	R 1/8	14	36.1	25.2	33.0	9.0	50.9	17.0
	-02MS	R 1/4		39.7		34.2			20.2
	-03MS	R 3/8	17	41.1		35.7			32.5
	-04MS	R 1/2	22	45.3		38.2			57.4
1/2	**KK6P-03MS**	R 3/8	19	46.9	31.0	41.5	11.0	76.0	44.7
	-04MS	R 1/2	22	51.1		44.0	13.0	106.2	53.7
	-06MS	R 3/4	27	55		45.5			94.4

* Reference dimension for R threads after installation.

KK2

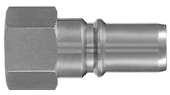


KK3/4/6

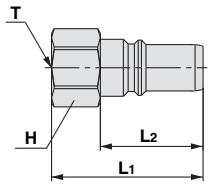


Female thread type

(mm)



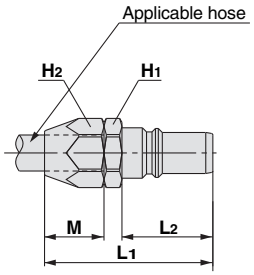
Body size	Model	T Connection port size	H Width across flats	L_1	L_2	Min. bore size	Effective area mm²	Weight g
M5	**KK2P-M5F**	M5 x 0.8	8	17.6	12.3	3.4	8.1	2.6
1/8	**KK3P-01F**	Rc 1/8	14	28.3	18.4	6.0	22.6	10.4
	-02F	Rc 1/4	17	33.5				20.8
	-03F	Rc 3/8	19	35.3				23.2
1/4	**KK4P-02F**	Rc 1/4	17	37.2	25.2	9.0	50.9	23.9
	-03F	Rc 3/8	19	39.8				24.6
1/2	**KK6P-03F**			43.3	31.0	13.0	106.2	28.6
	-04F	Rc 1/2	24	50.2				43.9



Nut fitting type (for fiber reinforced urethane hose)

(mm)

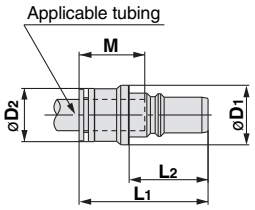
Body size	Model	Applicable hose I.D./O.D. mm	H_1 Width across flats	H_2 Width across flats	L_1	L_2	M	Min. bore size	Effective area mm²	Weight g
1/8	**KK3P-50N**	5/8	14	14	36.1	18.4	13.7	4.5	12.7	21.4
	-60N	6/9	17	17	39.9		16.5	5.4	18.3	38.8
	-65N	6.5/10						5.9	21.9	35.9
1/4	**KK4P-50N**	5/8	17	14	43.9	25.2	13.7	4.5	12.7	34.7
	-60N	6/9		17	46.7		16.5	5.4	18.3	48.4
	-65N	6.5/10						5.9	21.9	45.1
	-80N	8/12	19	19	47.6		17.4	7.4	34.4	53.2
	-85N	8.5/12.5						7.8	38.2	55.6
1/2	**KK6P-80N**	8/12			53.4	31.0		7.4	34.4	60.5
	-85N	8.5/12.5						7.8	38.2	62.8
	-110N	11/16	24	24	57.2		20.1	10.2	65.4	96.5



Straight type with One-touch fitting

(mm)

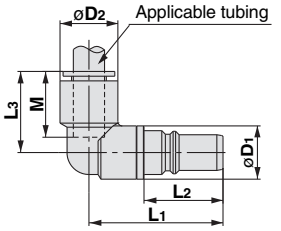
Body size	Model	Applicable tubing O.D. mm	øD1	øD2	L1	L2	M	Min. bore size	Effective area mm²		Weight g
									Urethane tubing	Nylon tubing	
M5	**KK2P-23H**	ø3.2	10.0	7.0	23.7	12.3	12.7	2.5	3.7	4.4	3.3
	-04H	ø4		8.0				3.4	8.1	8.1	3.4
	-06H	ø6		10.0	26.7		13.5				4.0
1/8	**KK3P-04H**	ø4	12.0	10.0	35.4	18.4	16.0	3.2	3.9	5.6	7.9
	-06H	ø6	14.0	12.0			17.0	4.7	10.1	12.8	9.1
	-08H	ø8	16.0	14.0	38.6		18.5	6.0	15.7	22.6	13.2
	-10H	ø10	19.0	17.0	39.7		21.0		22.6		17.6
1/4	**KK4P-06H**	ø6	14.0	12.0	46.2	25.2	17.0	4.7	10.1	12.8	22.3
	-08H	ø8	16.0	14.0			18.5	6.2	19.8	22.6	23.0
	-10H	ø10	19.0	17.0			21.0	7.7	27.6	35.3	27.1
	-12H	ø12	21.0	19.0	47.5		22.0	9.0	40.2	50.9	30.0
1/2	**KK6P-12H**				56.1	31.0		9.2	41.2		44.4
	-16H	ø16	26.0	25.7			25.0	13.0	—	106.2	50.7



Elbow type with One-touch fitting

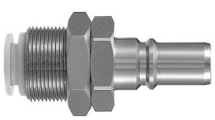
(mm)

Body size	Model	Applicable tubing O.D. mm	øD1	øD2	L1	L2	L3	M	Min. bore size	Effective area mm²		Weight g
										Urethane tubing	Nylon tubing	
M5	**KK2P-23L**	ø3.2	10.0	9.3	24.0	12.3	16.5	12.7	2.5	3.6	4.3	5.8
	-04L	ø4										
	-06L	ø6		11.6	25.1		16.6	13.5	3.4	7.8	7.8	6.4
1/8	**KK3P-04L**	ø4		10.4	31.6	18.4	18.0	16.0	3.0	3.7	5.3	7.2
	-06L	ø6		12.8	32.8		20.0	17.0	4.5	10.1	11.4	8.0
	-08L	ø8	12.0	15.2	34.0		23.0	18.5	6.0	15.0	16.8	9.7
	-10L	ø10	17.0	18.5	36.0		26.5	21.0		18.0	18.5	23.0
1/4	**KK4P-06L**	ø6	14.0	12.8	40.2	25.2	20.0	17.0	4.5	10.1	11.4	19.6
	-08L	ø8		15.2	41.4		23.0	18.5	6.0	17.5	19.8	21.3
	-10L	ø10	17.0	18.5	42.8		26.5	21.0	7.5	24.7	27.5	25.7
	-12L			20.9	44.0		28.5	22.0	9.0	29.0	29.6	28.0
1/2	**KK6P-12L**	ø12	19.0		49.9	31.0				38.1	39.7	40.3
	-16L	ø16	21.0	26.5	53.5		34.0	25.0	13.0	—	58.7	48.7

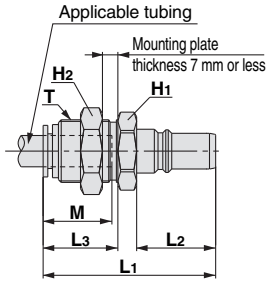


Bulkhead type with One-touch fitting

(mm)



Body size	Model	Applicable tubing O.D. mm	T Threads	H1 Width across flats	H2 Width across flats	L1	L2	L3	M	Min. bore size	Effective area mm²		Weight g
											Urethane tubing	Nylon tubing	
M5	**KK2P-23E**	ø3.2	M8 x 0.75	10	10	28.3	12.3	12.5	12.7	2.5	3.7	4.4	6.0
	-04E	ø4	M9 x 0.75		11					3.4	8.1	8.1	6.6
	-06E	ø6	M11 x 0.75	14	14	28.6		12.7	13.5				9.7
1/8	**KK3P-04E**	ø4	M12 x 1			39.3	18.4	16.9	16.0	3.2	3.9	5.6	16.6
	-06E	ø6	M14 x 1	17	17	40.2		16.8	17.0	4.7	10.1	12.8	22.3
	-08E	ø8	M16 x 1		19	43.4		20.0	18.5	6.0	15.7	22.6	30.2
	-10E	ø10	M20 x 1	22	24	46.4		22.0	21.0		22.6		54.7
1/4	**KK4P-06E**	ø6	M14 x 1	17	17	47.0	25.2	16.8	17.0	4.7	10.1	12.8	30.6
	-08E	ø8	M16 x 1		19	50.2		20.0	18.5	6.2	19.8	22.6	38.2
	-10E	ø10	M20 x 1	22	24	53.2		22.0	21.0	7.7	27.6	35.3	61.4
	-12E	ø12	M22 x 1	24	27	54.2		23.0	22.0	9.0	40.2	50.9	75.2
1/2	**KK6P-12E**					60.1	31.0			9.2	41.2		86.1
	-16E	ø16	M28 x 1.5	30	32	62.6		24.5	25.0	13.0	—	106.2	125.0



Dimensions/Socket (S)

Male thread type

(mm)

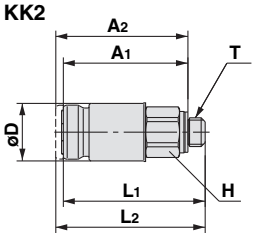
KK2

KK3/4/6

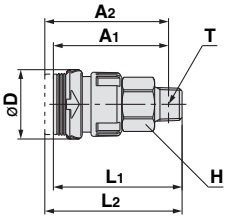
Body size	Model	T Connection port size	H Width across flats	øD	L1	L2 When connected	A1*	A2* When connected	Min. bore size	Effective area mm²	Weight g
M5	KK2S-M5M	M5	8	10.0	24,7	26,2	21.7	23.7	2.5	3.8	6.1
	-01MS	R 1/8	10		24,4	25,9		22.8	4.7	5.8	9.1
1/8	KK3S-01MS	R 1/8	14	20.2	36,6	39,1	33.5	36.0	6.0	20.4	20.1
	-02MS	R 1/4			37,0	39,5	31.5	34.0	9.0	21.1	19.2
	-03MS	R 3/8	17		37,6	40,1	32.2	34.5			29.0
1/4	KK4S-01MS	R 1/8	19	28.0	49,5	53,2	46.4	50.1	6.0	22.9	47.5
	-02MS	R 1/4			50,5	54,2	45.0	48.7	9.0	38.9	44.1
	-03MS	R 3/8			48,9	52,6	43.5	47.2	11.0	40.4	50.9
	-04MS	R 1/2	22		48,8	52,5	41.7	45.4	13.0	42.7	61.2
1/2	KK6S-03MS	R 3/8	24	31.6	59,1	64,4	53.7	59.0	11.0	71.7	87.9
	-04MS	R 1/2			59,3	64,6	52.2	57.5	13.0	82.3	90.1
	-06MS	R 3/4	27		60,2	65,5	50.7	56.0	15.0	83.8	113.3

* Reference dimension for R threads after installation.

KK2



KK3/4/6



Female thread type

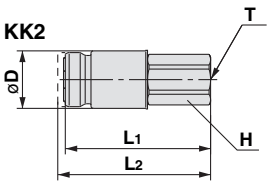
(mm)

KK2

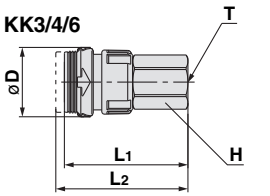
KK3/4/6

Body size	Model	T Connection port size	H Width across flats	øD	L1	L2 When connected	Min. bore size	Effective area mm²	Weight g
M5	KK2S-M5F	M5	8	10.0	25.3	26.8	4.2	5.4	6.4
1/8	KK3S-01F	Rc 1/8	14	20.2	36.0	38.5	8.2	20.6	23.6
	-02F	Rc 1/4	17		40.1	42.6		21.1	34.4
	-03F	Rc 3/8			41.9	44.4			38.8
1/4	KK4S-02F	Rc 1/4	19	28.0	50.4	54.1	10.9	39.6	56.9
	-03F	Rc 3/8			51.1	54.8	14.4	42.7	46.2
1/2	KK6S-03F		24	31.6	58.6	63.9		83.1	93.6
	-04F	Rc 1/2			61.0	66.3	18.0	83.8	87.4

KK2



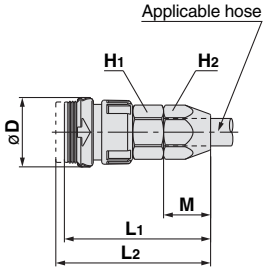
KK3/4/6



Nut fitting type (for fiber reinforced urethane hose)

(mm)

Body size	Model	Applicable hose I.D./O.D. mm	H1 Width across flats	H2 Width across flats	øD	L1	L2 When connected	M	Min. bore size	Effective area mm²	Weight g
1/8	KK3S-50N	5/8	14	14	20.2	42.6	45.1	13.7	4.5	12.2	32.1
	-60N	6/9	17	17		44.4	46.9	16.5	5.4	18.3	48.7
	-65N	6.5/10							5.9	19.2	46.4
1/4	KK4S-50N	5/8	19	14	28.0	54.1	57.8	13.7	4.5	12.2	55.8
	-60N	6/9		17		56.8	60.5	16.5	5.4	20.4	69.3
	-65N	6.5/10							5.9	24.1	66.8
	-80N	8/12		19		55.4	59.1	17.4	7.4	35.1	68.5
	-85N	8.5/12.5							7.8	36.6	71.1
1/2	KK6S-80N	8/12	24		31.6	66.0	71.3		7.4		107.5
	-85N	8.5/12.5							7.8	41.2	110.2
	-110N	11/16		24		64.4	69.7	20.1	10.2	68.4	119.8



Straight type with One-touch fitting

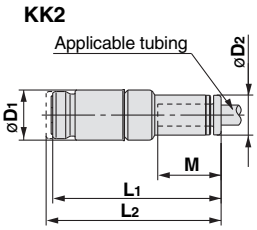
(mm)

KK2

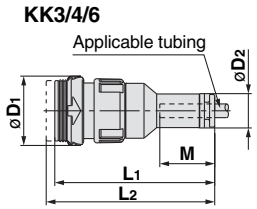
KK3/4/6

Body size	Model	Applicable tubing O.D. mm	øD1	øD2	L1	L2 When connected	M	Min. bore size	Effective area mm² Urethane tubing	Effective area mm² Nylon tubing	Weight g
M5	KK2S-23H	ø3.2	10.0	7.0	33.8	35.3	12.7	2.5	3.8	4.6	6.4
	-04H	ø4		8.0	33.6	35.1		3.4	4.0	4.8	6.5
	-06H	ø6		10.0	33.9	35.4	13.5	4.7	5.8	5.8	7.9
1/8	KK3S-04H	ø4	20.2	10.0	46.6	49.1	16.0	3.2	3.8	5.8	22.5
	-06H	ø6		12.0	47.1	49.6	17.0	4.7	10.4	13.4	24.4
	-08H	ø8		14.0	48.9	51.4	18.5	6.2	16.8	18.9	27.3
	-10H	ø10		17.0	49.9	52.4	21.0	7.7	19.1	19.1	37.1
1/4	KK4S-06H	ø6	28.0	12.0	58.2	61.9	17.0	4.7	10.4	13.4	51.4
	-08H	ø8		14.0	60.1	63.8	18.5	6.2	18.3	21.8	51.3
	-10H	ø10		17.0	61.5	65.2	21.0	7.7	27.0	29.4	54.8
	-12H	ø12		19.0	62.5	66.2	22.0	9.2	30.5	32.0	59.4
1/2	KK6S-12H		31.6		70.1	75.4			42.7	48.8	84.1
	-16H	ø16		25.7	72.3	77.6	25.0	13.2	53.4	62.5	99.9

KK2



KK3/4/6



Elbow type with One-touch fitting

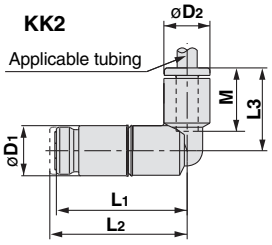
(mm)

KK2

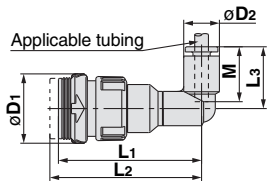
KK3/4/6

Body size	Model	Applicable tubing O.D. mm	øD1	øD2	L1	L2 When connected	L3	M	Min. bore size	Effective area mm² Urethane tubing	Effective area mm² Nylon tubing	Weight g
M5	KK2S-23L	ø3.2	10.0	9.3	26.0	27.5	16.5	12.7	2.5	3.7	4.4	6.7
	-04L	ø4										
	-06L	ø6		11.6	27.2	28.3	16.6	13.5	4.5	5.6	5.6	7.2
1/8	KK3S-04L	ø4	20.2	10.4	41.7	44.2	18.0	16.0	3.0	3.7	5.3	23.2
	-06L	ø6		12.8	42.9	45.4	20.0	17.0	4.5	10.1	11.4	24.0
	-08L	ø8		15.2	43.1	45.6	23.0	18.5	6.0	15.0	16.8	25.0
	-10L	ø10		18.5	42.9	45.4	26.5	21.0	7.5	18.0	18.5	34.4
1/4	KK4S-06L	ø6	28.0	12.8	54.3	58.0	20.0	17.0	4.5	10.1	11.4	53.5
	-08L	ø8		15.2	55.5	59.2	23.0	18.5	6.0	17.5	19.8	53.1
	-10L	ø10		18.5	54.2	57.9	26.5	21.0	7.5	24.7	27.5	54.7
	-12L	ø12		20.9	55.4	59.1	28.5	22.0	9.0	29.0	29.6	57.0
1/2	KK6S-12L		31.6		66.3	71.6			13.0	38.1	39.7	91.4
	-16L	ø16		26.5	66.9	72.2	34.0	25.0		50.3	58.7	93.5

KK2



KK3/4/6



Bulkhead type with One-touch fitting

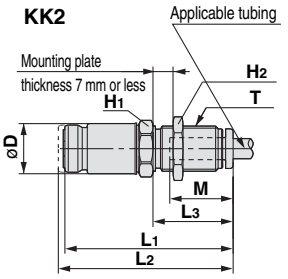
(mm)

KK2

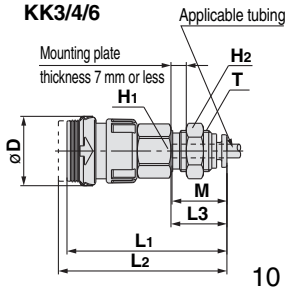
KK3/4/6

Body size	Model	Applicable tubing O.D. mm	T Threads	H1 Width across flats	H2 Width across flats	øD	L1	L2 When connected	L3	M	Min. bore size	Effective area mm² Urethane tubing	Effective area mm² Nyrlon tubing	Weight g
M5	KK2S-23E	ø3.2	M8 x 0.75	10	10	10.0	33.8	35.3	13.0	12.7	2.5	3.8	4.6	9.6
	-04E	ø4	M9 x 0.75		11		33.5	35.0			3.4	4.0	4.8	9.1
	-06E	ø6	M11 x 0.75	14	14		33.9	35.4	13.1	13.5	4.7	5.8	5.8	12.6
1/8	KK3S-04E	ø4	M12 x 1	14	14	20.2	46.6	49.1	16.9	16.0	3.2	3.8	5.8	29.0
	-06E	ø6	M14 x 1	17	17		47.1	49.6	16.8	17.0	4.7	10.4	13.4	39.4
	-08E	ø8	M16 x 1		19		49.0	51.5	20.0	18.5	6.2	16.8	18.9	43.4
	-10E	ø10	M20 x 1	22	24		49.9	52.4	22.0	21.0	7.7	19.1	19.1	68.3
1/4	KK4S-06E	ø6	M14 x 1	19	17	28.0	58.2	61.9	16.8	17.0	4.7	10.4	13.4	57.2
	-08E	ø8	M16 x 1		19		60.1	63.8	20.0	18.5	6.2	18.3	21.8	60.6
	-10E	ø10	M20 x 1	22	24		61.7	65.4	22.4	21.0	7.7	27.0	29.4	86.8
	-12E	ø12	M22 x 1	24	27		62.7	66.4	23.0	22.0	9.2	30.5	32.0	105.7
1/2	KK6S-12E					31.6	70.1	75.4	24.5	25.0		42.7	48.8	116.0
	-16E	ø16	M28 x 1.5	30	32		72.5	77.8			13.2	53.4	62.5	183.2

KK2



KK3/4/6



Series KK/KKH/KKA/KK13
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 a label 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.

⚠ Caution : Operator error could result in injury or equipment damage.

⚠ Warning : Operator error could result in serious injury or loss of life.

⚠ Danger : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.
Note 2) JIS B 8370: General Rules for Pneumatic Equipment

⚠ Warning

1. The compatibility of 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 after analysis and/or tests to meet your specific requirements.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc. (Bleed air into the system gradually to create back pressure.)

4. Contact SMC if the product is to be used in any of the following conditions:

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, press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

S Couplers
Common Precautions 1

Be sure to read before handling.

Selection

⚠ Warning

1. Cannot be used as a stop valve that requires zero leakage. A certain amount of leakage is allowed during operation.
2. Series KK and Series KKH cannot be connected with Series KKA. Also, SMC's S coupler cannot be connected with quick couplers of other brands.
   This will cause leakage, damage, and disconnection of the plug.
   With series KK13, manufactured by RECTUS AG, verify the manufacturer of applicable couplers before use.
3. Do not couple or uncouple the S coupler during pressurisation or while residual pressure remains. The coupler may shoot out under the influence of the pressure.
4. Never apply pressure to an S coupler without check valve when it is uncoupled. The piping may move violently and cause danger.
5. An S coupler without check valve experiences leakage of fluid inside piping when it is uncoupled. Pay special attention in using fluid that can cause danger such as fluid of a high temperature and pressure. Additional use of a stop valve is recommended.
6. The S coupler is heated when used at a high temperature. Take precautions not to touch it since touching it can cause burns.

⚠ Caution

1. For a plug and socket connection, select a plug and socket with the same body size. If their body sizes are different, they cannot be connected. This will cause leakage, damage, and disconnection of the plug.
2. 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.
3. Use tubing at or above the minimum bending radius. Using below the minimum bending radius can cause breakage or flattening of the tube.
4. Do not use couplers with flammable, explosive, or toxic substances, such as gas, gas fuel, and refrigerant. They may leak from inside the tubing to the outside.
5. Can be used with standard industrial water. When using with other liquids, consult with SMC.
   Also, operate with a surge pressure of no more than the maximum operating pressure. If the surge pressure exceeds the maximum operating pressure, it will cause damage to couplers and tubing.
6. Do not use the S coupler with steam. Corrosion of the metal material and deterioration of the sealing material

Mounting

⚠ Warning

1. Do not use couplers where rotation normally occurs. The couplers may be damaged.
2. Avoid applications in which vibration or shock is directly applied to the fittings.
3. Fittings with sleeve lock mechanism must be locked during operation in order to prevent sudden disconnection.
4. Install a stop valve at the supply pressure side of the socket. Emergency shutdown may not be possible without it.

⚠ Caution

1. Before mounting confirm the model and size, etc. Also, confirm that there are no blemishes, nicks or cracks in the product.
2. When connecting a tube, consider factors such as changes in the tubing length due to pressure, and allow sufficient leeway.
3. Mount so that couplers and tubing are not subjected to twisting, pulling or moment loads. This can cause damage to couplers and flattening, bursting or disconnection of tubing, etc.
4. Mount so that tubing is not damaged due to tangling and abrasion. This can cause flattening, bursting or disconnection of tubing, etc.

Operating Environment

⚠ Warning

1. Do not use in locations where static electric charges will be a problem. Consult with SMC regarding use in this kind of environment.
2. Do not use in locations where spatter occurs.
   There is a danger of spatter causing a fire. Consult with SMC regarding use in this kind of environment.
3. Do not use in environments where there is direct contact with liquids such as cutting oil, lubricating oil or coolant oil, etc. Contact SMC regarding use in environments where there will be direct contact with cutting oil, lubricating oil or coolant oil, etc.

Maintenance

⚠ Caution

1. Check for the following during regular maintenance, and replace components as necessary.
   a) Scratches, gouges, abrasion, corrosion
   b) Leakage
   c) Twisting, flattening or distortion of tubing
   d) Hardening, deterioration or softness of tubing
2. Do not repair or patch the replaced tubing or couplers for reuse.
3. Do not disassemble the S coupler. Spare parts are not available for this product.

S Couplers
Common Precautions 2

Be sure to read before handling.

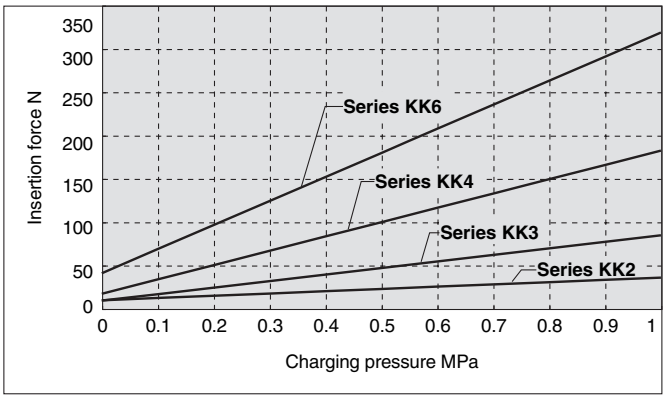
Handling

⚠ Caution

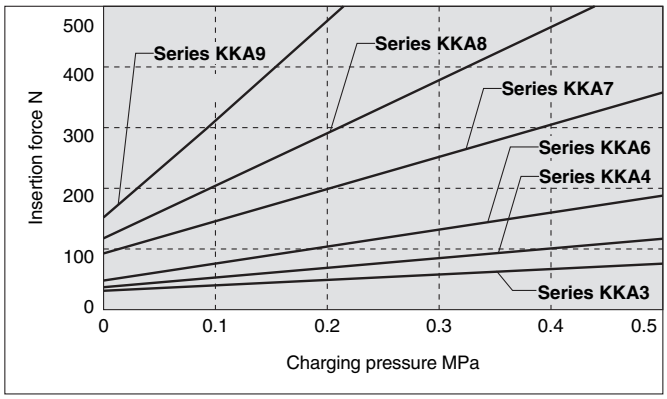
1. When connecting the plug, hold the plug securely.
   The plug may be uncoupled due to reaction at the time of connection.
2. When connecting a plug, insert it securely until a click sound is heard from the socket. After the connection, gently pull the plug to see whether it will release.
   If not securely inserted, the plug may pop out due to the pressure. Also, do not touch the sleeve until the plug is securely inserted.
   Otherwise, it may lead to a malfunction.
3. When connecting the plug, insert it straight into the socket. If not inserted straight, the socket and/or plug may be damaged or cause a malfunction.
4. When releasing the plug, hold it securely. The connection pipe may move due to reacting stress and/or residual pressure on the plug side.
5. Do not press the inside of the socket with an incompatible plug and/or with a stick. The internal fluid may be ejected and cause a dangerous situation. Also, the ejecting internal fluid may cause the sealings to come apart resulting in the product not functioning.

Plug Insertion Force in Pressurised Condition

Insertion Force of Series KK



Insertion Force of Series KKA



Handling of One-touch Fittings

⚠ Caution

1. Tube attachment/detachment for One-touch fittings
   1) Attaching of tubing
      (1) Take a tube having no flaws on its periphery and cut it off at a right angle. When cutting the tubing, use tubing cutters TK-1, 2 or 3. Do not use pinchers, nippers or scissors, etc. If cutting is done with tools other than tubing cutters, the tubing may be cut diagonally or become flattened, etc. This can make a secure installation impossible, and cause problems such as the tubing pulling out after installation or air leakage. Allow some extra length in the tubing.
      (2) Grasp the tubing and push it in slowly, inserting it securely all the way into the fitting.
      (3) After inserting the tubing, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tubing pulling out.
   2) Detaching of tubing
      (1) Push in the release bushing sufficiently. When doing this, push the collar evenly.
      (2) Pull out the tubing while holding down the release bushing so that it does not come out. If the release bushing is not pressed down sufficiently, there will be increased bite on the tubing and it will become more difficult to pull it out.
      (3) When the removed tubing is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tubing is used as is, this can cause trouble such as air leakage or difficulty in removing the tubing.

S Couplers
Common Precautions 3

Be sure to read before handling.

Handling of Barb Fittings and Nut Fittings

⚠ Caution

1. When using a nut fitting, insert the hose all the way to the end and securely tighten it with the nut. When the insertion of the hose or the tightening of the nut are not sufficient, the hose may slip out.
2. Disconnection may occur depending on the material or the O.D. accuracy of the hose; therefore be sure to confirm the applicability of the hose.

Handling of Fittings

⚠ Caution

1. Tightening of the M5-size fittings
   1) Tighten the fittings with a proper tightening torque range of from 1 to 1.5 N·m. As a rule, after hand tightening, tighten an additional 1/6 turn with a tool
   2) Over tightening can cause damage to the threads and/or air leakage due to deformation of the gasket.
   3) Insufficient tightening can cause the threads to loosen and/or air to leak out.
2. Tightening of the fittings with a sealant
   1) Tighten fittings with sealant using the proper tightening torques in the table below. As a rule, they should be tightened 2 to 3 turns with a tool after first tightening by hand.

Connection thread size	Proper tightening torque N·m
NPT, R1/8	7 to 9
NPT, R1/4	12 to 14
NPT, R3/8	22 to 24
NPT, R1/2	28 to 30
NPT, R3/4	28 to 30
NPT, R1	36 to 38
NPT, R1 1/4	40 to 42
NPT, R1 1/2	48 to 50

   2) When a fitting is over tightened, more of the sealant material is squeezed out. Remove the squeezed out sealant material.
   3) When tightening is not sufficient, it will cause sealant failure or a loose fitting.
   4) Re-using
      (1) Normally, a fitting with sealant can be re-used 2 to 3 times.
      (2) Remove the sealant material that is separated and adhering to a removed fitting with air blow, etc. If the separated sealant enters into nearby equipment, it will cause air leakage or malfunction.
      (3) When the sealant is no longer effective, wrap sealant tape over the sealant material and re-use the fitting. Do not use a sealant material other than sealant tape.
   5) In cases where positioning is required, turning the fitting in the reverse direction after tightening will cause air leakage.

Precautions on Other Tubing Brands

⚠ Caution

1) When using tubing brands other than SMC, confirm that the tubing outside diameter tolerances satisfy the following specifications.
   (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 tubing if the outside diameter tolerance is not satisfied. It may not be possible to connect the tubing, or leakage or disconnection may occur after connection.

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