

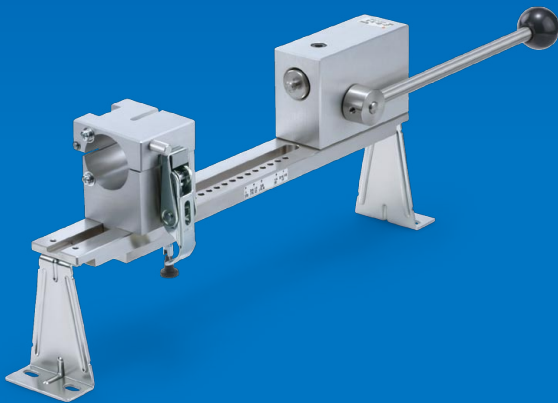
High-Purity Fluoropolymer Fittings

Hyper Fitting/Series LQ1,2

Work Procedure Instructions

Insertion Tool * The parts case is shipped together with the fitting jig. * Refer to page 4 for "How to Order".

R type (Can also be used for short piping.) For fitting sizes 1 to 6 **Installation type**



Parts case (1)



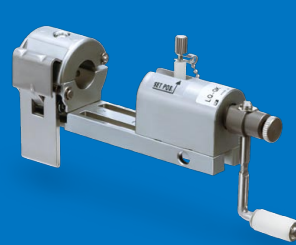
Parts case (2) (Short piping)

J type For fitting sizes 1 and 2 **Handy type**



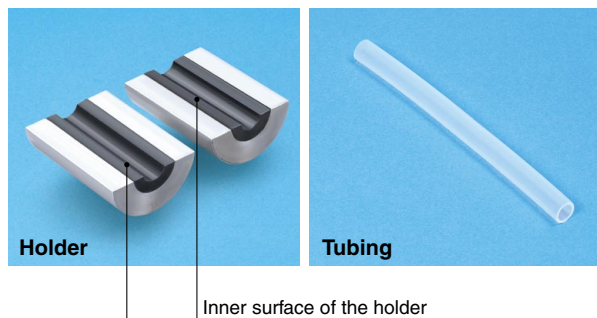
Parts case (3)

K type For fitting sizes 1 and 2 **Handy type**



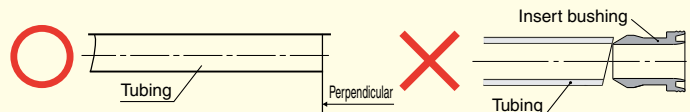
Parts case (3)

Preparation



Caution

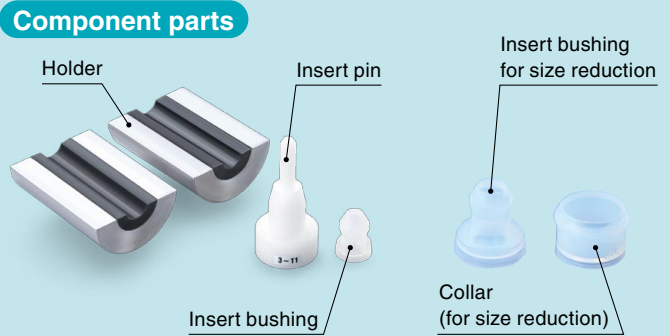
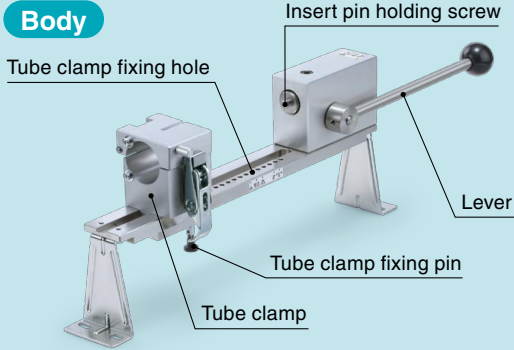
1. Wipe the inner surface of the holder and the tubing with alcohol to prevent slippage.
2. Cut the tubing perpendicularly with a commercially available dedicated tool.



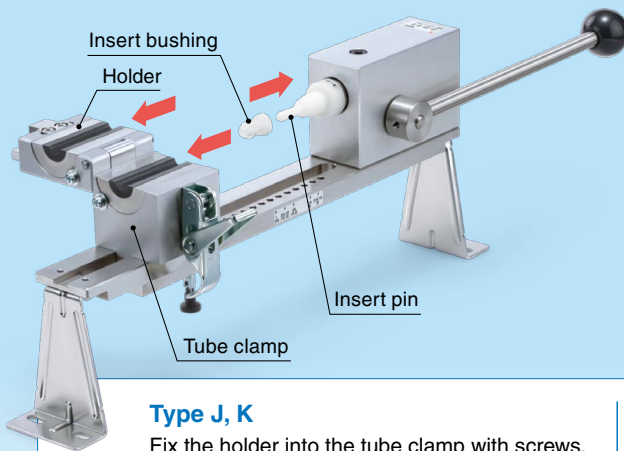
Note) An obliquely cut surface may cause insert bushing breakage, etc.

Press fit an insert bushing Type R, J, K

Description



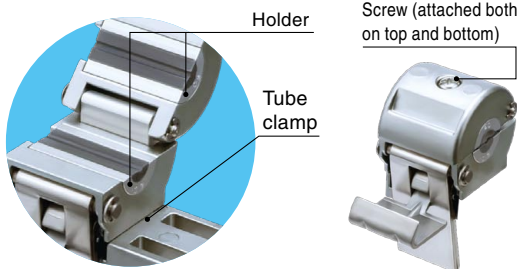
1 Set parts.



- 1** Set the holder on the tube clamp. (Slide the holder along the groove to insert it into the tube clamp.)
- 2** Screw the insert pin into the insert pin holding screw to the end surface.
- 3** Set the insert bushing to the insert pin that has been set.

Type J, K

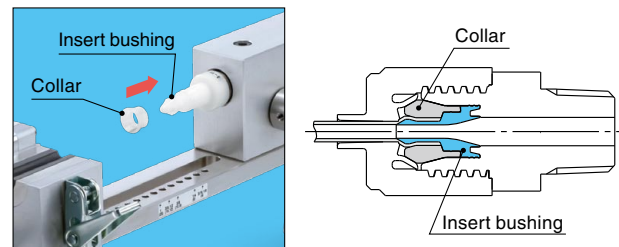
Fix the holder into the tube clamp with screws.



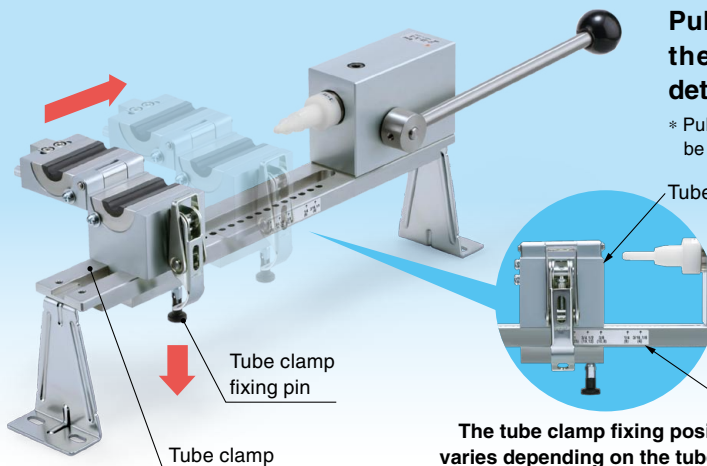
Size reduction

Attach the collar to the insert bushing for size reduction.

Note A collar cannot be attached after installation has been completed.



2 Move the tube clamp according to the tube size.



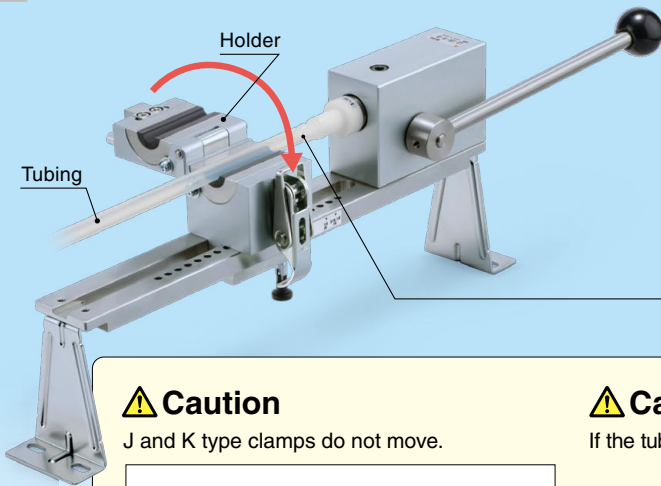
Pull down the tube clamp fixing pin* and move the tube clamp end surface to the position determined by the tube size.

* Pull down the tube clamp fixing pin and turn it 90°. The tube clamp can be moved freely.

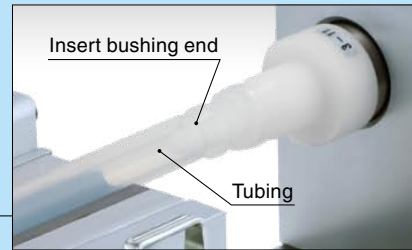
The tube clamp fixing position varies depending on the tube size.

3

Set the tubing.

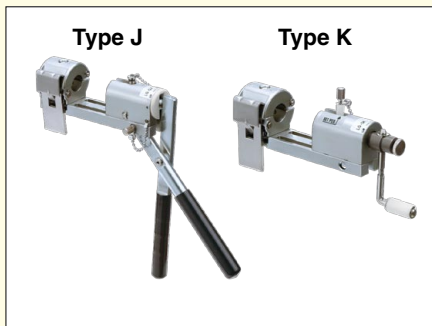


Set the tubing to the insert bushing end and clamp it with the holder.



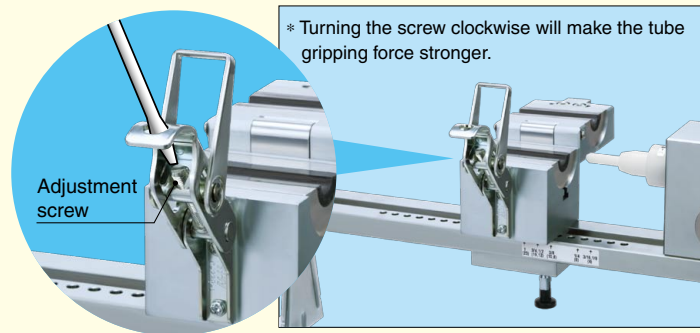
Caution

J and K type clamps do not move.



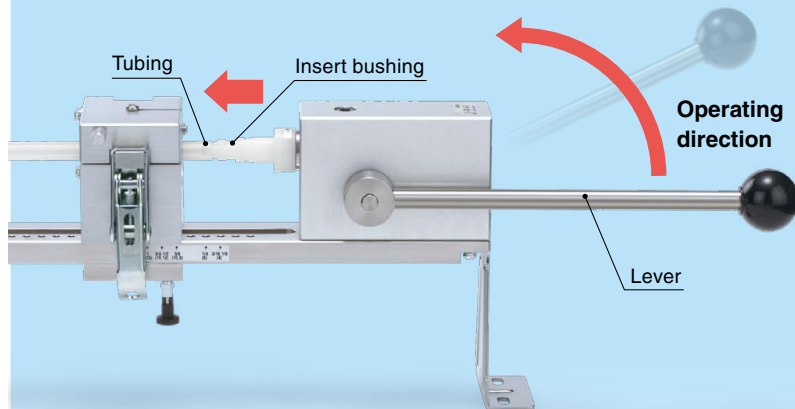
Caution

If the tubing slips, adjust the adjustment screw with a flat head screwdriver.

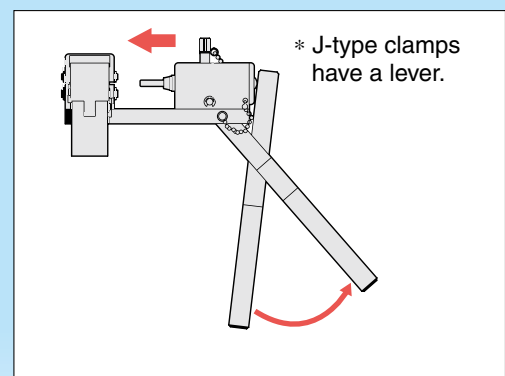


4

Press fit the insert bushing.

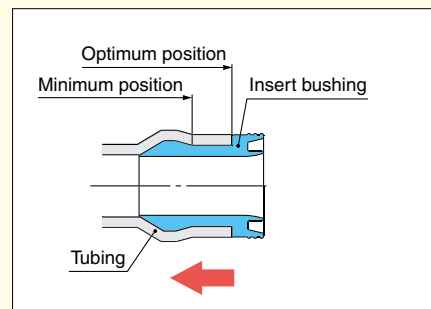


Slowly operate the lever* to press fit the insert bushing to the tubing.



Caution

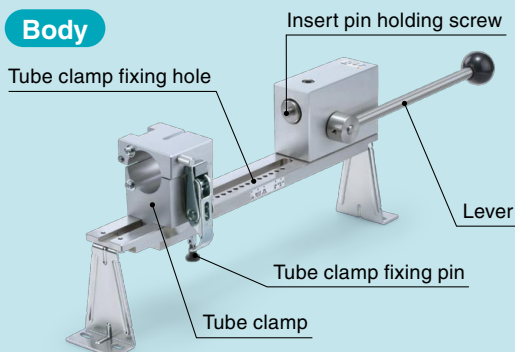
1. Observe cautiously for tubing deflection and slippage.
2. Press the insert bushing slowly into the appropriate position.



Short piping Type R

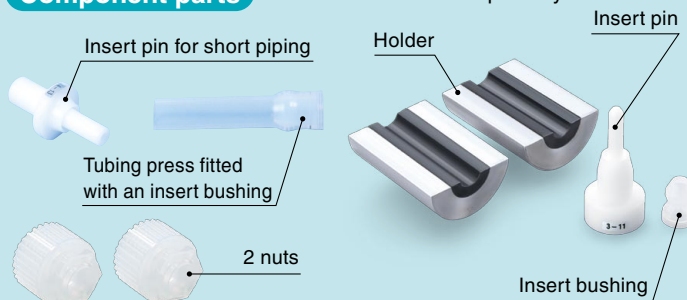
Description

Body



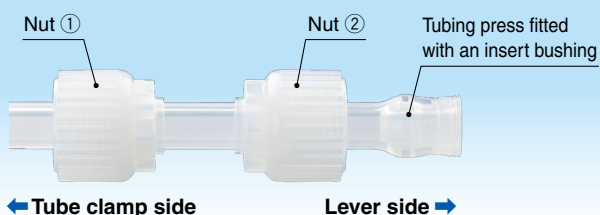
Component parts

* Should be ordered separately.



1

Prepare the tubing press fitted with an insert bushing (single side) and set the nuts.

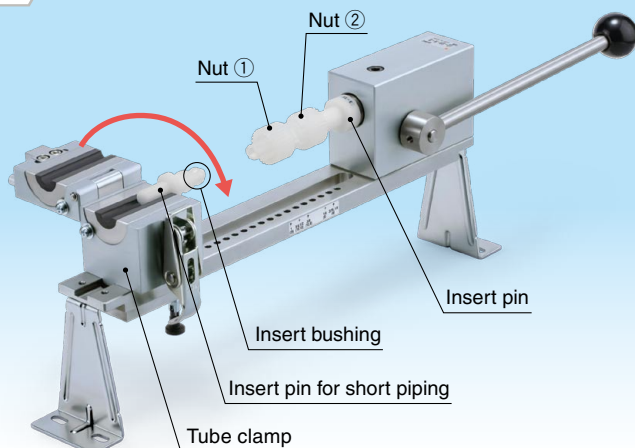


Set the nuts ① and ② to the tubing press fitted with an insert bushing*.

* For details about press fitting method, refer to pages 1 and 2.

2

Set the insert pin for short piping and the tubing.



1 Set the insert pin for short piping and the insert bushing on the tube clamp, and clamp them.

2 Set the tubing and nuts that has been prepared in step ① to the insert pin on the lever side.

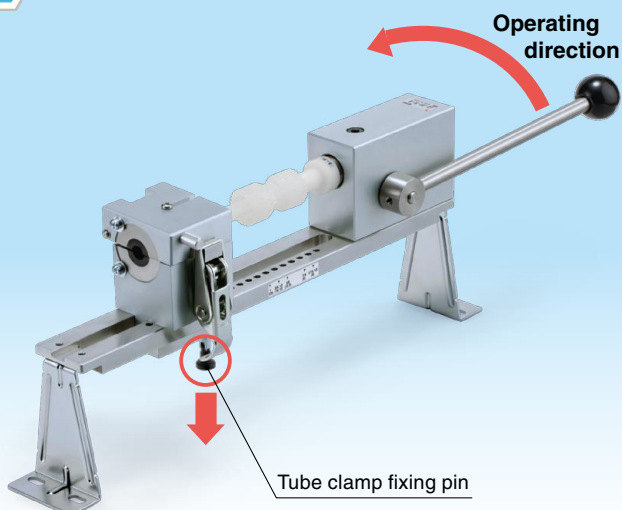
Insert pin for short piping* (With the parts case)

Metric	ø3, ø4, ø6, ø8, ø10, ø12, ø19, ø25	LQ-GPM
Inch	1/8", 3/16", 1/4", 3/8", 1/2", 3/4", 1"	LQ-GPM-N

* Should be ordered separately.

3

Press fit the insert bushing.

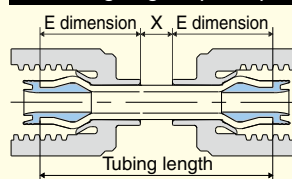


1 Pull down the tube clamp fixing pin and move the tube clamp (to the set tubing end surface).

2 Slowly operate the lever to press fit the insert bushing into the tubing.

Caution

* **Tubing length = (2E + X)**



Tubing finished by press-fitting

1. When both ends of the piping are fixed, cut the tubing a little longer* than the usual length.

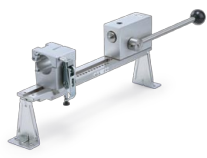

* 1% of E-dimensions (as a guide). E-dimensions vary according to the fitting size. Please refer to the **WEB catalog** or the Best Pneumatics No. 7 for details.

2. Insufficient tubing length or use of the tubing under tensile stress may cause leakage or breakage of the fitting.

How to Order/Type R Installation type

LQ - G R - [] - B

Type

Type	Symbol	Body class	Accessories
R		1, 2, 3, 4, 5, 6	Parts case (1) 

* The parts case is shipped together with the fitting jig.

Insert pin/Holder type




Nil	Metric size
N	Inch size

Note 1) Compatible pins and holders are included with all sizes (with a parts case)

Table 1 Tubing size symbols

Type	Body class	Tubing O.D.															
		Metric size								Inch size							
		ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	
R	1	03	04	—	—	—	—	—	—	03	—	—	—	—	—	—	
	2	—	04	06	—	—	—	—	—	03	05	07	—	—	—	—	
	3	—	—	06	08	10	—	—	—	—	—	07	11	—	—	—	
	4	—	—	—	—	10	12	—	—	—	—	—	11	13	—	—	
	5	—	—	—	—	—	12	19	—	—	—	—	—	—	13	19	
	6	—	—	—	—	—	—	19	25	—	—	—	—	—	—	19	




Replacement parts

Description	Part No.
Insert pin holder assembly (with the parts case) 	LQ - GPR - [] Insert pin/Holder type Nil Metric size N Inch size
Insert pin (single) 	LQ - GP [3] R - [] Body class (Refer to Table 1) Tubing size symbol (Refer to Table 1)
Holder (single) 	LQ - GHR - [07] Tubing size symbol (Refer to Table 1)

How to Order/Type J, K Handy type

LQ - G J [] - []

Type

Type	Symbol	Body class	Accessories
J		1, 2	Parts case (3) 
K			

* The parts case is shipped together with the fitting jig.

Insert pin material

Nil	Resin
S	Stainless steel (Type J/K only)

Insert pin/Holder type

Nil	Metric size
N	Inch size

Note 1) Compatible pins and holders are included with all sizes (with a parts case)

Replacement parts

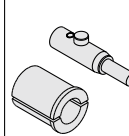


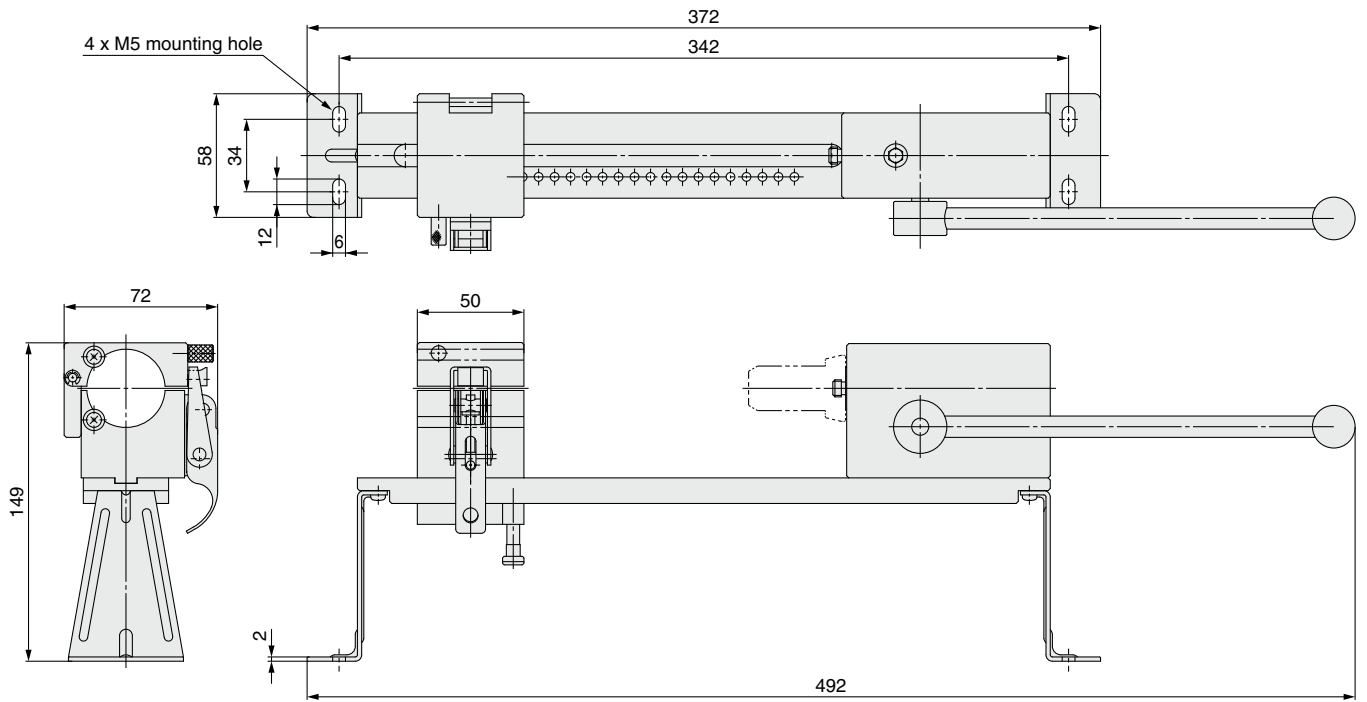
Description	Part No.
Insert pin holder assembly (with the parts case) 	LQ - GP J [] - [] Type J Type J K Type K Insert pin/Holder type Nil Metric size N Inch size Insert pin material Nil Resin S Stainless steel
Insert pin (single) 	LQ - GP [2] J [] - [] Body class (Refer to Table 1) Tubing size symbol (Refer to Table 1) Type J Type J K Type K Insert pin material Nil Resin S Stainless steel
Holder (single) 	LQ - GH J [] - [07] Tubing size symbol (Refer to Table 1) Type J Type J K Type K

Table 1 Tubing size symbols

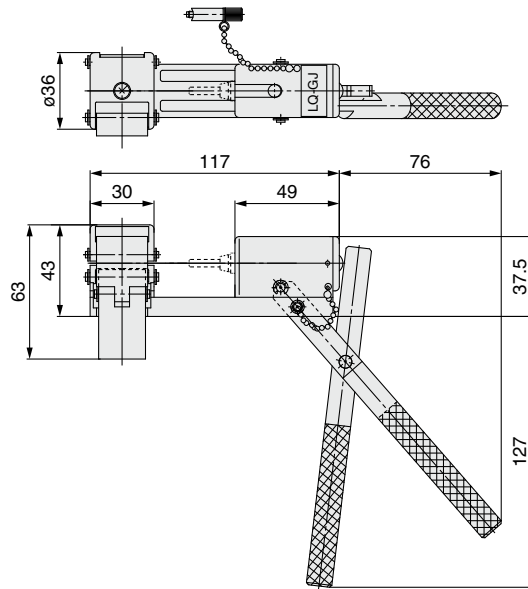
Type	Body class	Tubing O.D.															
		Metric size								Inch size							
		ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	
J·K	1	03	04	—	—	—	—	—	—	03	—	—	—	—	—	—	
	2	—	04	06	—	—	—	—	—	03	05	07	—	—	—	—	

Dimensions

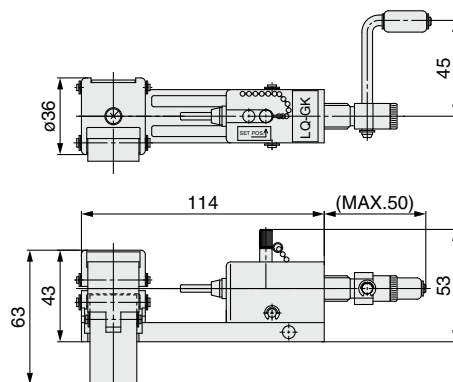
Type R Installation type



Type J Handy type



Type K Handy type



Heating/Press-fitting

1 Prepare the flared tubing jig.

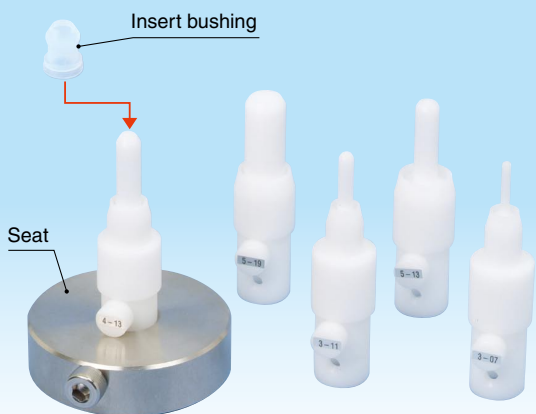
Prepare a jig suitable to the tubing size and screw it into the seat.



Flared tubing jig

2 Prepare the insert bushing.

Fix the insert bushing jig to the seat and attach the insert bushing to the jig.

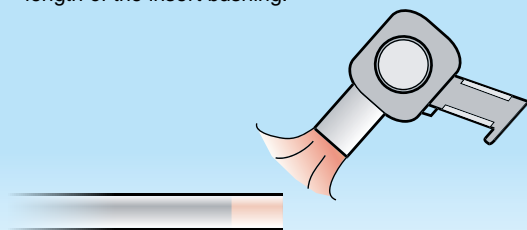


Insert pin jig

3 Heat the tubing.

Heat the tubing with a commercially available heat gun.

* As a guide, the area to be heated on the tubing is the length of the insert bushing.



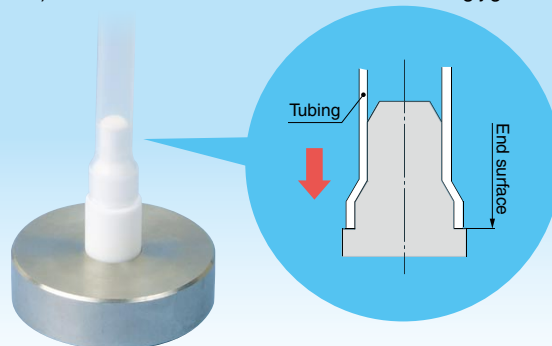
⚠ Caution

Do not touch the heated areas (tubing, heat gun). Also be careful not to touch the other side of the heated area since the temperature also increases there due to hot air.

4 Press fit into the flared tubing jig.

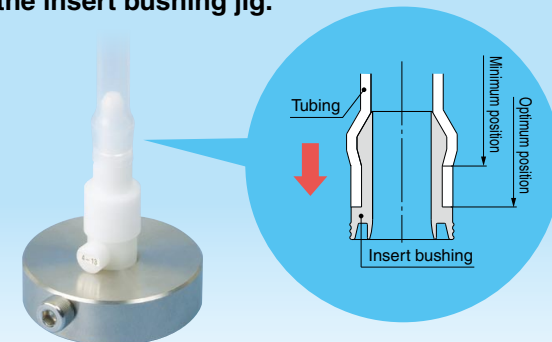
Press fit the heated tubing immediately to the end surface of the flared tubing jig and hold it for 10 seconds.

Note) Be sure to check the size of the flared tubing jig.



5 Press fit into the insert bushing.

After 10 seconds, pull out the tubing and press fit it to the insert bushing attached to the insert bushing jig.

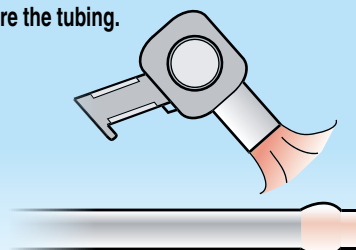


⚠ Caution

1. Observe cautiously for tubing deflection and slippage.
2. Press the insert bushing slowly into the appropriate position.

6 Adhere the tubing to the flared area.

After press fitting the tubing, heat the flared tubing area again with a commercially available dedicated dryer to adhere the tubing.

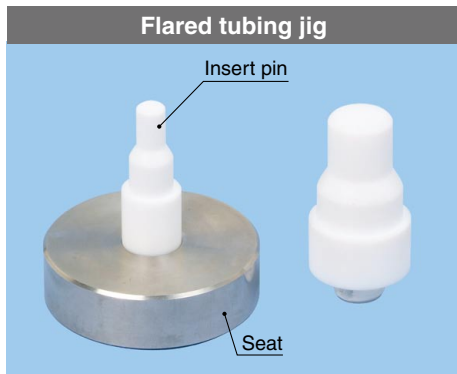


⚠ Caution

Avoid excess heating to prevent deformation of the insert bushing.

Heating/Press-fitting

How to Order



LQ3 - GPS - [] - C

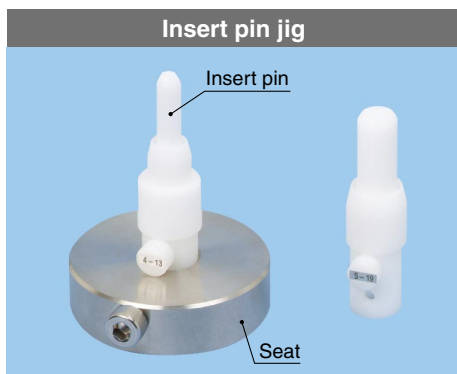
● Insert pin type

Nil	Metric
N	Inch

* Compatible insert pins are included with all sizes. (Including seat. Supplied in parts case.)

Applicable tubing size

Tubing O.D.													
Metric size						Inch size							
ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"



LQ - GPS - [] - C

● Insert pin type

Nil	Metric
N	Inch

* Compatible insert pins are included with all sizes. (Including seat. Supplied in parts case.)

Applicable tubing size

Tubing O.D.													
Metric size						Inch size							
ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"

Nut tightening LQ1 fitting only

Nut tightening tool (LQ1 only) * Use a commercially available tool to tighten the nut for an LQ2 fitting.



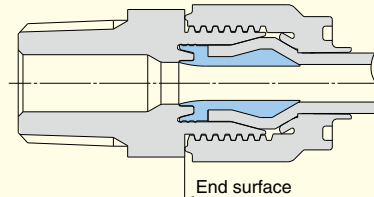
⚠ Caution

Tighten the nut completely to the end surface.

* Please note that it is occasionally difficult to tighten the nut to the end surface for large sizes (3/4-1 or larger). As a guide, refer to the proper tightening torque shown below.

Body class	Torque (N·m)	
	LQ1	LQ2
2	0.3 to 0.4	0.3 to 0.4
3	0.8 to 1.0	0.8 to 1.0
4	1.5 to 1.7	1.5 to 1.7
5	2.5 to 3.0	2.5 to 3.0
6	6.0 to 7.0	—

* For body class 1, the nut should be tightened manually.



How to Order

LQ1 - GS - [3]

● Applicable body size

2
3
4
5
6

SMC Corporation

Akihabara UDX 15F,
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249 Fax: 03-5298-5362
<http://www.smcworld.com>
© 2015 SMC Corporation All Rights Reserved

Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

D-G

1st printing JY printing TS 11050KY Printed in Japan.