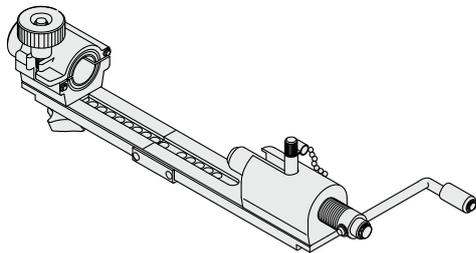


# High-Purity Fluoropolymer Fittings HYPER FITTING®/Series LQ1,2 Work Procedure Instructions

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

**M type** For fitting sizes 1 to 6

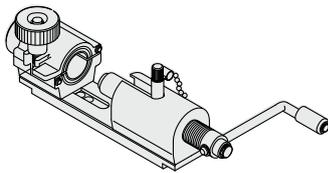


Parts case (1)



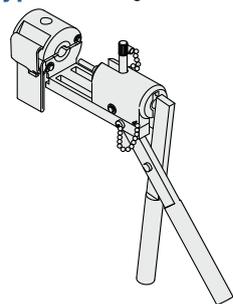
Parts case (2)

**L type** For fitting sizes 1 to 6



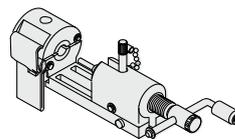
Parts case (1)

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



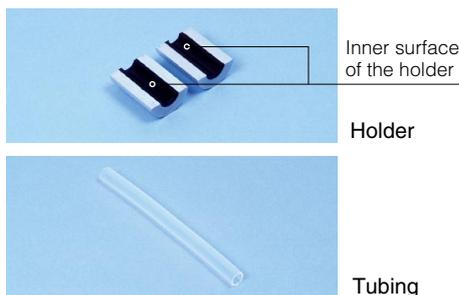
Parts case (3)

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



Parts case (3)

## Preparation



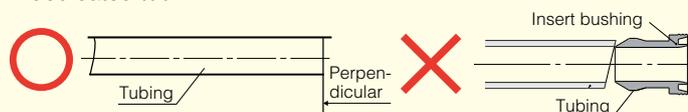
Inner surface of the holder

Holder

Tubing

### Caution

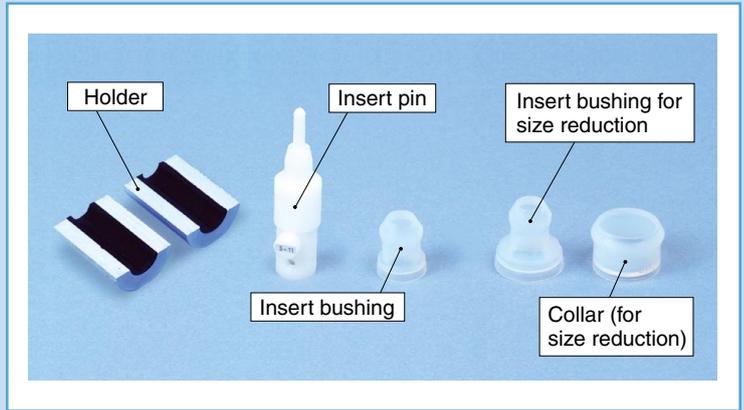
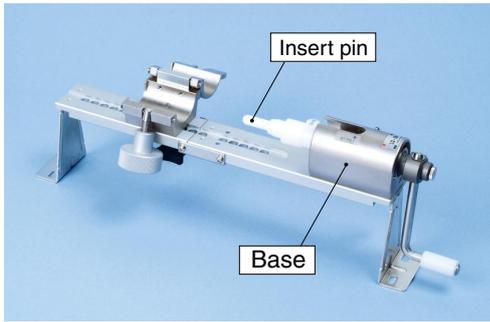
1. Wipe the inner surface of the holder and the tubing with alcohol to prevent slippage.
2. Cut the tubing perpendicularly with a commercially available dedicated tool.



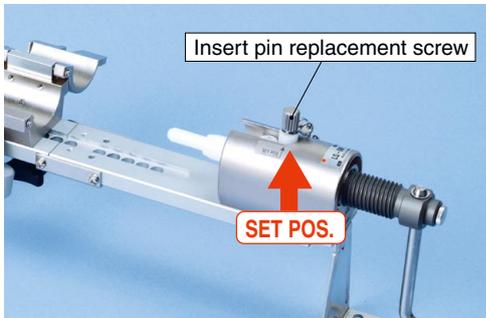
Note) An obliquely cut surface may cause insert bushing breakage, etc.

# Press fit an insert bushing

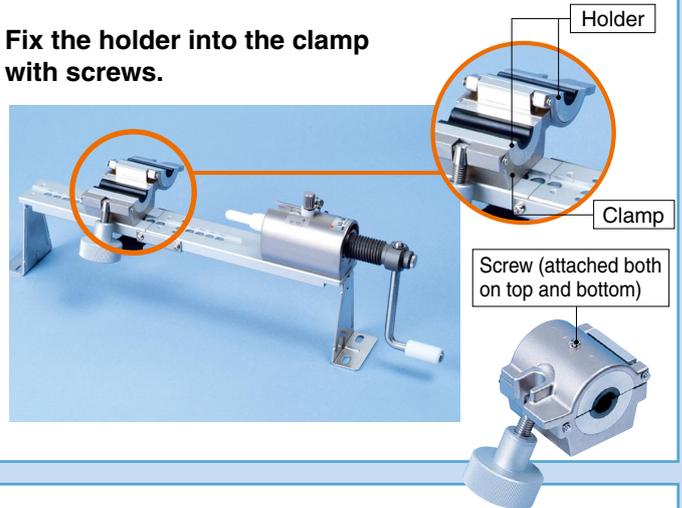
**1** Attach the insert pin to the base.



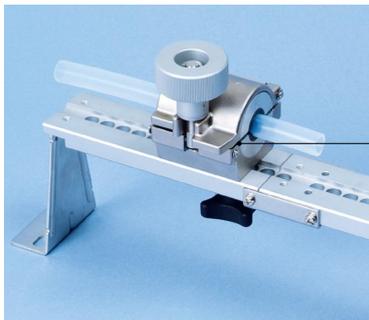
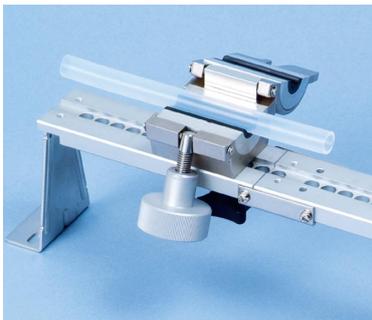
**2** Turn the lever to SET POS and fix it with the insert pin replacement screw.



**3** Fix the holder into the clamp with screws.

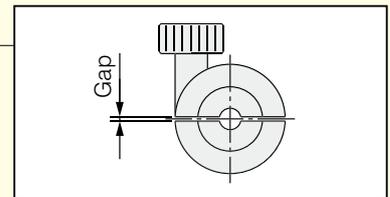


**4** Place the tubing on the holder and fix it.



## ⚠ Caution

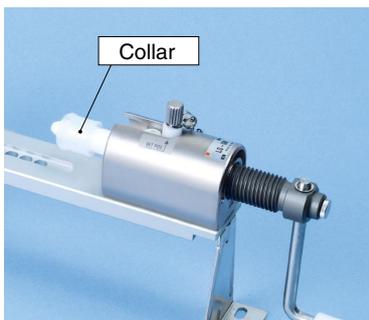
Clamp so that the gap is equal on both sides.



**5** Attach the insert bushing to the insert pin.

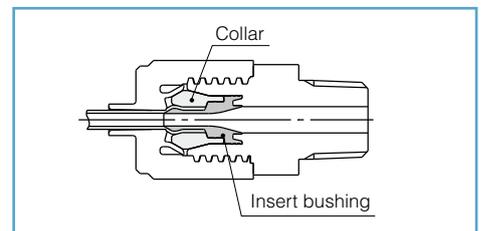


### Size reduction

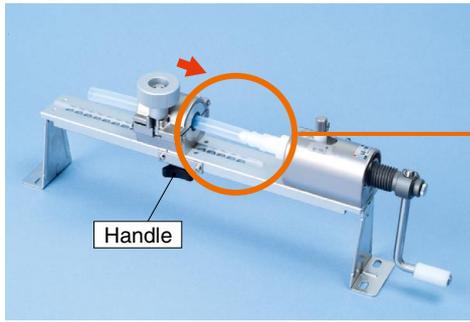


Attach the collar to the insert bushing for size reduction.

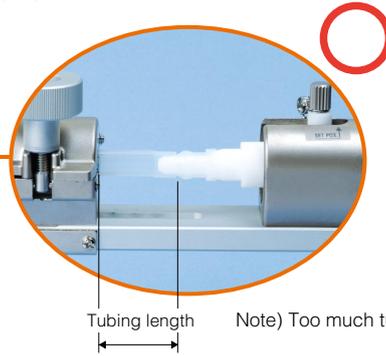
Note) A collar cannot be attached after installation has been completed.



**6** Dismantle the handle, slide the clamp until the tubing end touches the insert bushing, and fix it. <sup>Note)</sup>



Handle



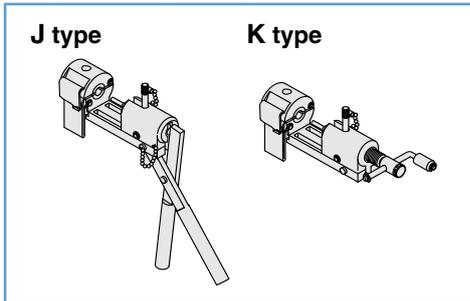
Tubing length

Note) Too much tubing protrusion may cause breakage.

**⚠ Caution**

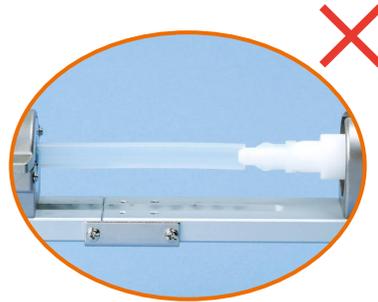
1. Do not allow the tubing to protrude too much from the holder when fixing the tubing position.
2. Check the tubing for bending.

Note) J and K type clamps do not move.

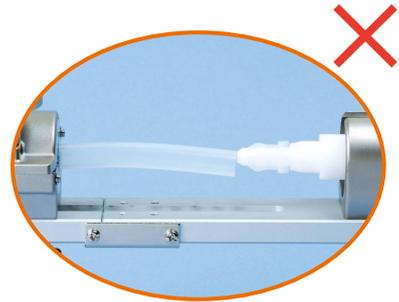


J type

K type

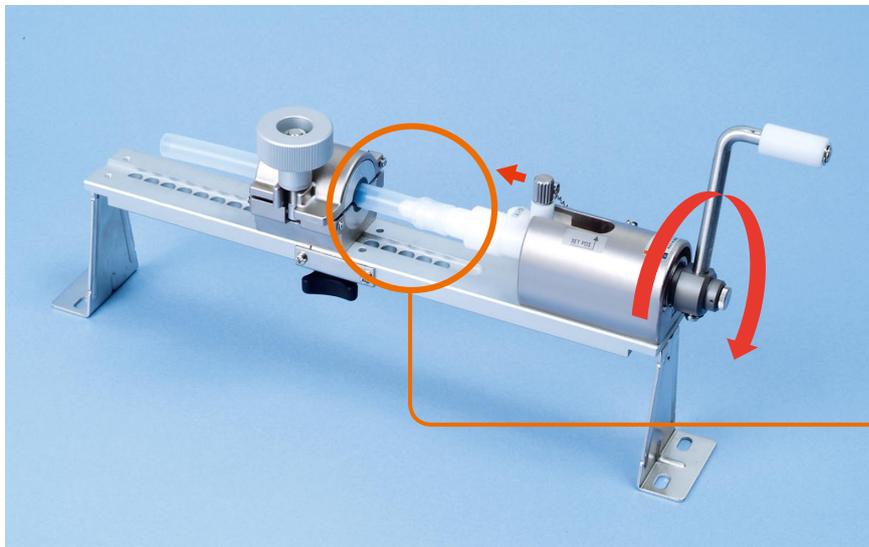


Too much tubing protrusion



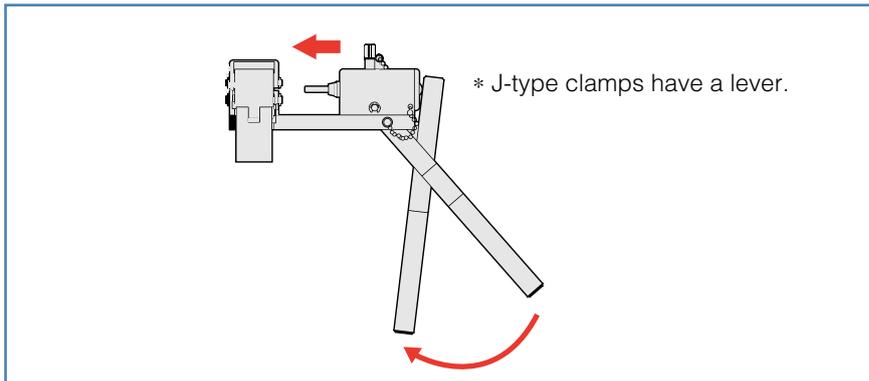
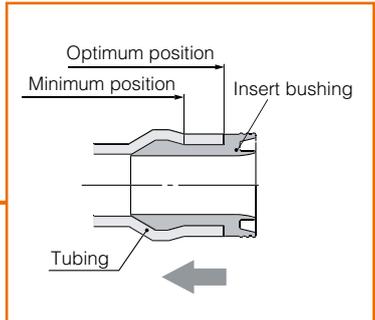
Bent tubing

**7** Turn the handle slowly and press fit the insert bushing into the tubing.\*



**⚠ Caution**

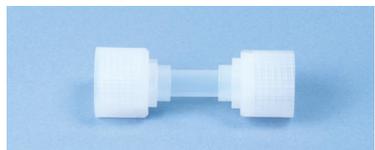
1. Observe cautiously for tubing deflection and slippage.
2. Press the insert bushing **slowly** into the appropriate position.



\* J-type clamps have a lever.



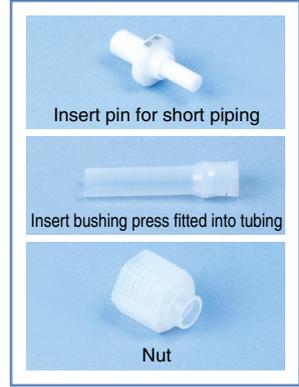
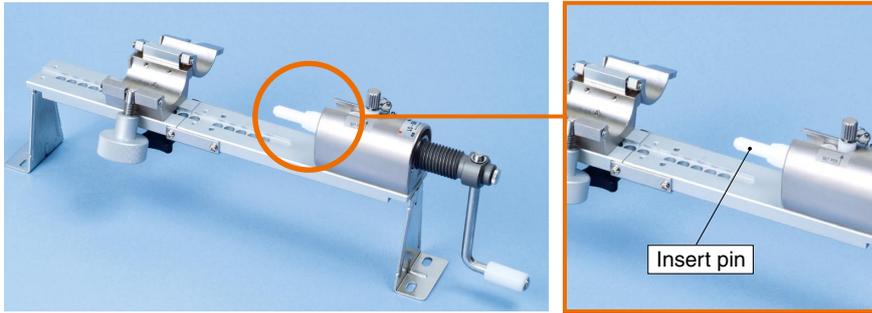
Insert bushing press fitted into tubing



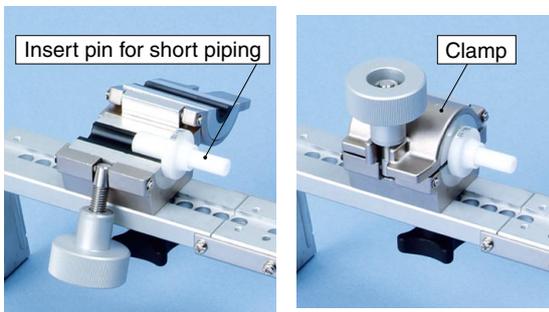
Tubing finished by press-fitting on both sides

# Short piping (M type)

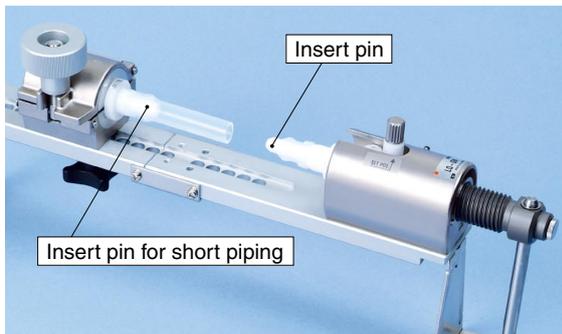
**1** Attach the insert pin to the base and set the insert bushing. Please refer to ①, ②, ③ on page 1 for the procedure.



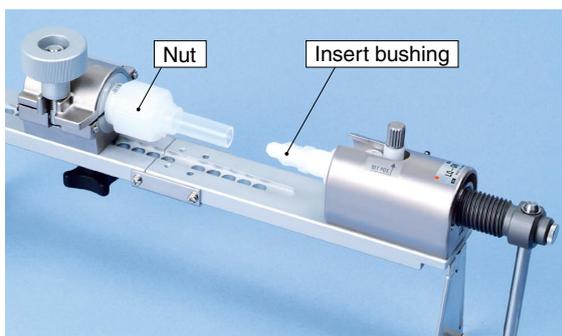
**2** Fix the insert pin for short piping with the clamp.



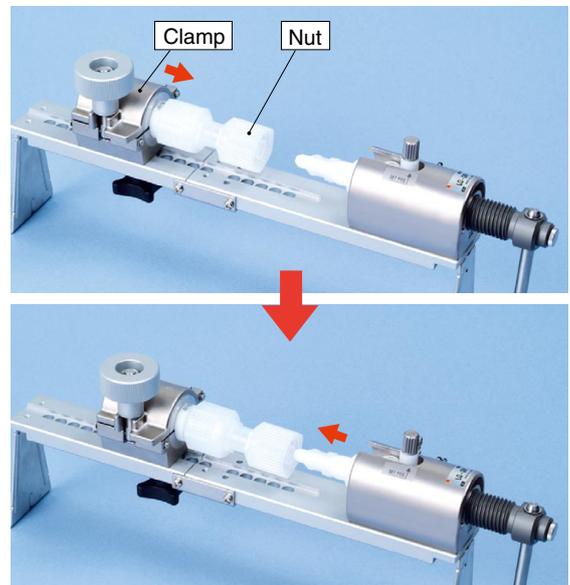
**3** Attach the tubing press fitted with an insert bushing to the insert pin for short piping.



**4** Set the nut and the insert bushing.



**5** Attach the nut to the other side of the tubing and press fit the insert bushing slowly into the tubing.  
\* Before press-fitting, be sure to move the clamp to the appropriate position. (Refer to P2 ⑤.)



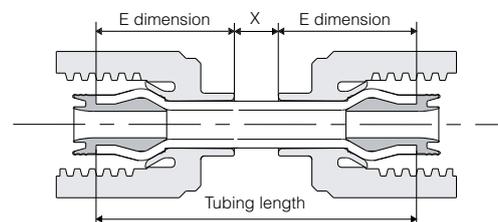
## ⚠ Caution

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 CAT. ES70-17 "Fluoropolymer fittings / Needle valves / Tubing" for details.
2. Insufficient tubing length or use of the tubing under tensile stress may cause leakage or breakage of the fitting.



Tubing finished by press-fitting

\* Tubing length = (2E + X)



# How to Order Insertion Tools

LQ-G J - - -

## Insert pin material

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

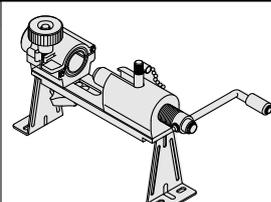
## Insert pin/Holder type

Nil	Metric size
N	Inch size

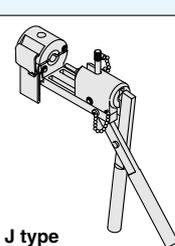
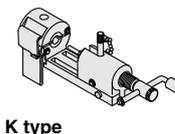
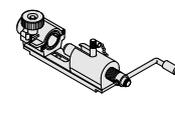
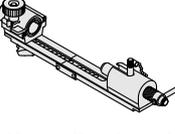
Note 1) Compatible pins and holders are included with all sizes (with a parts case)

## Option (L/M type only)

Symbol	Option
Nil	None
B	With brackets



## Type

Symbol	Body class	Accessories
<b>J</b> J type 	1, 2	<b>Parts case (3)</b> 
<b>K</b> K type 		<b>Parts case (3)</b> 
<b>L</b> L type 	1, 2, 3, 4, 5, 6	<b>Parts case (1)</b> 
<b>M</b> M type (for short piping) 		<b>Parts case (1)</b> 
		<b>Parts case (2)</b>  * M type only

\* The parts case is shipped together with the fitting tool.

## Option

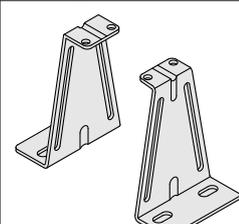
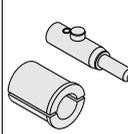
Description	Part no.
Bracket assembly 	LQ-GBL

Table 1 Tubing size symbols

Type	Body class	Tubing O.D.															
		Metric sizes								Inch sizes							
		ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	
J	1	03	04	—	—	—	—	—	—	03	—	—	—	—	—	—	
	2	—	04	06	—	—	—	—	—	03	05	07	—	—	—	—	
L	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	25	

## Replacement parts

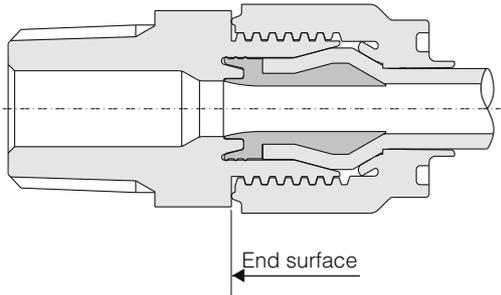
Description	Part No.
Insert pin holder assembly (with the parts case) 	<b>LQ-G P J -</b> Type Insert pin material (J/K type only) Insert pin/Holder type Nil Metric sizes N Inch sizes Nil Resin S Stainless steel
Insert pin (single) 	<b>LQ-GP 2 J -</b> Body class (Refer to Table 1) Type Tubing size symbol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



Note 1) Replacement part type J is the part for LQ-GJ and LQ-GK.  
Replacement part type L is the part for LQ-GL and LQ-GM.

# 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

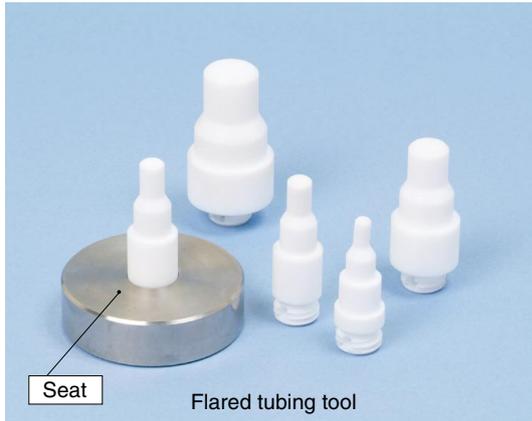
**LQ1-GS-3**

• Applicable body size

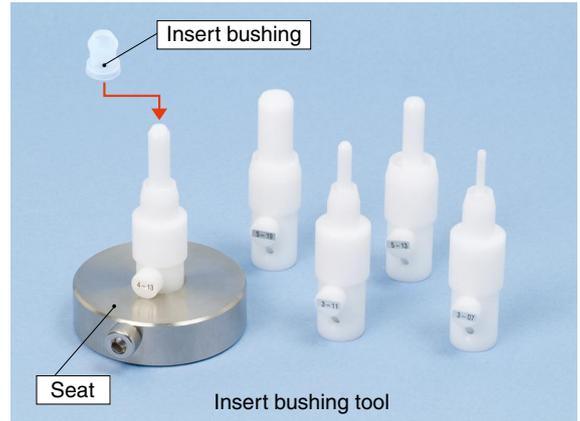
2
3
4
5
6

## Heating / Press-fitting

- 1** Prepare a tool suitable to the tubing size and screw it into the seat.

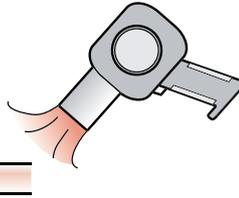


- 2** Fix the insert bushing tool to the seat and attach the insert bushing to the tool.



- 3** Heat the tubing with a commercially available heat gun.

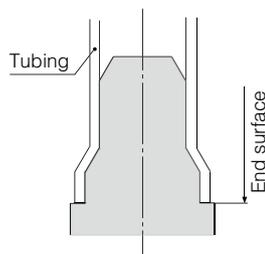
\* As a guide, the area to be heated on the tubing is the length of the insert bushing.



**⚠ Be careful not to burn yourself!**

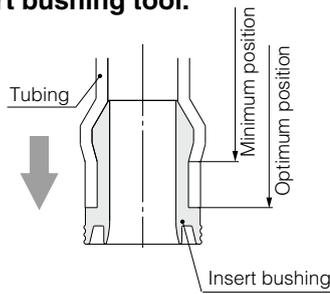
Do not touch the heated areas (tubing, heat gun). Also be careful not to touch the other side of the heated area since the temperature also increases there due to hot air.

- 4** Press fit the heated tubing immediately to the end surface of the flared tubing tool and hold it for 10 seconds.



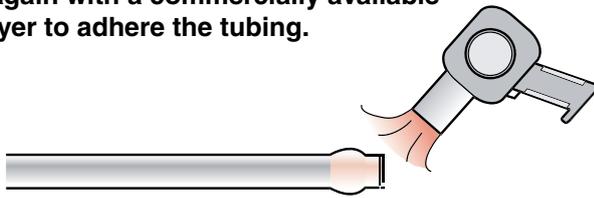
Note) Be sure to check the size of the flared tubing tool.

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



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

**6** 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.

### How to Order

**Flared tubing tool**



**LQ3 – GPS – [ ] – C**

• Insert pin type

Nil	Metric
N	Inch

**Applicable tubing size**

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

**Insert bushing tool**



**LQ – GPS – [ ] – C**

• Insert pin type

Nil	Metric
N	Inch

**Applicable tubing size**

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