

**Features of PAP Tube Fittings**



PAP Tube Fitting is produced by a strict material management, a high precision design and the best processing technology.

PAP Tube Fitting is tightened softly in linking and is leakage free entirely under shock, impact and high tension. Therefore, it can contribute for productivity improvement and cost reduction to PAP Tube Fitting users because it's the best product whose flow of fluid is very smooth caused by Fitting's excellent inner surface condition.

PAP can be assembled easily without any other special tool but the use of low quality tubing may deteriorate Fitting's function.

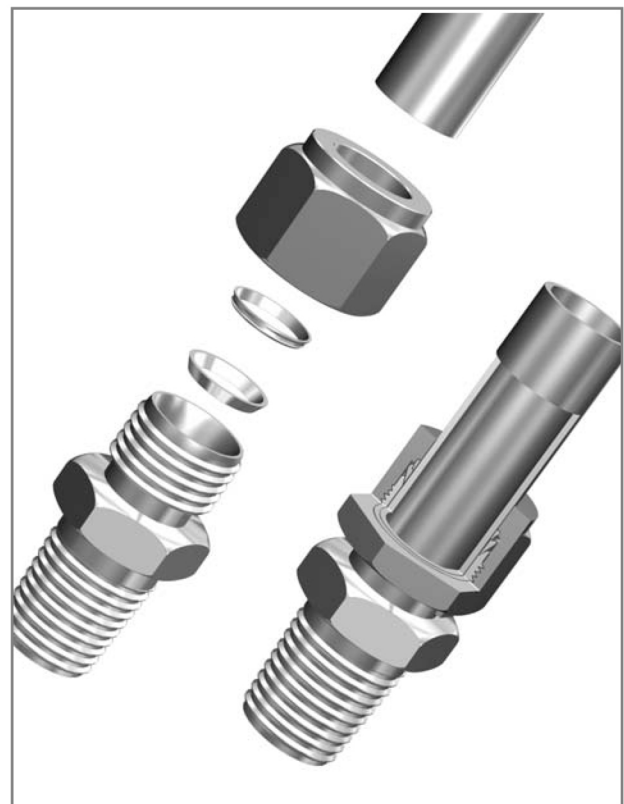
**Structure of PAP**

The whole system design should be considered so that there is no problem to secure reliable safety.

PAP consists of 4 precision parts and all parts are being manufactured through a very strict tolerance superintendence under systematic and constant quality control.

All parts that are being made by this process can cope with the inferior environmental conditions and various customer's needs.

PAP Tube Fitting secures the leakage prevention and sufficient tightness with less forces in all the tubing connections and reduces the cost and potential leakage risk in a course of tubing assembly and process.



### ■ Quality and Process Control

PAP Tube Fitting & Valve are produced as the product of best quality through a statistical process control and a strict quality control (various test and the self-examination included) and the written systematic quality control assurance.

### ■ Warranty of Quality and Exchange

PAP warrants that PAP Tube Fitting is being manufactured without defect in raw materials and manufacturing process, with the guarantee of its construction and workmanship of enough quality control and process control according to the specifications.

However, the defect owing to user's recklessness, an unreasonable assembling method and operation and the operation disregarding manufacturer's indications can not be compensated.

In case that leakage happens by the defect on PAP Tube Fitting in spite of normal operation, all the defected fittings shall be exchanged immediately.

PAP acknowledges this leaflet is regarded as warranty and does not publish separate warranty as long as special requirement issues are not required.

## **PAP** Installation Instruction

### 1. Installation under 1 inch or 25MM

PAP Tube Fitting shall be delivered to customer with completely assembled state, so be ready to immediate use only with finger-tightening. Disassembling the product prior to use can be a cause of leakage or a cause of inflow something into the fitting's inside. Do not use for the poor quality tubes, which can be a cause of leakage or functional deterioration.

PAP Tube Fittings are installed in three easy steps:

#### Step 1

Insert the tubing into PAP Tube Fitting's inside. At this moment, make sure that the tubing is completely contact with the shoulder of fittings and then finger-tighten the nut.

#### Step 2

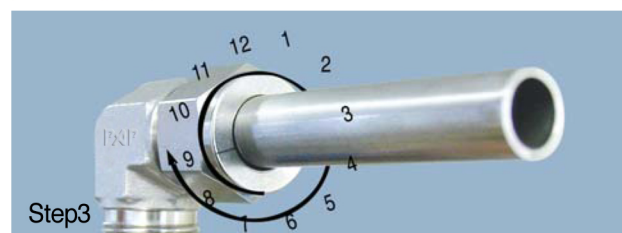
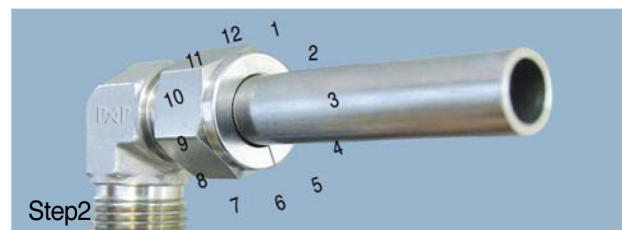
Before tightening the PAP nut, mark the starting point of turning at the 6 o'clock position.

#### Step 3

Hold the fitting body safely with a backup wrench and tighten the nut 1-1/4 turns. (pay attention to the mark of starting point of turning, make one revolution and place at 9 o'clock position. Marking the starting point of turning at the 6 o'clock position will let you notice where the starting point is).

After 1-1/4 revolution, when the starting point is placed at 9 o'clock position, you can easily confirm and see that PAP Tube Fitting is installed accurately.

After 1-1/4 revolution of the PAP nut by finger-tightening, make sure whether it is sufficiently tightened using by the Gap Inspection Gage.



## 2. Installation at the high pressure or the high safety systems

Since there are various variations of tubing, unifying the starting point of the fitting is desirable. The starting point is determined by that when tighten the nut by using a wrench until the tubing shall not be turn freely in the fitting. At this point, make the 1-1/4 revolution and tighten the nut.

(If tube rotation is not possible, tighten the nut approximately 1/8 turn from the finger-tight position)

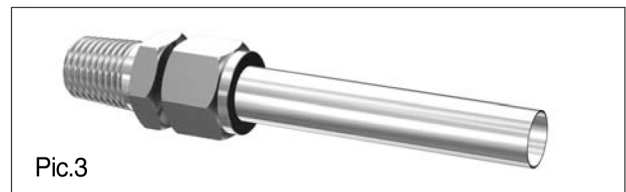
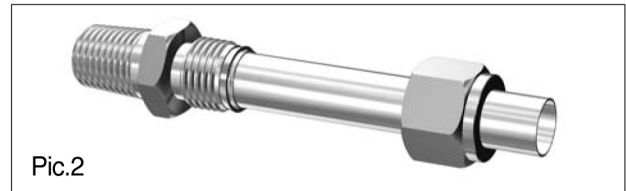
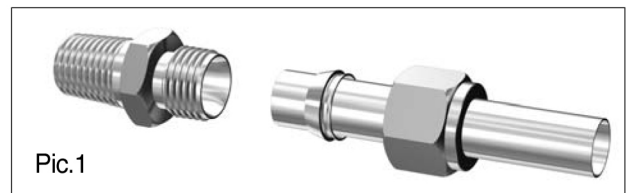
### Safety Considerations on Installations for High Pressure System

(Apply to the installation of general system)

1. Make sure whether the thickness and material of tubing is proper to applicable usage. The material of tubing is compatible with the material of fitting and the hardness of tubing shall be less than that of fitting.
2. Do not assemble or disassemble the fitting when the pressure is hold at the system.
3. Since straightly assembled tubing to a pair of fixed fitting cannot be completely contacted with the both sides of fittings' shoulder, there shall be a leakage risk caused by deformation from high temperature and high pressure.
4. Do not turn the fitting body.

## 3. Re-tightening Instruction

1. Shown the disconnected position of fittings.
2. When inserting the tubing with preswaged ferrule into the fitting body, the front ferrule shall be seated in the fitting body.
3. Finger-tighten the nut and revolve the nut to the original position with a wrench. At the original position, the resistance increases. At the point, the job will be done by tightening slightly more.



## Technological Information

### ■ Hardness Limitation

Generally, heat treated tubing shall be used in Metal tubing so that can be used properly with PAP tube fitting.

Hardness of stainless steel tubing is being limited below HRb90 but large majority of users are using the hardness of tube limited below HRb80. On the other hand, it is actually economical to use tubing by lowering the hardness of tubing because the assembly is easy and tubing can be bent easily. Therefore, encourage customers to use tubing with the hardness

below HRb 80. This is for customer's convenience and perfect leakage prevention in operation.

### ■ Compatibility

PAP is manufactured in order to be compatible with other firm's tube fitting from the beginning of design so that can warrant 100% confidence in case of being made under the mutual control of tolerance and hardness with other firm. But it is safe to operate with only products if possible.