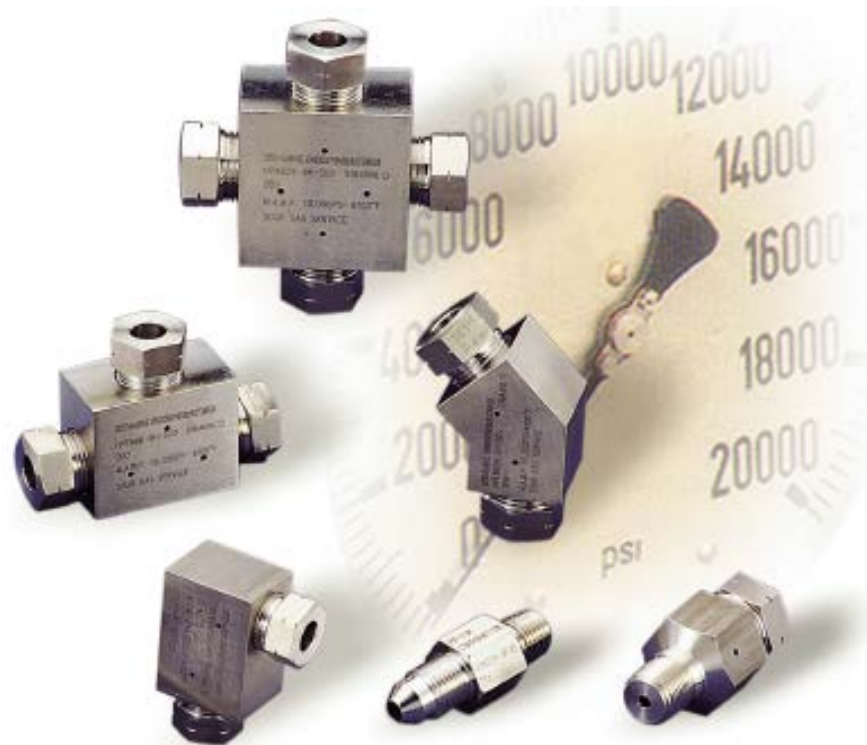


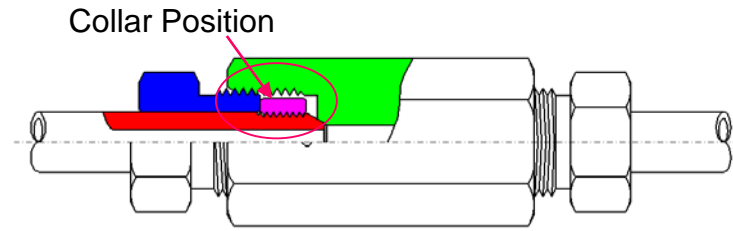
Hy-Lok High Pressure Tube Fittings



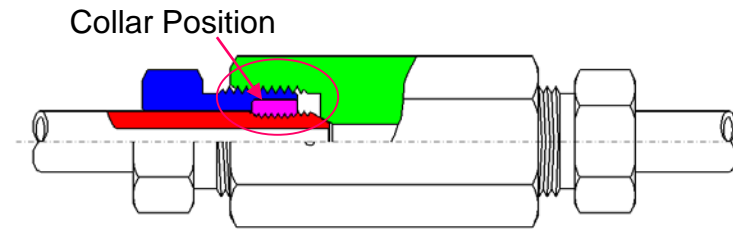
Tube Fitting Specifications.

1. Working Pressures

- ◆ Medium Pressure – M/P
Max. 20,000 psi(Large Bore)
- ◆ High Pressure – H/P
Max. 60,000 psi(Smaller Bore)



Medium Pressure M/P Series



High Pressure H/P Series

2. Materials

- ◆ 316 stainless steel construction

3. Interchangeability

- ◆ M/P and H/P connections are not interchangeable due to the different collar positions.

Pressure Ratings. from 1/4" to 9/16"

- 1) Heavy-wall annealed tubing – 15,000 psi
- 2) Strain hardened tubing – 20,000 & 60,000 psi



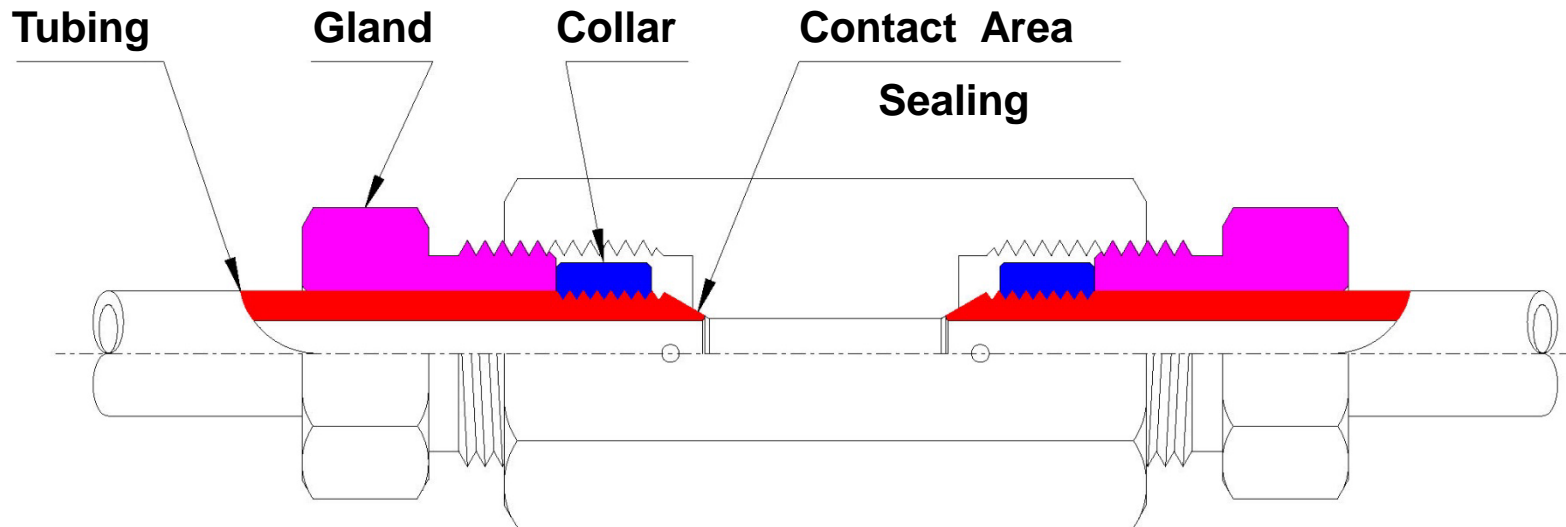
Tube Working Pressures

| Pressure Series | Tube Size In. | Wall Thickness | | | | | | | | |
|--------------------------|---------------|----------------|--------|--------|--------|-------|--------|--------|-------|--------|
| | | 0.071 | 0.086 | 0.095 | 0.102 | 0.117 | 0.125 | 0.134 | 0.156 | 0.187 |
| M/P Series 20,000 psi | 1/4 | 20,000 | | 15,000 | | | | | | |
| | 3/8 | | 20,000 | | | | | 15,000 | | |
| | 9/16 | | | | 20,000 | | 20,000 | | | 15,000 |
| H/P Series 60,000 psi | 1/4 | | 60,000 | | | | | | | |
| | 3/8 | | | | | | 60,000 | | | |
| | 9/16 | | | | | | | | | 60,000 |

Tube Fitting Connections

1. Medium Pressure Connections - M/P Series

1) High pressure tube fitting contains Body, Gland and Collar.

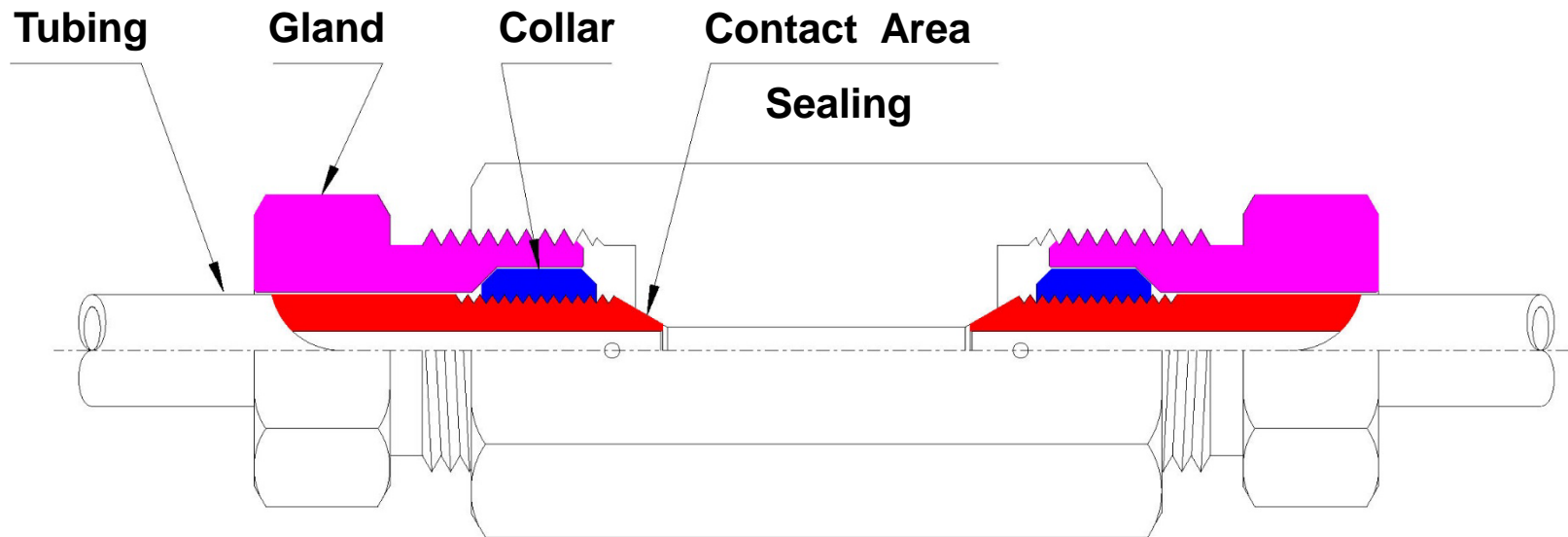


M/P connections are not interchangeable with H/P Connections.

Tube Fitting Connections

2. High Pressure Connections - H/P Series

1) High pressure tube fitting contains Body, Gland and Collar.



H/P connections are not interchangeable with M/P Connections.

Tube Fitting Installation

Please the correct installation instructions for safety and leak-free operation of high pressure systems.

This section outlines proper instructions for the machining and assembly of M/P and H/P connections.

This section also offers how to use the hand tools in order to make the preparation of the tubing easier.

Cutting Instructions.

1. Determine Tubing Length.

1) This formula is used to calculate the required tubing length.

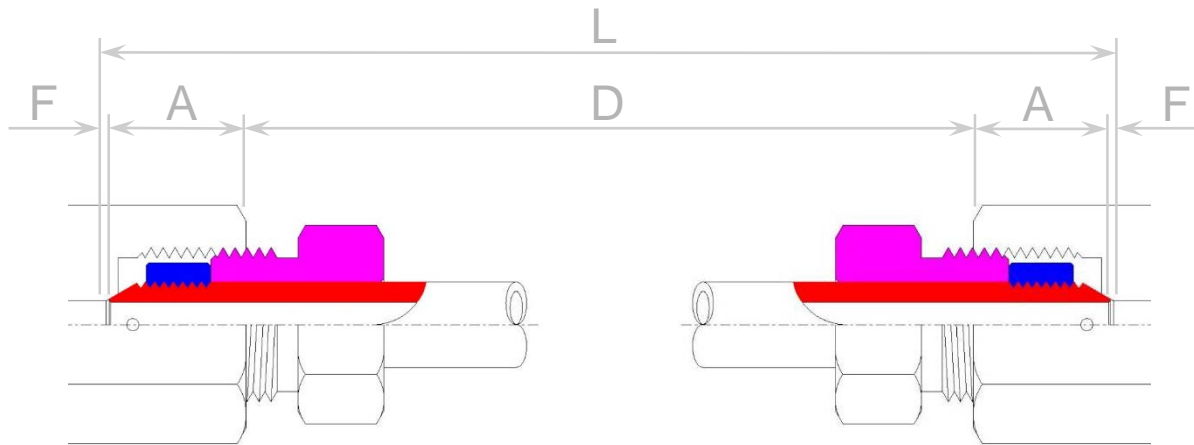
$$L = D + (2 \times A + 2 \times 1.6) \text{ where:}$$

L = Required tubing length

D = Face to face distance

A = Extra allowance length from Table-1

F = Finish allowance, 1.6 mm

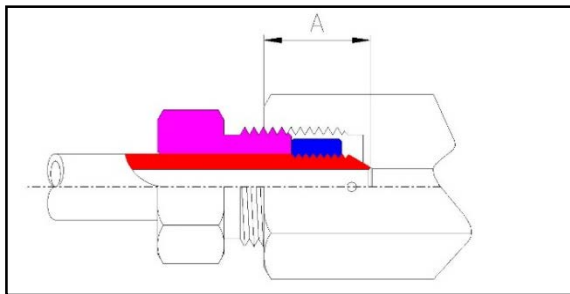


Cutting Instructions.

2. Cutting. from 1/4" to 9/16"

- 1) Secure tube in a tube vise.
- 2) Cut off tubing to desired length with hand saw or circular saw.
- 3) After deburring, remove the chips

Medium Pressure M/P Series



High Pressure H/P Series

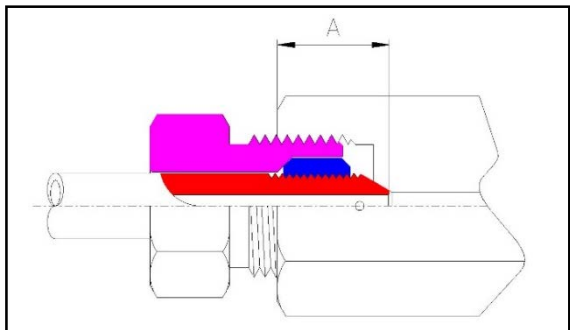
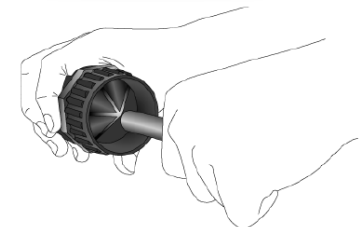


Table-1. Extra allowance lengths

| Pressure Series | Tube Size In. | Extra Allowance A (mm) |
|--------------------------|---------------|------------------------|
| M/P Series 20,000 psi | 1/4 | 14.0 |
| | 3/8 | 17.5 |
| | 9/16 | 21.3 |
| H/P Series 60,000 psi | 1/4 | 12.7 |
| | 3/8 | 17.5 |
| | 9/16 | 21.3 |



Do not use
tube cutter



Deburring tool
(Internal and External)

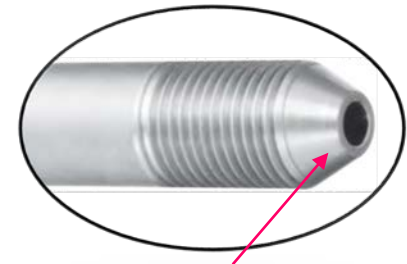
Coning and Threading Instructions.

3. Coning Tubing Ends. from 1/4" to 9/16"

- 1) Secure tube in a tube vise.
- 2) Insert until tubing stops up against inside blades.
- 3) Apply a cutting oil to the blades.
- 4) Rotate coning tool clockwise using the hand drill to complete the cone on the tubing end.



Coning with hand drill.

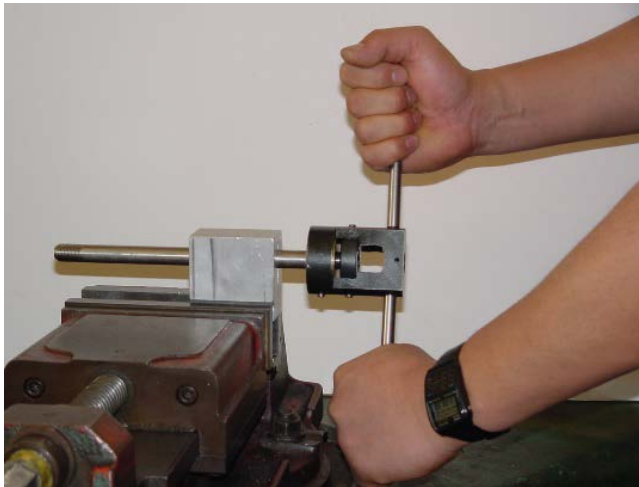


No vibrations.
No dents.

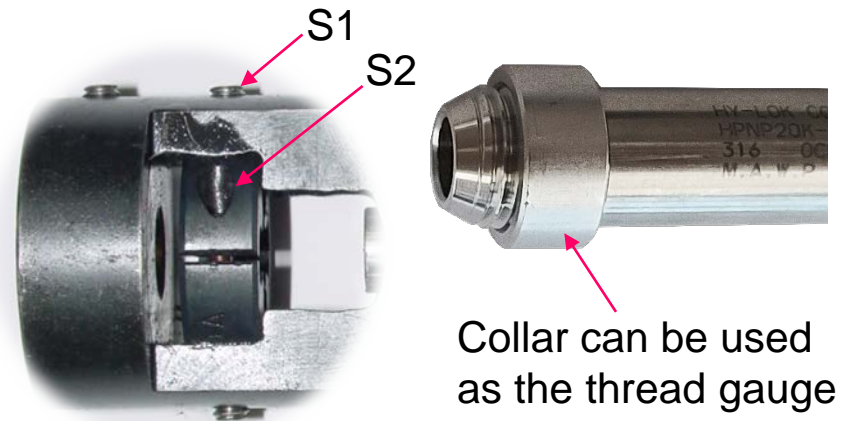
Coning and Threading Instructions.

4. Threading the Tubing. from 1/4" to 9/16"

- 1) Apply a cutting oil to the end of the tubing.
- 2) Press the center of the threading tool with palm of hand and rotate counterclockwise. After feel the die start onto the tubing, continue to rotate the threading tool with the hand.
- 3) Approximately every half turn of the tool, reverse direction to break off and remove chips.



Threading by the hand.



If the collar will not Go, adjust threading die
Please open S2 set bolt and close S1.

Coning and Threading Instructions.

3. Threading the Tubing. from 1/4" to 9/16"

4) Check for proper thread fit and length with a new collar

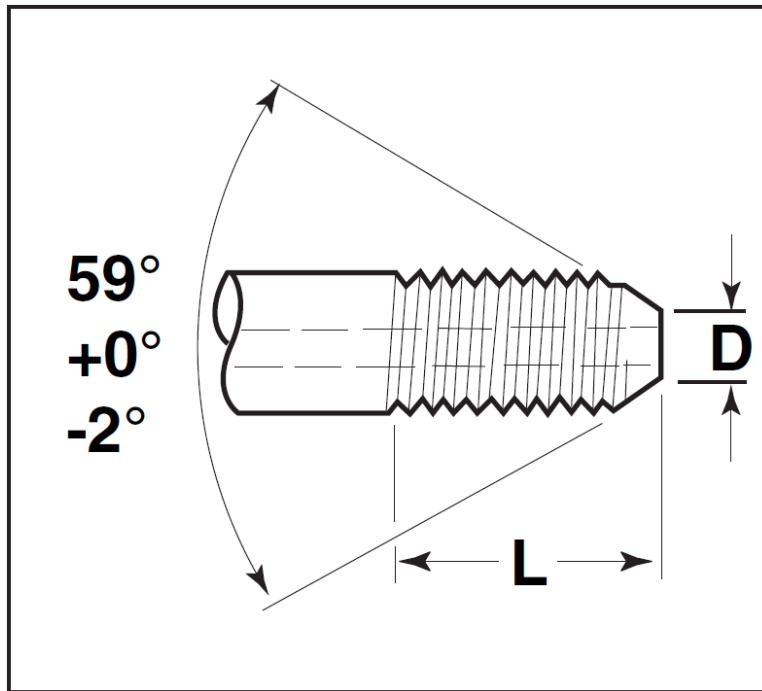


Table-2. Cone & Thread Dimensions

| Pressure Series | Tube Size In. | D (mm) | L (mm) | Thread Size (Left Hand) |
|--------------------------|---------------|--------|--------|-------------------------|
| M/P Series 20,000 psi | 1/4 | 3.6 | 8.6 | 1/4-28 |
| | 3/8 | 6.4 | 11.2 | 3/8-24 |
| | 9/16 | 10.3 | 12.7 | 9/16-18 |
| H/P Series 60,000 psi | 1/4 | 3.2 | 14.2 | 1/4-28 |
| | 3/8 | 5.6 | 19.1 | 3/8-24 |
| | 9/16 | 7.1 | 23.9 | 9/16-18 |

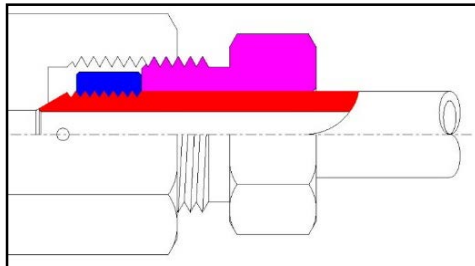
Installation Instructions.

- 1) Slip gland nut onto tubing.
- 2) Screw collar onto threaded end of tubing.
(one or two threads to be exposed)
- 3) Insert tubing into connection.
Screw gland into connection until finger-tight.
- 4) Tighten gland to torque value.

1 or 2 threads



Medium Pressure M/P Series



High Pressure H/P Series

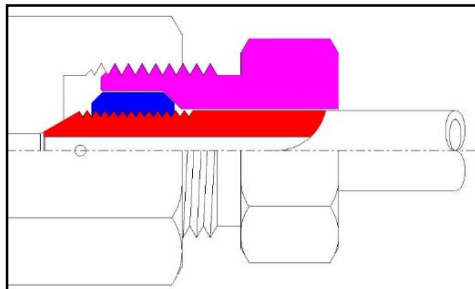


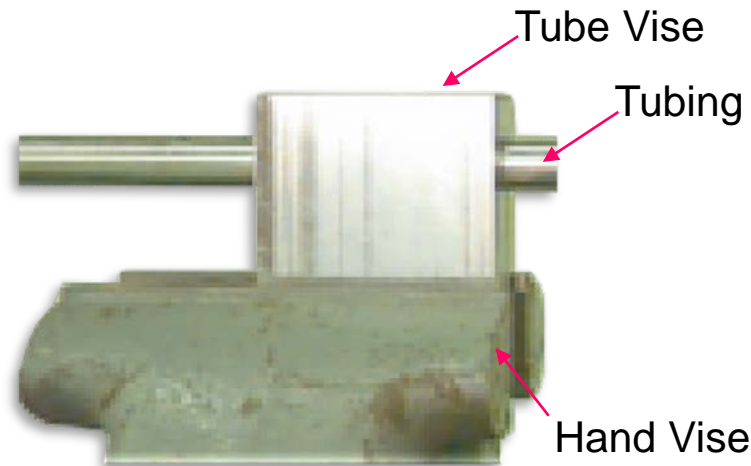
Table-3. Connection Tightening Torque

| Pressure Series | Tube Size In. | Required Torque (lb-ft) | Required Torque (Nm) |
|--------------------------|---------------|-------------------------|----------------------|
| M/P Series 20,000 psi | 1/4 | 20 | 27 |
| | 3/8 | 30 | 41 |
| | 9/16 | 55 | 75 |
| H/P Series 60,000 psi | 1/4 | 25 | 34 |
| | 3/8 | 50 | 68 |
| | 9/16 | 100 | 136 |

Installation Tools.

1. Tube Vise. from 1/4" to 9/16"

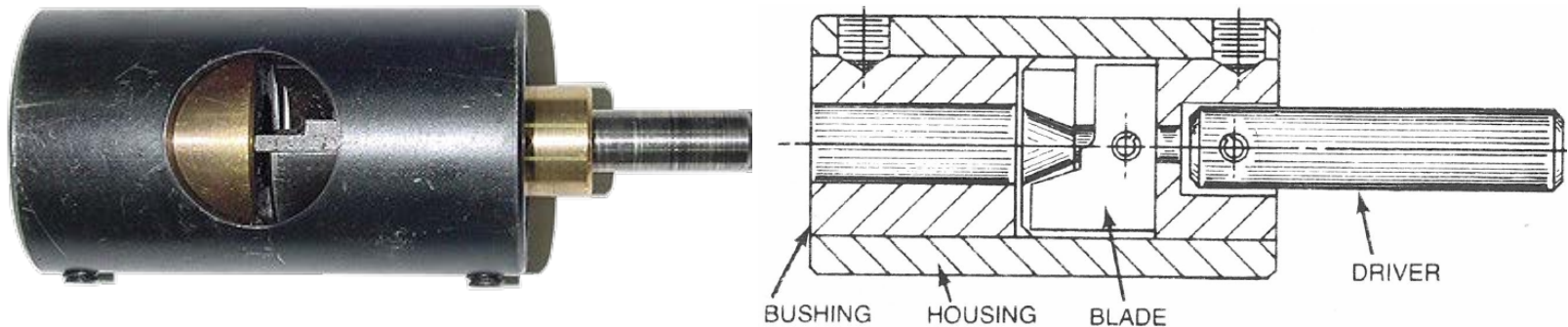
- ◆ Use when cutting, coning and threading.
- ◆ Lightweight and compact.
- ◆ No dents the surface of tubing.
- ◆ Better holding power on tubing.



Installation Tools.

2. Coning Tool. from 1/4" to 9/16"

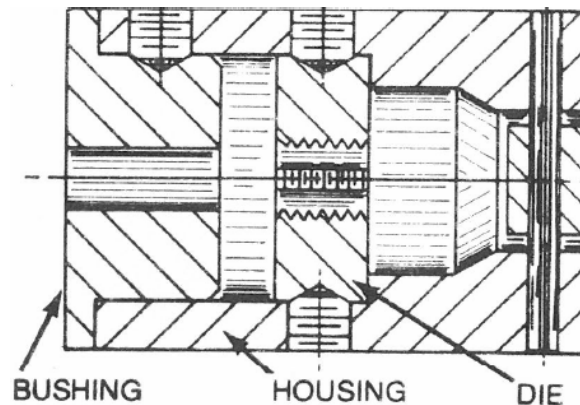
- ◆ The tool can be removed any time during the coning operation for check of surface.
- ◆ The tool for coning the end of tubing, or damaged cone.
- ◆ A hand drill will be required.



Installation Tools.

3. Threading Tool. from 1/4" to 9/16"

- ◆ The tool for cutting the thread with an adjustable thread die and a guide bushing.
- ◆ All threads for pressure tubing are Left Hand National Fine.



Tube Bending.

Bend Radius. from 1/4" to 9/16"

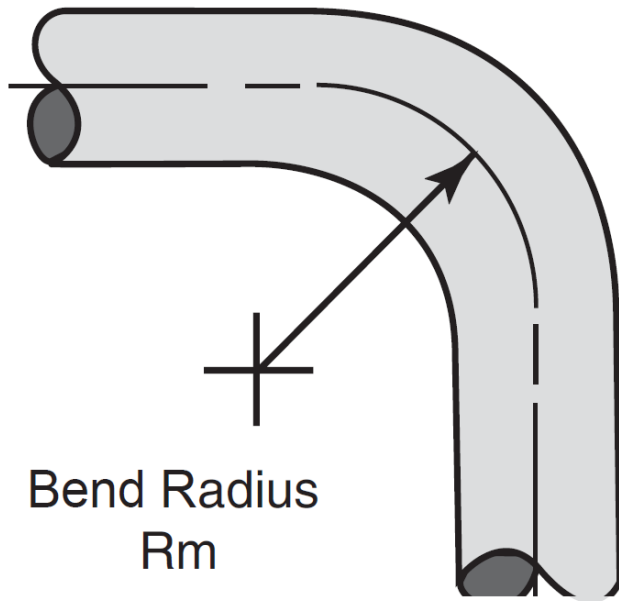


Table-4. Tube Bending Radius

| Pressure Series | Tube Size In. | Bend Radius Rm |
|--------------------------|---------------|----------------|
| M/P Series 20,000 psi | 1/4 | 32.0 |
| | 3/8 | 45.0 |
| | 9/16 | 67.0 |
| H/P Series 60,000 psi | 1/4 | 32.0 |
| | 3/8 | 45.0 |
| | 9/16 | 67.0 |