

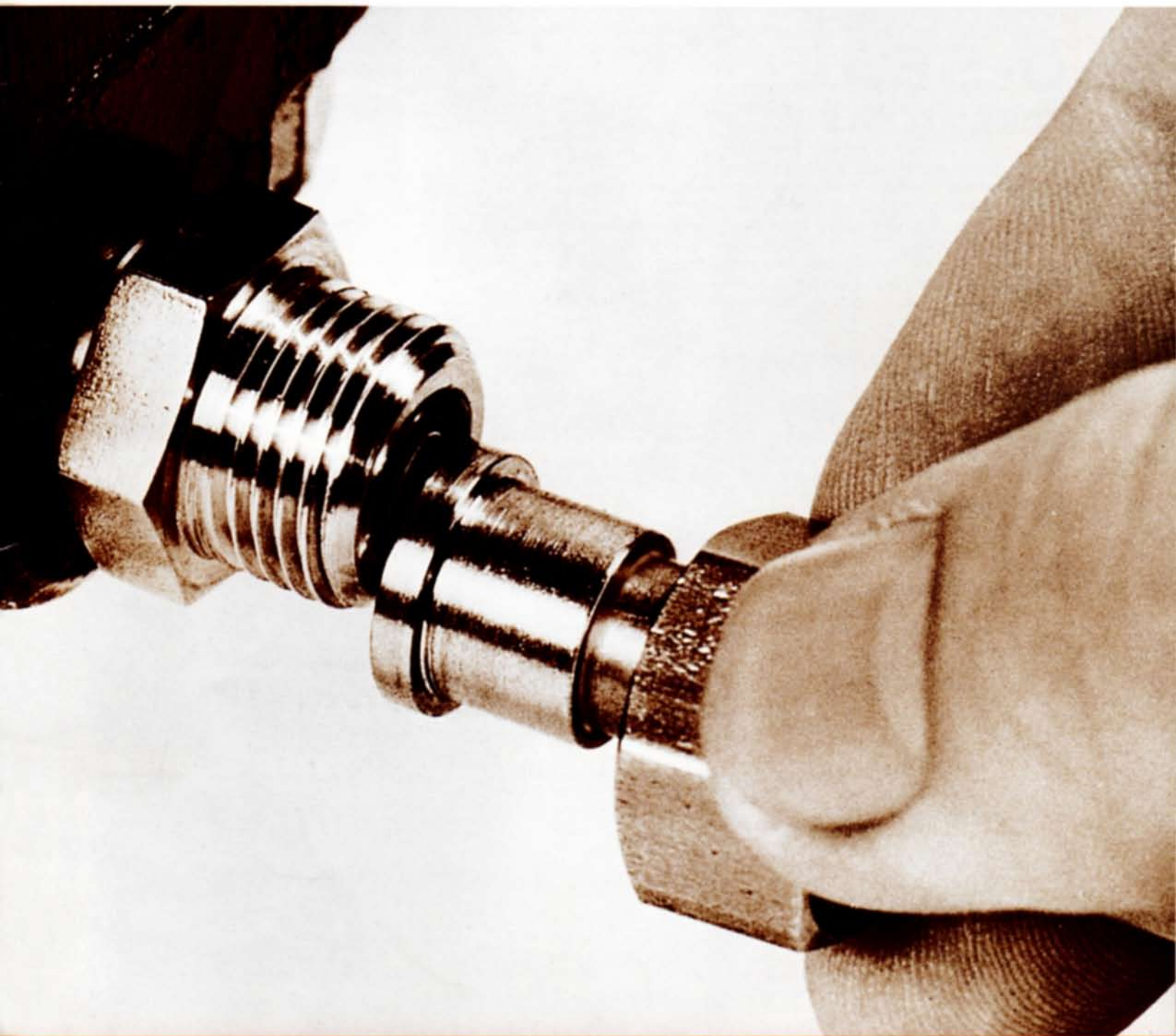


Established 1915

CATALOG 74-J

# **MARK VIII O-SEAL**

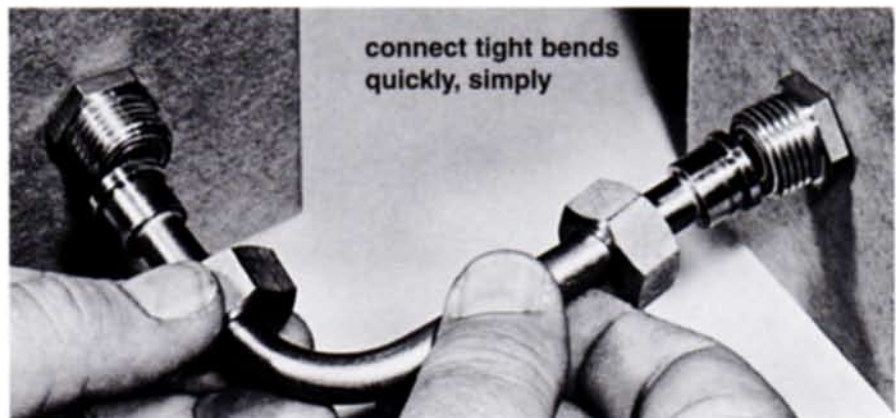
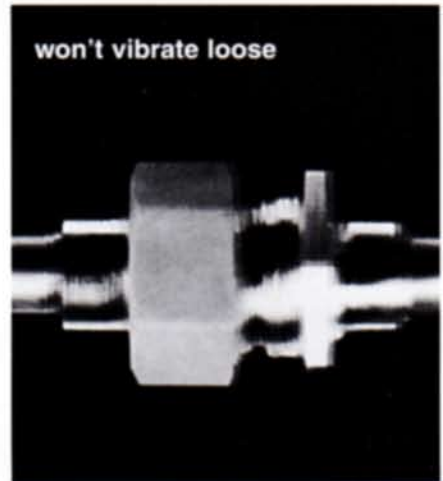
## **Tube Fittings**



*Up to 6000 PSI – gases or liquids*

# MARK VIII O-SEAL TUBE FITTINGS

the only tube fittings  
that offer all these  
superior features



## the leakproof, fully separable, heat-sealed tube fittings that resist vibration and never need retightening

CPV has developed the closest thing to the perfect line of tube fittings yet: Mark VIII O-SEAL. These unique components combine the most desirable, most important characteristics of any tube fittings: **totally leakproof reliability** in liquid or gas service from vacuum to 6,000 psi . . . **maximum resistance to vibration** (they won't loosen even with extreme system vibration or line pressure fluctuations) . . . **no maintenance** (they **never** have to be retightened) . . . **unlimited break-remake flexibility** (you can break and remake connections at will and slip components in and out of the system without springing or cutting the line) . . . and **complete design freedom** (wide choice of fittings to connect components to any system).

### The Big Difference

Unlike Mark VIII O-SEAL, ordinary tube fittings—compression, flareless, flared tube, etc.—rely on external force or torquing of the nut to seal. This force must be sufficient to deform the tube wall to achieve even a passable seal. Consequently, the sealing area is actually the weakest portion of these fittings. Any vibration or pressure fluctuation loosens the seal and makes it necessary to retighten the nut again and again until the fitting fails or the tube collapses. And when these fittings do fail, the entire tube section, not just the fitting, must be replaced, greatly increasing downtime and operating costs.

### The Mark VIII O-SEAL System

The basic Mark VIII O-SEAL connector comprises a body and a tailpiece, with a resilient O-ring recessed in a close tolerance groove in the body. These two flat-faced components are joined by a union nut, which compresses the captive O-ring to form an initial, leaktight seal. Light wrenching completes the installation to assure a leakproof connection that will not vibrate loose. The flat-faced construction of Mark VIII O-SEAL fittings eliminates any concern about critical torque or positioning of the nut. Internal line pressure actually increases the sealing effectiveness of these unique fittings.

### Low Torque Assembly

Unlike conventional fittings which require a great deal of torque to effect a seal, Mark VIII O-SEAL fittings require a minimal amount of torque to achieve a seal that never needs to be retightened. A typical ½" Mark VIII O-SEAL fitting, for example, requires just 36 in.-lbs. of torque for proper assembly, while a conventional bite-type fitting of the same size requires more than 500 in.-lbs.

### Heat-Sealed Tube Connection — Welded or Brazed

All Mark VIII O-SEAL fittings are furnished complete, ready for installation. Tube end connections are permanently heat sealed (either welded or brazed) and are not subject to failure when breaking or remaking connections. See page 18 for methods of installation. This complete system of engineered fittings—including unions, connectors, tees, elbows and crosses in O.D. tube sizes from ¼" to 2" and reducers down to ⅛"—is ideal for any fluid system at pressures from vacuum to 6,000 psi. Temperature rating and fluid compatibility are limited only by the O-ring material employed.

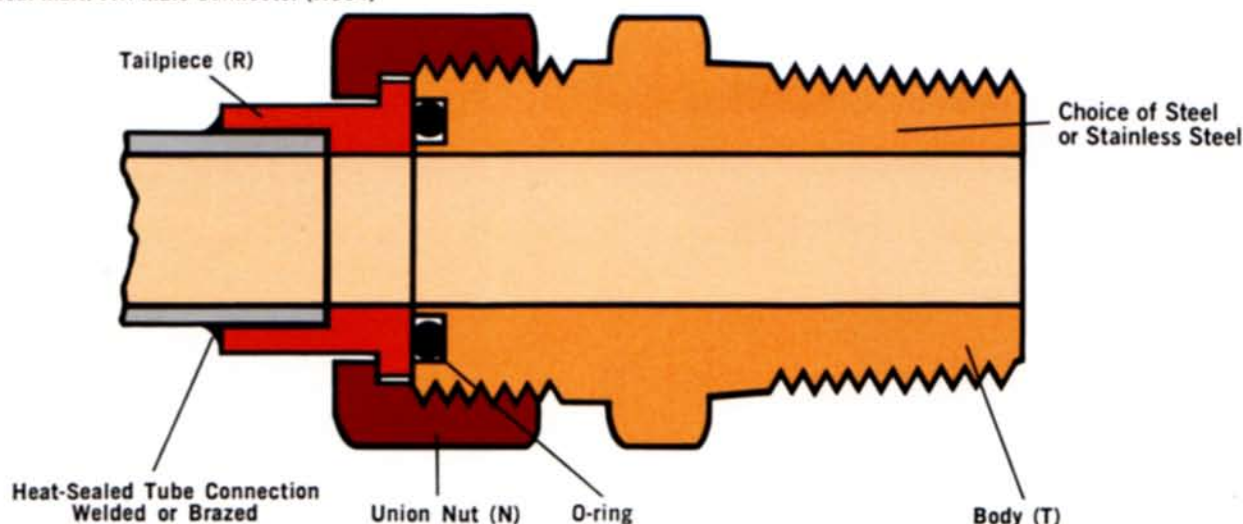
### Vibration Resistance

The unique construction of Mark VIII O-SEAL fittings assures maximum resistance to the effects of vibration, flexural stresses or pressure surges. Essentially, the Mark VIII system is a compact, lightweight version of the famed CPV O-SEAL fittings which have been providing leakproof connections for more than 25 years—even in systems with severe vibration and other cyclic stresses. Like the O-SEAL SYSTEM, Mark VIII O-SEAL fittings employ a resilient O-ring that maintains its positive sealing regardless of system pressure fluctuations or vibration.

### Uniquely Superior

If you want to build a "dry machine" with inherent vibration resistance and complete flexibility, put the unrivaled capabilities of Mark VIII O-SEAL fittings to work for you. They'll never let you down.

Typical Mark VIII Male Connector (H854)



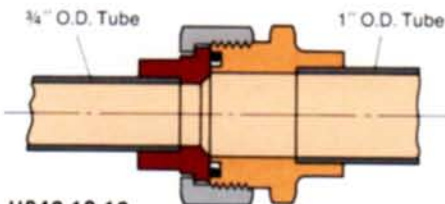
**another unique advantage of  
MARK VIII O-SEAL Tube Fittings:  
one-step line size changes  
from 2" to 1/8" O.D.**

Only Mark VIII O-SEAL tube fittings let you make any line size change in one step—with **one** assembly. Conventional fittings require the use of an adapter for each line size reduction or change—and thus at least two additional connections and potential leakage paths. Only CPV Mark VIII O-SEAL fittings accommodate any line size change from 2" down to 1/8" O.D. with a single fitting.

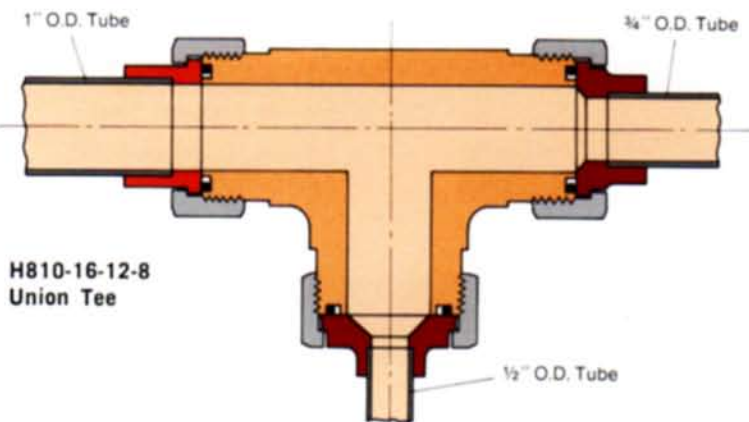
This unique feature speeds and simplifies installation. It also reduces fitting costs by eliminating the need for additional parts and effectively minimizes the number of connections that must be made to achieve the change in line size.

Any line size change—from component to tubing or tubing to tubing—is easily achieved simply by ordering a Mark VIII fitting with the desired reducing tailpiece. In all cases, the tailpiece is the reducing component. Any Mark VIII fitting which uses a socket-type tailpiece—connector, union, elbow, tee or cross—can be ordered as a standard reducer, as described at the right.

Mark VIII reducers are ideal for valves, pressure gages, filters, etc. as well as flow dividing. Typical examples of line size changes are illustrated below: a reducing union, and a tee with two different line size reductions. With Mark VIII O-SEAL, the combinations of line size changes are infinite within the 2" to 1/8" O.D. range.



**H849-12-16**  
Tube to Tube Union



**H810-16-12-8**  
Union Tee

**ORDERING INFORMATION**

To order any Mark VIII O-SEAL assembly, use the appropriate part number and add the desired material designation suffix:

- S—Steel
- SS—Stainless Steel

**UNIONS, CONNECTORS, ELBOWS**

Please note that part numbers for **tube to tube unions, connectors and elbows** may have one or two dash numbers to indicate size. Where only one dash number is given, the assembly has the same tube socket dimension at both ends. All dash numbers are expressed in sixteenths of an inch, as shown in the table below. For example:

Type—Union  
Size—1/2" O.D. Tube (both ends)  
Material—Steel  
**H849-8-S**

Part numbers for **tube fittings with a threaded connection** always have two dash numbers. For example:

Type—Male Connector  
Size (A)—1/2" O.D. Tube  
Size (B)—3/8" Male Pipe Thread  
Material—Stainless Steel  
**H854-8-6-SS**

To order a **reducer**, two dash numbers must be given to indicate the two different connection sizes. The **A** or **A'** dimension (socket-type tailpiece) on any fitting can be reduced to the desired line size simply by adding the proper dash number to indicate the connection size. For example:

Type—Union  
Size (A)—3/4" O.D. Tube  
Size (B)—1" O.D. Tube  
Material—Stainless Steel  
**H849-12-16-SS**

The most popular reducers are listed in the tables. Other standard reducing tailpieces are shown on page 17.

**TEES, CROSSES**

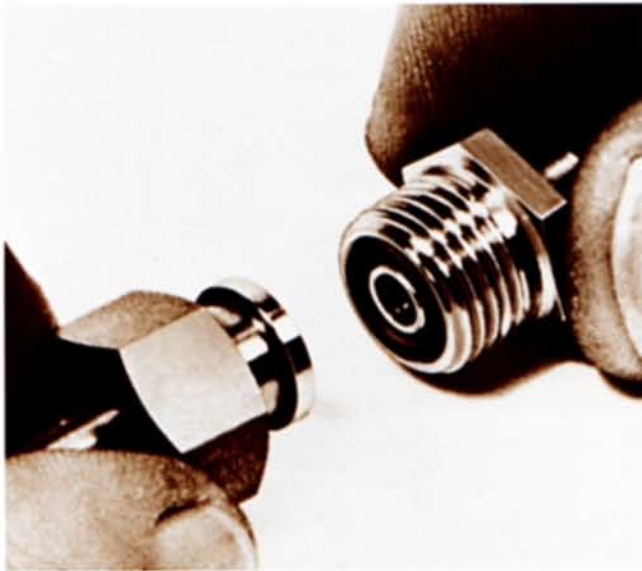
See pages 11 and 15 for ordering information on tees and crosses, respectively.

Fittings are supplied with Buna-N O-ring(s) unless otherwise specified.

Order sil-braze rings (H801) separately if desired. See page 18.

For ordering a fitting body only, add the letter **T** after the part number. For example: H849T-4 is the body (threaded piece) for a 1/4" O.D. tube.

## MARK VIII O-SEAL Tube Fittings



### PRESSURE RATINGS

Mark VIII fittings are designed for use in hydraulic, pneumatic or other fluid systems with working pressures from high vacuum to 6,000 psi, with a safety factor in excess of 4:1. See pressure rating data on page 19.

### TEMPERATURE RATINGS

The temperature rating of Mark VIII O-SEAL fittings is determined by the O-ring used. Buna-N is the standard O-ring material, which provides a working temperature range of -20° F. to 275° F. Other O-ring materials can be furnished to accommodate a wider range of working temperatures and/or fluids. Consult factory for details.

### MATERIAL SPECIFICATIONS

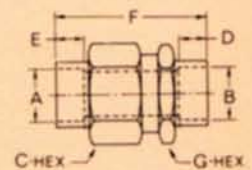
Mark VIII fittings are available in steel and stainless steel. \*Other materials such as bronze, brass, monel, copper nickel and titanium can be supplied. Contact factory with specific requirements for other materials or other requests.

\*See page 19 for specific material specifications.



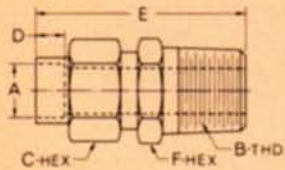
### UNION — H849 Tube to Tube

Part No.	Tube O.D.		C-Hex.	D	E	F	G-Hex.
	A	B					
H849-4	¼	¼	¾	¾	¾	1	¾
H849-2-4	⅜	¼	¾	¾	¾	1	¾
H849-6	¾	¾	1½	¾	¾	1½	¾
H849-4-6	¼	¾	1½	¾	¾	1¾	¾
H849-8	½	½	1½	¾	¾	1¾	¾
H849-6-8	¾	½	1½	¾	¾	1¾	¾
H849-4-8	¼	½	1½	¾	¾	1¾	¾
H849-10	¾	¾	1½	¾	¾	1½	1½
H849-8-10	½	¾	1½	¾	¾	1¾	1½
H849-6-10	¾	¾	1½	¾	¾	1¾	1½
H849-12	¾	¾	1¾	¾	¾	1½	1¾
H849-10-12	¾	¾	1¾	¾	¾	1¾	1¾
H849-8-12	½	¾	1¾	¾	¾	1½	1¾
H849-16	1	1	1¾	½	½	2¾	1¾
H849-12-16	¾	1	1¾	½	¾	2¾	1¾
H849-20	1½	1½	2	¾	¾	2¾	1¾
H849-24	1½	1½	2¾	¾	¾	2¾	2¼
H849-32	2	2	3¼	¾	¾	3¾	3



The A dimension can be reduced to any line size. See page 17 for details.

CPV Manufacturing, Inc.  
851 N. Preston St., Philadelphia, Pa. 19104



The A dimension can be reduced to any line size. See page 17 for details.

## MALE CONNECTOR — H854

### Tube to Male Pipe Thread

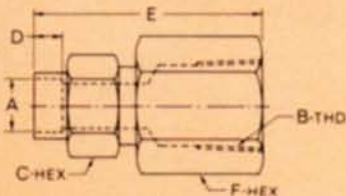
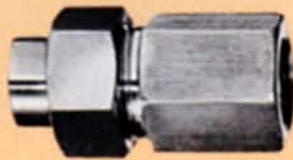
Part No.	Tube O.D.		Male Pipe Thd.			
	A	B	C-Hex.	D	E	F-Hex.
H854-2-2	1/8	1/8	5/8	3/16	1 3/8	5/8
H854-2-4	1/8	1/4	5/8	3/16	1 3/8	5/8
H854-4-2	1/4	1/8	5/8	3/16	1 3/8	5/8
H854-4-4	1/4	1/4	5/8	3/16	1 3/8	5/8
H854-4-6	1/4	3/8	1 1/8	3/16	1 3/4	7/8
H854-4-8	1/4	1/2	1 1/8	3/16	1 5/8	7/8
H854-6-4	3/8	1/4	1 3/8	1/4	1 3/4	3/4
H854-6-6	3/8	3/8	1 3/8	1/4	1 3/8	7/8
H854-6-8	3/8	1/2	1 3/8	1/4	2	7/8
H854-8-6	1/2	3/8	1 3/8	5/16	1 7/8	7/8
H854-8-8	1/2	1/2	1 3/8	5/16	2 1/8	7/8
H854-8-12	1/2	3/4	1 3/8	5/16	2 3/8	1 3/8
H854-10-8	5/8	1/2	1 1/8	3/8	2 1/4	1 1/8
H854-10-12	5/8	3/4	1 3/8	3/8	2 3/8	1 3/8
H854-12-12	3/4	3/4	1 3/8	3/16	2 3/8	1 3/8
H854-12-16	3/4	1	1 5/8	3/16	2 3/4	1 5/8
H854-16-16	1	1	1 5/8	1/2	2 3/8	1 5/8
H854-20-20	1 1/4	1 1/4	2	5/16	2 5/8	1 7/8
H854-24-24	1 1/2	1 1/2	2 3/8	5/8	3 1/8	2 1/4



## FEMALE CONNECTOR — H853

### Tube to Female Pipe Thread

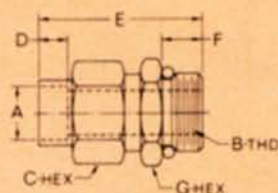
Part No.	Tube O.D.		Female Pipe Thd.			
	A	B	C-Hex.	D	E	F-Hex.
H853-2-2	1/8	1/8	5/8	3/16	1 1/2	5/8
H853-4-2	1/4	1/8	5/8	3/16	1 1/2	5/8
H853-4-4	1/4	1/4	1 1/8	3/16	1 1/8	3/4
H853-4-6	1/4	3/8	1 1/8	3/16	1 7/8	7/8
H853-6-4	3/8	1/4	1 3/8	1/4	1 3/4	3/4
H853-6-6	3/8	3/8	1 3/8	1/4	1 3/8	7/8
H853-6-8	3/8	1/2	1 3/8	1/4	2 1/4	1 1/8
H853-8-6	1/2	3/8	1 3/8	5/16	2	7/8
H853-8-8	1/2	1/2	1 3/8	5/16	2 1/8	1 1/8
H853-8-12	1/2	3/4	1 3/8	5/16	2 3/8	1 3/8
H853-10-8	5/8	1/2	1 3/8	3/8	2 3/8	1 1/8
H853-10-12	5/8	3/4	1 3/8	3/8	2 1/2	1 3/8
H853-12-12	3/4	3/4	1 3/8	3/16	2 1/2	1 3/8
H853-12-16	3/4	1	1 3/8	3/16	2 3/8	1 3/8
H853-16-16	1	1	1 5/8	1/2	2 3/8	1 3/8
H853-20-20	1 1/4	1 1/4	2	5/16	3	2 1/4
H853-24-24	1 1/2	1 1/2	2 3/8	5/8	3 1/8	2 1/2



The A dimension can be reduced to any line size. See page 17 for details.

**MALE CONNECTOR — H859**  
**Tube to Male Straight Thread**

Part No.	Tube O.D. A	Male Str. Thd. B	C-Hex.	D	E	F	G-Hex.
H859-2-2	1/8	3/16-24	1/2	3/16	1 1/2	.36	1/2
H859-2-4	1/8	3/16-20	5/8	3/16	1 1/2	.41	5/8
H859-4-4	1/4	3/16-20	5/8	3/16	1 1/2	.41	5/8
H859-4-6	1/4	3/16-18	1 1/8	3/16	1 1/2	.43	3/4
H859-4-8	1/4	3/4-16	1 1/8	3/16	1 1/2	.47	7/8
H859-6-6	3/8	3/16-18	1 1/8	1/4	1 3/8	.43	3/4
H859-6-8	3/8	3/4-16	1 1/8	1/4	1 3/4	.47	7/8
H859-6-10	3/8	7/8-14	1 1/8	1/4	1 3/8	.53	1 1/8
H859-8-8	1/2	3/4-16	1 1/8	5/8	1 3/8	.47	7/8
H859-8-10	1/2	7/8-14	1 1/8	5/8	2	.53	1 1/8
H859-8-12	1/2	1 1/8-12	1 3/8	5/8	2 3/8	.63	1 3/8
H859-10-10	5/8	7/8-14	1 1/8	3/8	2 1/8	.53	1 1/8
H859-10-12	5/8	1 1/8-12	1 3/8	3/8	2 1/4	.63	1 3/8
H859-12-12	3/4	1 1/8-12	1 3/8	7/8	2 3/8	.63	1 3/8
H859-12-16	3/4	1 1/8-12	1 3/8	7/8	2 1/2	.63	1 3/8
H859-16-16	1	1 1/8-12	1 3/8	1/2	2 3/8	.63	1 3/8
H859-20-20	1 1/4	1 3/8-12	2	5/8	2 1/8	.63	1 3/8
H859-24-24	1 1/2	1 3/8-12	2 3/8	5/8	2 1/8	.63	2 1/4
H859-32-32	2	2 1/2-12	3 1/4	7/8	3 1/4	.63	3

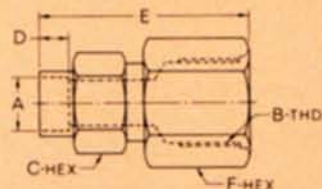


The A dimension can be reduced to any line size. See page 17 for details.



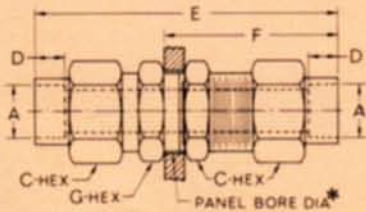
**FEMALE CONNECTOR — H864**  
**Tube to Female Straight Thread**

Part No.	Tube O.D. A	Female Str. Thd. B	C-Hex.	D	E	F-Hex.
H864-2-4	1/8	3/16-20	5/8	3/16	1 1/2	3/4
H864-4-4	1/4	3/16-20	5/8	3/16	1 1/2	3/4
H864-4-6	1/4	3/16-18	1 1/8	3/16	1 1/2	3/4
H864-4-8	1/4	3/4-16	1 1/8	3/16	1 1/2	1 1/8
H864-6-6	3/8	3/16-18	1 1/8	1/4	1 3/4	3/4
H864-6-8	3/8	3/4-16	1 1/8	1/4	1 3/8	1 1/8
H864-6-10	3/8	7/8-14	1 1/8	1/4	2 1/4	1 1/8
H864-8-8	1/2	3/4-16	1 1/8	5/8	2	1 1/8
H864-8-10	1/2	7/8-14	1 1/8	5/8	2 3/8	1 1/8
H864-8-12	1/2	1 1/8-12	1 3/8	5/8	2 3/8	1 3/8
H864-10-10	5/8	7/8-14	1 1/8	3/8	2 3/8	1 1/8
H864-10-12	5/8	1 1/8-12	1 3/8	3/8	2 1/2	1 3/8
H864-12-12	3/4	1 1/8-12	1 3/8	7/8	2 3/8	1 3/8
H864-12-16	3/4	1 1/8-12	1 3/8	7/8	2 1/8	1 3/8
H864-16-16	1	1 1/8-12	1 3/8	1/2	2 3/8	1 3/8
H864-20-20	1 1/4	1 3/8-12	2	5/8	3	2
H864-24-24	1 1/2	1 3/8-12	2 3/8	5/8	3 1/8	2 1/4



The A dimension can be reduced to any line size. See page 17 for details.

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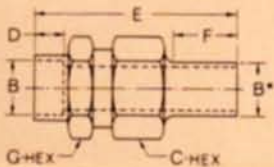
The A dimension can be reduced to any line size. See page 17 for details.

**BULKHEAD UNION — H890**  
**Tube to Tube**

Part No.	Tube O.D. A	C-Hex.	D	E	F	G-Hex.	Panel Bore Dia.*
H890-4	1/4	5/8	3/16	2 5/16	1 3/8	5/8	.578
H890-6	3/8	1 13/16	1/4	2 5/8	1 1/2	3/4	.703
H890-8	1/2	1 5/16	5/16	3	1 11/16	7/8	.828
H890-10	5/8	1 1/8	3/8	3 1/2	1 5/16	1 1/16	1.015
H890-12	3/4	1 3/8	7/16	3 5/8	2	1 3/8	1.265
H890-16	1	1 5/8	1/2	4	2 3/16	1 5/8	1.515
H890-20	1 1/4	2	9/16	4 1/8	2 1/4	1 7/8	1.765
H890-24	1 1/2	2 3/8	5/8	4 3/8	2 3/8	2 1/4	2.140

\* Panel thickness: maximum — 1/2"; minimum — 1/16".

(Date revised 11/07)



**UNION — H863**  
**Female Tube to Male Tube\***

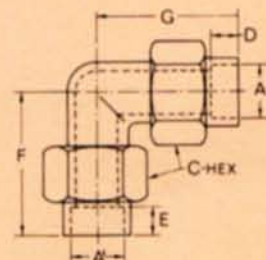
Part No.	Tube O.D. B	C-Hex.	D	E	F	G-Hex.
H863-4	1/4	3/8	3/16	1 3/8	3/8	3/8
H863-6	3/8	1 1/8	1/4	1 3/8	3/8	3/4
H863-8	1/2	1 1/8	5/16	1 5/8	1 1/8	3/8
H863-10	5/8	1 1/8	3/8	2 1/4	1 3/8	1 3/8
H863-12	3/4	1 3/8	7/16	2 3/8	1 5/8	1 3/8
H863-16	1	1 5/8	1/2	2 3/8	1 5/8	1 3/8
H863-20	1 1/4	2	9/16	3 3/8	1 3/4	1 3/8
H863-24	1 1/2	2 3/8	5/8	3 3/8	1 3/8	2 1/4

\* For welding or brazing into a socket.



**UNION ELBOW — H820**  
**Tube to Tube**

Part No.	Tube O.D.		C-Hex.	D	E	F	G
	A	A'					
H820-4	¼	¼	¾	¾	¾	1¾	1¾
H820-4-2	¼	¾	¾	¾	¾	1¾	1¾
H820-6	¾	¾	1½	¾	¾	1½	1½
H820-6-4	¾	¼	1½	¾	¾	1¾	1½
H820-8	½	½	1½	¾	¾	1¾	1¾
H820-8-6	½	¾	1½	¾	¾	1¾	1¾
H820-10	¾	¾	1½	¾	¾	2½	2½
H820-10-8	¾	½	1½	¾	¾	2	2½
H820-12	¾	¾	1½	¾	¾	2¼	2¼
H820-12-10	¾	¾	1½	¾	¾	2½	2¼
H820-16	1	1	1½	½	½	2¼	2¼
H820-16-12	1	¾	1½	½	¾	2½	2¼
H820-20	1¼	1¼	2	¾	¾	3¼	3¼
H820-24	1½	1½	2½	¾	¾	3¼	3¼

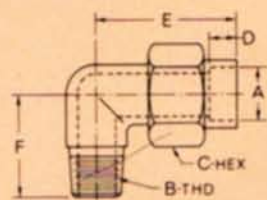
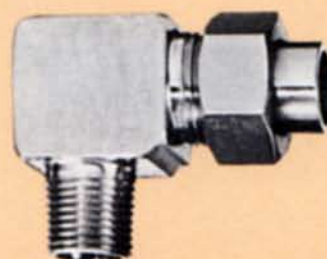


The A' dimension can be reduced to any line size. See page 17 for details.



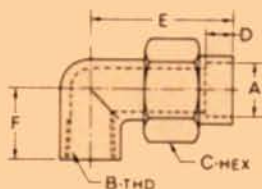
**MALE ELBOW — H821**  
**Tube to Male Pipe Thread**

Part No.	Tube O.D.	Male Pipe Thd.	C-Hex.	D	E	F
	A	B				
H821-2-2	¼	¼	¾	¾	1¾	1¾
H821-4-2	¼	¾	¾	¾	1¾	1¾
H821-4-4	¼	¼	¾	¾	1¾	1¾
H821-4-6	¼	¾	1½	¾	1¾	1¾
H821-6-4	¾	¼	1½	¾	1½	1¾
H821-6-6	¾	¾	1½	¾	1¾	1¾
H821-6-8	¾	½	1½	¾	1¾	1¾
H821-8-6	½	¾	1½	¾	1¾	1¾
H821-8-8	½	½	1½	¾	1¾	1¾
H821-8-12	½	¾	1½	¾	2½	1¾
H821-10-8	¾	½	1½	¾	2½	1¾
H821-10-12	¾	¾	1½	¾	2½	1¾
H821-12-12	¾	¾	1½	¾	2¼	1¾
H821-12-16	¾	1	1½	¾	2½	1¾
H821-16-16	1	1	1½	½	2¼	1¾
H821-20-20	1¼	1¼	2	¾	3¼	2¾
H821-24-24	1½	1½	2½	¾	3¼	2¾



The A dimension can be reduced to any line size. See page 17 for details.

**FEMALE ELBOW — H822**  
**Tube to Female Pipe Thread**

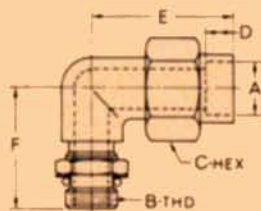


The A dimension can be reduced to any line size. See page 17 for details.

Part No.	Tube O.D. A	Female Pipe Thd. B	C-Hex.	D	E	F
H822-2-2	1/8	1/8	3/8	3/8	1 3/8	1 3/8
H822-4-2	1/4	1/8	3/8	3/8	1 3/8	1 3/8
H822-4-4	1/4	1/4	1 1/8	3/8	1 3/8	1 3/8
H822-4-6	1/4	3/8	1 1/8	3/8	1 3/8	1 3/8
H822-6-4	3/8	1/4	1 1/8	1/2	1 1/2	1 3/8
H822-6-6	3/8	3/8	1 1/8	1/2	1 3/8	1 3/8
H822-6-8	3/8	1/2	1 1/8	1/2	1 3/8	1 3/8
H822-8-6	1/2	3/8	1 1/8	3/8	1 3/8	1 3/8
H822-8-8	1/2	1/2	1 1/8	3/8	2	1 3/8
H822-8-12	1/2	3/4	1 3/8	3/8	2 1/8	1 3/8
H822-10-8	5/8	1/2	1 3/8	3/8	2 3/8	1 3/8
H822-10-12	5/8	3/4	1 3/8	3/8	2 3/8	1 3/8
H822-12-12	3/4	3/4	1 3/8	3/8	2 1/4	1 3/8
H822-12-16	3/4	1	2	3/8	2 3/8	2 3/8
H822-16-12	1	3/4	1 3/8	1/2	2 3/8	1 3/8
H822-16-16	1	1	2	1/2	3	2 3/8
H822-20-16	1 1/4	1	2	3/8	3 3/8	2 3/8
H822-20-20	1 1/4	1 1/4	2 3/8	3/8	3 1/4	2 3/8
H822-24-20	1 1/2	1 1/4	2 3/8	3/8	3 3/8	2 3/8



**MALE ELBOW — H823**  
**Tube to Straight Thread**



The A dimension can be reduced to any line size. See page 17 for details.

Part No.	Tube O.D. A	Male Str. Thd. B	C-Hex.	D	E	F
H823-2-4	1/8	3/8-20	3/8	3/8	1 3/8	1 3/8
H823-4-4	1/4	3/8-20	3/8	3/8	1 3/8	1 3/8
H823-4-6	1/4	3/8-18	1 1/8	3/8	1 3/8	1 1/4
H823-4-8	1/4	3/8-16	1 1/8	3/8	1 3/8	1 3/8
H823-6-6	3/8	3/8-18	1 1/8	1/2	1 1/2	1 1/4
H823-6-8	3/8	3/8-16	1 1/8	1/2	1 3/8	1 3/8
H823-6-10	3/8	3/8-14	1 1/8	1/2	1 3/8	1 3/8
H823-8-8	1/2	3/8-16	1 1/8	3/8	1 3/8	1 3/8
H823-8-10	1/2	3/8-14	1 1/8	3/8	2	1 3/8
H823-8-12	1/2	1 1/8-12	1 3/8	3/8	2 1/8	1 3/8
H823-10-10	5/8	3/8-14	1 1/8	3/8	2 1/8	1 3/8
H823-10-12	5/8	1 1/8-12	1 3/8	3/8	2 3/8	1 3/8
H823-12-12	3/4	1 1/8-12	1 3/8	3/8	2 1/4	1 3/8
H823-12-16	3/4	1 1/8-12	1 3/8	3/8	2 3/8	2 3/8
H823-16-16	1	1 1/8-12	1 3/8	1/2	2 3/8	2 3/8
H823-20-20	1 1/4	1 3/8-12	2	3/8	3 3/8	2 3/8
H823-24-24	1 1/2	1 3/8-12	2 3/8	3/8	3 3/8	2 3/8

## How to Order MARK VIII O-SEAL Tees

To order a Mark VIII O-SEAL tee, use the appropriate part number and add the desired material designation suffix (-S—Steel, -SS—Stainless Steel).

Please note that tees may have one or three dash numbers. All dash numbers are expressed in sixteenths of an inch. To order a tee with all connections the same size and type, only one dash number is used. For example:

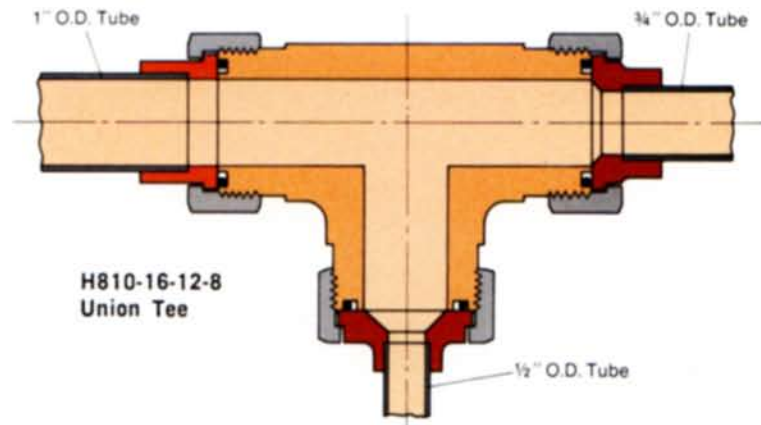
Type—Union Tee, Tube to Tube to Tube  
 Size (A)—1" O.D. Tube (at all three connections)  
 Material—Steel

H810-16-S

To order a tee with one connection either threaded or for a smaller tube size, **three** dash numbers must be given to indicate the size of each connection. The dash numbers must be listed in the following order: left connection, right connection, branch connection. For example:

Type—Male Branch Tee, Tube to Tube to Male Pipe Thread  
 Size (A)— $\frac{3}{8}$ " Tube O.D. (Left)  
 Size (A)— $\frac{3}{8}$ " Tube O.D. (Right)  
 Size (B)— $\frac{1}{2}$ " Male Pipe Thread (Branch)  
 Material—Stainless Steel

H811-10-10-8-SS



H810-16-12-8  
 Union Tee

Or, to order a reducing tee:

Type—Union Tee, Tube to Tube to Tube  
 Size (A)—1" O.D. Tube (Left)  
 Size (A-reduced)— $\frac{3}{4}$ " O.D. Tube (Right)  
 Size (A'-reduced)— $\frac{1}{2}$ " O.D. Tube (Branch)  
 Material—Steel

H810-16-12-8-S

Any line size reduction can be accomplished on any tee connection which uses a tailpiece. This A dimension can be changed to the desired line size simply by inserting the proper dash number to indicate the connection size.

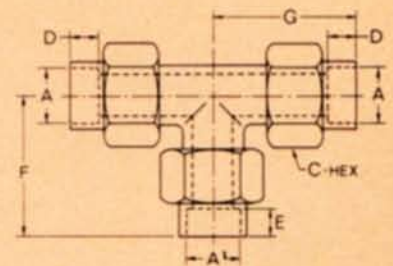
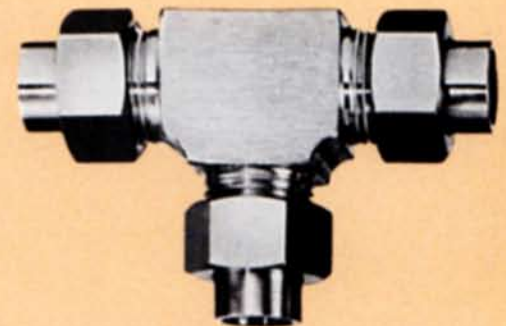
Buna-N O-rings supplied unless otherwise specified.

Order sil-braze rings (H801) separately. See page 18.

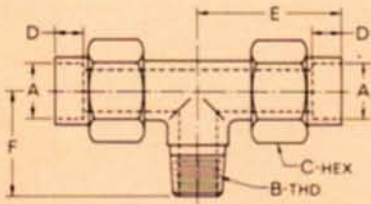
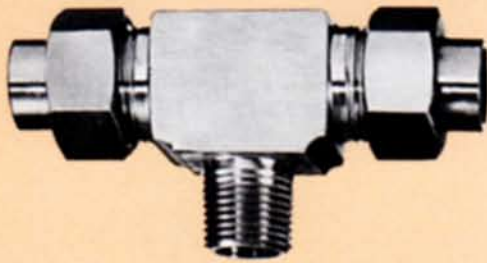


### UNION TEE — H810 Tube to Tube to Tube

Part No.	Tube O.D.						
	A	A'	C-Hex.	D	E	F	G
H810-4	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{3}{8}$
H810-4-4-2	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{3}{8}$
H810-6	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$
H810-6-6-4	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{1}{2}$
H810-8	$\frac{1}{2}$	$\frac{1}{2}$	$1\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$
H810-8-8-6	$\frac{1}{2}$	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{8}$
H810-10	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$2\frac{1}{8}$	$2\frac{1}{8}$
H810-10-10-8	$\frac{3}{8}$	$\frac{1}{2}$	$1\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	2	$2\frac{1}{8}$
H810-12	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$2\frac{1}{4}$	$2\frac{1}{4}$
H810-12-12-10	$\frac{3}{4}$	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$2\frac{3}{8}$	$2\frac{1}{4}$
H810-16	1	1	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{3}{4}$
H810-16-16-12	1	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{3}{8}$	$2\frac{1}{8}$	$2\frac{3}{4}$
H810-20	$1\frac{1}{4}$	$1\frac{1}{4}$	2	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{1}{8}$	$3\frac{1}{8}$
H810-24	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{8}$	$3\frac{3}{8}$



The A or A' dimensions can be reduced to any line size. See page 17 for details.

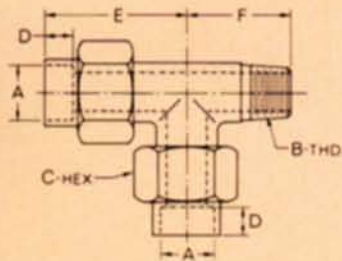
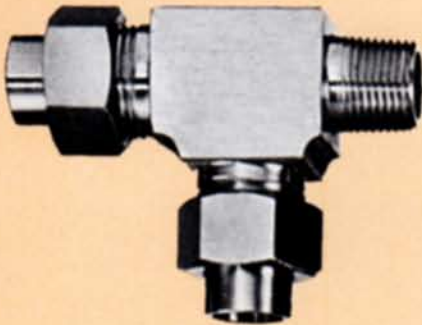


The A dimension can be reduced to any line size. See page 17 for details.

### MALE BRANCH TEE — H811

Tube to Tube to Male Pipe Thread

Part No.	Tube O.D. A	Male Pipe Thd. B	C-Hex.	D	E	F
H811-4-4-2	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$
H811-6-6-4	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{8}$
H811-8-8-6	$\frac{1}{2}$	$\frac{3}{8}$	$1\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{8}$
H811-10-10-8	$\frac{5}{8}$	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{8}$	$2\frac{1}{8}$	$1\frac{3}{8}$
H811-12-12-12	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{3}{8}$	$\frac{3}{8}$	$2\frac{1}{4}$	$1\frac{3}{8}$
H811-16-16-16	1	1	$1\frac{3}{8}$	$\frac{1}{2}$	$2\frac{3}{4}$	$1\frac{3}{8}$
H811-20-20-20	$1\frac{1}{4}$	$1\frac{1}{4}$	2	$\frac{3}{8}$	$3\frac{1}{8}$	$2\frac{3}{8}$
H811-24-24-24	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{8}$	$2\frac{3}{8}$



The A dimension can be reduced to any line size. See page 17 for details.

### MALE RUN TEE — H812

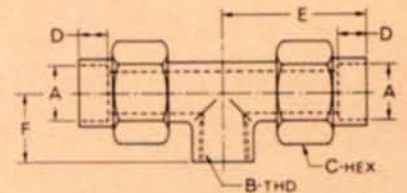
Tube to Male Pipe Thread to Tube

Part No.	Tube O.D. A	Male Pipe Thd. B	C-Hex.	D	E	F
H812-4-2-4	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$
H812-6-4-6	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{8}$
H812-8-6-8	$\frac{1}{2}$	$\frac{3}{8}$	$1\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{8}$
H812-10-8-10	$\frac{5}{8}$	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{8}$	$2\frac{1}{8}$	$1\frac{3}{8}$
H812-12-12-12	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{3}{8}$	$\frac{3}{8}$	$2\frac{1}{4}$	$1\frac{3}{8}$
H812-16-16-16	1	1	$1\frac{3}{8}$	$\frac{1}{2}$	$2\frac{3}{4}$	$1\frac{3}{8}$
H812-20-20-20	$1\frac{1}{4}$	$1\frac{1}{4}$	2	$\frac{3}{8}$	$3\frac{1}{8}$	$2\frac{3}{8}$
H812-24-24-24	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{8}$	$2\frac{3}{8}$

### FEMALE BRANCH TEE — H813

Tube to Tube to Female Pipe Thread

Part No.	Tube		C-Hex.	D	E	F
	O.D. A	Female Pipe Thd. B				
H813-4-4-2	¼	⅜	⅝	⅜	1⅜	1⅜
H813-6-6-4	⅜	¼	1⅜	¼	1½	1⅜
H813-8-8-6	½	⅜	1⅜	⅜	1⅜	1⅜
H813-10-10-8	⅝	½	1⅜	⅜	2⅜	1⅜
H813-12-12-12	¾	¾	1⅜	⅜	2¼	1⅜
H813-16-16-12	1	¾	1⅜	½	2¼	1⅜
H813-16-16-16	1	1	1⅜	½	3	2⅜
H813-20-20-16	1¼	1	2	⅝	3⅜	2⅜
H813-20-20-20	1¼	1¼	2	⅝	3¼	2⅜
H813-24-24-20	1½	1¼	2⅜	⅝	3⅜	2⅜



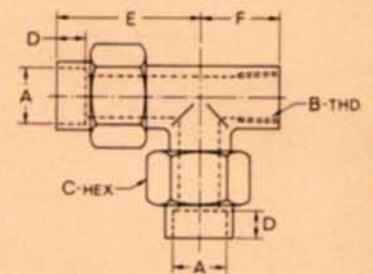
The A dimension can be reduced to any line size. See page 17 for details.



### FEMALE RUN TEE — H814

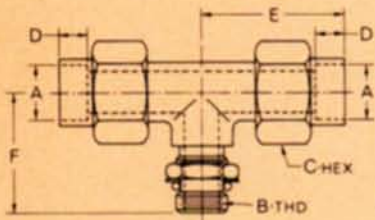
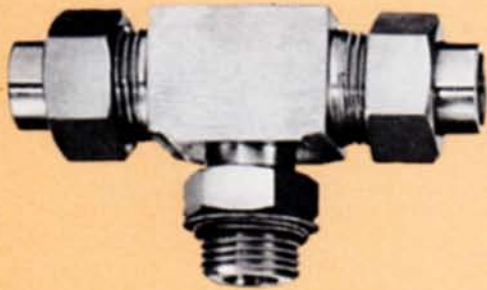
Tube to Female Pipe Thread to Tube

Part No.	Tube		C-Hex.	D	E	F
	O.D. A	Female Pipe Thd. B				
H814-4-2-4	¼	⅜	⅝	⅜	1⅜	1⅜
H814-6-4-6	⅜	¼	1⅜	¼	1½	1⅜
H814-8-6-8	½	⅜	1⅜	⅜	1⅜	1⅜
H814-10-8-10	⅝	½	1⅜	⅜	2⅜	1⅜
H814-12-12-12	¾	¾	1⅜	⅜	2¼	1⅜
H814-16-12-16	1	¾	1⅜	½	2¼	1⅜
H814-16-16-16	1	1	1⅜	½	3	2⅜
H814-20-16-20	1¼	1	2	⅝	3⅜	2⅜
H814-20-20-20	1¼	1¼	2	⅝	3¼	2⅜
H814-24-20-24	1½	1¼	2⅜	⅝	3⅜	2⅜



The A dimension can be reduced to any line size. See page 17 for details.

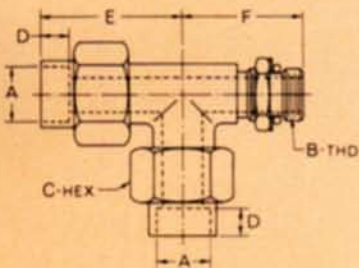
CPV Manufacturing, Inc.  
851 N. Preston St., Philadelphia, Pa. 19104



The A dimension can be reduced to any line size. See page 17 for details.

**MALE BRANCH TEE — H815**  
**Tube to Tube to Straight Thread**

Part No.	Tube O.D. A	Male Str. Thd. B	C-Hex.	D	E	F
H815-4-4-4	1/4	3/8-20	3/8	3/8	1 3/8	1 3/8
H815-6-6-6	3/8	3/8-18	1 3/8	1/4	1 1/2	1 1/4
H815-8-8-8	1/2	3/4-16	1 3/8	3/8	1 3/8	1 3/8
H815-10-10-10	3/4	7/8-14	1 1/8	3/8	2 3/8	1 1/8
H815-12-12-12	1	1 1/8-12	1 3/8	3/8	2 1/4	1 3/8
H815-16-16-16	1	1 3/8-12	1 3/8	1/2	2 3/4	2 3/8
H815-20-20-20	1 1/4	1 3/8-12	2	3/8	3 3/8	2
H815-24-24-24	1 1/2	1 3/8-12	2 3/8	3/8	3 3/8	2 3/8



The A dimension can be reduced to any line size. See page 17 for details.

**MALE RUN TEE — H816**  
**Tube to Straight Thread to Tube**

Part No.	Tube O.D. A	Male Str. Thd. B	C-Hex.	D	E	F
H816-4-4-4	1/4	3/8-20	3/8	3/8	1 3/8	1 3/8
H816-6-6-6	3/8	3/8-18	1 3/8	1/4	1 1/2	1 1/4
H816-8-8-8	1/2	3/4-16	1 3/8	3/8	1 3/8	1 3/8
H816-10-10-10	3/4	7/8-14	1 1/8	3/8	2 3/8	1 1/8
H816-12-12-12	1	1 1/8-12	1 3/8	3/8	2 1/4	1 3/8
H816-16-16-16	1	1 3/8-12	1 3/8	1/2	2 3/4	2 3/8
H816-20-20-20	1 1/4	1 3/8-12	2	3/8	3 3/8	2
H816-24-24-24	1 1/2	1 3/8-12	2 3/8	3/8	3 3/8	2 3/8

## How to Order MARK VIII O-SEAL Crosses

For making four-way connections, CPV offers a variety of Mark VIII O-SEAL union crosses. To order a cross, use the appropriate part number and add the desired material designation suffix (-S—Steel, -SS—Stainless Steel).

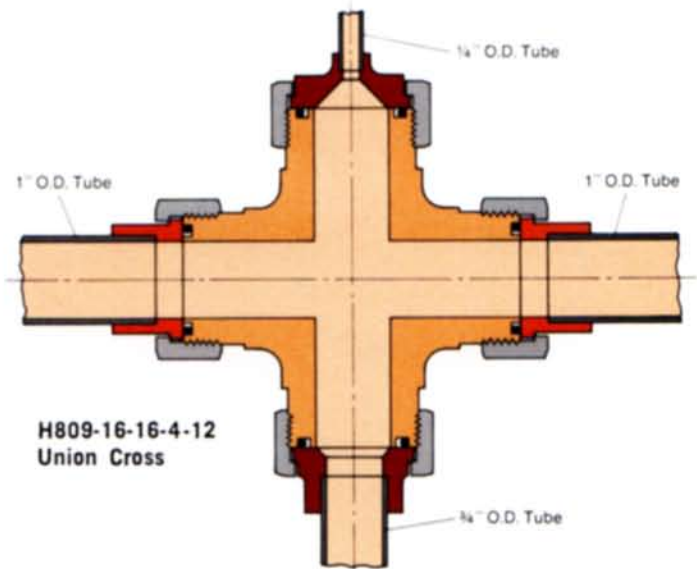
Crosses may have one or four dash numbers. All dash numbers are expressed in sixteenths of an inch.

To order a cross with all four connections the same size, use only dash number. For example:

Type—Union Cross, Tube to Tube to Tube to Tube  
 Size (A)— $\frac{3}{8}$ " O.D. Tube (all 4 connections)  
 Material—Steel

H809-10-S

Mark VIII O-SEAL crosses have a socket-type tailpiece at each connection. Any combination of connection sizes can be ordered by using the proper dash number. To order a cross with one or more line size changes, four dash numbers must be given to indicate each connection size. The order of listing for Mark VIII O-SEAL crosses is:



H809-16-16-4-12  
 Union Cross

left, right, top, bottom. For example:

Type—Union Cross, Tube to Tube to Tube to Tube  
 Size (A)—1" O.D. Tube (Left)  
 Size (A)—1" O.D. Tube (Right)  
 Size (A-reduced)— $\frac{1}{4}$ " O.D. Tube (Top)  
 Size (A-reduced)— $\frac{3}{4}$ " O.D. Tube (Bottom)  
 Material—Stainless Steel

H809-16-16-4-12-SS

Buna-N O-rings are supplied unless otherwise specified.

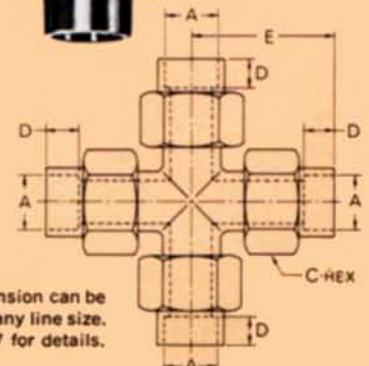
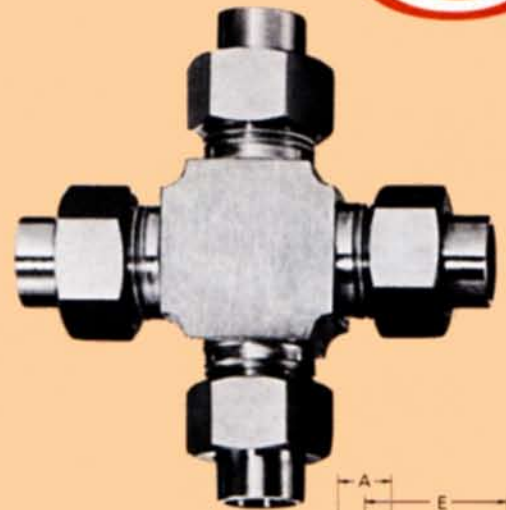
Order sil-braze rings (H801) separately. See page 18.



### UNION CROSS — H809

Tube to Tube to Tube to Tube

Part No.	Tube O.D.		C-Hex.	D	E
	A				
H809-4	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	
H809-6	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$	
H809-8	$\frac{1}{2}$	$1\frac{3}{8}$	$\frac{3}{8}$	$1\frac{11}{8}$	
H809-10	$\frac{3}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$	$2\frac{1}{8}$	
H809-12	$\frac{3}{4}$	$1\frac{3}{8}$	$\frac{3}{8}$	$2\frac{1}{4}$	
H809-16	1	$1\frac{3}{8}$	$\frac{1}{2}$	$2\frac{3}{4}$	
H809-20	$1\frac{1}{4}$	2	$\frac{3}{8}$	$3\frac{1}{8}$	
H809-24	$1\frac{1}{2}$	$2\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{8}$	



The A dimension can be reduced to any line size. See page 17 for details.

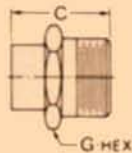
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Blank Tailpiece



Blank Body



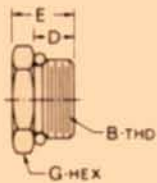
**BLANK TAILPIECE—H804R**

Part No.	Tube O.D.	C
H804R-4	1/4	3/8
H804R-6	3/8	7/16
H804R-8	1/2	1/2
H804R-10	5/8	5/8
H804R-12	3/4	11/16
H804R-16	1	13/16
H804R-20	1 1/4	7/8
H804R-24	1 1/2	15/16

**BLANK BODY—H804T**

Part No.	Tube O.D.	C	G-Hex
H804T-4	1/4	5/8	5/8
H804T-6	3/8	13/16	3/4
H804T-8	1/2	15/16	7/8
H804T-10	5/8	1 1/16	1 1/16
H804T-12	3/4	1 1/4	1 3/8
H804T-16	1	1 3/8	1 5/8
H804T-20	1 1/4	1 7/8	1 7/8
H804T-24	1 1/2	1 15/16	2 1/4

See Engineering Data page 19 for thread size.



**STRAIGHT THREAD PLUG—H805**

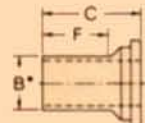
Part No.	Tube O.D.	B-Thd.	G-Hex.	D	E
H805-4	1/4	7/16-20	3/16	.41	5/8
H805-6	3/8	3/8-18	11/16	.43	1 1/16
H805-8	1/2	3/4-16	7/8	.47	3/4
H805-10	5/8	7/8-14	1	.53	13/16
H805-12	3/4	1 1/16-12	1 1/4	.63	1
H805-16	1	1 5/16-12	1 1/2	.63	1
H805-20	1 1/4	1 5/8-12	1 7/8	.63	1
H805-24	1 1/2	1 7/8-12	2 1/8	.63	1



**UNION NUT—H850N**

Part No.	Tube O.D.	C-Hex.	D
H850N-2	1/8	1/2	3/8
H850N-4	1/4	5/8	3/8
H850N-6	3/8	13/16	7/16
H850N-8	1/2	15/16	1/2
H850N-10	5/8	1 1/8	15/32
H850N-12	3/4	1 3/8	15/32
H850N-16	1	1 5/8	3/4
H850N-20	1 1/4	2	3/4
H850N-24	1 1/2	2 3/8	13/16
H850N-32	2	3 1/4	15/16

See Engineering Data page 19 for thread size.



**TAILPIECE—H863R Male Tube\***

Part No.	Tube O.D.		
	B	C	F
H863R-4	1/4	1 1/16	7/16
H863R-6	3/8	7/8	9/16
H863R-8	1/2	1	1 1/16
H863R-10	5/8	1 3/16	1 3/16
H863R-12	3/4	1 5/16	1 5/16
H863R-16	1	1 1/2	1 1/16
H863R-20	1 1/4	1 11/16	1 1/4
H863R-24	1 1/2	1 7/8	1 3/8

\*For welding or brazing into a socket.



## How to get a one-step line size change

One of the significant advantages you get with Mark VIII O-SEAL fittings is the ability to obtain **any** line size change in one-step—all the way from 2" down to 1/8" or anything in between. Contrast this with "old fashioned" fittings that require separate adapters for each incremental change in line size—with at least two potential leak paths for each adapter used.

For one-step size reduction(s), all you do is order your Mark VIII fitting—union, connector, tee, elbow or cross—with the appropriate reducing tailpiece(s) listed below. With tees and crosses, you can achieve any line size change you want at any connec-

tion. The combinations are virtually unlimited.

Please note that a single dash number is used for a non-reducing tailpiece, while a double dash number indicates a reducing tailpiece. The first dash number must be the same as the dash number for both the union nut and the fitting body. A second dash number represents the "reduced" tube size to be welded or brazed to the tailpiece.

Further details on the advantages of one-step line size reduction and ordering information are given on page 4.

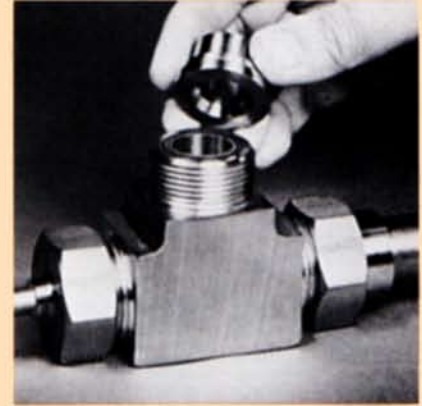
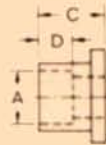


Photo shows an H810-16-6-10 Mark VIII O-SEAL union tee fitting for connecting 1", 3/8" and 1/8" O.D. tubes.

### TAILPIECE—H849R Female Tube



Part No.*	Tube O.D.		
	A†	C	D
H849R-2	1/8	3/8	3/16
H849R-4	1/4	3/8	3/16
H849R-4-2	1/8	3/8	3/16
H849R-6	3/8	7/16	1/4
H849R-6-4	1/4	3/8	3/16
H849R-6-2	1/8	3/8	3/16
H849R-8	1/2	1/2	5/16
H849R-8-6	3/8	7/16	1/4
H849R-8-4	1/4	3/8	3/16
H849R-10	5/8	5/8	3/8
H849R-10-8	1/2	9/16	5/16
H849R-10-6	3/8	1/2	1/4
H849R-10-4	1/4	7/16	3/16
H849R-12	3/4	11/16	7/16
H849R-12-10	5/8	11/16	3/8
H849R-12-8	1/2	11/16	5/16
H849R-12-6	3/8	11/16	1/4
H849R-12-4	1/4	11/16	3/16
H849R-16	1	13/16	1/2
H849R-16-12	3/4	13/16	7/16
H849R-16-10	5/8	13/16	3/8
H849R-16-8	1/2	13/16	5/16
H849R-16-6	3/8	13/16	1/4
H849R-16-4	1/4	13/16	3/16

Part No.*	Tube O.D.		
	A†	C	D
H849R-20	1 1/4	7/8	9/16
H849R-20-16	1	7/8	1/2
H849R-20-12	3/4	7/8	7/16
H849R-20-10	5/8	7/8	3/8
H849R-20-8	1/2	7/8	5/16
H849R-20-6	3/8	7/8	1/4
H849R-20-4	1/4	7/8	3/16
H849R-24	1 1/2	15/16	5/8
H849R-24-20	1 1/4	15/16	9/16
H849R-24-16	1	15/16	1/2
H849R-24-12	3/4	15/16	7/16
H849R-24-10	5/8	15/16	3/8
H849R-24-8	1/2	15/16	5/16
H849R-24-6	3/8	15/16	1/4
H849R-32	2	1 1/4	7/8
H849R-32-24	1 1/2	1 1/4	5/8
H849R-32-20	1 1/4	1 1/4	9/16
H849R-32-16	1	1 1/4	1/2
H849R-32-12	3/4	1 1/4	7/16
H849R-32-10	5/8	1 1/4	3/8
H849R-32-8	1/2	1 1/4	15/16

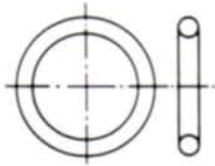
\*A double dash number indicates a reducer. The first dash number must agree with the dash number for the union nut. The second dash number represents the tube size, e.g.:

H849R-8 is used with a -8 nut and connects to 1/2" O.D. tube.

H849R-8-4 is used with a -8 nut and connects to 1/4" O.D. tube.

† Sockets available in metric tubing and pipe sizes.

## O-RINGS



### O-RING for Fittings — H800

Part No.*	Nut Size C-Hex.	AS 568 Dash No.
H800-2	1/2	008
H800-4	3/8	011
H800-6	13/16	013
H800-8	15/16	015
H800-10	1 1/8	017
H800-12	1 3/8	019
H800-16	1 5/8	022
H800-20	2	123
H800-24	2 3/8	127
H800-32	3 1/4	132

### O-RING for Straight Thread Connection — H802

Part No.	Str. Thd. B-Thd.	AS 568 Dash No.
H802-2	3/16-24	902
H802-4	3/16-20	904
H802-6	3/16-18	906
H802-8	3/4-16	908
H802-10	7/8-14	910
H802-12	1 1/16-12	912
H802-16	1 3/16-12	916
H802-20	1 5/8-12	920
H802-24	1 7/8-12	924
H802-32	2 1/2-12	932

\* Reducing tailpieces are used in a number of fittings. To avoid error, replacement O-ring dash number MUST agree with union nut dash number.

Material: Buna-N is the standard O-ring material furnished. System compatibility should be checked. Other compounds can be furnished. Consult factory.

## BRAZE RINGS



### SIL-BRAZE RING—H801

Part No.	Tube O.D.
H801-2	1/4
H801-4	1/4
H801-6	3/8
H801-8	1/2
H801-10	3/4
H801-12	3/4
H801-16	1
H801-20	1 1/4
H801-24	1 1/2
H801-32	2

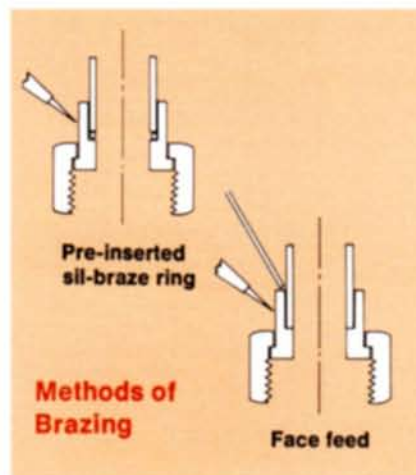
Material: Grade VII Sil-Braze Alloy.

### METHODS OF INSTALLATION

Mark VIII fittings are designed for welding or brazing to metal tubing.

**Welding** can easily be accomplished by standard welding procedures to assure reliable and leak-proof connections.

**Brazing** provides an equally reliable and economical connection. It can be accomplished by any of the standard brazing procedures, such as torch or induction heating, or furnace brazing. Mark VIII fittings are designed for face feeding of sil-braze alloy or by melting a pre-inserted sil-braze ring in the bottom of the socket, as shown, using a silver brazing flux. See the table above for the appropriate part numbers for H801 sil-braze rings.

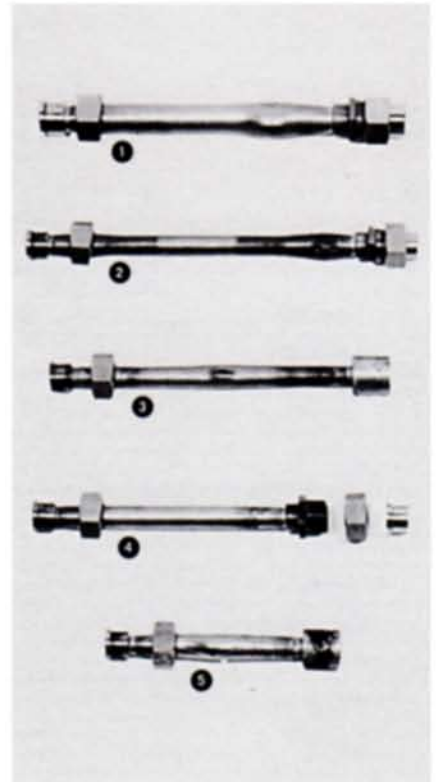


## TUBING COMPATIBILITY

Mark VIII O-SEAL tube fittings can be successfully brazed to almost any type of metal tubing. To prove our point, we conducted a series of burst tests on the brazed connections shown below, using steel or stainless steel fittings.

Brazing was done with a hand held propane torch, using a commercial white flux and a pre-formed sil-braze ring inserted into each fitting socket.

All brazed connections held leak tight—well beyond their 6,000 psi rating. Further details are in Data Report 102.



Tubing Material	OD and Wall	Tube Burst Pressure psi
1 Brass	1/2" x .065"	14,000
2 Copper	3/8" x .065"	9,000
3 Carbon Steel	3/8" x .035"	10,500
4 Stain. Steel	3/8" x .065"	*
5 Stain. Steel	3/8" x .035"	16,000

\* Test was terminated at 28,000 psi.

## ENGINEERING DATA

Mark VIII Tube Dash No.	Tube O.D.	Union Thread	Port Diameter	Maximum Working Pressure
- 2	¼	¾ - 20	.09	6,000 psi
- 4	¼	¾ - 18	.19	6,000 psi
- 6	¾	1½ - 16	.31	6,000 psi
- 8	½	1¾ - 16	.44	6,000 psi
-10	¾	1 - 14	.55	6,000 psi
-12	¾	1¼ - 12	.66	6,000 psi
-16	1	1½ - 12	.88	5,500 psi
-20	1¼	1¾ - 12	1.00	4,000 psi
-24	1½	2¾ - 12	1.25	4,000 psi
-32	2	2¾ - 12	1.63	3,000 psi

## MATERIAL SPECIFICATION

Steel	ASTM	AISI
Forged shapes	A105	-
Extruded shapes	A108	1117
Bar stock threaded connectors	A108	12L14
Bar stock bodies (H849T) (H804T)	A108	1018
Bar stock tailpieces	A108	1018
Bar stock union nut	A108	12L14
Bar stock lock nut	A108	12L14
Bar stock bulkhead nut	A108	12L14

Stainless Steel	ASTM	AISI
Forged shapes	A182	316L
Extruded shapes	A276	316L
Bar stock threaded connectors	A276	316
Bar stock bodies (H849T) (H804T)	A276	316L
Bar stock tailpieces	A276	316L
Bar stock union nut	A276	300 series
Bar stock lock nut	A276	316
Bar stock bulkhead nut	A276	316

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