

SELF FLARE TUBE FITTINGS

FOR USE W/TUBING FROM 1/8 INCH TO 2 INCH O.D.

- Eliminates Oil Leakage
- Gives 4 Points of Seal
- Supports the Tube Inside & Outside
- Reduces Work Hardening from Vibration & Surge
- Cuts Assembly Time & Costs
- Increases the Strength of the Joint
- Allows Repeated Reassembly
- Allows Close Radius Bends
- Standard Hand Tools Usually Do the Job

**WHEN PROPERLY TIGHTENED,
YOU HAVE PREPARED...
...A LEAK-TIGHT
TUBING JOINT:**

1

When the Self Flare fitting nut is properly tightened, the end of the tubing is seated firmly against the inner wall of the fitting body and is captured between the hardened Self Flare wedge and the hardened sleeve.

2

The internal bevel, which is machined into the Self Flare nut, mates with the shoulder of the Self Flare sleeve. This allows an equalization of forces and permits the hardened sleeve to be pushed forward with a minimum of resistance.

3

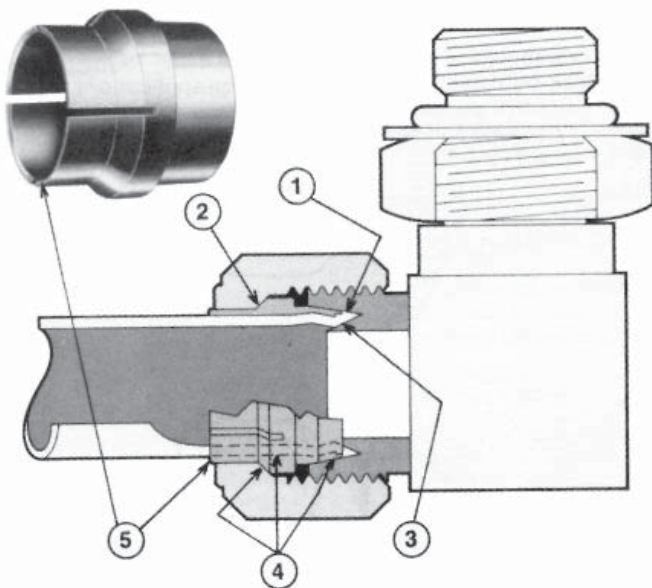
The hardened alloy steel Self Flare wedge is machined with a 25° angle, over which the tubing is pushed and thereby the Self Flare joint is made. Because the Self Flare wedge is inside the fitting body, human error is virtually eliminated because the angle of the flare, the length of the flare and the concentricity of the flare are always correct.

4

When in a properly tightened position, the tempered Self Flare sleeve tends to act like a spring and pushes against both the tubing and the fitting nut. This action keeps the nut under tension and minimizes the tendency of the nut to "walk" loose because of shaking, pulsation or vibration. The tubing is supported externally throughout the entire fitting joint by the Self Flare sleeve which absorbs vibration and chatter and adds strength to the entire connection.

5

The Self Flare sleeve protrudes through the nut. Slots in the Self Flare sleeve create gripping fingers which help prevent tube damage by dampening mechanical movement or vibration of the tubing run.



Dimensions and specifications are subject to change without notice. Not all items are Made-To-Stock, contact us for availability.

06/17

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SELF FLARE TUBE FITTINGS

WHY YOU SHOULD SPECIFY SELF FLARE TUBE FITTINGS

(1) SUPERIOR TUBING JOINTS:

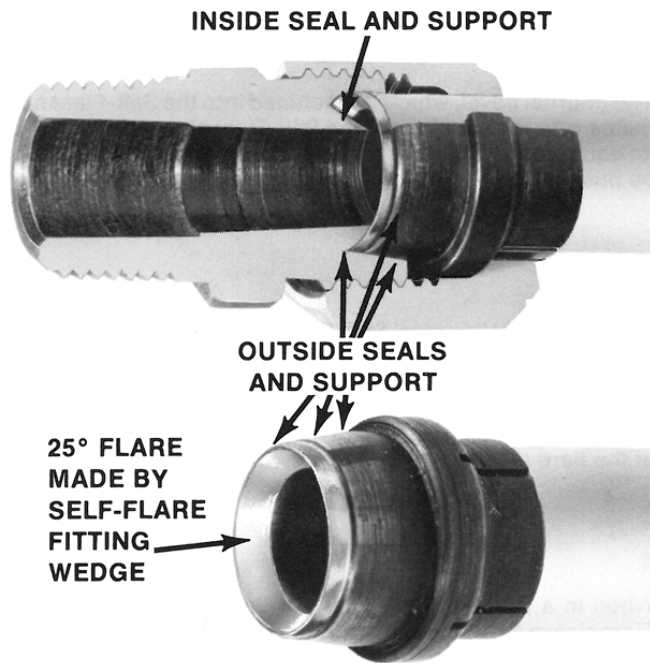
The service you get from tubing systems is only as good as the joints which make up the system.

The photographs below show how Self Flare fittings can provide you with the superior performance you require in your tubing systems.

The need for flaring tools is eliminated. Properly made up joints are achieved in virtually the same manner as an ordinary compression fitting. However, the results are vastly different.

Ordinary flare tube joints provide ONE positive sealing area. Compression or bite-type tube joints provide TWO positive sealing areas.

Self Flare tubing joints provide FOUR positive sealing areas.



(2) OTHER ADVANTAGES OF USING SELF FLARE TUBE FITTINGS:

a. Stronger Joints: Tubing flared only 25° (as with the Self Flare wedge) is stronger than tubing flared 37°. Also, the tubing is reinforced by being captured between the Self Flare wedge and the hardened sleeve.

b. Eliminate Tube Damage: Incurred by pulsation, shock, vibration or surge which causes the tube to chatter in many ordinary compression fittings. Tube damage of this type often is eliminated by the spring-like action of the slotted Self Flare sleeve. When vibration or surge is involved, no other tube fitting performs as well as LDI Industries' Self Flare fittings.

c. Close Radius Bends: The design of the Self Flare fitting allows clearance between the tube and nut for easy movement over close radius bends in the tubing.

d. Self Flare fitting joints have been used successfully on vacuum applications. The Self Flare fittings routinely contain positive pressure to the bursting point of the tubing used. The tubing will burst before the joint will break or leak.

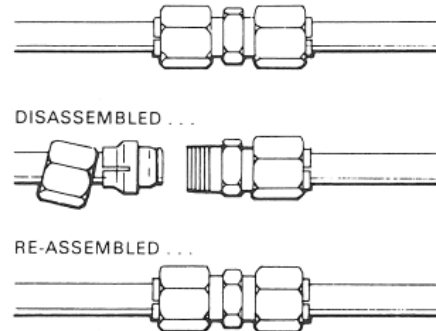
e. Self Flare fittings are being successfully used with tubing with a hardness of 90 Rockwell "B".

(3) REPEATED ASSEMBLY

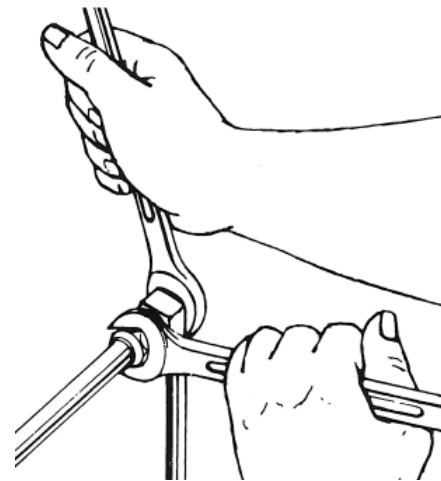
The first time the Self Flare joint is made, a compact 25° angle flare is created on the tube end. The tempered Self Flare sleeve is permanently affixed or "set" on the tube. After the Self Flare joint has been properly made, it may be disassembled and re-assembled with any Self Flare body of the correct size. This procedure may be followed repeatedly.

(4) ONLY ORDINARY TOOLS REQUIRED

With ordinary hand tools you get the best metal-to-metal seal for a leak-tight joint. (For high production applications,

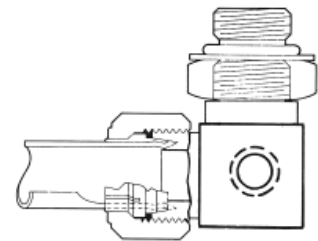


large tubes, or other considerations, bench assembly may be preferred. Vise held and semi-automatic equipment is available. See pages TF2 & TF3



(5) MACHINED FROM BAR STOCK AND EASY TO TAP

Parting lines found on forgings are nonexistent. The bar stock provides flat pads for easy wrenching. Should you desire an auxiliary port, drilling and tapping are easily done on the flat surfaces of the Self Flare fitting bodies.



SELF FLARE TUBE FITTINGS

ASSEMBLY INSTRUCTIONS

A TUBING SELECTION

Select the fully annealed and cleaned tubing you consider best for your particular application. Because the Self Flare fittings provide high performance service against tube damage caused by shock, pulsation, vibration or surge, in many applications the need for heavy-walled tubing is eliminated. In most applications tubing with an approximate hardness of 65 Rockwell "B" is used, but alloy tubing with an approximate hardness of 90 Rockwell "B" is also successfully being used.

B PROPER FITTING

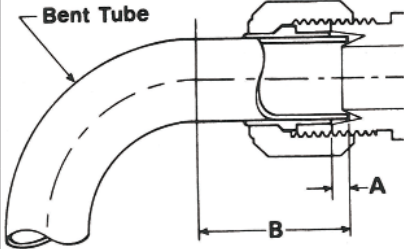
Matching of the correct Self Flare with the tubing you selected is mandatory. Information necessary to match the tube to the fitting is explained completely in Chart 11 on the next page. We recommend using a good grade of fully annealed hydraulic tubing.

C TUBING PREPARATION

Caution: Improper use of tube cutter, excessive feed, will collapse the tube end and prevent it from fitting over the wedge. Also, the tube end will work hardened.

Saw Cut tubing, square within .02 inches will yield excellent joints.

Insertion Lengths for available sizes are shown in Chart 1.

Chart 1			
Straight Tube Length Required For Proper Insertion Into Self Flare® Fitting	Size	A*	B
		Body Entry	Fitting Entry
	2	.12	.69
	3	.12	.69
	4	.12	.75
	5	.19	.81
	6	.19	.88
	8	.19	.91
	10	.22	.94
	12	.22	1.09
	14	.25	1.12
	16	.25	1.16
	20	.25	1.31
	24	.28	1.53
32	.28	1.62	

D DEBURRING

The outer diameter of the tubing must be deburred in order to pass through the Self Flare sleeve. Use of the Self Flare fitting absolutely requires that the tube inner diameter must also be deburred. Figure 1 shows properly cut and deburred tube. Caution: Excessive deburring will weaken the tubing wall. Therefore, while deburring is vital, chamfering, cutting, shaving or otherwise affecting the tube's wall thickness must be avoided.

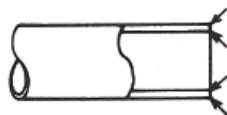


FIGURE 1

E ASSEMBLY

With the slotted end of the sleeve protruding through the nut, assemble the nut, sleeve and body of the fitting into finger-tight position, as shown in Figure 2. Insert the fully deburred tubing into the fitting until it is firmly seated.

***Tubing must be dry and free of any contaminants.**

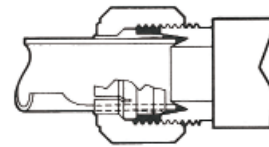


FIGURE 2

F TIGHTENING

Be sure the tubing remains firmly seated while tightening. Wrench tighten 1.50 to 2 turns until a solid feel is obtained. Flare of tube should be .010/.015 greater than original tube O.D. and bite on tube from sleeve should be .070/.100 from tube end.

G REPEATED ASSEMBLY

To remake disassembled Self Flare joints, simply reposition the tubing and retighten the nut until it stops. This procedure may be repeated as required.

The preset machine (page TF2) is required for larger BAX and all BAXX applications.

Pressure ratings and life expectancy of the assembly are reduced by improper application/installation, mechanical/vibrational damage, corrosion, hydraulic shock, etc. and are the responsibility of the user.

SELF FLARE TUBE FITTINGS

TECHNICAL INFORMATION

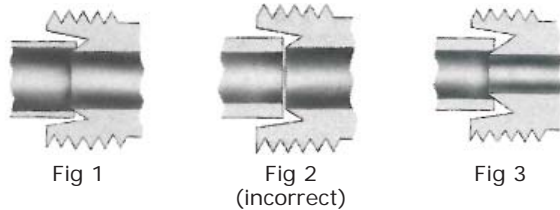
MATCH THE SELECTED TUBING WITH THE CORRECT SELF FLARE FITTING

The geometry of the Self Flare tube fitting requires the tubing to be pushed over the Self Flare wedge inside the fitting body. The dimensions of the wedge must be compatible with the tubing in order to make a satisfactory Self Flare joint.

Illustrated below (Fig 1) is the standard tubing, representative of the type used in most conventional applications. This tube and wedge (BA) combination is correct and will allow the tube to be pushed over the wedge and make a satisfactory Self Flare tube joint.

The next illustration (Fig 2) is an incorrect matching of tubing and Self Flare wedge. Obviously the tube, as illustrated, cannot be pushed over the wedge. It is an incorrect application.

The third illustration (Fig 3) shows the same "heavy walled" tubing being used with a Self Flare wedge that has the correct dimensions and will allow the tube to be pushed over the wedge (BAX) and make a satisfactory Self Flare tube joint.



THE CORRECT SELF FLARE WEDGE FOR YOUR TUBING

Part numbers shown for Self Flare fittings throughout this catalog all have a "BA" prefix. These "BA" fittings are supplied with a "Standard Wedge". The chart below states the tubing wall thickness range which will correctly mate with the "BA" wedge of each fitting size.

Also shown in the chart below is the BAX or "Heavy Wedge". The range of tubing wall thickness which will correctly mate with the "BAX" wedge of each fitting size is listed. To order Self Flare fittings with the heavy wedge, simply use the prefix "BAX".

"BAXX" wedges may be supplied on applications involving tubing with a wall thickness greater than that listed as maximum for the "Heavy Wedge". For such applications, wall thicknesses of tubing must be specified when ordering.

GENERAL:

Sizes: Self Flare fittings are manufactured for use with tubing ranging in size from 1/8 inch O.D. (size 2) through 2 inch O.D. (size 32)

Material Specifications				
Self Flare	Steel		Stainless Steel	
	ASTM	Type	ASTM	Type
Barstock Bodies	A108	12L14	A276	316
Cold Formed Tube Nuts	A576	C1110	A276	316
Barstock Tube Nuts	A108	12L14	A276	316
Tube Sleeves		41L40		17-4-PH

Chart II - Tube Wall Thickness Ranges for Use with Self Flare (inches)

For wall thicknesses not shown, please consult LDI Industries	Size (Tube OD)	-2	-3	-4	-5	-6	-8	-10	-12	-14	-16	-20	-24	-32	
		(1/8)	(3/16)	(1/4)	(5/16)	(3/8)	(1/2)	(5/8)	(3/4)	(7/8)	(1)	(1 1/4)	(1 1/2)	(2)	
STANDARD WEDGE Use prefix BA		Min.	.010	.010	.010	.020	.020	.020	.028	.028	.035	.028	.065	.065	.065
		Max.	.020	.028	.035	.035	.035	.049	.058	.065	.083	.095	.095	.095	.095
HEAVY WEDGE Use prefix BAX		Min.	.016	.022	.022	.028	.035	.042	.049	.058	.065	.083	.083	.095	.095
		Max.	.028	.042	.049	.049	.065	.083	.083	.095	.095	.095	.120	.120	.120

ORDERING BY LDI PART NUMBER

Basic Instructions:

LDI part numbers listed in this section designate completely assembled fittings, including all components such as nuts, sleeves, lock nuts, o-rings and so forth.

The standard material, unless otherwise designated, in which these fittings are supplied is CARBON STEEL.

STAINLESS STEEL (Type 316), Self Flare fittings are ordered by the addition of the suffix SS to listed part numbers. Example: BA1000-6-SS. Current published price lists designate carbon steel products normally carried in factory stock.

OTHER MATERIALS: quoted on request depending on quantity required.

NOTE: Much care has been taken to provide completely accurate information in this catalog. LDI, however, is unable to take responsibility for printing mistakes or omissions. Dimensions shown are for reference only and are subject to modifications without notice. On applications where dimensions are critical, consult the factory before proceeding.

MADE TO ORDER:

For fittings manufactured to your specifications in sizes, configurations or materials not shown in a LDI catalog, send print, drawing, sketch or description including quantity required. Price and delivery information will be quoted upon receipt of your request.

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