

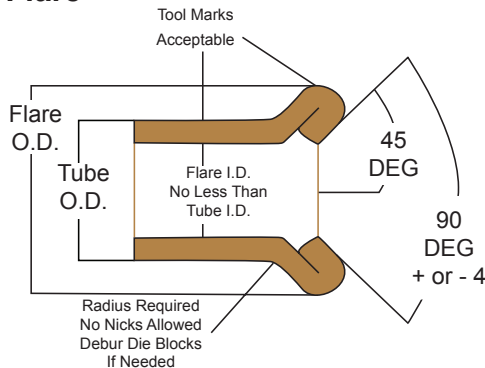
# FEDHILL

HIGH PERFORMANCE ALLOY BRAKE LINES

## Flare Identification Chart

### Double/SAE 45 Degree Flare

Tube O.D.	Flare O.D. + or - .007
3/16"	.272"
1/4"	.352"
5/16"	.418"
3/8"	.493"
1/2"	.632"



Check that the flare is the correct profile for the components involved

Automotive fittings are always a 45 deg. double or DIN flare

Never use a single 45 degree flare with automotive nuts and fittings

A 37 degree single flare is acceptable for use in AN/JIC nuts and fittings with Cunifer seamless tubing

### Common Crossthreads

**Always** check carefully for diameter and thread pitch

The 3/8 x 24 UNF American nut will thread very easily and loosely into a 10mm x 1.0 thread fitting but will hopefully strip the threads when you tighten it down

You can start the 10mm x 1.0 thread nut in a 3/8 x 24 UNF thread fitting but it will immediately begin stripping the threads

3/8 x 24 UNF American nut with SAE/ double flare



10mm x 1.0 Asian nut with SAE/ double Flare



Note the non-threaded lead portion on the nuts below

3/8 x 24 UNF British Girling nut with old style bubble flare



10mm x 1.0 metric nut with DIN/ISO flare

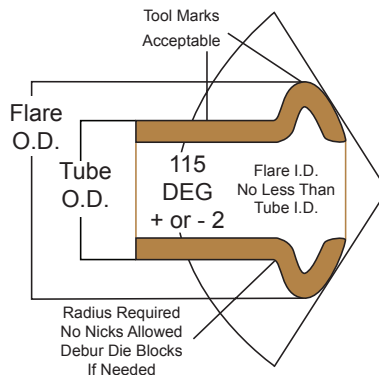


Never interchange a fully threaded nut with a nut with non-threaded lead

Never interchange a nut with a non-threaded lead with a fully threaded nut

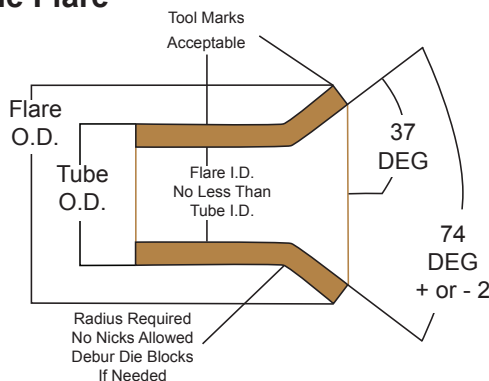
### DIN/ISO Bubble Flare

Tube O.D.	Flare O.D. + or - .18mm
4.75mm	7.1mm
6mm	8.4mm
8mm	10.7mm
10mm	12.7mm
12mm	14.7mm



### AN/JIC 37 Degree Single Flare

Tube O.D.	Flare O.D. + or - .010
3/16"	.270"
1/4"	.350"
5/16"	.415"
	+ or - .015
3/8"	.475"
1/2"	.645





Cunifer™ Brake Line

No other brake line compares for **STRENGTH, RELIABILITY and EASE** of installation. Installed by high performance manufacturers such as Aston Martin, Porsche and Audi, Cunifer™ brake lines maintain full strength for the life of the vehicle.

Its unique properties allow it to be snaked into positions that are impossible to do with steel brake line.

Inquire about our 007 flaring tool. Press perfect flares in seconds, with fast cam and lever action. Precision made punch and smooth bore die blocks grip and form flare without damaging the tubing. Making aircraft quality flares for SAE 45 degree double (inverted) on American or metric size tubing. Din on metric tubing.

## Specifications

**Cunifer™ High Performance Alloy Brake Line's** composition conforms to SAE J1650 standard for seamless copper-nickel 90-10 tubing for use in hydraulic brake pressure lines. Its dimensions, tensile strength, proof pressure, formability and internal cleanliness conform to international brake tubing specifications including SAE J1650, BS 2871, ASTM A254, SMMT C58 and DIN 74234.

## Applications

**Cunifer™** tubing can be used for original equipment, modifications or replacements on all types of brake, fuel line and hydraulic systems. It should be used in appropriate sizes, with appropriate standard fittings and only up to recommended working pressure, as indicated by the chart below.

Stock Sizes	Theoretical Bursting Pressure	Recommended Max. Working Pressure at 5 to 1 safety factor with appropriate fittings
O.D. x Wall Thickness	lb./in (psi)	lb./in (psi)
<b>SAE Range</b>		
3/16" x 0.028"	17,000	3,200
1/4" x 0.028"	12,450	2,300
5/16" x 0.028"	9,450	1,800
3/8" x 0.028"	7,960	1,450
1/2" x 0.028"	5,850	1,050
<b>Metric Range</b>		
4.75mm x 0.7mm	17,000	3,200
6mm x 0.7mm	13,000	2,400
8mm x 0.7mm	9,450	1,750
10mm x 0.7mm	7,400	1,400

To ensure a long and trouble-free service life from Cunifer™ Brake Lines you must fit it properly, using accepted engineering practice. The following simple suggestions are offered as a guide to successful installation.

## Installation Instructions

### Cutting to Length

Determine the length of the brake tube required, using stiff wire, solder, tape measure or the old brake lines as a pattern. Cut to the required length using a tube cutter. Do not distort the tube by over-tightening it in the cutter. File the ends to ensure it's square and remove the burrs from the inside and outside edges. Blow filings out of the tube.

### Selecting the Nut

If not reusing the original nut, be sure new nuts match exactly with diameter, thread pitch, length, non-threaded lead, etc. Install nut before flaring.

### Flaring the Ends

The appropriate single, bubble or double flare can be formed, using a good quality flaring tool such as the 007 flaring tool. Serrated grips should not be used. Ensure that the dies grip the tube securely without deforming the tube section or denting its surface. Check that the flare is of the correct profile for the unit and component involved and that it has been formed symmetrically on the tube axis.

### Installing the Tubing

Bend the nutted and flared tube carefully to shape, so that it will fit easily into position. Bends should be smooth and have as large a radius as possible. For tight bends on the larger sizes, a rolling die bending tool should be used. A minimum bend radius of three times the tube diameter is recommended. Tubing should not be kinked or strained into position. It should emerge cleanly from the nut without bearing against it. Lubricate the threads and the bearing surface of the flare to ensure that it and the nut will seat properly and the nut can be tightened without twisting the tube. Do not over tighten the nut.

### Tightening Torque

As a general rule from finger tight, continue tightening the nut until you feel it draw down tight, then tighten approximately 1/6 turn more. Do not over tighten.

### Installation Support

All brake tubes should be supported at regular intervals along their length, using steel or plastic clips, each attached firmly to the body or chassis of the vehicle. When tube follows axle casings or suspension arms, which can induce vibration of the tube, it is essential to secure tightly. Tie wraps work well to secure to rear axle housing. Clips should be spaced at intervals of approximately 12 to 13 inches but no farther apart than those used for steel tubing.