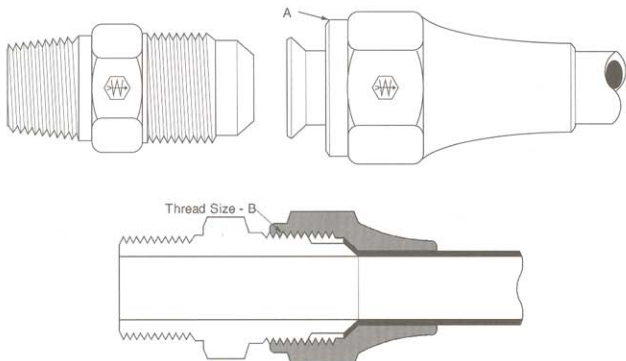


 Refer to safety information regarding proper selection of tubing and tube fittings on page 1.



Tube O.D.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Thread Size-B	5/16-24	3/8-24	7/16-20	1/2-20	5/8-18	11/16-16	3/4-16	7/8-14	1-1/16-14

• Typical Application

LP and natural gas, flammable liquids (special order), instrumentation, refrigeration, power steering, hydraulic and pneumatic systems.

• Pressure

Working pressure up to 2000 psi depending on tube size. Will withstand burst pressure of standard tubing - up to 5000 psi with Bundy-weld (double flared) and 3500 psi with copper tubing, depending on size.

• Vibration

Good resistance - use long nut when greater vibration resistance is required.

• Temperature Range

-65°F to +250°F (-53°C to +121°C) range at maximum operating pressures.

• Material

CA360 Brass.

• Used With

Copper, brass, aluminum and steel hydraulic tubing that can be flared. See page 28-32 for material compatibility.

• Advantages

Low cost and reusability, long or short nut. Good resistance to vibration.

• Conformance

Listed by Underwriter's Laboratories (available on special order) for flammable liquids, refrigeration and gas. Meets specifications and standards of ASA, ASME, SAE and MS (Military Standards).

• How to Order

Order individually by catalog number.

• NOTE

Refer to current price list for availability of cataloged items. Configurations and dimensions subject to change without notice. Quotations of non-stock items available upon request. Additional information can be found in SAE J512.

• Assembly Instructions

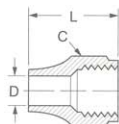
1. Cut tubing to desired length. Make sure all burrs are removed and the ends are cut square.
2. Slide nut on tube. Threaded end "A" of nut must face out.
3. Flare end of tube with a 45° flaring tool. See page 26 for flare data.
 - a. Measure flare diameter.
 - b. Examine flare for excessive thin out.
4. Lubricate threads and assemble to fitting body. Nut should be turned hand tight.
5. Tighten assembly with a wrench until a solid feeling is encountered. From that point, apply a one-sixth turn.

NOTE: Do not over-torque as it may damage the fitting or split the tubing at the flare.

Label Set: **W-8022** (adhesive)
CL-490 (non-adhesive)

Nut

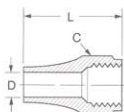
(Ref. SAE No. 010110)



Tube O.D.	Catalog Number	Hex C	D	L
1/8	1110x2	3/8	.133	.50
3/16	1110x3	7/16	.195	.62
1/4	1110x4	9/16	.258	.75
5/16	1110x5	5/8	.320	.88
3/8	1110x6	3/4	.383	1.00
7/16	1110x7*	13/16	.445	1.06
1/2	1110x8	7/8	.508	1.12
5/8	1110x10	1-1/16	.633	1.31
3/4	1110x12*	1-1/4	.758	1.50

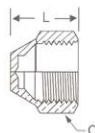
Long Nut

(Ref. SAE No. 010111)



Tube O.D.	Catalog Number	Hex C	D	L
3/16	41x3	7/16	.195	.81
1/4	41x4	9/16	.258	.94
5/16	41x5	5/8	.320	1.12
3/8	41x6	3/4	.383	1.31
1/2	41x8	7/8	.508	1.62
5/8	41x10*	1-1/16	.633	1.88

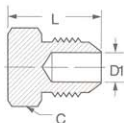
Cap



Tube O.D.	Catalog Number	Hex C	L
1/8	40x2	7/16	.40
3/16	40x3	1/2	.47
1/4	40x4	7/16	.53
5/16	40x5	5/8	.62
3/8	40x6	3/4	.69
1/2	40x8	7/8	.84
5/8	40x10	1-1/16	.97
3/4	40x12	1-5/16	1.09

Plug

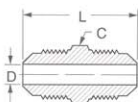
(Ref. SAE No. 010109)



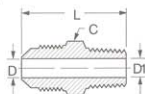
Tube O.D.	Catalog Number	Hex C	L	D1 (opt.)
1/8	39x2	5/16	.47	.079
3/16	39x3	3/8	.58	.126
1/4	39x4	7/16	.69	.189
5/16	39x5	1/2	.79	.220
3/8	39x6	5/8	.88	.282
1/2	39x8	3/4	1.06	.408
5/8	39x10	7/8	1.19	.502
3/4	39x12	1-1/16	1.31	.627

Union

(Ref. SAE No. 010101)

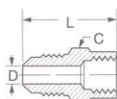


Tube O.D.	Catalog Number	Hex C	D	L
1/8	42x2*	5/16	.078	.92
3/16	42x3	3/8	.125	1.06
1/4	42x4	7/16	.188	1.19
5/16	42x5	1/2	.219	1.34
3/8	42x6	5/8	.281	1.50
1/2	42x8	3/4	.406	1.81
5/8	42x10	7/8	.500	2.12
3/4	42x12*	1-1/16	.625	2.44

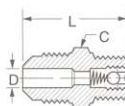
Male Connector
(Ref. SAE No. 010102)


*Counterbore is optional.

Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	D	D1	L
1/8	1/8	48x2	7/16	.078	.219	.90
3/16	1/8	48x3	7/16	.125	.219	1.00
1/4	1/8	48x4	7/16	.188	.188	1.06
1/4	1/4	48x4x4	9/16	.188	.312	1.26
5/16	1/8	48x5	1/2	.219	.219	1.16
5/16	1/4	48x5x4	9/16	.219	.219	1.34
3/8	1/8	48x6x2	5/8	.281	.219	1.25
3/8	1/4	48x6	5/8	.281	.281	1.44
3/8	3/8	48x6x6	11/16	.281	.281	1.44
3/8	1/2	48x6x8	7/8	.281	.562*	1.69
1/2	1/4	48x8x4	3/4	.406	.312	1.62
1/2	3/8	48x8	3/4	.406	.406	1.62
1/2	1/2	48x8x8	7/8	.406	.562	1.81
5/8	3/8	48x10x6	7/8	.500	.406	1.81
5/8	1/2	48x10	7/8	.500	.500	2.00
3/4	1/2	48x12	1-1/16	.625	.562	2.18
3/4	3/4	48x12x12	1-1/16	.625	.625	2.18

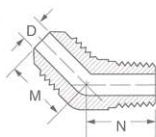
Female Connector
(Ref. SAE No. 010103)


Tube O.D.	Fem. Pipe Thread	Catalog Number	Hex C	D	L
3/16	1/8	46x3*	9/16	.125	.97
1/4	1/8	46x4	9/16	.188	1.03
1/4	1/4	46x4x4	11/16	.188	1.25
5/16	1/8	46x5	9/16	.219	1.06
5/16	1/4	46x5x4*	11/16	.219	1.28
3/8	1/8	46x6x2*	5/8	.281	1.12
3/8	1/4	46x6	11/16	.281	1.31
3/8	3/8	46x6x6	13/16	.281	1.38
3/8	1/2	46x6x8*	1	.281	1.62
1/2	1/4	46x8x4*	3/4	.406	1.41
1/2	3/8	46x8	13/16	.406	1.50
1/2	1/2	46x8x8*	1	.406	1.75
5/8	3/8	46x10x6*	7/8	.500	1.59
5/8	1/2	46x10*	1	.500	1.81
5/8	3/4	46x10x12*	1-1/4	.500	1.90

Male Ball Check Connector


Ball & Spring position may be reversed to change flow/check direction. Min pressure 3 psi.

Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	D	L
1/4	1/8	43x4	7/16	.125	1.06
3/8	1/4	43x6	5/8	.219	1.31

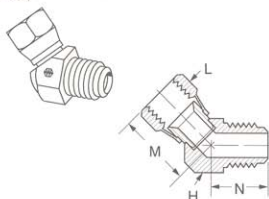
45° Male Elbow
(Ref. SAE No. 010302)


Tube O.D.	Male Pipe Thread	Catalog Number	D	M	N
1/4	1/8	54x4	.188	.67	.64
1/4	1/4	54x4x4	.188	.73	.87
5/16	1/8	54x5	.219	.78	.64
3/8	1/4	54x6	.281	.89	.86
3/8	3/8	54x6x6*	.281	.93	.95
1/2	3/8	54x8	.406	1.06	.95
1/2	1/2	54x8x8	.406	1.12	1.17
5/8	3/8	54x10x6	.500	1.23	.98
5/8	1/2	54x10	.500	1.23	1.17

SAE 45° Flare

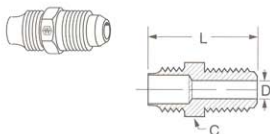
**Brass
Fittings**

45° Elbow - Female 45° Flare Swivel to Male SAE 45° (Steel)



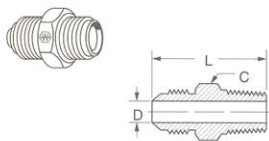
Tube O.D.	Catalog Number	M	N	Hex H	Hex L
3/8	9154x6x6	1.14	1.40	3/4	3/4
1/2	9154x8x8	1.04	1.76	1	7/8
5/8	9154x10x10	1.16	1.92	1-1/4	1

AC Type Adapter



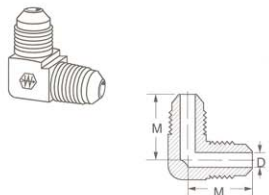
Tube Size	SAE Tube Size	Catalog Number	Hex C	D	L
1/4	1/4	1521	7/16	.188	1.094

Adapter SAE 45° Flare to Inv. Flare

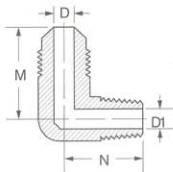


SAE Tube Size	Inverted Male	Catalog Number	Hex C	D	L
1/4	3/16	1518	7/16	.189	1.031
1/4	1/4	1522	7/16	.188	1.031
3/8	5/16	1553	5/8	.234	1.340
3/8	3/8	1563	5/8	.282	1.380
3/8	7/16	1554	11/16	.282	1.400

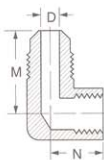
90° Union Elbow (Ref. SAE No. 010201)



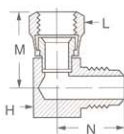
Tube O.D.	Catalog Number	D	M
1/4	55x4*	.188	.86
5/16	55x5*	.219	.91
3/8	55x6*	.281	1.04
1/2	55x8	.406	1.20
5/8	55x10*	.500	1.41
3/4	55x12*	.625	1.64

90° Male Elbow
(Ref. SAE No. 010202)


Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N
1/8	1/8	49x2	.078	.219	.62	.69
3/16	1/8	49x3	.125	.219	.75	.75
1/4	1/8	49x4	.188	.219	.81	.76
1/4	1/4	49x4x4	.188	.312	.88	.94
1/4	3/8	49x4x6	.188	.375	.94	1.03
5/16	1/8	49x5	.219	.219	.91	.78
5/16	1/4	49x5x4	.219	.312	.95	.92
3/8	1/8	49x6x2	.281	.219	1.03	.91
3/8	1/4	49x6	.281	.312	.97	1.06
3/8	3/8	49x6x6	.281	.406	1.06	1.09
3/8	1/2	49x6x8	.281	.438	1.16	1.28
1/2	1/4	49x8x4	.406	.281	1.22	1.19
1/2	3/8	49x8	.406	.406	1.22	1.12
1/2	1/2	49x8x8	.406	.406	1.26	1.36
5/8	3/8	49x10x6	.500	.410	1.41	1.23
5/8	1/2	49x10	.500	.562	1.41	1.38
3/4	1/2	49x12	.625	.531	1.62	1.50
3/4	3/4	49x12x12	.625	.750	1.59	1.62

90° Female Elbow
(Ref. SAE No. 010203)


Tube O.D.	Fem. Pipe Thread	Catalog Number	D	M	N
1/4	1/8	50x4	.188	.88	.47
1/4	1/4	50x4x4	.188	.97	.66
5/16	1/4	50x5x4*	.219	1.03	.66
3/8	1/4	50x6	.281	1.09	.69
3/8	3/8	50x6x6*	.281	1.16	.69
1/2	3/8	50x8*	.406	1.28	.75
1/2	1/2	50x8x8*	.406	1.38	.94
5/8	1/2	50x10	.500	1.50	1.00
5/8	3/4	50x10x12*	-	-	-

90° Elbow - 45° Flare Female Swivel to Male SAE 45°
(Steel)


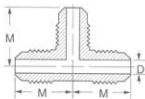
Tube O.D.	Catalog Number	M	N	Hex H	Hex L
3/8	9151x6x6	1.09	1.00	3/4	3/4
1/2	9151x8x8	1.43	1.25	1	7/8
5/8	9151x10x10	1.60	1.44	1-1/4	1

SAE 45° Flare

**Brass
Fittings**

Union Tee

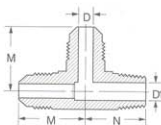
(Ref. SAE No. 010401)



Tube O.D.	Catalog Number	D	M
3/16	44x3*	.125	.73
1/4	44x4	.188	.86
5/16	44x5*	.219	.89
3/8	44x6*	.281	1.04
1/2	44x8	.406	1.20
5/8	44x10*	.500	1.42

Male Run Tee

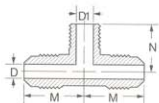
(Ref. SAE No. 010424)



Tube O.D.	Male Pipe Thread	Catalog Number	D	D1 Opt.	M	N
1/4	1/8	51x4	.188	.219	.86	.76
5/16	1/4	51x5x4x5*	.219	.312	.97	.94
3/8	1/4	51x6*	.281	.281	1.04	1.04
3/8	3/8	51x6x6x6*	.281	.406	1.06	1.09
1/2	3/8	51x8*	.406	.406	1.20	1.10
1/2	1/2	51x8x8x8*	.406	.562	1.28	1.38
5/8	1/2	51x10*	.500	.500	1.42	1.38

Male Branch Tee

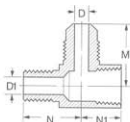
(Ref. SAE No. 010425)



Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N
1/4	1/8	45x4	.188	.219	.81	.78
1/4	1/4	45x4x4x4*	.188	.312	.91	.94
5/16	1/4	45x5x5x4*	.219	.312	.97	.94
3/8	1/4	45x6*	.281	.344	1.00	1.06
3/8	3/8	45x6x6x6*	.281	.406	1.06	1.09
1/2	3/8	45x8*	.406	.406	1.22	1.12
1/2	1/2	45x8x8x8*	.406	.562	1.28	1.38
5/8	1/2	45x10*	.500	.562	1.41	1.38
3/4	1/2	45x12*	.625	.562	1.62	1.50

Adapter Tee

(Female to Male Pipe on Run)



Tube O.D.	M&F Pipe Thread	Catalog Number	D	D1	M	N	N1
1/4	1/8	56x4*	.188	.188	.78	.76	.46