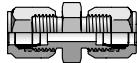
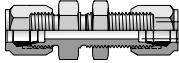
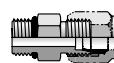
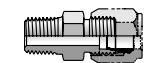
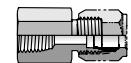
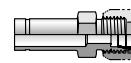
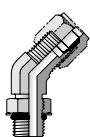
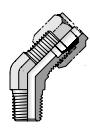
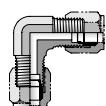
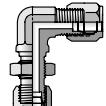
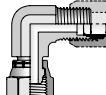
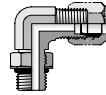
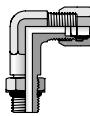
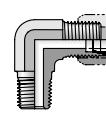
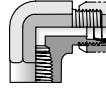
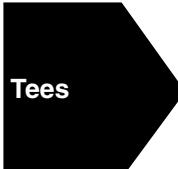
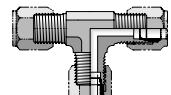
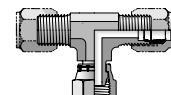
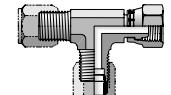
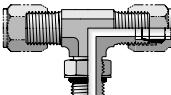
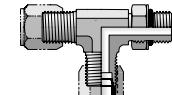
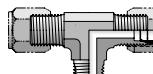
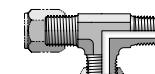
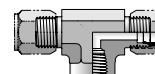
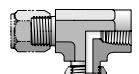
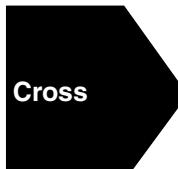
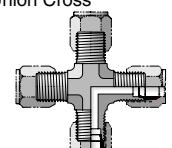




Ferulok® Flareless Bite Type Fittings

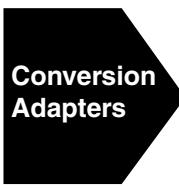
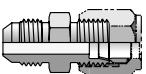
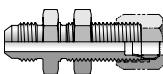
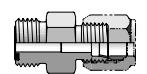


The Fitting Authority

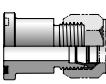
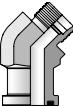
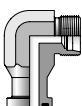
Nuts, Ferrules, Locknuts	BU Nut	TU Ferrules	WLN Bulkhead Locknut	Straights	HBU Union
				Straights	
LHBU Large Hex Union	WBU Bulkhead Union	F5BU SAE-ORB / Flareless	FBU NPTF / Flareless	GBU NPTF / Flareless	TRBU Tube End Reducer
					
D9	D9	D9	D9	D9	D10
45° Elbows	V5BU SAE-ORB / Flareless	VBU NPTF / Flareless	90° Elbows	EBU Union Elbow	WEBU Bulkhead Union Elbow
					
C6BU Flareless Swivel/Flareless	C5BU SAE-ORB / Flareless	CC5BU SAE-ORB / Flareless	CBU NPTF / Flareless	DBU NPTF / Flareless	
					
D11	D11	D12	D12	D12	D12
Tees	JBU Union Tee	S6BU Swivel Branch Tee	R6BU Swivel Run Tee	S5BU SAE-ORB Branch Tee	R5BU SAE-ORB Run Tee
					
D13	D13	D13	D13	D13	D14
SBU NPTF Branch Tee	RBU NPTF Run Tee	OBU NPTF Branch Tee	MBU NPTF Run Tee	Cross	KBU Union Cross
					
D14	D14	D14	D15		D15
Plugs and Caps	PNU Plug	FNU Cap			
					
	D15	D15			

Dimensions and pressures for reference only, subject to change.

Conversion Adapters (Shown in Section L)

	XHBU 37° Flare / Flareless  L4	XHBU2 37° / Flareless Bulkhead  L4	BUHLO ORFS / 24° Flareless  L4
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Flange Adapters (Shown in Section M)

	BUHQ1 Code 61 / Flareless  M10	BUVQ1 Code 61 / Flareless  M28	BUEQ1 Code 61 / Flareless  M29
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O-Rings and Seals (Shown in Section O)

	SAE O-Ring  O3
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Dimensions and pressures for reference only, subject to change.

Introduction

The basic flareless bite type fitting was first developed in Europe in the early 1930s. The Ferulok fitting was later developed by Parker Hannifin and introduced to the U.S. market in the mid-1940s. The Ferulok fitting design utilizes a combination of proven European features, coupled with many innovative product improvements instituted by Parker Hannifin. Today, the Ferulok fitting design and performance capabilities far exceed the strict requirements of SAE J514 and Military Standards (MILF18866). The Ferulok fitting is a flareless fitting that consists of a body, a one-piece precision machined ferrule, and a nut. On assembly, the ferrule "bites" into the outer surface of the tube with sufficient strength to hold the tube against pressure, without significant distortion of the inside tube diameter.

The ferrule also forms a pressure seal against the fitting body. Ferulok fittings have a visible bite, allowing the fitting assembler to visually inspect the bite quality, thus significantly minimizing the risk of improper assembly and related service problems.

Ferulok fittings are especially suitable for use with tube wall thickness ranging from medium to extra heavy. (Refer to Table D2, "Recommended Tube Wall Thickness.") Ferulok's robust construction and proven sealing characteristics have gained its popularity in diverse markets and applications. Ferulok fittings are routinely used in markets such as: machine tools, air compressors, chemical, military, oil refineries, paper making, thermoplastics processing, and many general industrial hydraulic applications.



Fig. D1 – Ferulok Components: Body, Ferrule and Nut

Design and Construction

The three components of the Ferulok fitting are designed and manufactured to produce a high pressure, leak-free joint upon proper assembly.

The Ferulok Body – Ferulok fitting bodies are available in over thirty configurations. The shaped products (i.e. elbows, tees, crosses) are hot forged, then machined to the stringent Ferulok fitting specifications. The forging process used by Parker further improves the strength and metallurgical properties of the fitting material. Straight products are made from cold drawn bar stock. The cold drawing operation ensures consistently tight dimensional tolerances, smooth surfaces and significantly improved strength.

The Ferulok Ferrules – Ferulok fitting ferrules are precision machined with all dimensions and surfaces closely controlled, particularly the critical bite edge, which is monitored on an ongoing basis. Ferrules are then heat-treated in a manner that provides the hardness, strength, and toughness necessary to satisfy the demanding service conditions that exist in industry today.

The Ferulok Nuts – Ferulok fitting nuts are either cold formed to size and shape, or machined from cold drawn material. The cold forming and cold drawing operations provide a more tightly packed grain structure, thus improving the material's strength. In addition, cold forming significantly improves the fatigue or endurance strength of the nuts.

Ferulok Fittings	Steel		Stainless Steel	
	ASTM	Type	ASTM	Type
Cold Formed Bodies	A576	C1010/C1008	—	—
Forged Bodies	A576	1214/1215	A182	316
Bar Stock Bodies	A108	12L14	A479	316
Cold Formed Tube Nuts	A576	C1010	A479	316L
Bar Stock Tube Nuts	A108	12L14	A479	316
Tube Ferrules	A108	12L14	A564	630

Table D1 – Standard Material Specifications for Ferulok Fittings

Note: On request, Ferulok can be furnished in materials other than those shown above.

Finish: Zinc with yellow chromate (being changed to Zinc Chromium 6 Free) is used on all standard steel products.

Dimensions and pressures for reference only, subject to change.

How Ferulok Fittings Work

As mentioned in the introduction, the ferrule in the Ferulok fitting forms pressure tight seals with the tube and the fitting body. These seals are the result of several key characteristics graphically shown in Fig. D2. Below are detailed explanations of each of these key features.

- A. When properly assembled, the wedging action of the Ferulok design will cause the end of the tube to press firmly against the seat in the body. This action will cause the tube to develop a small indentation circumferentially on the bottom of the tube. This indentation serves as a good post assembly inspection criterion.
- B. As the ferrule moves forward, it contacts the tapered seat of the body, which causes the ferrule to cam inward into the tube. The leading edge of the hardened ferrule makes a clean 360° cut into the outside diameter of the tube. This cut is often termed a "bite" and thus "bite type fitting". As the ferrule makes its bite, a small ridge of material is plowed up in front of the ferrule. This intimate contact of the tube ridge with the ferrule's front face and bite edge gives the fitting its ability to retain high pressure without leaking or blowing off. A second seal point is also created between the now bowed ferrule and the fitting body seat.
- C. As the ferrule bites into the tube, the mid section will bow and the inside diameter of the back area firmly grips the tube. This action keeps the stresses, caused by flexural and vibration loading, from being concentrated in the bite area. The "compression grip" at the back end is a key factor for long life in rigorous applications.

When properly assembled to the recommended tube, Ferulok fittings will consistently seal until the applied pressure is great enough to cause tube burst.

Although not as common, Ferulok fittings can be purchased without nuts and sleeves for use as a hose adapter (Fig. D3). Sealing occurs between the 24° cone of the fitting body and the hose swivel as shown.

Assembly and Installation

Please refer to [Section T](#) for the assembly and installation instructions for Ferulok® fittings.

Tube Recommendation

Maximum tube wall thickness is based on the pressure holding capability of Ferulok fittings. Tubes above the recommended range can be used. However, the pressure holding capability of the assembly will be limited to the fitting capacity. The proper Ferulok assembly procedures as outlined on [pages T23 - T26](#) of this catalog are critical to the performance of the fitting. Steel Ferulok works best with seamless or welded and drawn fully annealed tube, SAE J356, SAE J524, SAE J525 (max. hardness, RB72) or equivalent specification steel tube. For stainless steel Ferulok fittings, types 304 and 316 of ASTM A269, ASTM A213 (max. hardness, RB90) or equivalent stainless steel tube is recommended.

Ferulok fittings are also suitable for use with soft metal tube and various types of plastic tubes such as nylon, polyethylene, etc. When used with plastic tube, it is strongly recommended that a tube insert, such as T23UI, be used to prevent tube pull out due to tensile loading.

[Consult the Parker Hannifin Tube Fittings Division](#) for other combinations of tube and tube fitting materials not shown.

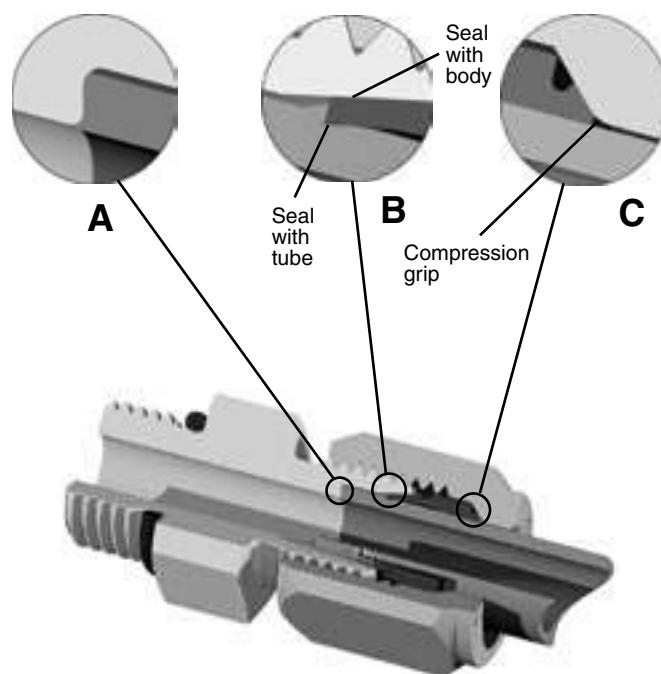


Fig. D2 – Assembled Ferulok Fitting with Tube

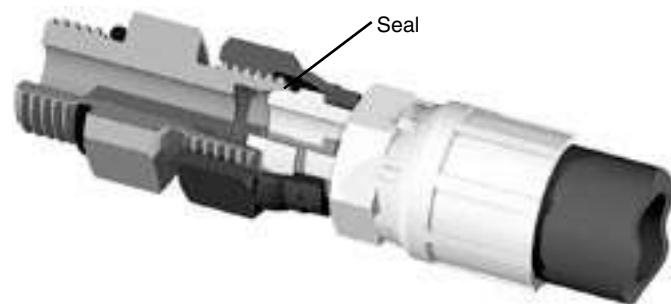


Fig. D3 – Ferulok Fitting with Hose Assembly

Size		Steel Stainless Steel	
O.D. Inches	Dash Number	Minimum Wall Thickness	Maximum Wall Thickness
1/8	-2	0.010	0.035
3/16	-3	0.020	0.049
1/4	-4	0.028	0.065
5/16	-5	0.028	0.065
3/8	-6	0.035	0.095
1/2	-8	0.049	0.120
5/8	-10	0.058	0.120
3/4	-12	0.065	0.120
7/8	-14	0.072	0.120
1	-16	0.083	0.148
1 1/4	-20	0.095	0.188
1 1/2	-24	0.095	0.220
2	-32	0.095	0.220

Table D2 — Recommended Tube Wall Thickness

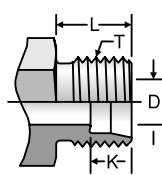
Dimensions and pressures for reference only, subject to change.

Feature	Advantage	Benefit
Visible bite (Style A Ferrule)	Easy to inspect for assemblers	Saves time. Assures proper assembly.
	Quickly verify recommended bite was achieved	Eliminates the risk of catastrophic failure
Distributed stresses	Stresses due to service flexural loading are distributed at several points	Stress concentration at the bite is minimized; bite area of the tube is protected
Ferrule with rear bevel	Firmly grips tube	Dampens the effects of vibration in the joint
Tube wall range	Suitable for use with a wide range of wall thicknesses from medium to extra-heavy	Flexibility in design
		Covers wide range of applications
Remakeability	Joints can be disassembled and reassembled many times	Allows for system maintenance
		Saves money by not replacing fittings
Metal-to-metal seal	Service temperature rating is only limited to the materials chosen	Good choice for either high or relatively low temperature applications
No flaring or flanging required	Ease of assembly. No special equipment required for smaller sizes.	No assembly equipment cost for many users
		Ease of on-the-machine and remote area assembly and maintenance
Protected sealing surface	24° sealing cone is less prone to damage from handling, etc.	Better seal reliability

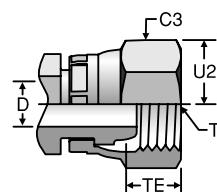
Table D3 — Features, Advantages and Benefits of Using Ferulok Fittings

Dimensions and pressures for reference only, subject to change.

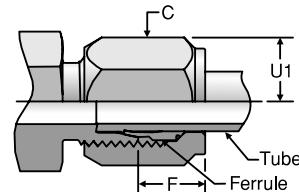
Ferulok Flareless Tube Ends



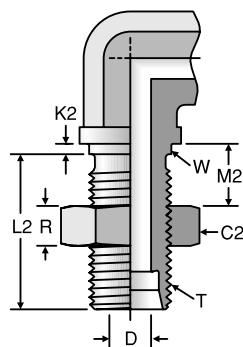
Ferulok Male Stud Tube End



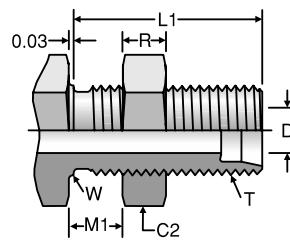
Ferulok Swivel



Ferulok Tube End Assembly



Ferulok Shape Bulkhead



Ferulok Straight Bulkhead

SAE Dash Size	Tube O.D. (in.)	T UN/UNF	C (in.)	C2 (in.)	C3 (in.)	D (in)	Allowance	Male Turn Back	Bulkhead					Max Bulkhead Thickness	Thread Engagement	Across Corners			
									Pilot Length Shapes	Length - Straights	Length - Shapes	Locknut Thickness	Pilot Dia			Straights	Shapes	Tube Nut Hex	Swivel Nut Hex
Thread	Tube Nut Hex	Bulkhead Locknut Hex	Swivel Nut Hex	Max Drill	Tube Nut Assembled	Tube													
2	1/8	5/16-24	3/8	916	7/16	0.093	0.31	0.19	0.375	0.09	1.02	0.83	0.22	0.31	0.28	0.38	0.22	0.22	0.25
3	3/16	3/8-24	7/16	5/8	1/2	0.125	0.34	0.24	0.422	0.09	1.06	0.88	0.22	0.37	0.28	0.38	0.25	0.25	0.29
4	1/4	7/16-20	9/16	11/16	9/16	0.203	0.42	0.24	0.453	0.09	1.13	0.94	0.28	0.44	0.28	0.38	0.29	0.33	0.33
5	5/16	1/2-20	5/8	3/4	5/8	0.234	0.42	0.26	0.453	0.09	1.12	0.94	0.28	0.50	0.28	0.38	0.31	0.36	0.36
6	3/8	9/16-18	11/16	13/16	11/16	0.281	0.47	0.26	0.469	0.09	1.17	0.98	0.27	0.56	0.31	0.41	0.34	0.40	0.40
8	1/2	3/4-16	7/8	1	7/8	0.422	0.50	0.31	0.562	0.13	1.31	1.12	0.31	0.75	0.31	0.41	0.32	0.51	0.51
10	5/8	7/8-14	1	1 1/8	1	0.500	0.53	0.36	0.625	0.13	1.45	1.27	0.36	0.88	0.38	0.44	0.37	0.58	0.59
12	3/4	1 1/16-12	1 1/4	1 3/8	1 1/4	0.656	0.56	0.36	0.688	0.13	1.56	1.38	0.41	1.06	0.38	0.44	0.42	0.72	0.73
14	7/8	1 3/16-12	1 3/8	1 1/2	1 3/8	0.719	0.53	0.36	0.688	0.13	1.56	1.38	0.41	1.19	0.38	0.44	0.34	0.79	0.79
16	1	1 5/16-12	1 1/2	1 5/8	1 1/2	0.875	0.66	0.42	0.688	0.13	1.56	1.38	0.41	1.31	0.38	0.44	0.32	0.87	0.88
20	1 1/4	1 5/8-12	2	1 7/8	2	1.093	0.72	0.42	0.688	0.13	1.56	1.38	0.41	1.62	0.38	0.44	0.33	1.15	1.17
24	1 1/2	1 7/8-12	2 1/4	2 1/8	2 1/4	1.344	0.72	0.49	0.688	0.13	1.56	1.38	0.41	1.87	0.38	0.44	0.34	1.30	1.29
32	2	2 1/2-12	2 7/8	2 3/4	2 7/8	1.813	0.84	0.49	0.688	0.13	1.77	1.58	0.41	2.50	0.56	0.63	0.34	1.66	1.64

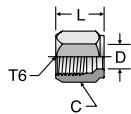
1) Recommended clearance hole +0.015 over W dia.

Dimensions and pressures for reference only, subject to change.

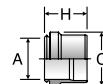
BU

Nut
Flareless

SAE 080110

**TU**

Ferrule
Flareless



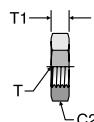
SAE 08115A

TUBE FITTING PART #	TUBE O.D. (in.)	T6 UN/UNF-2B	C HEX (in.)	D DRILL (in.)	L (in.)	STANDARD MATERIAL FROM STOCK	
						-S	-SS
2 BU	1/8	5/16-24	3/8	0.130	0.53	•	•
3 BU	3/16	3/8-24	7/16	0.193	0.61	•	•
4 BU	1/4	7/16-20	9/16	0.255	0.70	•	•
5 BU	5/16	1/2-20	5/8	0.318	0.72	•	•
6 BU	3/8	9/16-18	11/16	0.380	0.75	•	•
8 BU	1/2	3/4-16	7/8	0.505	0.84	•	•
10 BU	5/8	7/8-14	1	0.631	0.92	•	•
12 BU	3/4	1 1/16-12	1 1/4	0.756	0.97	•	•
14 BU	7/8	1 3/16-12	1 3/8	0.881	1.00	•	•
16 BU	1	1 5/16-12	1 1/2	1.006	1.05	•	•
20 BU	1 1/4	1 5/8-12	2	1.260	1.05	•	•
24 BU	1 1/2	1 7/8-12	2 1/4	1.510	1.03	•	•
32 BU	2	2 1/2-12	2 7/8	2.014	1.12	•	•

WLN

Bulkhead Locknut
Flareless

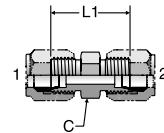
SAE 080118 and 070118



TUBE FITTING PART #	TUBE O.D. (in.)	T UN/UNF-2B	C2 HEX (in.)	L6 (in.)	STANDARD MATERIAL FROM STOCK	
					-S	-SS
3 WLN	3/16	3/8-24	5/8	0.22	•	•
4 WLN	1/4	7/16-20	11/16	0.28	•	•
5 WLN	5/16	1/2-20	3/4	0.28	•	•
6 WLN	3/8	9/16-18	13/16	0.27	•	•
8 WLN	1/2	3/4-16	1	0.31	•	•
10 WLN	5/8	7/8-14	1 1/8	0.36	•	•
12 WLN	3/4	1 1/16-12	1 3/8	0.41	•	•
14 WLN	7/8	1 3/16-12	1 1/2	0.41	•	•
16 WLN	1	1 5/16-12	1 5/8	0.41	•	•
20 WLN	1 1/4	1 5/8-12	1 7/8	0.41	•	•
24 WLN	1 1/2	1 7/8-12	2 1/8	0.41	•	•
32 WLN	2	2 1/2-12	2 3/4	0.41	•	•

HBU

Union
Flareless / Flareless



SAE 080101

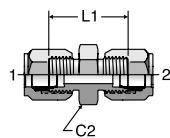
TUBE FITTING PART #	END SIZE		C HEX (in.)	L1 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)			-S	-SS
2 HBU	1/8	1/8	7/16	1.02	6.0	6.0
3 HBU	3/16	3/16	7/16	1.11	6.0	6.0
4 HBU	1/4	1/4	1/2	1.19	6.0	6.0
5 HBU	5/16	5/16	9/16	1.19	6.0	6.0
6 HBU	3/8	3/8	5/8	1.24	6.0	6.0
6-4 HBU	3/8	1/4	5/8	1.22	6.0	6.0
8 HBU	1/2	1/2	13/16	1.42	5.0	5.0
10 HBU	5/8	5/8	15/16	1.61	5.0	5.0
12 HBU	3/4	3/4	1 1/8	1.81	4.5	4.5
14 HBU	7/8	7/8	1 1/4	1.81	4.0	4.0
16 HBU	1	1	1 3/8	1.81	4.0	4.0
20 HBU	1 1/4	1 1/4	1 11/16	1.89	3.0	3.0
24 HBU	1 1/2	1 1/2	2	1.96	2.0	2.0
32 HBU	2	2	2 5/8	2.11	1.5	1.5

Dimensions and pressures for reference only, subject to change.

LHBU

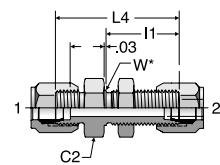
Large Hex Union
Flareless / Flareless

SAE 080119

**WBU**

Bulkhead Union
Flareless / Flareless

SAE 080601



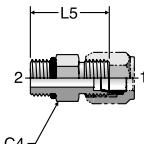
* W – Bulkhead pilot dia.
recommended clearance
hole is +.015 over W dia.

TUBE FITTING PART #	END SIZE		C2 HEX (in.)	L1 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)			-S	-SS
4 LHBU	1/4	1/4	11/16	1.19	6.0	6.0
6 LHBU	3/8	3/8	13/16	1.23	6.0	6.0
6-4 LHBU	3/8	1/4	13/16	1.22	6.0	
8 LHBU	1/2	1/2	1	1.42	5.0	5.0
8-6 LHBU	1/2	1/2	1	1.33	5.0	
10 LHBU	5/8	5/8	1 1/8	1.61	5.0	
12 LHBU	3/4	3/4	1 3/8	1.81	4.5	4.5
16 LHBU	1	1	1 5/8	1.81	4.0	

F5BU

Straight Thread Connector
Flareless / SAE-ORB

SAE 080120

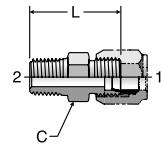


TUBE FITTING PART #	END SIZE		C4 HEX (in.)	L5 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A			-S	-SS
2 F5BU	1/8	5/16-24	7/16	1.00	5.0	
3 F5BU	3/16	3/8-24	1/2	1.05	5.0	5.0
4 F5BU	1/4	7/16-20	9/16	1.13	5.0	5.0
4-5 F5BU	1/4	1/2-20	5/8	1.13	5.0	5.0
4-6 F5BU	1/4	9/16-18	11/16	1.20	5.0	5.0
4-10 F5BU	1/4	7/8-14	1	1.40	5.0	
5 F5BU	5/16	1/2-20	5/8	1.13	5.0	
6 F5BU	3/8	9/16-18	11/16	1.22	5.0	5.0
6-4 F5BU	3/8	7/16-20	5/8	1.19	5.0	
6-8 F5BU	3/8	3/4-16	7/8	1.28	5.0	5.0
8 F5BU	1/2	3/4-16	7/8	1.38	5.0	5.0
8-6 F5BU	1/2	9/16-18	13/16	1.28	5.0	
8-10 F5BU	1/2	7/8-14	1	1.50	5.0	5.0
8-12 F5BU	1/2	1 1/16-12	1 1/4	1.67	4.5	4.5
10 F5BU	5/8	7/8-14	1	1.56	5.0	5.0
10-12 F5BU	5/8	1 1/16-12	1 1/4	1.73	5.0	
12 F5BU	3/4	1 1/16-12	1 1/4	1.78	4.5	4.5
12-8 F5BU	3/4	3/4-16	1 1/8	1.75	4.5	4.5
12-16 F5BU	3/4	1 5/16-12	1 1/2	1.81	4.0	
16 F5BU	1	1 5/16-12	1 1/2	1.81	4.0	4.0
16-12 F5BU	1	1 1/16-12	1 3/8	1.81	4.0	
16-20 F5BU	1	1 5/8-12	1 7/8	1.91	3.0	
20 F5BU	1 1/4	1 5/8-12	1 7/8	1.91	3.0	3.0
24 F5BU	1 1/2	1 7/8-12	2 1/8	1.97	3.0	3.0
32 F5BU	2	2 1/2-12	2 3/4	2.13	2.0	

FBU

Male Connector
Flareless / NPTF

SAE 080102

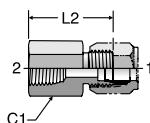


TUBE FITTING PART #	END SIZE		C HEX (in.)	L (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF			-S	-SS
2 FBU	1/8	1/8-27	7/16	1.04	5.0	5.0
2-4 FBU	1/8	1/4-18	9/16	1.24	5.0	5.0
3 FBU	3/16	1/8-27	7/16	1.09	5.0	5.0
4 FBU	1/4	1/8-27	1/2	1.12	5.0	5.0
4-4 FBU	1/4	1/4-18	9/16	1.32	5.0	5.0
4-6 FBU	1/4	3/8-18	3/4	1.33	5.0	5.0
4-8 FBU	1/4	1/2-14	7/8	1.58	5.0	5.0
5 FBU	5/16	1/8-27	9/16	1.12	5.0	5.0
5-4 FBU	5/16	1/4-18	9/16	1.32	5.0	5.0
6 FBU	3/8	1/4-18	5/8	1.34	5.0	5.0
6-2 FBU	3/8	1/8-27	5/8	1.15	5.0	5.0
6-6 FBU	3/8	3/8-18	3/4	1.35	5.0	5.0
6-8 FBU	3/8	1/2-14	15/16	1.60	5.0	5.0
8 FBU	1/2	3/8-18	13/16	1.44	5.0	5.0
8-4 FBU	1/2	1/4-18	13/16	1.44	5.0	5.0
8-8 FBU	1/2	1/2-14	7/8	1.69	5.0	5.0
8-12 FBU	1/2	3/4-14	1 1/8	1.76	4.0	4.0
10 FBU	5/8	1/2-14	15/16	1.75	4.5	4.5
10-6 FBU	5/8	3/8-18	15/16	1.56	4.5	4.5
10-12 FBU	5/8	3/4-14	1 1/8	1.82	4.0	
12 FBU	3/4	3/4-14	1 1/8	1.88	4.0	4.0
12-8 FBU	3/4	1/2-14	1 1/8	1.88	4.0	4.0
14 FBU	7/8	3/4-14	1 1/4	1.88	3.0	
16 FBU	1	1-11 1/2	1 3/8	2.07	3.0	3.0
16-12 FBU	1	3/4-14	1 3/8	1.88	3.0	3.0
20 FBU	1 1/4	1 1/4-11 1/2	1 11/16	2.18	2.5	2.5
24 FBU	1 1/2	1 1/2-11 1/2	2	2.28	2.5	2.5
32 FBU	2	2-11 1/2	2 3/4	2.46	2.0	2.0

Dimensions and pressures for reference only, subject to change.

GBU

Female Connector
Flareless / NPTF

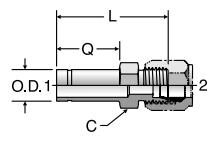


SAE 080103

TUBE FITTING PART #	END SIZE		C1 HEX (in.)	L2 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF			-S	-SS
2 GBU	1/8	1/8-27	9/16	1.05	5.0	
4 GBU	1/4	1/8-27	9/16	1.09	5.0	5.0
4-4 GBU	1/4	1/4-18	3/4	1.29	5.0	5.0
5 GBU	5/16	1/8-27	9/16	1.08	5.0	
6 GBU	3/8	1/4-18	3/4	1.31	5.0	5.0
6-6 GBU	3/8	3/8-18	7/8	1.34	5.0	5.0
6-8 GBU	3/8	1/2-14	1 1/8	1.59	5.0	5.0
8 GBU	1/2	3/8-18	7/8	1.47	5.0	5.0
8-4 GBU	1/2	1/4-18	7/8	1.46	5.0	5.0
8-8 GBU	1/2	1/2-14	1 1/8	1.69	5.0	5.0
10 GBU	5/8	1/2-14	1 1/8	1.77	4.5	4.5
12 GBU	3/4	3/4-14	1 3/8	1.89	4.0	4.0
14 GBU	7/8	3/4-14	1 3/8	1.86	3.0	
16 GBU	1	1-11 1/2	1 5/8	2.13	3.0	3.0
20 GBU	1 1/4	1 1/4-	2	2.22	2.5	
24 GBU	1 1/2	1 1/2-	2 3/8	2.23	2.5	

TRBU

Tube End Reducer
Tube / Flareless



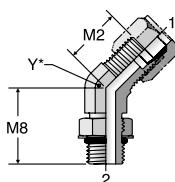
SAE 080123

TUBE FITTING PART #	END SIZE		C HEX (in.)	L (in.)	Q (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 in.)				-S	-SS
6-4 TRBU	3/8	1/4	1/2	1.61	0.88	6.0	6.0
8-4 TRBU	1/2	1/4	9/16	1.73	1.00	5.0	5.0
8-6 TRBU	1/2	3/8	5/8	1.77	1.00	5.0	5.0
10-6 TRBU	5/8	3/8	11/16	1.86	1.09	5.0	
10-8 TRBU	5/8	1/2	13/16	1.95	1.09	4.5	4.5
12-6 TRBU	3/4	3/8	13/16	1.94	1.16	4.5	4.5
12-8 TRBU	3/4	1/2	13/16	2.03	1.16	4.5	4.5
12-10 TRBU	3/4	5/8	15/16	2.16	1.16	4.5	
14-10 TRBU	7/8	5/8	15/16	2.14	1.16	4.0	
16-8 TRBU	1	1/2	1 1/16	2.05	1.13	4.0	4.0
16-10 TRBU	1	5/8	1 1/16	2.11	1.13	4.0	
16-12 TRBU	1	3/4	1 1/8	2.25	1.13	4.0	4.0
20-16 TRBU	1 1/4	1	1 3/8	2.28	1.16	3.0	
24-12 TRBU	1 1/2	3/4	1 5/8	2.45	1.25	2.0	
24-16 TRBU	1 1/2	1	1 5/8	2.45	1.25	2.0	
24-20 TRBU	1 1/2	1 1/4	1 7/8	2.45	1.25	2.0	

V5BU

45° Straight Thread Elbow
Flareless / SAE-ORB

SAE 080320

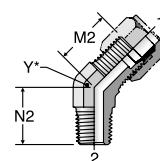


* Y – Across wrench flats

VBU

45° Male Elbow
Flareless / NPTF

SAE 080302



* Y – Across wrench flats

TUBE FITTING PART #	END SIZE		M2 (in.)	M8 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A				-S	-SS
4 V5BU	1/4	7/16-20	0.70	1.05	7/16	5.0	5.0
6 V5BU	3/8	9/16-18	0.83	1.14	9/16	5.0	5.0
8 V5BU	1/2	3/4-16	0.98	1.30	3/4	5.0	
12 V5BU	3/4	1 1/16-12	1.27	1.73	1 1/16	4.0	
16 V5BU	1	1 5/16-12	1.36	1.86	1 5/16	3.0	

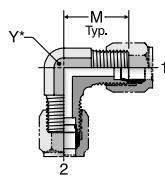
TUBE FITTING PART #	END SIZE		M2 (in.)	N2 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF				-S	-SS
3 VBU	3/16	1/8-27	0.64	0.53	7/16	5.0	
4 VBU	1/4	1/8-27	0.70	0.64	7/16	5.0	5.0
4-4 VBU	1/4	1/4-18	0.81	0.86	9/16	5.0	
5 VBU	5/16	1/8-27	0.75	0.66	9/16	5.0	
6 VBU	3/8	1/4-18	0.83	0.86	9/16	5.0	5.0
8 VBU	1/2	3/8-18	0.98	0.95	3/4	5.0	5.0
10 VBU	5/8	1/2-14	1.08	1.17	7/8	4.5	4.5
12 VBU	3/4	3/4-14	1.27	1.20	1 1/16	4.0	
14 VBU	7/8	3/4-14	1.34	1.30	1 5/16	3.0	
16 VBU	1	1-11 1/2	1.36	1.48	1 5/16	3.0	
20 VBU	1 1/4	1 1/4-11 1/2	1.45	1.67	1 5/8	2.5	

Dimensions and pressures for reference only, subject to change.

EBU

Union Elbow
Flareless / Flareless

SAE 080201

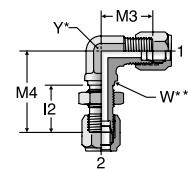


* Y – Across wrench flats

TUBE FITTING PART #	END SIZE		M (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)			-S	-SS
2 EBU	1/8	1/8	0.78	7/16	5.0	5.0
4 EBU	1/4	1/4	0.89	7/16	5.0	5.0
5 EBU	5/16	5/16	0.95	9/16	5.0	
6 EBU	3/8	3/8	1.05	9/16	5.0	5.0
8 EBU	1/2	1/2	1.25	3/4	5.0	5.0
10 EBU	5/8	5/8	1.42	7/8	4.5	4.5
12 EBU	3/4	3/4	1.58	1 1/16	4.0	4.0
14 EBU	7/8	7/8	1.66	1 5/16	3.0	
16 EBU	1	1	1.73	1 5/16	3.0	3.0
20 EBU	1 1/4	1 1/4	1.89	1 5/8	2.5	
24 EBU	1 1/2	1 1/2	2.02	1 7/8	2.0	2.0
32 EBU	2	2	2.45	2 1/2	1.5	

WEBU

Bulkhead Union Elbow
Flareless / Flareless Bulkhead



* Y – Across wrench flats.

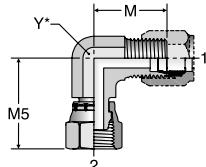
W** – Bulkhead pilot dia. recommended clearance hole is +.015 over W dia.

TUBE FITTING PART #	END SIZE		I2 (in.)	M3 (in.)	M4 (in.)	W DIA (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)						-S	-SS
6 WEBU	3/8	3/8	0.98	1.08	1.7	0.56	9/16	0.26	5.0
8 WEBU	1/2	1/2	1.12	1.33	1.97	0.75	3/4	0.30	5.0

C6BU

Swivel Nut Elbow
Flareless / Flareless Swivel

SAE 080221



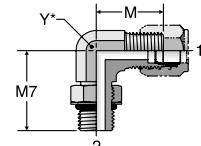
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE		M (in.)	M5 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)				-S	-SS
4 C6BU	1/4	1/4	0.89	1.00	7/16	5.0	5.0
6 C6BU	3/8	3/8	1.05	1.25	9/16	5.0	5.0
8 C6BU	1/2	1/2	1.25	1.38	3/4	5.0	5.0
10 C6BU	5/8	5/8	1.42	1.62	7/8	4.5	
12 C6BU	3/4	3/4	1.58	1.75	1 1/16	4.0	4.0
16 C6BU	1	1	1.73	2.00	1 5/16	3.0	
20 C6BU	1 1/4	1 1/4	1.89	2.31	1 5/8	2.5	

C5BU

Straight Thread Elbow
Flareless / SAE-ORB

SAE 080220



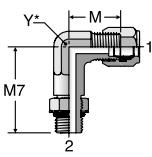
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE		M (in.)	M7 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A				-S	-SS
3 C5BU	3/16	3/8-24	0.84	0.94	7/16	5.0	5.0
4 C5BU	1/4	7/16-20	0.89	1.03	7/16	5.0	5.0
5 C5BU	5/16	1/2-20	0.95	1.13	9/16	5.0	5.0
6 C5BU	3/8	9/16-18	1.05	1.25	9/16	5.0	5.0
6-8 C5BU	3/8	3/4-16	1.14	1.45	3/4	5.0	
8 C5BU	1/2	3/4-16	1.25	1.45	3/4	5.0	5.0
8-6 C5BU	1/2	9/16-18	1.27	1.33	3/4	5.0	
8-10 C5BU	1/2	7/8-14	1.34	1.70	7/8	4.5	
8-12 C5BU	1/2	1 1/16-12	1.43	1.94	1 1/16	4.0	
10 C5BU	5/8	7/8-14	1.42	1.70	7/8	4.5	4.5
12 C5BU	3/4	1 1/16-12	1.58	1.94	1 1/16	4.0	4.0
12-8 C5BU	3/4	3/4-16	1.58	1.63	1 1/16	4.0	
12-10 C5BU	3/4	7/8-14	1.58	1.78	1 1/16	4.0	
12-16 C5BU	3/4	1 5/16-12	1.73	2.05	1 5/16		
16 C5BU	1	1 5/16-12	1.73	2.05	1 5/16	3.0	3.0
16-12 C5BU	1	1 1/16-12	1.73	2.05	1 5/16	3.0	
20 C5BU	1 1/4	1 5/8-12	1.89	2.25	1 5/8	2.5	
24 C5BU	1 1/2	1 7/8-12	2.02	2.39	1 7/8	2.0	2.0
32 C5BU	2	2 1/2-12	2.45	2.89	2 1/2	1.5	

Dimensions and pressures for reference only, subject to change.

CC5BU

Straight Thread Elbow
Flareless / SAE-ORB Long

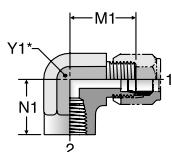


* Y – Across wrench flats

TUBE FITTING PART #	END SIZE		M	M7	Y	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A				-S	-SS
4 CC5BU	1/4	7/16-20	0.89	1.43	7/16	5.0	
6 CC5BU	3/8	9/16-18	1.05	1.72	9/16	5.0	
8 CC5BU	1/2	3/4-16	1.25	2.02	3/4	5.0	
10 CC5BU	5/8	7/8-14	1.42	2.39	7/8	4.5	
12 CC5BU	3/4	1 1/16-12	1.58	2.69	1 1/16	4.0	
16 CC5BU	1	1 5/16-12	1.73	3.13	1 5/16	3.0	

DBU

Female Elbow
Flareless / NPTF



* Y1 – Across wrench flats

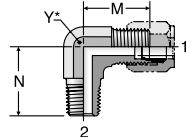
SAE 080203

TUBE FITTING PART #	END SIZE		M1	N1	Y1	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF				-S	-SS
4 DBU	1/4	1/8-27	0.89	0.66	9/16	5.0	5.0
4-4 DBU	1/4	1/4-18	1.03	0.88	3/4	5.0	5.0
5 DBU	5/16	1/8-27	0.95	0.66	9/16	5.0	
6 DBU	3/8	1/4-18	1.05	0.88	3/4	5.0	5.0
6-6 DBU	3/8	3/8-18	1.13	1.02	7/8	4.5	4.5
8 DBU	1/2	3/8-18	1.23	1.02	7/8	3.0	3.0
8-4 DBU	1/2	1/4-18	1.23	0.88	3/4	5.0	5.0
8-8 DBU	1/2	1/2-14	1.34	1.23	1 1/16	3.0	3.0
10 DBU	5/8	1/2-14	1.42	1.23	1 1/16	3.0	3.0
12 DBU	3/4	3/4-14	1.58	1.36	1 5/16	3.0	3.0
14 DBU	7/8	3/4-14	1.62	1.42	1 5/16	3.0	
16 DBU	1	1-11 1/2	1.73	1.63	1 5/8	1.7	
20 DBU	1 1/4	1 1/4-11 1/2	2.08	1.70	1 7/8	1.5	
24 DBU	1 1/2	1 1/2-11 1/2	2.58	2.08	2 1/2	1.0	

CBU

Male Elbow
Flareless / NPTF

SAE 080202



* Y – Across wrench flats

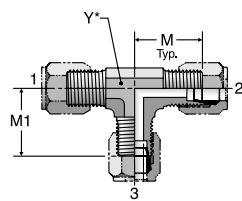
TUBE FITTING PART #	END SIZE		M	N	Y	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF				-S	-SS
2 CBU	1/8	1/8-27	0.77	0.72	7/16	5.0	5.0
3 CBU	3/16	1/8-27	0.83	0.72	7/16	5.0	5.0
4 CBU	1/4	1/8-27	0.89	0.78	7/16	5.0	5.0
4-4 CBU	1/4	1/4-18	1.03	1.09	9/16	5.0	5.0
4-6 CBU	1/4	3/8-18	1.12	1.22	3/4	5.0	5.0
5 CBU	5/16	1/8-27	0.95	0.81	9/16	5.0	5.0
5-4 CBU	5/16	1/4-18	1.03	1.09	9/16	5.0	5.0
6 CBU	3/8	1/4-18	1.05	1.09	9/16	5.0	5.0
6-2 CBU	3/8	1/8-27	1.05	0.90	9/16	5.0	5.0
6-6 CBU	3/8	3/8-18	1.14	1.22	3/4	5.0	5.0
6-8 CBU	3/8	1/2-14	1.24	1.47	7/8	5.0	5.0
8 CBU	1/2	3/8-18	1.25	1.22	3/4	5.0	5.0
8-4 CBU	1/2	1/4-18	1.25	1.16	3/4	5.0	5.0
8-8 CBU	1/2	1/2-14	1.35	1.47	7/8	5.0	5.0
8-12 CBU	1/2	3/4-14	1.43	1.59	1 1/16	4.0	
10 CBU	5/8	1/2-14	1.42	1.47	7/8	4.5	4.5
10-6 CBU	5/8	3/8-18	1.42	1.28	7/8	4.5	
12 CBU	3/4	3/4-14	1.58	1.59	1 1/16	4.0	4.0
12-8 CBU	3/4	1/2-14	1.58	1.59	1 1/16	4.0	4.0
14 CBU	7/8	3/4-14	1.66	1.69	1 5/16	3.0	
16 CBU	1	1-11 1/2	1.73	1.97	1 5/16	3.0	3.0
16-12 CBU	1	3/4-14	1.73	1.78	1 5/16	3.0	3.0
20 CBU	1 1/4	1 1/4-11 1/2	1.89	2.38	1 5/8	2.5	2.5
24 CBU	1 1/2	1 1/2-11 1/2	2.02	2.64	1 7/8	2.5	2.5
32 CBU	2	2-11 1/2	2.45	3.00	2 1/2	2.0	

Dimensions and pressures for reference only, subject to change.

JBU

Union Tee
Flareless (all three ends)

SAE 080401



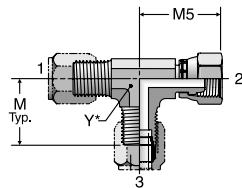
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	M1 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 (in.)				-S	-SS
2 JBU	1/8	1/8	1/8	0.77	0.77	7/16	5.0	
3 JBU	3/16	3/16	3/16	0.84	0.84	7/16	5.0	
4 JBU	1/4	1/4	1/4	0.89	0.89	7/16	5.0	5.0
5 JBU	5/16	5/16	5/16	0.95	0.95	9/16	5.0	5.0
6 JBU	3/8	3/8	3/8	1.05	1.05	9/16	5.0	5.0
8 JBU	1/2	1/2	1/2	1.25	1.25	3/4	5.0	5.0
8-8-6 JBU	1/2	1/2	3/8	1.25	1.14	3/4	5.0	
10 JBU	5/8	5/8	5/8	1.42	1.42	7/8	4.5	4.5
12 JBU	3/4	3/4	3/4	1.58	1.58	1 1/16	4.0	4.0
14 JBU	7/8	7/8	7/8	1.66	1.66	1 5/16	3.0	
16 JBU	1	1	1	1.73	1.73	1 5/16	3.0	3.0
20 JBU	1 1/4	1 1/4	1 1/4	1.89	1.89	1 5/8	2.5	2.5
24 JBU	1 1/2	1 1/2	1 1/2	2.02	2.02	1 7/8	2.0	2.0

R6BU

Swivel Nut Run Tee
Flareless / Flareless
Swivel

SAE 080432



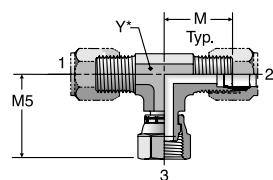
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	M5 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 (in.)				-S	-SS
4 R6BU	1/4	1/4	1/4	0.89	1.00	7/16	5.0	5.0
6 R6BU	3/8	3/8	3/8	1.05	1.25	9/16	5.0	5.0
8 R6BU	1/2	1/2	1/2	1.25	1.38	3/4	5.0	5.0
12 R6BU	3/4	3/4	3/4	1.58	1.75	1 1/16	4.0	4.0
16 R6BU	1	1	1	1.73	2.00	1 5/16	3.0	

S6BU

Swivel Nut Branch Tee
Flareless / Flareless
Swivel

SAE 080202



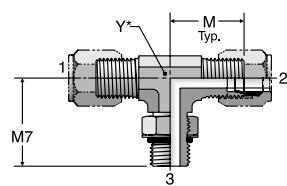
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	M5 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 (in.)				-S	-SS
4 S6BU	1/4	1/4	1/4	0.89	1.00	7/16	5.0	5.0
6 S6BU	3/8	3/8	3/8	1.05	1.25	9/16	5.0	5.0
8 S6BU	1/2	1/2	1/2	1.25	1.38	3/4	5.0	5.0
12 S6BU	3/4	3/4	3/4	1.58	1.75	1 1/16	4.0	4.0

S5BU

Straight Thread
Branch Tee
Flareless / SAE-ORB

SAE 080429



* Y – Across wrench flats

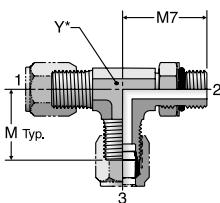
TUBE FITTING PART #	END SIZE			M (in.)	M7 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 (in.)				UN/UNF-2A	-S
4 S5BU	1/4	1/4	1/4	0.89	1.03	7/16	5.0	5.0
6 S5BU	3/8	3/8	3/8	1.05	1.25	9/16	5.0	5.0
8 S5BU	1/2	1/2	1/2	1.25	1.45	3/4	5.0	5.0
12 S5BU	3/4	3/4	3/4	1.58	1.94	1 1/16	4.0	4.0
16 S5BU	1	1	1	1.73	2.05	1 5/16	3.0	

Dimensions and pressures for reference only, subject to change.

R5BU

Straight Thread Run Tee
Flareless / SAE-ORB

SAE 080428



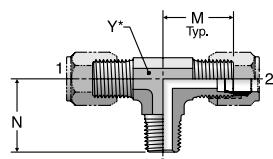
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	M7 (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A (in.)	3 (in.)				-S	-SS
4 R5BU	1/4	7/16-20	1/4	0.89	1.03	7/16	5.0	5.0
6 R5BU	3/8	9/16-18	3/8	1.05	1.25	9/16	5.0	5.0
8 R5BU	1/2	3/4-16	1/2	1.25	1.45	3/4	5.0	5.0
10 R5BU	5/8	7/8-14	5/8	1.42	1.70	7/8	4.5	
12 R5BU	3/4	1 1/16-12	3/4	1.58	1.94	1 1/16	4.0	
16 R5BU	1	1 5/16-12	1	1.73	2.05	1 5/16	3.0	

SBU

Male Branch Tee
Flareless / NPTF

SAE 080425



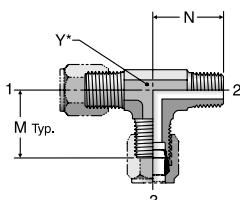
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	N (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 NPTF				-S	-SS
2 SBU	1/8	1/8	1/8-27	0.77	0.72	7/16	5.0	5.0
4 SBU	1/4	1/4	1/8-27	0.89	0.78	7/16	5.0	5.0
4-4-4 SBU	1/4	1/4	1/4-18	1.03	1.09	9/16	5.0	5.0
5 SBU	5/16	5/16	1/8-27	0.95	0.81	9/16	5.0	
6 SBU	3/8	3/8	1/4-18	1.05	1.09	9/16	5.0	
8 SBU	1/2	1/2	3/8-18	1.25	1.22	3/4	5.0	
8-8-8 SBU	1/2	1/2	1/2-14	1.35	1.47	7/8	5.0	5.0
10 SBU	5/8	5/8	1/2-14	1.42	1.47	7/8	4.5	
12 SBU	3/4	3/4	3/4-14	1.58	1.59	1 1/16	4.0	4.0
14 SBU	7/8	7/8	3/4-14	1.66	1.69	1 5/16	3.0	
16 SBU	1	1	1-11 1/2	1.73	1.97	1 5/16	3.0	3.0

RBU

Male Run Tee
Flareless / NPTF

SAE 080424



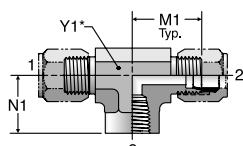
* Y – Across wrench flats

TUBE FITTING PART #	END SIZE			M (in.)	N (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF	3 (in.)				-S	-SS
4 RBU	1/4	1/8-27	1/4	0.89	0.78	7/16	5.0	5.0
4-4-4 RBU	1/4	1/4-18	1/4	1.03	1.09	9/16	5.0	5.0
5 RBU	5/16	1/8-27	5/16	0.95	0.81	9/16	5.0	
6 RBU	3/8	1/4-18	3/8	1.05	1.09	9/16	5.0	5.0
8 RBU	1/2	3/8-18	1/2	1.25	1.22	3/4	5.0	
8-8-8 RBU	1/2	1/2-14	1/2	1.34	1.47	7/8	5.0	5.0
10 RBU	5/8	1/2-14	5/8	1.42	1.47	7/8	4.5	
12 RBU	3/4	3/4-14	3/4	1.58	1.59	1 1/16	4.0	
14 RBU	7/8	3/4-14	7/8	1.62	1.69	1 5/16	3.0	
16 RBU	1	1-11 1/2	1	1.73	1.97	1 5/16	3.0	

OBU

Female Branch Tee
Flareless / NPTF

SAE 080427



* Y1 – Across wrench flats

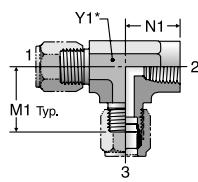
TUBE FITTING PART #	END SIZE			M1 (in.)	N1 (in.)	Y1 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 NPTF				-S	-SS
4 OBU	1/4	1/4	1/8-27	0.89	0.66	9/16	5.0	5.0
4-4-4 OBU	1/4	1/4	1/4-18	1.03	0.88	3/4	5.0	5.0
6 OBU	3/8	3/8	1/4-18	1.05	0.88	3/4	5.0	5.0
8 OBU	1/2	1/2	3/8-18	1.23	1.02	7/8	3.0	3.0
10 OBU	5/8	5/8	1/2-14	1.42	1.23	1 1/16	3.0	
12 OBU	3/4	3/4	3/4-14	1.58	1.36	1 5/16	3.0	
14 OBU	7/8	7/8	3/4-14	1.62	1.42	1 5/16	3.0	
16 OBU	1	1	1-11 1/2	1.73	1.62	1 5/8	1.7	
20 OBU	1 1/4	1 1/4	1 1/4-11 1/2	2.08	1.70	1 7/8	1.5	

Dimensions and pressures for reference only, subject to change.

MBU

Female Run Tee
Flareless / NPTF

SAE 080426

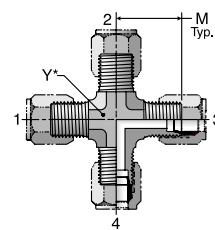


* Y1 – Across wrench flats

KBU

Union Cross
Flareless (all four ends)

SAE 080501



* Y – Across wrench flats

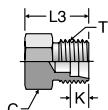
TUBE FITTING PART #	END SIZE			M1 (in.)	N1 (in.)	Y1 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF	3 (in.)				-S	-SS
	4 MBU	1/4	1/8-27	1/4	0.89	0.66	9/16	5.0
6 MBU	3/8	1/4-18	3/8	1.05	0.88	3/4	5.0	
8 MBU	1/2	3/8-18	1/2	1.23	1.02	7/8	3.0	
10 MBU	5/8	1/2-14	5/8	1.42	1.23	1 1/16	3.0	
12 MBU	3/4	3/4-14	3/4	1.58	1.36	1 5/16	3.0	
16 MBU	1	1-11 1/2	1	1.73	1.62	1 5/8	1.7	

TUBE FITTING PART #	END SIZE		M (in.)	Y (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
	1-4 (in.)	1-4 NPTF			-S	-SS
4 KBU		1/4	0.89	7/16	5.0	5.0
6 KBU		3/8	1.05	9/16	5.0	5.0
8 KBU		1/2	1.25	3/4	5.0	5.0
12 KBU		3/4	1.58	1 1/16	4.0	

PNU

Plug
Flareless

SAE 080109

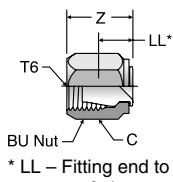


TUBE FITTING PART #	TUBE O.D. (in.)	T TUBE END UN/UNF-2A	C HEX (in.)	K	L3 (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
						-S	-SS
2 PNU	1/8	5/16-24	7/16	0.19	0.63	6.0	
4 PNU	1/4	7/16-20	1/2	0.24	0.72	6.0	6.0
5 PNU	5/16	1/2-20	9/16	0.26	0.72	6.0	
6 PNU	3/8	9/16-18	5/8	0.26	0.75	6.0	6.0
8 PNU	1/2	3/4-16	13/16	0.31	0.84	5.0	5.0
10 PNU	5/8	7/8-14	15/16	0.36	0.97	5.0	
12 PNU	3/4	1 1/16-12	1 1/8	0.36	1.09	4.5	4.5
16 PNU	1	1 5/16-12	1 3/8	0.42	1.09	4.0	

FNU

Cap
Flareless Swivel

SAE 080112



* LL – Fitting end to rear of plug

TUBE FITTING PART #	TUBE O.D. (in.)	T6 UN/UNF-2B	C HEX (in.)	LL (in.)	Z (in.)	STANDARD Dynamic Pressure (x 1,000 PSI)	
						-S	-SS
2 FNU	1/8	5/16-24	3/8	0.34	0.55		6.0
4 FNU	1/4	7/16-20	9/16	0.36	0.73	6.0	6.0
5 FNU	5/16	1/2-20	5/8	0.40	0.77	6.0	
6 FNU	3/8	9/16-18	11/16	0.42	0.80	6.0	6.0
8 FNU	1/2	3/4-16	7/8	0.44	0.87	5.0	5.0
10 FNU	5/8	7/8-14	1	0.47	0.98	5.0	5.0
12 FNU	3/4	1 1/16-12	1 1/4	0.48	1.00	4.5	4.5
16 FNU	1	1 5/16-12	1 1/2	0.58	1.08	4.0	4.0
20 FNU	1 1/4	1 5/8-12	2	0.64	1.11	3.0	

Dimensions and pressures for reference only, subject to change.

Dimensions and pressures for reference only, subject to change.