

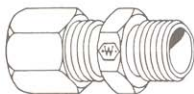
## Materials

All Weatherhead Fittings are available in a variety of alloys on special order.

**Carbon Steel Fittings** – are precision machined from AISI 12L14 carbon steel. Shaped fittings such as elbows and tees with a "C" prefix are made from high-density forgings. Shaped fittings with a "TF" prefix are brazed. Straight fittings are from bar stock.

**Stainless Steel Fittings** – are made from type 316 stainless. Standard Ermeto® flareless sleeves are made from 17-4PH precipitation hardened stainless.

Finishes



**Weathercote™** – is an exclusive Weatherhead® trademark for a protective coating that far exceeds the minimum requirements of the SAE specifications for a corrosion resistant finish for use with petroleum-based, synthetic, and water-based hydraulic fluids. It is readily identified by its dark appearance. Weathercote™ is an amorphous phosphate coating covered with a soluble rust-proof film

resulting in a coating of .0002" thick, yet providing full protection against electrolytic action, thread seizure or corrosive action of hydraulic fluids.

The lubricity of the rust-proof solvent film measurably reduces the amount of torque required to make leak-proof connections.

**Zinc Plated** – Weatherhead® fittings are given an electrolytic coating .0002" thick minimum.

**Stainless Steel** – fittings are supplied with natural surface finish except tube nuts which are coated with a bonded dry-film lubricant (black) to reduce assembly torque and prevent galling of threads. All Weatherhead® Stainless Steel Fittings are passivated to remove microscopic foreign particles from the surface of stainless steel as required. Process also leaves a film of corrosion protection.

## Hydraulic Fluids

Modern hydraulic systems in use today employ a wide variety of high quality hydraulic fluids. There are three principle types in general use today – each best suited for particular conditions. They are discussed here briefly to clarify the fitting finishes compatible with each type.

## Petroleum or Mineral Oil Based

**Hydraulic Fluids** – are good general purpose fluids available in a full range of viscosity specified as SAE 10, 20, 30, etc. These fluids are not fire resistant, making them unsuitable for use where there is a potential source of ignition. ALL Weatherhead® fittings and O-rings can be used with these fluids.

**Straight Synthetic Hydraulic Fluids** – is a general term applied to such products as Pydraul, Lindol, Cellulubes 90, 150, 180, 220, etc. used where fire hazards are high. Weathercote™ finish fittings are recommended for this type of fluid. O-rings MUST be made of a "Butyl" compound, or they will "swell" when contacted by synthetic fluids.

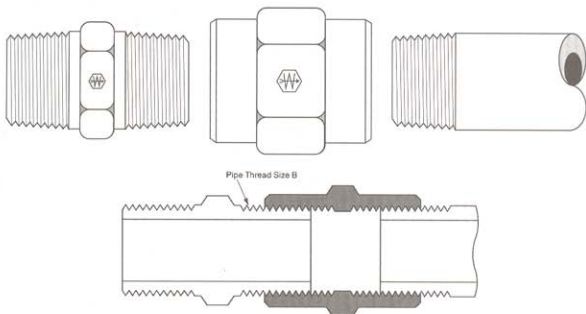
**Water-Based Hydraulic Fluids** – consist generally of a mixture of water and poly-glycols. They are non-flammable and serve the same purpose as the synthetic types. **Only Weathercote™ finish fittings are recommended for this type of fluid.** Zinc plate finishes will be dissolved by water-based fluids and damage to expensive components may result. These water-based fluids are usually less expensive than synthetic fluids and have little or no detrimental effects on Buna-N compounds used in o-rings.

## O-Ring Compound and Application Chart

O-Ring Catalog Number	Base Material of Compound	Petroleum & Mineral Oil-Based Hydraulic Fluids	Straight Synthetic Hydraulic Fluids	Water-Based Hydraulic Fluids (Poly-glycols)	Air	Water	Lubricating Oils	Durometer Hardness	Temperature Range °F
4629x*	Buna-N	Excellent	Unsuitable	Good	Excellent	Good	Excellent	90	-40° to +250°
7629x*	Buna-N	Excellent	Unsuitable	Good	Excellent	Good	Excellent	90	-40° to +250°

\*Standard O-ring complies with SAE J515 Type CH and ASTM specifications D2000.

All standard Weatherhead® straight thread fittings are supplied with this type O-ring, unless otherwise specified. (Viton O-Rings are available as special order items only).



Pipe Size	1/16	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Thread Size-B	1/16-27	1/8-27	1/4-18	3/8-18	1/2-14	3/4-14	1-11-1/2	1-1/4-11-1/2	1-1/2-11-1/2	2-11-1/2

### Forged Fittings and Adaptors

Pipe Fittings 3000 Series Pressure Rating Chart

Connection Type	End Size									
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	
Male Pipe (NPTF)	6000	5000	5000	4000	4000	4000	3000	2500	2500	
Female Pipe (NPTF)	5000	5000	4000	3000	2500	2000	1500	1500	1000	

### Brazed Fittings (TF)

Pipe Fittings 3000 Series Pressure Rating Chart

Connection Type	End Size									
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	
Male Pipe (NPTF)	5000	5000	4000	3000	2500	2000	1150	1000	1000	
Female Pipe (NPTF)	5000	5000	4000	3000	2500	2000	1150	1000	1000	

Rated pressures are for low surge, static type applications.

#### Typical Application

Grease, instrumentation and most hydraulic systems.

#### Pressure

Refer to the pressure charts above. The maximum working pressure of an adaptor is the lower working pressure of the end size. Ex: C3069x8x6, 8 = 4000 psi and 6 = 5000 psi. Maximum working pressure is 4000 psi.

#### Vibration

Fair resistance.

#### Temperature Range

-65°F to +400°F (-53°C to +204°C).

#### Material

Carbon Steel - AISI/SAE 12L14  
Stainless Steel - type 316  
Plating - Zinc, yellow dichromate finish ASTM B633 Type II.

#### Used With

Steel, brass, bronze and iron pipe.

#### Advantages

Dryseal pipe threads (NPTF) (SAE J476), zinc plate, compact size. Broad range of sizes and styles.

#### Conformance

Meets SAE specifications.

#### How to Order

Order individually by catalog number. Example: C3069x4. To order with Weathercote finish (black phosphate coating), use "W" prefix in place of "C". Example: W3069x4 (special order only). To order with pipe sealant (Seal-A-Thread), add a "Z" suffix to the catalog number. Example: C3069x4Z (special order only).

Weatherhead fittings with a "C" prefix are made from a forged construction. Example: C3609x4. Weatherhead fittings with a "TF" prefix are made from a brazed construction. Example: TF3609x4.

#### NOTE

Refer to current price list for availability of cataloged items. Quotations and delivery of non-stock items supplied upon request. Configurations and dimensions subject to change without notice. Additional information can be found in SAE J514.

#### Assembly Instructions

Tighten approximately 2-1/2 turns past finger tight. On all shaped fittings, such as elbows and tees, tighten approximately 2 turns past finger tight and orient the fitting on the third turn. **NOTE:** Backing off for orientation after completing the tightening process, may cause the thread sealing method on these pipe threads to leak!

#### Welding procedures

Use electric weldrod AWS-E7018. Recommended procedure specifies using lower amperage than usual and puddling of molten metal to permit gases created by lead in steel to work through molten lead deposit.

Label Set: **FS-2000** (adhesive)

## Seal-Nut

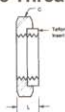


Teflon® is a registered trademark of DuPont.

## SPECIFICATIONS FOR "SEAL NUT"

- **Material:** All Weatherhead "Seal-Nuts" are precision machined from 12L14 steel; insert is made of molded virgin Teflon®.
- **Pressure:** Refer to pressure charts on previous page.
- **Temp. Range:** Designed to operate satisfactorily from -100°F to +500°F.
- Makes every pipe connection leakproof.
- Permits positioning of pipe elbows and tees full 360° without overtightening.
- Thread seal-nut on pipe thread. Tighten pipe elbows and tees to proper position, then tighten seal nut for positive seal.
- Eliminates leaks on all pipe threads – Dry Seal or standard. No pipe compound required. Quick, easy installations in cramped quarters where wrench clearance is limited.
- "Seal-Nuts" are an economical substitute for straight thread O-ring boss fittings using original female pipe ports. "Seal-Nuts" give you positive seal on directional fittings like tees and elbows without distorting mounting bosses or damaging expensive valves and pumps.
- **Assembly Instructions:**
  1. Thread Seal-Nut on to the pipe threads until 4 threads protrude beyond the Teflon seal.
  2. Thread fitting a minimum of 3 full threads into port. Continue turning fitting to desired position.
  3. Tighten seal-nut against the port with light to medium torque to provide a positive seal. Torque required will vary with application.

## Seal-Nut for Male Pipe Threads



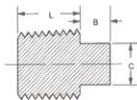
Pipe Thread	Catalog Number	Hex C	L
1/8	C3059x2	5/8	.15
1/4	C3059x4	3/4	.25
3/8	C3059x6	7/8	.25
1/2	C3059x8	1-1/8	.25
3/4	C3059x12	1-5/16	.25
1	C3059x16	1-5/8	.34

## Hex Socket Plug

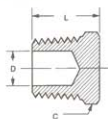


Male Pipe Thread	Catalog Number	Socket Hex	L
1/16	C3169x1	5/32	.31
1/8	C3169x2	3/16	.30
1/4	C3169x4	1/4	.46

## Square Head Plug



Male Pipe Thread	Catalog Number	B	C	L
1/8	C3179x2	.25	9/32	.34
1/4	C3179x4	.29	3/8	.51
3/8	C3179x6	.32	7/16	.51
1/2	C3179x8	.40	9/16	.68
3/4	C3179x12	.46	5/8	.69
1	C3179x16	.52	13/16	.85

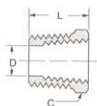
Hex Head Plug  
Stainless Steel No. 3171x

Male Pipe Thread	Catalog Number	Hex C	L	D Opt. Dia.
1/8	C3159x2*	7/16	.56	.156
1/4	C3159x4*	9/16	.68	.250
3/8	C3159x6*	11/16	.78	.375
1/2	C3159x8*	7/8	.98	.500
3/4	C3159x12	1-1/8	1.06	.690
1	C3159x16	1-3/8	1.25	.875
1-1/4	C3159x20	1-3/4	1.56	—
1-1/2	C3159x24	2	1.62	—
2	C3159x32	2-1/2	1.75	—

\* Available in stainless steel.

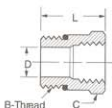
## Bushing

Stainless Steel No. 3121x  
(Ref. SAE No. 140140)



Male Pipe Thread	Female Pipe Thread	Catalog Number	Hex C	D	L
1/4	1/8	C3109x4x2*	5/8	.322	.85
3/8	1/8	C3109x6x2*	3/4	.332	.85
3/8	1/4	C3109x6x4*	3/4	.438	.85
1/2	1/8	C3109x8x2*	7/8	.332	1.10
1/2	1/4	C3109x8x4*	7/8	.438	1.10
1/2	3/8	C3109x8x6*	7/8	.562	1.10
3/4	1/4	C3109x12x4*	1-1/8	.438	1.17
3/4	3/8	C3109x12x6*	1-1/8	.562	1.17
3/4	1/2	C3109x12x8*	1-1/8	.703	1.17
1	3/8	C3109x16x6	1-3/8	.562	1.36
1	1/2	C3109x16x8*	1-3/8	.703	1.36
1	3/4	C3109x16x12*	1-3/8	.922	1.36
1-1/4	1/2	C3109x20x8	1-3/4	.703	1.47
1-1/4	3/4	C3109x20x12*	1-3/4	.922	1.47
1-1/4	1	C3109x20x16*	1-3/4	1.156	1.47
1-1/2	3/4	C3109x24x12	2	.906	1.58
1-1/2	1	C3109x24x16	2	1.141	1.58
1-1/2	1-1/4	C3109x24x20	2	1.500	1.57
2	1-1/4	C3109x32x20	2-1/2	1.484	1.75
2	1-1/2	C3109x32x24	2-1/2	1.719	1.75

## Straight Thread O-Ring to Female Pipe Adapter

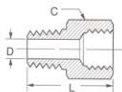


Male Port Size	Female Pipe Thread	Catalog Number	Straight Thread B	Hex C	D	L
1/4	1/8	C3269x4x2	7/16-20	9/16	.172	.97
1/4	1/4	C3269x4x4	7/16-20	3/4	.172	1.16
5/16	1/8	C3269x5x2	1/2-20	5/8	.234	.94
3/8	1/4	C3269x6x4	9/16-18	3/4	.297	1.09
3/8	3/8	C3269x6x6	9/16-18	7/8	.281	1.30
3/8	1/2	C3269x6x8	9/16-18	1-1/8	.281	1.44
1/2	1/4	C3269x8x4	3/4-16	7/8	.421	1.06
1/2	3/8	C3269x8x6	3/4-16	7/8	.421	1.22
1/2	1/2	C3269x8x8	3/4-16	1-1/16	.421	1.50
5/8	1/4	C3269x10x4	7/8-14	1	.422	.81
5/8	3/8	C3269x10x6	7/8-14	1	.500	1.25
5/8	1/2	C3269x10x8	7/8-14	1-1/8	.500	1.50
5/8	3/4	C3269x10x12	7/8-14	1-3/8	.500	1.62
3/4	1/2	C3269x12x8	1-1/16-12	1-1/4	.688	1.34
3/4	3/4	C3269x12x12	1-1/16-12	1-3/8	.656	1.66
7/8	3/4	C3269x14x12	1-3/16-12	1-3/8	.718	1.63
1	1/2	C3269x16x8	1-5/16-12	1-1/2	.688	1.00
1	3/4	C3269x16x12	1-5/16-12	1-1/2	.876	1.50
1	1	C3269x16x16	1-5/16-12	1-5/8	.876	1.88
1-1/4	1	C3269x20x16	1-5/8-12	1-7/8	1.080	1.00
1-1/4	1-1/4	C3269x20x20	1-5/8-12	2	1.080	1.94
1-1/2	1-1/2	C3269x24x24	1-7/8-12	2-3/8	1.312	1.88
2	2	C3269x32x32	2-1/2-12	2-7/8	1.781	1.91

Replacement o-rings page 147.

## Adapter

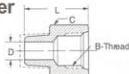
Stainless Steel No. 3221x  
(Ref. SAE 140139)



Female Pipe Thread	Male Pipe Thread	Catalog Number	Hex C	D	L
1/4	1/8	C3209x4x2*	3/4	.188	1.21
3/8	1/4	C3209x6x4*	7/8	.281	1.44
1/2	1/8	C3209x8x2*	1-1/8	.188	1.50
1/2	1/4	C3209x8x4*	1-1/8	.281	1.68
1/2	3/8	C3209x8x6*	1-1/8	.406	1.68
3/4	1/4	C3209x12x4*	1-3/8	.281	1.78
3/4	1/2	C3209x12x8*	1-3/8	.531	1.93
1	1/2	C3209x16x8*	1-5/8	.562	2.09
1	3/4	C3209x16x12*	1-5/8	.719	2.18
1-1/4	1	C3209x20x16	2	.938	2.46
1-1/2	1-1/4	C3209x24x20	2-3/8	1.25	2.50
2	1-1/2	C3209x32x24	2-7/8	1.500	2.63

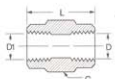
\*Available in stainless steel.

## Female Straight Thread O-Ring to Male Pipe Adapter



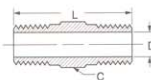
Fem. Port Size	Male Pipe Thread	Catalog Number	Straight Thread B	Hex C	D	L
3/8	3/8	C3239x6x6	9/16-18	13/16	.406	1.38
3/8	1/2	C3239x6x8	9/16-18	7/8	.500	1.61
1/2	3/8	C3239x8x6	3/4-16	1	.406	1.46
1/2	1/2	C3239x8x8	3/4-16	1	.562	1.69
5/8	1/2	C3239x10x8	7/8-14	1-1/4	.531	1.81

## Coupling Stainless Steel No. 3321x (Ref. SAE No. 140138)



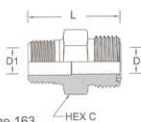
Fem. Pipe Thread	Fem. Pipe Thread	Catalog Number	Hex C	D	D1	L
1/8	1/8	C3309x2*	5/8	.332	.332	.75
1/4	1/8	C3309x4x2*	3/4	.437	.332	1.13
1/4	1/4	C3309x4*	3/4	.437	.437	1.13
3/8	1/4	C3309x6x4*	7/8	.562	.437	1.13
3/8	3/8	C3309x6*	7/8	.562	.562	1.13
1/2	1/4	C3309x8x4*	1-1/8	.687	.437	1.50
1/2	3/8	C3309x8x6*	1-1/8	.687	.562	1.50
1/2	1/2	C3309x8*	1-1/8	.687	.687	1.50
3/4	1/2	C3309x12x8	1-3/8	.906	.687	1.53
3/4	3/4	C3309x12*	1-3/8	.906	.906	1.53
1	3/4	C3309x16x12	1-5/8	1.125	.906	1.89
1	1	C3309x16*	1-5/8	1.125	1.125	1.89
1-1/4	1-1/4	C3309x20	2	1.468	1.468	1.93
1-1/2	1-1/2	C3309x24	2-3/8	1.703	1.703	1.93
2	2	C3309x32	2-7/8	2.188	2.188	1.96

## Hex Nipple Stainless Steel No. 3081x (Ref. SAE No. 140137)



Male Pipe Thread	Male Pipe Thread	Catalog Number	Hex C	D	L
1/16	1/16	C3069x1	5/16	.141	.940
1/8	1/16	C3069x2x1	7/16	.141	.970
1/8	1/8	C3069x2*	7/16	.188	1.06
1/4	1/8	C3069x4x2*	5/8	.188	1.26
1/4	1/4	C3069x4*	5/8	.281	1.45
3/8	1/8	C3069x6x2*	3/4	.188	1.26
3/8	1/4	C3069x6x4*	3/4	.281	1.45
3/8	3/8	C3069x6*	3/4	.406	1.45
1/2	1/4	C3069x8x4*	7/8	.281	1.70
1/2	3/8	C3069x8x6*	7/8	.406	1.70
1/2	1/2	C3069x8*	7/8	.531	1.89
3/4	1/2	C3069x12x8*	1-1/8	.531	1.96
3/4	3/4	C3069x12*	1-1/8	.719	1.96
1	3/4	C3069x16x12	1-3/8	.719	2.16
1	1	C3069x16*	1-3/8	.938	2.34
1-1/4	1-1/4	C3069x20	1-3/4	1.250	2.48
1-1/2	1-1/2	C3069x24	2	1.500	2.61
2	2	C3069x32	2-1/2	1.938	2.83

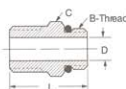
## Male For-Seal® to Male Pipe Adapter



Replacement O-rings page 163.

Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	D	D1	L
3/8	3/8	4205x6x6	3/4	.264	.406	1.30
1/2	3/8	4205x8	7/8	.378	.406	1.45
1/2	1/2	4205x8x8	7/8	.378	.484	1.64
5/8	1/2	4205x10	1-1/16	.484	.531	1.82
3/4	1/2	4205x12x8	1-1/4	.406	.484	1.87
3/4	3/4	4205x12	1-1/4	.609	.719	1.94
3/4	1	4205x12x16	1-3/8	.609	.938	1.87
1	1	4205x16	1-1/2	.811	.938	2.19
1-1/4	1-1/4	4205x20	1-3/4	1.024	1.250	2.30

## Male Straight Thread O-Ring to Male Pipe Adapter

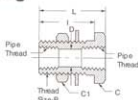


Replacement O-rings page 147.

Male Port Size	Male Pipe Thread	Catalog Number	Straight Thread B	Hex C	D	L
1/4	1/8	C3249x4x2	7/16-20	9/16	.172	1.05
3/8	1/4	C3249x6x4	9/16-18	11/16	.281	1.30
1/2	3/8	C3249x8x6	3/4-16	7/8	.391	1.36
1/2	1/2	C3249x8x8	3/4-16	7/8	.391	1.55
5/8	1/2	C3249x10x8	7/8-14	1	.434	1.69
3/4	3/4	C3249x12x12	1-1/16-12	1-1/4	.609	1.73
1	1	C3249x16x16	1-5/16-12	1-1/2	.844	2.06
1-1/4	1-1/4	C3249x20x20	1-5/8-12	1-7/8	1.078	2.17
1-1/2	1-1/2	C3249x24x24	1-7/8-12	2-1/8	1.312	2.26
2	2	C3249x32x32	2-1/2-12	2-7/8	1.781	2.47

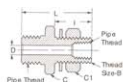
\* Available in stainless steel.

## Bulkhead Coupling



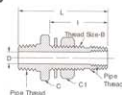
Fem. Pipe Thread	Catalog Number	Thread Size B	Hex C	Hex C1	D	I	L
1/4	W05465	3/4-16	1	15/16	.422	1.25	1.50
1/4	W21204	3/4-16	1	15/16	.422	.69	.94
3/8	W17709	1-14	1-1/8	1-3/8	.563	1.06	1.31

## Bulkhead Coupling



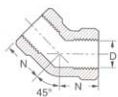
Male Pipe Thread	Fem. Pipe Thread	Catalog Number	Thread Size B	Hex C	Hex C1	D	I	L
1/2	1/4	W05498	3/4-16	1-1/4	1-1/16	.312	1.13	2.16
1/2	1/4	W05499	3/4-16	1-1/4	1-1/16	.312	1.53	2.53

## Bulkhead Coupling



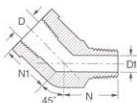
Male Pipe Thread	Fem. Pipe Thread	Catalog Number	Thread Size B	Hex C	Hex C1	D	I	L
1/2	1/4	W05730	1-14	1-1/4	1-3/8	.375	1.91	2.94
1/2	1/4	W23464	1-14	1-1/4	1-3/8	.375	2.88	3.94

## 45° Female Elbow (Ref. SAE No. 140338)



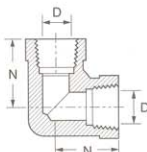
Fem. Pipe Thread	Catalog Number	D	N	Across Flats
1/4	C3359x4	.437	.69	3/4
3/8	C3359x6	.562	.750	7/8
1/2	C3359x8	.687	.940	1-1/16
3/4	C3359x12	.906	1.000	1-5/16
1	C3359x16	1.125	1.190	1-5/8
1/4	TF3359x4	.437	.620	3/4

## 45° Street Elbow Stainless Steel No. 3371x (Ref. SAE No. 140339)

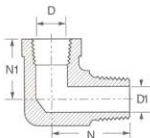


Fem. Pipe Thread	Male Pipe Thread	Catalog Number	D	D1	N1	N	Across Flats
1/8	1/8	C3359x2*	.332	.188	.47	.72	9/16
1/4	1/4	C3359x4*	.437	.281	.62	1.05	3/4
3/8	3/8	C3359x6*	.562	.406	.72	1.10	7/8
1/2	1/2	C3359x8*	.687	.531	.91	1.34	1-1/16
3/4	3/4	C3359x12*	.906	.719	.97	1.38	1-5/16
1	1	C3359x16*	1.125	.938	1.12	1.72	1-5/8
1/8	1/8	TF3359x2	.332	.188	.47	.72	5/8
1/4	1/4	TF3359x4	.437	.281	.62	1.05	3/4
3/8	3/8	TF3359x6	.562	.406	.72	1.10	7/8
1/2	1/2	TF3359x8	.687	.531	.91	1.34	1-1/8
3/4	3/4	TF3359x12	.906	.719	.97	1.38	1-3/8
1	1	TF3359x16	1.125	.938	1.12	1.72	1-5/8
1-1/4	1-1/4	TF3359x20	1.468	1.250	1.63	1.80	2
1-1/2	1-1/2	TF3359x24	1.734	1.500	1.69	2.06	2-3/8
2	2	TF3359x32	2.188	1.938	2.30	2.15	2-1/2

\* Available in stainless steel.

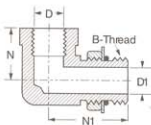
**90° Female Elbow**  
 Stainless Steel No. 3521x  
 (Ref. SAE No. 140238)


Fem. Pipe Thread	Fem. Pipe Thread	Catalog Number	D	N	Across Flats
1/8	1/8	C3509x2*	.332	.66	9/16
1/4	1/4	C3509x4*	.437	.88	3/4
3/8	3/8	C3509x6*	.562	1.02	7/8
1/2	1/2	C3509x8*	.687	1.23	1-1/16
3/4	3/4	C3509x12*	.906	1.36	1-5/16
1	1	C3509x16	1.125	1.62	1-5/8
1-1/4	1-1/4	C3509x20	1.468	1.70	1-7/8
2	2	C3509x32	2.188	2.39	2-3/16
1/8	1/8	TF3509x2	.332	.66	5/8
1/4	1/8	TF3509x4x2	.343	.88	3/4
1/4	1/4	TF3509x4	.437	.88	3/4
3/8	1/4	TF3509x6x4	.437	1.02	7/8
3/8	3/8	TF3509x6	.562	1.02	7/8
1/2	3/8	TF3509x8x6	.562	1.23	1-1/8
1/2	1/2	TF3509x8	.687	1.23	1-1/8
3/4	1/2	TF3509x12x8	.687	1.23	1-3/8
3/4	3/4	TF3509x12	.906	1.36	1-3/8
1	1	TF3509x16	1.125	1.62	1-5/8
1-1/4	1-1/4	TF3509x20	1.468	1.70	2
1-1/2	1-1/2	TF3509x24	1.734	2.08	2-3/8

**90° Street Elbow**  
 Stainless Steel No. 3421x  
 (Ref. SAE No. 140239)


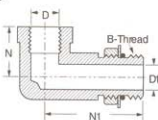
Male Pipe Thread	Fem. Pipe Thread	Catalog Number	D	D1	N	N1	Across Flats
1/8	1/8	C3409x2*	.332	.188	.78	.66	9/16
1/4	1/4	C3409x4*	.437	.281	1.09	.88	3/4
3/8	3/8	C3409x6*	.562	.406	1.22	1.02	7/8
1/2	1/2	C3409x8*	.687	.531	1.47	1.23	1-1/16
3/4	3/4	C3409x12*	.906	.719	1.59	1.36	1-5/16
1	1	C3409x16*	1.125	.938	1.97	1.62	1-5/8
1-1/4	1-1/4	C3409x20	1.468	1.250	2.38	1.70	1-7/8
2	2	C3409x32	2.188	1.930	3.00	2.39	2-13/16
1/8	1/8	TF3409x2	.332	.188	.78	.66	5/8
1/8	1/4	TF3409x2x4	.437	.188	.91	.88	3/4
1/4	1/8	TF3409x4x2	.332	.281	1.09	.67	5/8
1/4	1/4	TF3409x4	.437	.281	1.09	.88	3/4
1/4	3/8	TF3409x4x6	.562	.281	1.22	1.02	7/8
3/8	1/4	TF3409x6x4	.437	.406	1.22	.91	13/16
3/8	3/8	TF3409x6	.562	.406	1.22	1.02	7/8
3/8	1/2	TF3409x6x8	.687	.406	1.38	1.23	1-1/8
1/2	3/8	TF3409x8x6	.562	.531	1.47	1.05	15/16
1/2	1/2	TF3409x8	.687	.531	1.47	1.23	1-1/8
1/2	3/4	TF3409x8x12	.906	.531	1.59	1.23	1-3/8
3/4	1/2	TF3409x12x8	.687	.719	1.59	1.23	1-1/8
3/4	3/4	TF3409x12	.906	.719	1.59	1.36	1-3/8
1	1	TF3409x16	1.125	.938	1.97	1.62	1-5/8
1-1/4	1-1/4	TF3409x20	1.468	1.250	2.38	1.70	2
1-1/2	1-1/2	TF3409x24	1.734	1.500	2.64	2.08	2-3/8

\* Available in stainless steel.

90° Straight Thread O-Ring  
Female Elbow

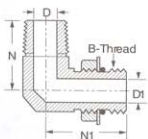
Replacement O-rings page 147.

Male Port Size	Fem. Pipe Thread	Catalog Number	Straight Thread B	D	D1	N	N1	Across Flats
1/2	3/8	C3459x8	3/4-16	.562	.422	.63	1.47	7/8
5/8	1/2	C3459x10	7/8-14	.687	.500	.75	1.81	1-1/16
3/4	3/4	C3459x12	1-1/16-12	.906	.656	.81	2.00	1-5/16
1	1	C3459x16	1-5/16-12	1.125	.876	1.00	2.25	1-5/8
1/4	1/8	TF3459x4	7/16-20	.332	.172	.66	1.09	5/8
5/16	1/8	TF3459x5	1/2-20	.332	.234	.66	1.13	5/8
3/8	1/4	TF3459x6	9/16-18	.437	.297	.88	1.31	3/4
1/2	3/8	TF3459x8	3/4-16	.562	.391	1.02	1.49	7/8
5/8	1/2	TF3459x10	7/8-14	.687	.484	1.23	1.80	1-1/8
3/4	3/4	TF3459x12	1-1/16-12	.906	.609	1.36	2.06	1-3/8
7/8	3/4	TF3459x14	1-3/16-12	.906	.719	1.42	2.06	1-3/8
1	1	TF3459x16	1-5/16-12	1.125	.844	1.62	2.17	1-5/8
1-1/4	1-1/4	TF3459x20	1-5/8-12	1.468	1.078	1.70	2.38	2
1-1/2	1-1/2	TF3459x24	1-7/8-12	1.703	1.312	2.08	2.58	2-3/8
2	2	TF3459x32	2-1/2-12	2.180	1.781	2.39	3.02	2-7/8

90° Straight Thread O-Ring  
Female Elbow Long

Replacement O-rings page 147.

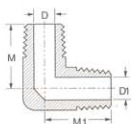
Male Port Size	Fem. Pipe Thread	Catalog Number	Straight Thread B	D	D1	N	N1	Across Flats
1/2	3/8	C3469x8	3/4-16	.562	.422	.63	2.94	7/8
5/8	1/2	C3469x10	7/8-14	.687	.500	.75	3.56	1-1/16
3/4	3/4	C3469x12	1-1/16-12	.906	.656	.81	4.13	1-5/16
1	1	C3469x16	1-5/16-12	1.125	.876	1.00	4.63	1-5/8

90° Straight Thread O-Ring  
Male Elbow to Male Pipe

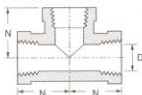
Replacement O-rings page 147.

Male Port Size	Male Pipe Thread	Catalog Number	Straight Thread B	D	D1	N	N1	Across Flats
1/4	1/8	TF3569x4	7/16-20	.172	.188	.78	1.03	1/2
5/16	1/8	TF3569x5	1/2-20	.234	.188	.78	1.09	9/16
3/8	1/4	TF3569x6	9/16-18	.297	.281	1.09	1.25	5/8
1/2	3/8	TF3569x8	3/4-16	.391	.406	1.22	1.45	13/16
5/8	1/2	TF3569x10	7/8-14	.484	.531	1.47	1.70	15/16
3/4	3/4	TF3569x12	1-1/16-12	.609	.719	1.59	1.94	1-1/8
7/8	3/4	TF3569x14	1-3/16-12	.719	.719	1.69	2.00	1-1/4
1	1	TF3569x16	1-5/16-12	.844	.938	1.97	2.05	1-3/8
1-1/4	1-1/4	TF3569x20	1-5/8-12	1.078	1.250	2.38	2.25	1-3/4
1-1/2	1-1/2	TF3569x24	1-7/8-12	1.312	1.500	2.64	2.39	2
2	2	TF3569x32	2-1/2-12	1.781	1.938	3.00	2.89	2-5/8

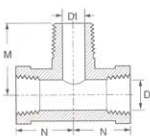


**90° Male Elbow**  
**Stainless Steel No. 3541x**


Male Pipe Thread	Male Pipe Thread	Catalog Number	D	D1	M	M1	Across Flats
1/8	1/8	C3529x2*	.188	.188	.78	.78	7/16
1/4	1/4	C3529x4*	.281	.281	1.09	1.09	9/16
3/8	3/8	C3529x6*	.406	.406	1.22	1.22	3/4
1/2	1/2	C3529x8	.531	.531	1.47	1.47	7/8
3/4	3/4	C3529x12	.719	.719	1.59	1.59	1-1/16
1/8	1/8	TF3529x2	.188	.188	.78	.78	1/2
1/4	1/4	TF3529x4	.281	.281	1.09	1.09	5/8
3/8	1/4	TF3529x6x4	.406	.281	1.28	1.19	13/16
3/8	3/8	TF3529x6	.406	.406	1.21	1.21	13/16
1/2	3/8	TF3529x8x6	.531	.406	1.47	1.28	15/16
1/2	1/2	TF3529x8	.531	.531	1.47	1.47	15/16
3/4	1/2	TF3529x12x8	.719	.531	1.59	1.56	1-1/8
3/4	3/4	TF3529x12	.719	.719	1.59	1.59	1-1/8
1	3/4	TF3529x16x12	.938	.719	1.97	1.72	1-3/8
1	1	TF3529x16	.938	.938	1.97	1.97	1-3/8
1-1/4	1-1/4	TF3529x20	1.250	1.250	2.38	2.38	1-3/4
1-1/2	1-1/2	TF3529x24	1.938	1.938	2.64	2.64	2

**Tee**  
**Stainless Steel No. 3721x**  
 (Ref. SAE No. 140438)


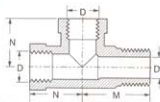
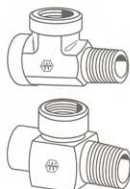
Fem. Pipe Thread	Catalog Number	D	N	Across Flats
1/8	C3709x2*	.332	.66	9/16
1/4	C3709x4*	.437	.88	3/4
3/8	C3709x6*	.562	1.02	7/8
1/2	C3709x8*	.687	1.23	1-1/16
3/4	C3709x12*	.906	1.36	1-5/16
1	C3709x16*	1.125	1.62	1-5/8
1-1/4	C3709x20	1.468	1.70	1-7/8
1/8	TF3709x2	.343	.66	5/8
1/4	TF3709x4	.437	.88	3/4
3/8	TF3709x6	.562	1.02	7/8
1/2	TF3709x8	.687	1.23	1-1/8
3/4	TF3709x12	.906	1.36	1-3/8
1	TF3709x16	1.275	1.62	1-5/8
1-1/4	TF3709x20	1.468	1.70	2
1-1/2	TF3709x24	1.710	2.08	2-3/8
2	TF3709x32	2.180	2.39	2-7/8

**Male Branch Tee**  
**Stainless Steel No. 3621x**  
 (Ref. SAE No. 140425)


Male Pipe Thread	Fem. Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/8	1/8	C3609x2	.332	.188	.78	.66	9/16
1/4	1/4	C3609x4*	.437	.281	1.09	.88	3/4
1	1	C3609x16	1.125	.938	1.97	1.62	1-5/8
1/8	1/8	TF3609x2	.343	.188	.78	.66	5/8
1/4	1/4	TF3609x4	.437	.281	1.09	.87	3/4
3/8	3/8	TF3609x6	.562	.406	1.22	1.02	7/8
1/2	1/2	TF3609x8	.687	.531	1.47	1.23	1-1/8
3/4	3/4	TF3609x12	.906	.719	1.59	1.36	1-3/8
1	1	TF3609x16	1.125	.938	1.97	1.62	1-5/8
1-1/4	1-1/4	TF3609x20	1.468	1.250	2.38	1.70	2
1-1/2	1-1/2	TF3609x24	1.700	1.500	2.64	2.08	2-3/8

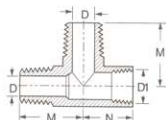
## Male Run Tee

Stainless Steel No. 3771x  
(Ref. SAE No. 140424)



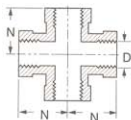
Fem. Pipe Thread	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/8	1/8	C3759x2	.332	.188	.78	.66	9/16
1/4	1/4	C3759x4	.437	.281	1.09	.88	3/4
3/8	3/8	C3759x6	.562	.406	1.22	1.02	7/8
1/2	1/2	C3759x8	.687	.531	1.47	1.23	1-1/16
3/4	3/4	C3759x12	.906	.719	1.59	1.36	1-5/16
1	1	C3759x16	1.125	.938	1.97	1.62	1-5/8
1/8	1/8	TF3759x2	.343	.188	.78	.66	5/8
1/4	1/4	TF3759x4	.437	.281	1.09	.88	3/4
3/8	3/8	TF3759x6	.562	.406	1.22	1.02	7/8
1/2	1/2	TF3759x8	.687	.531	1.47	1.23	1-1/8
3/4	3/4	TF3759x12	.906	.719	1.59	1.36	1-3/8
1	1	TF3759x16	1.125	.938	1.97	1.62	1-5/8
1-1/4	1-1/4	TF3759x20	1.468	1.250	2.68	1.70	2
1-1/2	1-1/2	TF3759x24	1.710	1.500	2.84	2.08	2-3/8
2	2	TF3759x32	2.180	1.938	3.00	2.39	2-7/8

## Female Run Tee



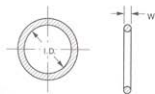
Fem. Pipe Thread	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/8	1/8	TF3805x2	.188	.343	.78	.66	5/8
1/4	1/4	TF3805x4	.281	.437	1.09	.88	3/4
3/8	3/8	TF3805x6	.406	.562	1.22	1.02	7/8
1/2	1/2	TF3805x8	.531	.687	1.47	1.23	1-1/8
3/4	3/4	TF3805x12	.719	.906	1.59	1.36	1-3/8
1	1	TF3805x16	.938	1.125	1.97	1.62	1-5/8
1-1/4	1-1/4	TF3805x20	1.250	1.468	2.38	1.70	2
1-1/2	1-1/2	TF3805x24	1.490	2.180	2.64	2.08	2-3/8

## Cross



Fem. Pipe Thread	Catalog Number	D	N	Across Flats
3/8	C3959x6	.562	1.02	7/8
1/2	C3959x8	.687	1.23	1-1/16
3/4	C3959x12	.906	1.36	1-5/16
1/8	TF3959x2	.343	.66	5/8
1/4	TF3959x4	.437	.88	3/4
3/8	TF3959x6	.562	1.02	7/8
1/2	TF3959x8	.687	1.23	1-1/8
3/4	TF3959x12	.906	1.36	1-3/8
1	TF3959x16	1.125	1.62	1-5/8
1-1/4	TF3959x20	1.468	1.70	2
1-1/2	TF3959x24	1.710	2.08	2-3/8
2	TF3959x32	2.180	2.39	2-7/8

## Straight Thread O-Ring



**Material:** Buna-N, 90 Durometer  
**Temperature Range:** -40°F to +250°F  
 (-40°C to +121°C)  
 Standard O-ring complies with SAE specification SAE J515 Type CH.

Tube O.D.	Catalog Number	W	I.D.
1/16	7629x1	.058	.185
1/8	7629x2	.064	.239
3/16	7629x3	.064	.301
1/4	7629x4	.072	.351
5/16	7629x5	.072	.414
3/8	7629x6	.078	.468
7/16	7629x7	.082	.530
1/2	7629x8	.087	.644
5/8	7629x10	.097	.755
3/4	7629x12	.116	.924
7/8	7629x14	.116	1.048
1	7629x16	.116	1.171
1-1/4	7629x20	.118	1.475
1-1/2	7629x24	.118	1.720
2	7629x32	.118	2.337

\* Available in stainless steel.

**Typical Application:** Pressure hydraulic systems.

**Pressure:** See chart on this page for pressure ratings.

**Sealing Method:** Metal to metal, 30° cone-NPSM thread on swivel end.

**Material:** Carbon steel, AISI/SAE 12L14.

**Plating:** Zinc, yellow dichromate finish.

**Label Set:** FS-100 (Adhesive)

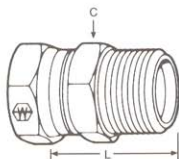
## 9000 Pipe Fittings

### Pipe Fittings 9000 Series Pressure Rating Chart

Connection Type	End Size									
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	
Male Pipe (NPTF)*	5000	5000	4000	3000	2500	2000	1500	1000	1000	
Female Pipe (NPTF)*	5000	5000	4000	3000	2500	2000	1500	1500	1000	

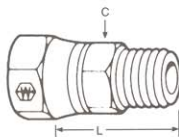
\* Pressure ratings shown are the pressure ratings for the fitting and are not necessarily the pressure ratings applicable in an assembly with hydraulic hose. The applicable pressure rating for an assembly with hydraulic hose is the lower value specified for the hose and the fitting unless otherwise agreed to by the supplier and user.

## Female Pipe Swivel to Male Pipe (Ref. SAE No. 140130)



NPSM Swivel Nut	Male Pipe Thread	Catalog Number	Hex C	L
1/8-27	1/8-27	9205x2x2	9/16	.900
1/8-27	1/4-18	9205x2x4	11/16	1.187
1/4-18	1/8-27	9205x4x2	11/16	0.940
1/4-18	1/4-18	9205x4x4	11/16	1.200
1/4-18	3/8-18	9205x4x6	11/16	1.200
1/4-18	1/2-14	9205x4x8	7/8	1.500
3/8-18	1/4-18	9205x6x4	5/8	1.210
3/8-18	3/8-18	9205x6x6	3/4	1.240
3/8-18	1/2-14	9205x6x8	7/8	1.540
1/2-14	3/8-18	9205x8x6	7/8	1.330
1/2-14	1/2-14	9205x8x8	1	1.640
1/2-14	3/4-14	9205x8x12	1-1/4	1.620
3/4-14	1/2-14	9205x12x8	1	1.720
3/4-14	3/4-14	9205x12x12	1-1/4	1.680
3/4-14	1-11-1/2	9205x12x16	1-1/2	1.984
1-11-1/2	3/4-14	9205x16x12	1-1/2	1.800
1-11-1/2	1-11-1/2	9205x16x16	1-1/2	2.010
1-11-1/2	1-1/4-11-1/2	9205x16x20	1-11/16	2.080
1-1/4-11-1/2	1-11-1/2	9205x20x16	1-7/8	2.100
1-1/4-11-1/2	1-1/4-11-1/2	9205x20x20	1-7/8	2.140
1-1/4-11-1/2	1-1/2-11-1/2	9205x20x24	2-1/8	2.187
1-1/2-11-1/2	1-1/4-11-1/2	9205x24x20	2-1/8	2.093
1-1/2-11-1/2	1-1/2-11-1/2	9205x24x24	2-1/8	2.270
2-11-1/2	2-11-1/2	9205x32x32	2-5/8	2.420

## Female JIC 37° Swivel to Male Pipe Adapter



Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	L
1/4	1/4	9100x4x4	9/16	1.130
5/16	1/4	9100x5x4	11/16	1.170
3/8	1/4	9100x6x4	11/16	1.290
3/8	3/8	9100x6x6	11/16	1.290
1/2	3/8	9100x8x6	7/8	1.430
1/2	1/2	9100x8x8	7/8	1.610
5/8	3/8	9100x10x6	1	1.400
5/8	1/2	9100x10x8	1	1.600
3/4	1/2	9100x12x8	1-1/8	1.650
3/4	3/4	9100x12x12	1-1/8	1.650
1	3/4	9100x16x12	1-3/8	1.750
1	1	9100x16x16	1-3/8	1.940
1-1/4	1-1/4	9100x20x20	1-7/8	2.090

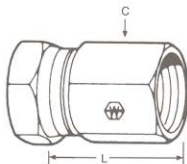
NOTE: C and L dimensions subject to change.

# NPSM Female Swivel Adapters

Steel  
Fittings

## Female Pipe Swivel to Female Pipe Straight

(Ref. SAE No. 140131)



NPSM Swivel Nut	Fem. Pipe Thread	Catalog Number	Hex C	L
1/8-27	1/8-27	9255x2x2	9/16	.880
1/4-18	1/4-18	9255x4x4	11/16	1.170
1/4-18	3/8-18	9255x4x6	7/8	1.312
3/8-18	1/4-18	9255x6x4	11/16	1.250
3/8-18	3/8-18	9255x6x6	7/8	1.310
3/8-18	1/2-14	9255x6x8	1	1.453
1/2-14	3/8-18	9255x8x6	1	1.500
1/2-14	1/2-14	9255x8x8	1	1.500
3/4-14	3/4-14	9255x12x12	1-1/4	1.620
3/4-14	1-11-1/2	9255x12x16	1-1/2	1.906
1-11-1/2	1-11-1/2	9255x16x16	1-1/2	2.000
1-1/4-11-1/2	1-1/4-11-1/2	9255x20x20	1-7/8	2.000
1-1/2-11-1/2	1-1/2-11-1/2	9255x24x24	2-1/8	2.000
2-11-1/2	2-11-1/2	9255x32x32	2-5/8	2.120

## Male Straight Thread to Female Pipe Swivel

(Ref. SAE No. 140157)



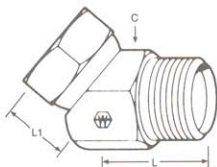
Straight Thread	NPSM Swivel Nut	Catalog Number	Hex C	L
7/16-20	1/4-18	9315x4x4	9/16	.970
7/16-20	3/8-18	9315x4x6	5/8	1.060
1/2-20	1/4-18	9315x5x4	5/8	1.109
9/16-18	1/4-18	9315x6x4	11/16	1.171
9/16-18	3/8-18	9315x6x6	11/16	1.090
9/16-18	1/2-14	9315x6x8	13/16	1.210
3/4-16	1/4-18	9315x8x4	7/8	1.234
3/4-16	3/8-18	9315x8x6	7/8	1.200
3/4-16	1/2-14	9315x8x8	7/8	1.260
3/4-16	3/4-14	9315x8x12	1	1.406
7/8-14	3/8-18	9315x10x6	1	1.375
7/8-14	1/2-14	9315x10x8	1	1.400
7/8-14	3/4-14	9315x10x12	1	1.546
1-1/16-12	1/2-14	9315x12x8	1-1/4	1.453
1-1/16-12	3/4-14	9315x12x12	1-1/4	1.600
1-3/16-12	3/4-14	9315x14x12	1-3/8	1.703
1-5/16-12	3/4-14	9315x16x12	1-1/2	1.734
1-5/16-12	1-11-1/2	9315x16x16	1-1/2	1.710
1-5/8-12	1-11-1/2	9315x20x16	1-7/8	1.828
1-5/8-12	1-1/4-11-1/2	9315x20x20	1-7/8	1.890
1-7/8-12	1-1/2-11-1/2	9315x24x24	2-1/8	1.953
2-1/2-12	2-11-1/2	9315x32x32	2-3/4	2.156

Replacement O-rings page 194.

NOTE: C and L dimensions subject to change.

## 45° Elbow - Female Pipe Swivel to Male Pipe

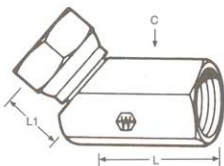
(Ref. SAE No. 140330)



NPSM Swivel Nut	Male Pipe Thread	Catalog Number	Hex C	L	L1
1/8-27	1/8-27	9355x2x2	9/16	.620	.500
1/4-18	1/8-27	9355x4x2	11/16	.660	.470
1/4-18	1/4-18	9355x4x4	11/16	1.020	.670
1/4-18	3/8-18	9355x4x6	7/8	1.060	.620
1/4-18	1/2-14	9355x4x8	1	1.380	.730
3/8-18	1/4-18	9355x6x4	7/8	1.000	.750
3/8-18	3/8-18	9355x6x6	7/8	1.060	.750
3/8-18	1/2-14	9355x6x8	1	1.060	.750
1/2-14	3/8-18	9355x8x6	1	1.310	.910
1/2-14	1/2-14	9355x8x8	1	1.310	.910
1/2-14	3/4-14	9355x8x12	1-1/4	1.31	.910
3/4-14	1/2-14	9355x12x8	1-1/4	1.500	1.000
3/4-14	3/4-14	9355x12x12	1-1/4	1.500	1.000
3/4-14	1-11-1/2	9355x12x16	1-1/2	1.500	1.030
1-11-1/2	3/4-14	9355x16x12	1-1/2	1.310	1.050
1-11-1/2	1-11-1/2	9355x16x16	1-1/2	1.500	1.060
1-11-1/2	1-1/4-11-1/2	9355x16x20	1-7/8	1.800	1.300
1-1/4-11-1/2	1-1/4-11-1/2	9355x20x20	1-7/8	1.750	1.250
1-1/2-11-1/2	1-1/2-11-1/2	9355x24x24	2-1/8	1.940	1.380
2-11-1/2	2-11-1/2	9355x32x32	2-5/8	2.000	1.500

## 45° Elbow - Female Pipe Swivel to Female Pipe

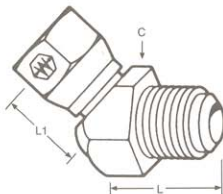
(Ref. SAE No. 140331)



NPSM Swivel Nut	Fem. Pipe Thread	Catalog Number	Hex C	L	L1
1/8-27	1/8-27	9385x2x2	1/2	.620	.500
1/4-18	1/4-18	9385x4x4	11/16	1.020	.670
1/4-18	3/8-18	9385x4x6	7/8	1.062	.625
3/8-18	3/8-18	9385x6x6	7/8	1.060	.750
3/8-18	1/2-14	9385x6x8	1	1.310	.750
1/2-14	1/2-14	9385x8x8	1	1.310	1.270
3/4-14	3/4-14	9385x12x12	1-1/4	1.500	1.000
3/4-14	1-11-1/2	9385x12x16	1-1/2	1.500	1.031
1-11-1/2	1-11-1/2	9385x16x16	1-1/2	1.500	1.000
1-1/4-11-1/2	1-1/4-11-1/2	9385x20x20	1-7/8	1.790	1.250
1-1/2-11-1/2	1-1/2-11-1/2	9385x24x24	2-1/8	1.940	1.380
2-11-1/2	2-11-1/2	9385x32x32	2-5/8	2.000	1.500

## 45° Elbow - Female SAE 45° Flare Swivel to Male SAE

(Steel)



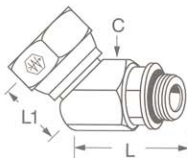
Tube O.D.	Catalog Number	Hex C	L	L1
3/8	9154x6x6	3/4	1.400	.429
1/2	9154x8x8	1	1.760	.598
5/8	9154x10x10	1-1/4	1.920	.645

NOTE: C and L dimensions subject to change.

# NPSM Female Swivel Adapters

**Steel Fittings**

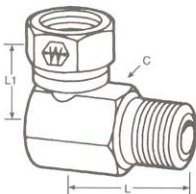
## 45° Elbow - Male Straight Thread to Female Pipe Swivel (Ref. SAE No. 140357)



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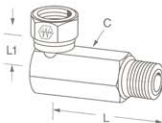
Straight Thread	NPSM Swivel Nut	Catalog Number	Hex		
			C	L	L1
7/16-20	1/4-18	9365x4x4	11/16	1.062	.656
7/16-20	3/8-18	9365x4x6	7/8	1.062	.656
9/16-18	3/8-18	9365x6x6	7/8	1.062	.703
9/16-18	1/2-14	9365x6x8	1	1.062	.812
3/4-16	3/8-18	9365x8x6	1	1.125	.875
3/4-16	1/2-14	9365x8x8	1	1.125	.812
7/8-14	1/2-14	9365x10x8	1	1.500	.781
1-1/16-12	3/4-14	9365x12x12	1-1/4	1.500	1.046
1-5/16-12	1-11-12	9365x16x16	1-1/2	1.625	1.062
1-5/8-12	1-1/4-11-1/2	9365x20x20	1-7/8	1.281	1.171
1-7/8-12	1-1/2-11-1/2	9365x24x24	2-1/8	1.609	1.343

## 90° Elbow - Female Pipe Swivel to Male Pipe (Ref. SAE No. 140230)



NPSM Swivel Nut	Male Pipe Thread	Catalog Number	Hex		
			C	L	L1
1/8-27	1/8-27	9405x2x2	9/16	.720	.700
1/8-27	1/4-18	9405x2x4	11/16	1.190	.750
1/4-18	1/8-27	9405x4x2	11/16	1.060	.780
1/4-18	1/4-18	9405x4x4	11/16	.980	.750
1/4-18	3/8-18	9405x4x6	11/16	1.500	.810
1/4-18	1/2-14	9405x4x8	1	1.500	.940
3/8-18	1/4-18	9405x6x4	13/16	1.500	.900
3/8-18	3/8-18	9405x6x6	7/8	1.500	.900
3/8-18	1/2-14	9405x6x8	1	1.350	1.020
3/8-18	3/4-14	9405x6x12	1-1/4	2.000	1.120
1/2-14	3/8-18	9405x8x6	1	1.280	1.020
1/2-14	1/2-14	9405x8x8	1	1.810	1.020
1/2-14	3/4-14	9405x8x12	1-1/4	1.490	1.140
1/2-14	1-11-1/2	9405x8x16	1-1/2	2.380	1.250
3/4-14	3/4-14	9405x12x12	1-1/4	1.490	1.200
3/4-14	1-11-1/2	9405x12x16	1-1/2	2.380	1.380
1-11-1/2	3/4-14	9405x16x12	1-1/2	2.190	1.440
1-11-1/2	1-11-1/2	9405x16x16	1-1/2	2.380	1.440
1-11-1/2	1-1/4-11-1/2	9405x16x20	1-7/8	1.578	2.620
1-1/4-11-1/2	1-11 1/2	9405x20x16	1-7/8	2.530	1.660
1-1/4-11-1/2	1-1/4-11-1/2	9405x20x20	1-7/8	2.070	1.630
1-1/4-11-1/2	1-1/2-11-1/2	9405x20x24	2-1/8	2.810	1.780
1-1/2-11-1/2	1-1/2-11-1/2	9405x24x24	2-1/8	2.810	1.750
2-11-1/2	2-11-1/2	9405x32x32	2-5/8	3.120	2.310

## 90° Elbow Long - Female Pipe Swivel to Male Pipe

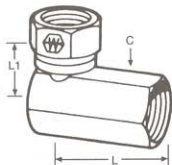


NPSM Swivel Nut	Male Pipe Thread	Catalog Number	Hex		
			C	L	L1
1/8-27	1/8-27	9405X2X2LL	9/16	1.90	.70
1/4-18	1/4-18	9405X4X4LL	11/16	2.57	.75
3/8-18	3/8-18	9405X6X6LL	13/16	3.16	.90
1/2-14	1/2-14	9405X8X8LL	1	3.67	1.02
3/4-14	3/4-14	9405X12X12LL	1-1/4	4.29	1.20
1-11-1/2	1-11-1/2	9405X16X16LL	1-1/2	5.06	1.46

NOTE: C and L dimensions subject to change.

90° Elbow - Female Pipe Swivel to  
Female Pipe

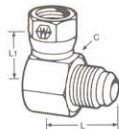
(Ref. SAE No. 140231)



NPSM Swivel Nut	Fem. Pipe Thread	Catalog Number	Hex C	L	L1
1/8-27	1/8-27	9455x2x2	9/16	.640	.700
1/4-18	1/4-18	9455x4x4	11/16	.870	.750
1/4-18	3/8-18	9455x4x6	13/16	1.000	.810
1/4-18	1/2-14	9455x4x8	1	1.250	.940
3/8-18	1/4-18	9455x6x4	13/16	1.000	.900
3/8-18	3/8-18	9455x6x6	13/16	1.000	.900
3/8-18	1/2-14	9455x6x8	1	1.250	1.000
1/2-14	3/8-18	9455x8x6	1	1.220	1.020
1/2-14	1/2-14	9455x8x8	1	1.250	1.000
1/2-14	3/4-14	9455x8x12	1-1/4	1.440	1.120
3/4-14	1/2-14	9455x12x8	1-1/4	1.440	1.250
3/4-14	3/4-14	9455x12x12	1-1/4	1.490	1.200
3/4-14	1-11/12	9455x12x16	1-1/2	1.750	1.380
1-11/12	3/4-14	9455x16x12	1-1/2	1.750	1.380
1-11/12	1-11/12	9455x16x16	1-1/2	1.690	1.460
1-1/4-11/12	1-1/4-11/12	9455x20x20	1-7/8	1.850	1.630
1-1/2-11/12	1-1/2-11/12	9455x24x24	2-1/8	2.250	1.750
2-11/12	2-11/12	9455x32x32	2-5/8	2.500	2.310

90° Elbow - SAE 45° Female Swivel to  
Male SAE 45°

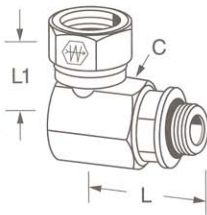
(Steel)



Tube O.D.	Catalog Number	Hex C	L	L1
3/8	9151x6x6	3/4	1.00	.69
1/2	9151x8x8	1	1.25	.99
5/8	9151x10x10	1-1/4	1.44	1.09

90° Elbow - Male Straight Thread to  
Female Pipe Swivel

(Ref. SAE No. 140257)



Straight Thread	NPSM Swivel Nut	Catalog Number	Hex C	L	L1
7/16-20	1/4-18	9515x4x4	11/16	1.090	.781
7/16-20	3/8-18	9515x4x6	7/8	1.100	.900
9/16-18	1/4-18	9515x6x4	11/16	1.187	.781
9/16-18	3/8-18	9515x6x6	7/8	1.296	.937
9/16-18	1/2-14	9515x6x8	1	1.484	1.000
3/4-16	3/8-18	9515x8x6	1	1.515	1.000
3/4-16	1/2-14	9515x8x8	1	1.515	1.000
3/4-16	3/4-14	9515x8x12	1-1/4	1.656	1.250
7/8-14	3/8-18	9515x10x6	1	1.640	1.000
7/8-14	1/2-14	9515x10x8	1	1.640	1.025
7/8-14	3/4-14	9515x10x12	1-1/4	1.781	1.250
1-1/16-12	1/2-14	9515x12x8	1-1/4	1.921	1.125
1-1/16-12	3/4-14	9515x12x12	1-1/4	1.921	1.250
1-3/16-12	3/4-14	9515x14x12	1-1/4	1.921	1.250
1-5/16-12	3/4-14	9515x16x12	1-1/2	2.093	1.375
1-5/16-12	1-11/12	9515x16x16	1-1/2	2.093	1.390
1-5/8-12	3/4-14	9515x20x12	1-7/8	2.484	1.562
1-5/8-12	1-1/4-11/12	9515x20x20	1-7/8	2.484	1.656
1-7/8-12	1-1/2-11/12	9515x24x24	2-1/8	2.609	1.734
2-1/2-12	2-11/12	9515x32x32	2-5/8	3.250	2.312

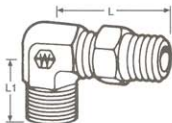
Replacement O-rings page 194.

NOTE: C and L dimensions subject to change.

# NPSM Female Swivel Adapters

Steel  
Fittings

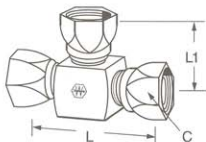
## 90° Elbow - Male Pipe Swivel to Male Pipe Rigid



Not for use with liquids over 212°F.

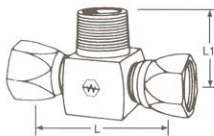
Male Pipe Swivel	Male Pipe	Catalog Number	Hex C	L	L1
1/4-18	1/4-18	9435x4x4	9/16	1.870	1.060
3/8-18	3/8-18	9435x6x6	3/4	1.950	1.220
1/2-14	1/2-14	9435x8x8	7/8	2.250	1.470

## Female Pipe Swivel Tee



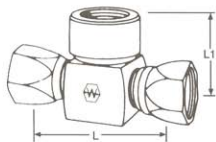
NPSM Swivel Nut	Catalog Number	Across Flats	L	L1	Hex C
1/8-27	9705x2x2x2	1/2	1.406	.660	9/16
1/4-18	9705x4x4x4	11/16	1.720	.780	11/16
3/8-18	9705x6x6x6	7/8	1.720	.940	7/8
1/2-14	9705x8x8x8	1	2.200	1.000	1
3/4-14	9705x12x12x12	1-1/4	2.780	1.250	1-1/4
1-11-1/2	9705x16x16x16	1-1/2	3.060	1.390	1-1/2
1-1/4-11-1/2	9705x20x20x20	1-7/8	3.320	1.660	1-7/8

## Female Pipe Swivel to Male Pipe Branch Tee



NPSM Swivel Nut	Male Pipe	Catalog Number	Across Flats	L	L1
1/8-27	1/8-27	9406x2x2x2	9/16	1.380	.940
1/4-18	1/4-18	9406x4x4x4	11/16	1.500	1.190
1/4-18	3/8-18	9406x4x4x6	7/8	1.744	1.500
1/4-18	1/2-14	9406x4x4x8	7/8	1.880	1.750
3/8-18	3/8-18	9406x6x6x6	1	1.880	1.750
3/8-18	1/2-14	9406x6x6x8	1	2.000	1.750
1/2-14	1/2-14	9406x8x8x8	1	2.000	1.810
1/2-14	3/4-14	9406x8x8x12	1-1/4	2.250	2.000
3/4-14	3/4-14	9406x12x12x12	1-1/4	2.380	2.000
3/4-14	1-11-1/2	9406x12x12x16	1-1/2	2.756	2.375
1-11-1/2	3/4-14	9406x16x16x12	1-1/2	2.780	2.187
1-11-1/2	1-11-1/2	9406x16x16x16	1-1/2	2.880	2.380
1-1/4-11-1/2	1-1/4-11-1/2	9406x20x20x20	1-7/8	3.240	2.620
1-1/2-11-1/2	1-1/2-11-1/2	9406x24x24x24	2-1/8	3.500	2.810

## Female Pipe Swivel to Female Pipe Branch Tee

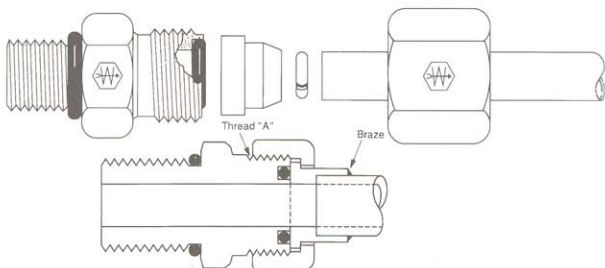


NPSM Swivel Nut	Female Pipe	Catalog Number	Across Flats	L	L1
1/8-27	1/8-27	9456x2x2x2	1/2	1.312	.687
1/4-18	1/4-18	9456x4x4x4	11/16	1.625	.937
1/4-18	3/8-18	9456x4x4x6	7/8	1.744	1.062
3/8-18	3/8-18	9456x6x6x6	7/8	1.874	1.062
3/8-18	1/2-14	9456x6x6x8	1	2.000	1.250
1/2-14	1/2-14	9456x8x8x8	1	2.000	1.250
1/2-14	3/4-14	9456x8x8x12	1-1/4	2.250	1.437
3/4-14	3/4-14	9456x12x12x12	1-1/4	2.500	1.437
3/4-14	1-11-1/2	9456x12x12x16	1-1/2	2.750	1.750
1-11-1/2	1-11-1/2	9456x16x16x16	1-1/2	2.780	1.750
1-1/4-11-1/2	1-1/4-11-1/2	9456x20x20x20	1-7/8	3.312	2.000

NOTE: C and L dimensions subject to change.

1 mm = 10





Tube O.D.	1/4	3/8	1/2	5/8	3/4	1	1-1/4	1-1/2
For-Seal Thread	9/16-18	11/16-16	13/16-16	1-14	1-3/16-12	1-7/16-12	1-11/16-12	2-12
Maximum PSI	6000	6000	6000	6000	6000	6000	4000	4000
Adjustable Fittings PSI	6000	6000	6000	6000	6000	5000	4000	3000

Rated pressures are for low surge, static type applications.

• **Typical Application**

High pressure hydraulic, pneumatic and chemical processing.

• **Pressure\***

Operating pressure to 6000 psi (1-1/4" and 1-1/2" maximum 4,000 psi). See thread chart.

• **Sealing Method**

Face O-Ring.

• **Vibration**

Excellent resistance.

• **Material**

12L14 Steel.

• **Plating**

All fittings are zinc plated, except braze parts which are oil dipped.

• **Used With**

Steel and stainless steel tubing (tubing for brazing must be non-coated).

• **Advantages**

Tubing is brazed for permanent leakproof connection.

• **Conformance**

Meets SAE J1453.

• **How to Order**

Individually by catalog number. O-Ring supplied with fittings.

• **NOTE**

Refer to current price list for availability of cataloged items. Quotations and delivery of non-stock items supplied on request. Configuration and dimensions subject to change without notice. Additional information can be found in SAE J1453.

• **Assembly Instruction**

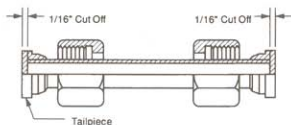
See pages 150 & 151. See page 230 & 231 for assembly equipment.

• **Label Set: FS-2400** (adhesive)

## Torque Requirements

Tube O.D.	1/4	3/8	1/2	5/8	3/4	1	1-1/4	1-1/2
Torque Ft-Lb. For-Seal SW. Nut	10-12	18-20	32-35	46-50	65-70	92 100	125 140	150 165
Torque Ft-Lb O-Ring Boss Straight Thread O-Ring Locknut Torque	14-16	24-26	50-60	72-80	125 135	200 220	210 280	270 360

## Tube Preparation And Cleaning



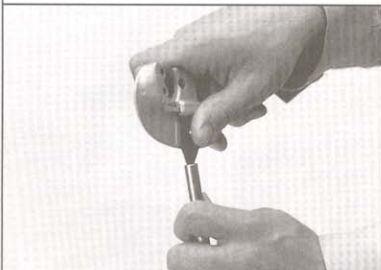
NOTE: Subtract 1/16" from tube length for each connection.

Figure 1

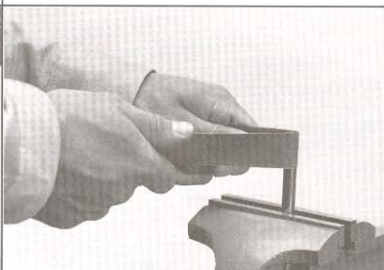


1. Establish the length of tubing required allowing 1/16" cut-off factor for each connection. (See Fig. 1)

2. Cut the tubing to proper length keeping ends reasonably square. A fine tooth hack saw or cut-off saw works well for this job. The use of a tubing cutter is not recommended due to possible collapse of the tube end, retarding the capillary action required for proper braze flow.



3. Clean the end of the tube with an alkaline cleaner to remove all traces of oil or grease. Deburr the end of the tube with a file and polish the outside of the tube down to bare metal with clean emery paper. Oil and grease residue must be removed first to avoid working the oily residue into the tube surface.



4. After polishing, wipe off any metal particles using a clean solvent if necessary. Avoid touching the tube end after final cleaning as this may leave greasy spots which will braze poorly.

Clean the tailpiece with an alkaline cleaner.

## Fluxing and Brazing Cleanup

Flux may be cleaned up using hot water and wire brush, using care not to scratch the tailpiece sealing surface.



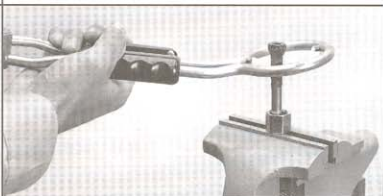
1. Assemble proper size braze ring into counterbore of tailpiece. The correct size braze ring will be slightly smaller than the inside diameter of the counterbore.



2. Clamp the tube securely in a vise, slide nut on tube, with threads pointing outward. Coat the tube end with flux and several inches of the tube outside diameter.

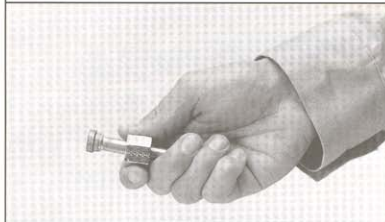


3. Coat the tailpiece liberally with flux including the counterbore and braze ring.

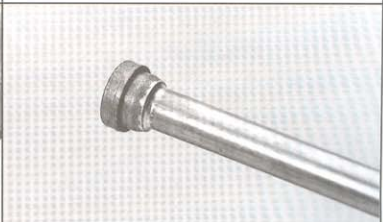


4. In a well ventilated area, apply heat uniformly to the tailpiece and the tube end. Watch the flux. The flux becomes completely clear when it is close to the proper brazing temperature. When ring melts, the tailpiece will settle down onto the end.

**NOTE:** General working knowledge of Acetylene torch brazing techniques is recommended.



5. Remove tube assembly from vise and check braze joint.



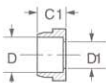
6. The braze alloy will flow down through the joint and should form a continuous fillet at the tube to tailpiece joint.

**NOTE:** Do not overheat. Excessive heat will only cause scaling and charred flux and make the parts more difficult to clean up.

### Tailpiece Silver Braze (Ref. SAE No. 520115)

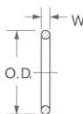


Oil Dipped



Tube O.D.	Catalog Number	D	D1	C1
1/4	4165x4	.256	.172	.374
3/8	4165x6	.381	.264	.374
1/2	4165x8	.506	.378	.374
5/8	4165x10	.631	.484	.413
3/4	4165x12	.757	.609	.551
1	4165x16	1.007	.811	.610
1-1/4	4165x20	1.257	1.024	.610
1-1/2	4165x24	1.507	1.260	.610

### For-Seal® Cadmium Free Braze Ring



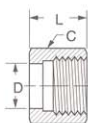
Tube O.D.	Catalog Number	Wire Dia.	O.D.
1/4	4640x4	.046	.250
3/8	4640x6	.046	.375
1/2	4640x8	.046	.500
5/8	4640x10	.046	.625
3/4	4640x12	.062	.750
1	4640x16	.062	1.000
1-1/4	4640x20	.062	1.250
1-1/2	4640x24	.062	1.500

### Bulkhead Nut (Ref. SAE No. 520118)



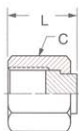
Tube O.D.	Catalog Number	Hex C	L
1/4	4924x4	13/16	.27
3/8	4924x6	1	.31
1/2	4924x8	1-1/8	.35
5/8	4924x10	1-5/16	.41
3/4	4924x12	1-1/2	.41
1	4924x16	1-3/4	.41
1-1/4	4924x20	2	.41
1-1/2	4924x24	2-3/8	.41

### Nut (Ref. SAE No. 520110)

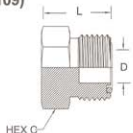


Tube O.D.	Catalog Number	Hex C	D	L
1/4	4105x4	11/16	.412	.58
3/8	4105x6	13/16	.531	.67
1/2	4105x8	15/16	.652	.83
5/8	4105x10	1-1/8	.829	.93
3/4	4105x12	1-3/8	.950	1.02
1	4105x16	1-5/8	1.144	1.10
1-1/4	4105x20	1-7/8	1.415	1.10
1-1/2	4105x24	2-1/4	1.727	1.10

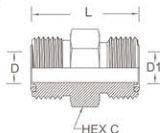
### Cap (Ref. SAE No. 520112)



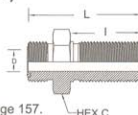
Tube O.D.	Catalog Number	Hex C	L
1/4	4129x4	11/16	.67
3/8	4129x6	13/16	.75
1/2	4129x8	15/16	.90
5/8	4129x10	1-1/8	1.00
3/4	4129x12	1-3/8	1.10
1	4129x16	1-5/8	1.17
1-1/4	4129x20	1-7/8	1.17
1-1/2	4129x24	2-1/4	1.17

**Plug**  
(Ref. SAE No. 520109)


Tube O.D.	Catalog Number	Hex C	D	L
1/4	4229x4	5/8	.172	.659
3/8	4229x6	3/4	.264	.751
1/2	4229x8	7/8	.378	.854
5/8	4229x10	1-1/16	.484	1.020
3/4	4229x12	1-1/4	.609	1.080
1	4229x16	1-1/2	.811	1.100
1-1/4	4229x20	1-3/4	1.024	1.100
1-1/2	4229x24	2-1/8	1.260	1.100

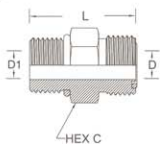
**Union**  
(Ref. SAE No. 520101)


Tube O.D.	Tube O.D.	Catalog Number	Hex C	D	D1	L
1/4	1/4	4305x4	5/8	.172	.172	1.08
3/8	1/4	4305x6x4	3/4	.264	.172	1.17
3/8	3/8	4305x6	3/4	.264	.264	1.22
1/2	3/8	4305x8x6	7/8	.378	.264	1.33
1/2	1/2	4305x8	7/8	.378	.378	1.39
5/8	1/2	4305x10x8	1-1/16	.484	.378	1.57
5/8	5/8	4305x10	1-1/16	.484	.484	1.68
3/4	1/2	4305x12x8	1-1/4	.609	.378	1.69
3/4	5/8	4305x12x10	1-1/4	.609	.484	1.80
3/4	3/4	4305x12	1-1/4	.609	.609	1.86
1	3/4	4305x16x12	1-1/2	.812	.609	1.92
1	1	4305x16	1-1/2	.811	.811	1.94
1-1/4	1-1/4	4305x20	1-3/4	1.024	1.024	2.02
1-1/2	1-1/2	4305x24	2-1/8	1.260	1.260	2.09

**Bulkhead Union**  
(Ref. SAE No. 520601)


For bulkhead nut, see page 157.

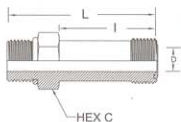
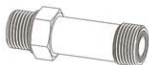
Tube O.D.	Catalog Number	Hex C	D	I	L
3/8	4325x6	1	.264	1.34	2.09
1/2	4325x8	1-1/8	.378	1.44	2.30
3/4	4325x12	1-1/2	.609	1.64	2.72
1	4325x16	1-3/4	.812	1.66	2.76
1-1/4	4325x20	2	1.024	1.66	2.76
1-1/2	4325x24	2-3/8	1.260	1.66	2.76

**Straight Thread O-Ring  
Connector**  
(Ref. SAE No. 520120)


For replacement Straight Thread O-ring, see page 147.

Tube O.D.	Port Size	Catalog Number	Hex C	D	D1	L
1/4	1/4	4315x4	5/8	.172	.172	1.133
1/4	3/8	4315x4x6	11/16	.172	.172	1.202
3/8	1/4	4315x6x4	3/4	.264	.172	1.343
3/8	3/8	4315x6	3/4	.264	.264	1.252
3/8	1/2	4315x6x8	7/8	.378	.264	1.378
3/8	5/8	4315x6x10	1-1/16	.264	.484	1.530
1/2	3/8	4315x8x6	7/8	.378	.264	1.472
1/2	1/2	4315x8	7/8	.378	.378	1.441
1/2	5/8	4315x8x10	1	.378	.484	1.590
1/2	3/4	4315x8x12	1-1/4	.378	.609	1.748
5/8	5/8	4315x10	1-1/16	.484	.484	1.700
3/4	3/4	4315x12	1-1/4	.609	.609	1.918
3/4	1	4315x12x16	1-1/2	.609	.609	1.960
1	3/4	4315x16x12	1-1/2	.812	.609	2.138
1	1	4315x16	1-1/2	.811	.811	1.978
1	1-1/4	4315x16x20	1-7/8	.812	1.709	2.058
1-1/4	1	4315x20x16	1-3/4	1.024	.843	2.278
1-1/4	1-1/4	4315x20	1-7/8	1.024	1.024	2.058
1-1/2	1-1/2	4315x24	2-1/8	1.260	1.260	2.125

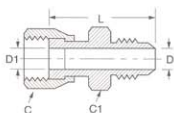
### Straight Thread O-Ring to Male For-Seal® Extended (Ref. SAE No. 520122)



For replacement Straight Thread O-ring, see page 147.

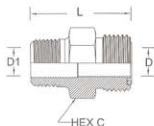
Tube O.D.	Port Size	Catalog Number	Hex C	D	I	L
3/8	3/8	4316x6	3/4	.264	1.46	2.27
1/2	1/2	4316x8	7/8	.378	1.75	2.67
3/4	3/4	4316x12	1-1/4	.609	2.52	3.76
1	1	4316x16	1-1/2	.811	2.87	4.14
1-1/4	1-1/4	4316x20	1-7/8	1.024	3.41	4.76
1-1/2	1-1/2	4316x24	2-1/8	1.260	3.82	5.26

### Male JIC 37° to Female Swivel For-Seal®

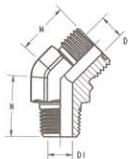


Female Tube O.D.	Male Tube Size	Catalog Number	Hex C	Hex C1	D	D1	L
1/4	1/4	4213x4	11/16	5/8	.172	.165	1.50
3/8	3/8	4213x6	13/16	3/4	.297	.284	1.62
1/2	1/2	4213x8	15/16	7/8	.392	.358	1.90
5/8	5/8	4213x10	1-1/8	1-1/16	.484	.453	2.25
3/4	3/4	4213x12	1-3/8	1-1/4	.609	.547	2.48
1	1	4213x16	1-5/8	1-1/2	.811	.783	2.84

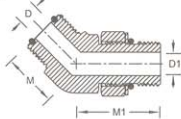
### Male Connector



Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	D	D1	L
3/8	3/8	4205x6x6	3/4	.264	.406	1.30
1/2	3/8	4205x8	7/8	.378	.406	1.45
1/2	1/2	4205x8x8	7/8	.378	.484	1.64
5/8	1/2	4205x10	1-1/16	.484	.531	1.82
3/4	1/2	4205x12x8	1-1/4	.406	.484	1.87
3/4	3/4	4205x12	1-1/4	.609	.719	1.94
3/4	1	4205x12x16	1-3/8	.609	.938	1.87
1	1	4205x16	1-1/2	.811	.938	2.19
1-1/4	1-1/4	4205x20	1-3/4	1.024	1.250	2.30

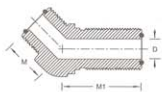
**45° Male Elbow**


Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	4355x4	.172	.188	.63	.64	9/16
3/8	1/4	4355x6	.264	.281	.74	.86	3/4
1/2	3/8	4355x8	.378	.406	.80	.95	7/8
5/8	1/2	4355x10	.484	.531	.92	1.17	1-1/16
3/4	3/4	4355x12	.609	.719	1.02	1.20	1-5/16
1	1	4355x16	.812	.939	1.18	1.48	1-5/8
1-1/4	1-1/4	4355x20	1.026	1.252	1.26	1.67	1-5/8
1-1/2	1-1/2	4355x24	1.262	1.502	1.45	1.77	1-7/8

**45° Elbow - For-Seal® to  
Straight Thread O-Ring  
(Ref. SAE No. 520320)**


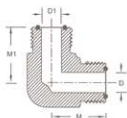
For replacement straight thread O-ring, see page 147.

Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4365x4	.172	.172	.63	1.18	9/16
1/4	3/8	4365x4x6	.172	.264	.68	1.30	3/4
3/8	1/4	4365x6x4	.264	.172	.74	1.22	3/4
3/8	3/8	4365x6	.264	.264	.74	1.30	3/4
3/8	1/2	4365x6x8	.264	.390	.74	1.43	3/4
1/2	3/8	4365x8x6	.378	.264	.80	1.27	3/4
1/2	1/2	4365x8	.378	.390	.80	1.43	3/4
1/2	5/8	4365x8x10	.378	.484	.82	1.76	1-1/16
1/2	3/4	4365x8x12	.378	.609	.87	1.97	1-3/16
5/8	1/2	4365x10x8	.484	.390	.92	1.59	1-1/16
5/8	5/8	4365x10	.484	.484	.92	1.76	1-1/16
5/8	3/4	4365x10x12	.484	.609	.94	1.97	1-3/16
3/4	5/8	4365x12x10	.609	.484	1.02	1.81	1-3/16
3/4	3/4	4365x12	.609	.609	1.02	1.97	1-5/16
3/4	1	4365x12x16	.609	.811	1.16	2.06	1-5/16
1	3/4	4365x16x12	.811	.609	1.12	2.03	1-7/16
1	1	4365x16	.812	.811	1.18	2.06	1-1/2
1	1-1/4	4365x16x20	.811	1.081	1.26	2.11	1-5/8
1-1/4	1-1/4	4365x20	1.024	1.081	1.26	2.11	1-5/8
1-1/2	1-1/2	4365x24	1.260	1.312	1.45	2.11	1-7/8

**45° Bulkhead Elbow  
(Ref. SAE No. 520801)**


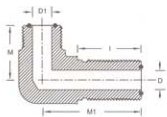
For Bulkhead Nut, see page 157.

Tube O.D.	Catalog Number	D	M	M1	Across Flats
1/4	4375x4	.172	.63	1.73	9/16
3/8	4375x6	.264	.74	1.91	3/4
1/2	4375x8	.378	.80	2.01	3/4
5/8	4375x10	.484	.92	2.23	1-1/16
3/4	4375x12	.609	1.02	2.39	1-3/16
1	4375x16	.811	1.18	2.57	1-7/16
1-1/4	4375x20	1.045	1.26	2.64	1-11/16
1-1/2	4375x24	1.312	1.45	2.64	1-7/8

**90° Union Elbow  
(Ref. SAE No. 520201)**


Tube O.D.	Tube O.D.	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4505x4	.172	.172	.85	.85	9/16
1/4	3/8	4505x4x6	.172	.264	.92	.98	3/4
3/8	3/8	4505x6	.264	.264	.98	.98	3/4
1/2	1/2	4505x8	.378	.378	1.10	1.10	3/4
5/8	5/8	4505x10	.484	.484	1.31	1.31	1-1/16
3/4	3/4	4505x12	.609	.609	1.47	1.47	1-3/16
1	1	4505x16	.811	.811	1.64	1.64	1-7/16
1-1/4	1-1/4	4505x20	1.045	1.045	1.76	1.76	1-5/8
1-1/2	1-1/2	4505x24	1.312	1.312	1.92	1.92	1-7/8

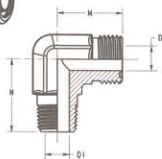
### 90° Elbow - Bulkhead Union (Ref. SAE No. 520701)



For bulkhead nut, see page 157.

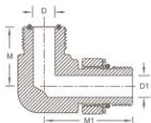
Tube O.D.	Tube O.D.	Catalog Number	D	D1	M	M1	I	Across Flats
1/4	1/4	4525x4	.172	.172	.89	1.85	1.24	9/16
3/8	3/8	4525x6	.264	.264	1.02	2.05	1.34	3/4
1/2	1/2	4525x8	.378	.378	1.14	2.18	1.44	7/8
1/2	5/8	4525x8x10	.484	.378	1.26	2.48	1.60	1-1/16
5/8	5/8	4525x10	.484	.484	1.36	1.36	1.44	1-1/16
3/4	3/4	4525x12	.609	.609	1.52	2.64	1.60	1-5/16
1	1	4525x16	.811	.811	1.67	2.80	1.64	1-5/8
1-1/4	1-1/4	4525x20	1.024	1.024	1.79	2.97	1.66	1-7/8
1-1/2	1-1/2	4525x24	1.260	1.260	1.95	3.13	1.66	1-7/8

### 90° Male Connector



Tube O.D.	Male Pipe	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	4405x4	.172	.188	.85	.78	9/16
3/8	1/4	4405x6	.264	.281	.80	1.09	3/4
1/2	3/8	4405x8	.378	.406	1.10	1.22	3/4
5/8	1/2	4405x10	.484	.531	1.31	1.47	1-1/16
3/4	3/4	4405x12	.609	.719	1.47	1.59	1-5/16
1	1	4405x16	.812	.939	1.64	1.97	1-5/8
1-1/4	1-1/4	4405x20	1.026	1.252	1.76	2.38	1-5/8
1-1/2	1-1/2	4405x24	1.262	1.502	1.92	2.64	1-7/8

### 90° Elbow - Straight Thread O-Ring to Male For-Seal® (Ref. SAE No. 520220)



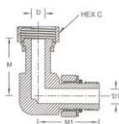
For replacement straight thread O-ring, see page 147.

Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4515x4	.172	.172	.85	1.29	9/16
1/4	5/16	4515x4x5	.172	.234	.85	1.29	9/16
1/4	3/8	4515x4x6	.172	.264	.92	1.45	3/4
1/4	1/2	4515x4x8	.172	.390	.97	1.60	3/4
3/8	1/4	4515x6x4	.264	.172	.98	1.37	3/4
3/8	5/16	4515x6x5	.264	.234	.98	1.37	3/4
3/8	3/8	4515x6	.264	.264	.98	1.45	3/4
3/8	1/2	4515x6x8	.264	.390	1.04	1.60	3/4
3/8	5/8	4515x6x10	.264	.484	1.15	1.97	3/4
3/8	3/4	4515x6x12	.264	.609	1.25	2.17	1-3/16
1/2	3/8	4515x8x6	.378	.264	1.10	1.44	3/4
1/2	1/2	4515x8	.378	.390	1.10	1.60	3/4
1/2	5/8	4515x8x10	.378	.484	1.21	1.97	1-1/16
1/2	3/4	4515x8x12	.378	.484	1.32	2.17	1-1/16
5/8	1/2	4515x10x8	.484	.390	1.31	1.80	1-1/16
5/8	5/8	4515x10	.484	.484	1.31	1.97	1-1/16
5/8	3/4	4515x10x12	.484	.609	1.41	2.17	1-3/16
3/4	1/2	4515x12x8	.609	.390	1.47	1.84	1-3/16
3/4	5/8	4515x12x10	.609	.484	1.47	2.01	1-5/16
3/4	3/4	4515x12	.609	.609	1.47	2.17	1-5/16
3/4	1	4515x12x16	.609	.811	1.62	2.35	1-5/16
1	3/4	4515x16x12	.811	.609	1.64	2.32	1-5/8
1	7/8	4515x16x14	.811	.609	1.64	2.32	1-5/8
1	1	4515x16	.811	.811	1.64	2.35	1-5/8
1	1-1/4	4515x16x20	.811	1.081	1.76	2.45	1-5/8
1-1/4	1	4515x20x16	1.024	.811	1.76	2.42	1-5/8
1-1/4	1-1/4	4515x20	1.024	1.081	1.76	2.45	1-7/8
1-1/4	1-1/2	4515x20x24	1.024	1.312	1.92	2.59	1-7/8
1-1/2	1-1/4	4515x24x20	1.312	1.081	1.92	2.59	1-7/8
1-1/2	1-1/2	4515x24	1.312	1.312	1.92	2.59	1-7/8



**90° Elbow - For-Seal® Female Swivel to Male Straight Thread O-Ring**

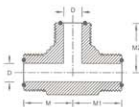
(Ref. SAE No. 520281)



Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Hex C	Across Flats
1/4	1/4	4535x4	.165	.180	1.04	1.29	11/16	9/16
3/8	3/8	4535x6	.264	.300	1.15	1.45	13/16	3/4
1/2	1/2	4535x8	.358	.398	1.49	1.60	15/16	7/8
5/8	5/8	4535x10	.453	.498	1.62	1.97	1-1/8	1-1/16
3/4	3/4	4535x12	.547	.616	1.82	2.17	1-3/8	1-3/8
1	1	4535x16	.783	.852	2.10	2.35	1-5/8	1-5/8
1-1/4	1-1/4	4535x20	1.026	1.090	2.29	2.45	1-7/8	1-5/8
1-1/2	1-1/2	4535x24	1.262	1.326	2.41	2.59	2-1/4	1-7/8

**Union Tee**

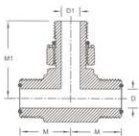
(Ref. SAE No. 520401)



Tube O.D. A	Tube O.D. B	Tube O.D. C	Catalog Number	D	D1	M	M1	M2	Across Flats
1/4	1/4	1/4	4705x4	.172	.172	.85	.85	.85	9/16
3/8	3/8	3/8	4705x6	.264	.264	.98	.98	.98	3/4
3/8	3/8	1/2	4705x6x6x8	.264	.378	1.04	1.04	1.10	3/4
1/2	3/8	1/2	4705x6x6x8	.264	.378	.98	.98	1.10	3/4
1/2	1/2	1/2	4705x8	.378	.378	1.10	1.10	1.10	3/4
5/8	5/8	5/8	4705x10	.484	.484	1.31	1.31	1.31	1-1/16
3/4	3/4	1/4	4705x12x12x4	.609	.172	1.47	1.47	1.19	1-5/16
3/4	3/4	3/8	4705x12x12x6	.609	.264	1.47	1.47	1.25	1-5/16
3/4	3/4	3/4	4705x12	.609	.609	1.47	1.47	1.47	1-3/16
1	1	3/4	4705x16x16x12	.811	.609	1.64	1.64	1.62	1-5/8
1	1	1	4705x16	.811	.811	1.64	1.64	1.64	1-5/8
1-1/4	1-1/4	1	4705x20x20x16	1.024	.811	1.76	1.76	1.76	1-5/8
1-1/4	1-1/4	1-1/4	4705x20	1.024	1.024	1.76	1.76	1.76	1-5/8
1-1/2	1-1/2	1-1/2	4705x24	1.260	1.260	1.92	1.92	1.92	1-7/8

**Straight Thread Branch Tee**

(Ref. SAE No. 520429)

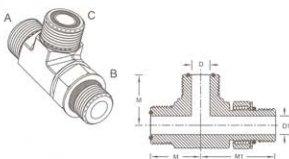


Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4715x4	.172	.172	.85	1.29	9/16
3/8	3/16	4715x6x6x3	.264	.130	.98	1.26	3/4
3/8	3/8	4715x6	.264	.264	.98	1.45	3/4
3/8	1/2	4715x6x6x8	.264	.391	1.04	1.60	7/8
1/2	3/8	4715x6x8x6	.378	.264	1.10	1.44	3/4
1/2	1/2	4715x8	.378	.390	1.10	1.60	3/4
5/8	5/8	4715x10	.484	.484	1.31	1.97	1-1/16
3/4	3/4	4715x12	.609	.609	1.47	2.17	1-3/16
3/4	1	4715x12x12x16	.609	.812	1.62	2.35	1-5/8
1	1	4715x16	.811	.845	1.64	2.35	1-5/8
1-1/4	1	4715x20x20x16	1.046	.845	1.76	2.45	1-15/16
1-1/4	1-1/4	4715x20	1.046	1.081	1.76	2.45	1-7/8
1-1/2	1-1/2	4715x24	1.260	1.313	1.92	2.59	1-7/8

For replacement straight thread O-ring, see page 147.

### Straight Thread O-Ring Run Tee

(Ref. SAE No. 520428)



For replacement straight thread O-ring, see page 147.

Tube O.D.	Port Size	Tube O.D.	Catalog Number	D	D1	M	M1	M2	Across Flats
A	B	C							
1/4	1/4	1/4	4716x4	.172	.172	.85	1.29	.85	9/16
1/4	1/4	3/8	4716x4x4x6	.172	.264	1.39	1.45	1.39	3/4
3/8	3/8	3/8	4716x6	.264	.264	.98	1.45	.98	3/4
1/2	1/2	1/2	4716x8	.378	.391	1.10	1.60	1.10	7/8
5/8	5/8	5/8	4716x10	.484	.484	1.31	1.97	1.31	1-1/16
3/4	3/4	3/4	4716x12	.609	.609	1.47	2.17	1.47	1-3/16
3/4	3/4	1	4716x12x12x16	.609	.812	1.62	2.32	1.64	1-7/16
3/4	1	3/4	4716x12x16x12	.609	.812	1.62	2.35	1.62	1-7/16
1	1	3/4	4716x16x16x12	.812	.609	1.64	2.35	1.62	1-7/16
1	1	1	4716x16	.812	.845	1.64	2.35	1.64	1-7/16
1-1/4	1-1/4	1-1/4	4716x20	1.046	1.081	1.76	2.45	1.76	1-7/8
1-1/2	1-1/2	1-1/2	4716x24	1.313	1.313	1.92	2.59	1.92	1-7/8

### Bulkhead Run Tee

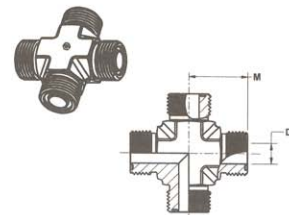
(Ref. SAE No. 520958)



For Bulkhead Nut, see page 157.

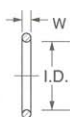
Tube O.D.	Catalog Number	D	I	M	M2	Across Flats
1/4	4726x4	.172	1.24	.89	1.85	9/16
3/8	4726x6	.264	1.34	1.02	2.05	3/4
1/2	4726x8	.378	1.44	1.14	2.18	3/4
5/8	4726x10	.484	1.60	1.36	2.48	1-1/16
3/4	4726x12	.609	1.64	1.52	2.65	1-3/16
1	4726x16	.812	1.66	1.67	2.80	1-7/16
1-1/4	4726x20	1.024	1.66	1.79	2.97	1-5/8
1-1/2	4726x24	1.260	1.66	1.95	3.13	1-7/8

### Male For-Seal® Cross



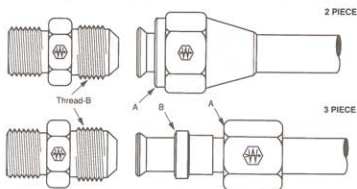
Tube O.D.	Catalog Number	D	M	Across Flats
1/4	4955x4	.172	.89	9/16
3/8	4955x6	.264	1.02	3/4
1/2	4955x8	.378	1.14	7/8
5/8	4955x10	.484	1.36	1-1/16
3/4	4955x12	.609	1.52	1-5/16
1	4955x16	.812	1.67	1-5/8
1-1/4	4955x20	1.026	1.79	1-5/8
1-1/2	4955x24	1.262	1.95	1-7/8

### O-Ring, For-Seal®



Material: Buna N, 90 Durometer  
 Temperature: -40°F to +250°F (-40°C to +121°C)  
 Standard o-ring complies with SAE specification SAE J515 Type CH

Tube O.D.	Catalog Number	W	I.D.
1/4	4629x4	.070 ± .005	.301 ± .005
3/8	4629x6	.070 ± .005	.364 ± .005
1/2	4629x8	.070 ± .005	.489 ± .005
5/8	4629x10	.070 ± .005	.614 ± .005
3/4	4629x12	.070 ± .005	.739 ± .005
1	4629x16	.070 ± .006	.926 ± .006
1-1/4	4629x20	.070 ± .006	1.176 ± .006
1-1/2	4629x24	.070 ± .010	1.489 ± .010



Tube O.D.	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
Thread Size-B	5/16-24	3/8-24	7/16-20	1/2-20	9/16-18	3/4-16	7/8-14	1-1/16-12	1-3/16-12	1-5/8-12	1-5/8-12	1-7/8-12	2-1/2-12

Forged Fittings and Adapters  
5000 Series Pressure Rating Chart

Connection Type	End Size												
	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"
SAE Fittings	6000	5000	5000	5000	5000	4000	4000	4000	4000	4000	3000	3000	3000
W/Adjustable Straight Thread O-Ring	5000	5000	4500	4000	4000	4000	3000	3000	2500	2500	2000	1500	1125
With Male Pipe	6000		5000		5000	4000		4000		4000	3000	2500	2500
With Female Pipe	5000		5000		4000	3000		2500		2000	1500	1500	1000

Brazed Fittings (TF)/SAE  
5000 Series Pressure Rating Chart

Connection Type	End Size												
	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"
SAE Fittings	5000	5000	5000	5000	5000	4500	3500	3500	3000	3000	2500	2000	1500
W/Adjustable Straight Thread O-Ring	5000	5000	4500	4000	4000	4000	3000	3000	2500	2000	1500	1125	
With Male or Female Pipe	5000	5000	5000	5000	4000	3000	3000	2500	2500	2000	1150	1000	1000

- Typical Application**  
Hydraulic, instrumentation and chemical processing systems.
- Pressure**  
Refer to the pressure charts above. The maximum working pressure of an adapter is the lower working pressure of the end size. Ex: C3069x8x6, 8 = 4000 psi and 6 = 5000 psi. Maximum working pressure is 4000 psi.
- Vibration**  
Good resistance. Vibration resistance decreases with increase in tube size. Use two piece design when greater vibration resistance is required.
- Temperature Range**  
-65°F to +400°F (-53°C to +204°C) at maximum operating pressures.
- Material**  
Carbon Steel - AISI/SAE 12L14  
Stainless Steel - Type 316  
Plating - Zinc, yellow dichromate.
- Used With**  
Copper, brass, steel, aluminum and other tubing that can be flared. See page 28-32 for material compatibility.
- Advantages**  
Zinc Plate. Choice of two or three-piece design. Broad selection of styles and sizes. Interchangeable with all sources.

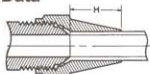
- Conformance**  
Meets specifications and standards of ASA, ASME and SAE.
- How to Order**  
To order a three-piece assembly, prefix the catalog number with a "3". Example: To order a male connector C5205x4 with nut and sleeve assembled, order C35205x4. To order a two-piece assembly, order nut and body separately. Example: Order male connector C5205x4 and two-piece style nut C5115x4. Bodies, nuts and sleeves can be ordered separately by catalog number. Stainless steel bodies, nuts and sleeves are ordered separately by catalog number.  
  
To order Weathercote finish (black phosphate coating) use "W" prefix in place of "C". Example: W5205x4 (special order only).  
  
To order with pipe sealants (Seal-A-Thread), add a "Z" suffix to the catalog number. Example: C5205x4Z (special order only).
- NOTE**  
Refer to current price list for availability of cataloged items. Quotations and delivery of non-stock items supplied on request. Configurations and dimensions subject to change without notice. Additional information can be found in SAE J514.

- NOTE (Continued)**  
Weatherhead fittings with a "C" prefix are made from a forged construction. Example: C5405x4. Weatherhead fittings with a "TF" prefix are made from a brazed construction. Example: TF5405x4.
- Assembly Instructions**
  - Cut tubing to desired length. Make sure all burrs are removed and ends are cut square.
  - Slide nut on tube. Threaded end of nut "A" must face toward fitting body. (See above.)
  - Slide sleeve on tube (3-piece assembly only). Collar end "B" of sleeve must face toward fitting body. (See above.)
  - Flare end of tubing with 37° flaring tool.
    - Check flare diameter. For dimensional data on 37° flares, see page 26.
    - Examine flare for excessive thin-out.
    - On thin wall, welded or brazed tubing, use double flare to prevent pinch-off and cracked flares.
  - Lubricate threads and assemble to fitting body. Nut should be turned hand tight.
  - Tighten assembly until finger tight, then until a sharp torque rise is encountered. From that point, apply one-sixth turn with a wrench.

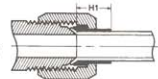
Label Set: **FS-200** (adhesive)

### Dimensional Data

Dimensional Data Two-Piece Assemblies



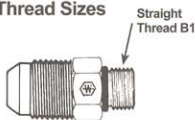
Dimensional Data Three-Piece Assemblies



NOTE: H & H1 are dimensions of fittings assembled to hand tight condition.

Tube O.D.	H	H1
1/8	—	.31
3/16	—	.38
1/4	.59	.36
5/16	.66	.41
3/8	.69	.47
1/2	.81	.50
5/8	.94	.64
3/4	—	.61
7/8	—	.69
1	—	.75
1-1/4	—	.73
1-1/2	—	1.05
2	—	1.08

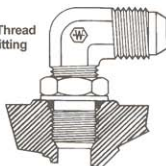
### Straight Thread O-Ring Thread Sizes



Port Size	Thread Size B1	Port Size	Thread Size B1
1/8	5/16-24	3/4	1-1/16-12
3/16	3/8-24	7/8	1-3/16-12
1/4	7/16-20	1	1-5/16-12
5/16	1/2-20	1-1/4	1-5/8-12
3/8	9/16-18	1-1/2	1-7/8-12
1/2	3/4-16	2	2-1/2-12
5/8	7/8-14		

### Straight Thread O-Ring Fitting

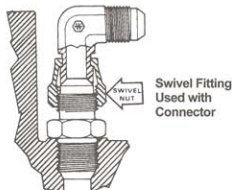
Straight Thread O-Ring Fitting



#### Adjustable Fittings

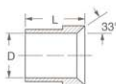
- Permit exact positioning of tees and elbows.
  - Provide a leakproof joint.
  - Eliminate distorted bosses from over tightening.
1. Lubricate O-ring by coating with a light oil or petrolatum and push back-up washer and O-ring to the extreme rear of the O-ring groove.
  2. Turn the lock nut down until it just contacts the back-up washer.
  3. Screw fitting by hand into straight thread boss until the back-up washer contacts the face of the boss.
  4. Position the fitting by backing out (counter-clockwise) up to one full turn. Hold fitting in desired position and tighten lock nut with a wrench.
  5. Assemble tube to fitting. Retighten lock nut.
- NOTE: O-ring, lock nuts and back-up washers are preassembled on all straight thread fittings.

### Swivel Fitting (Used with Connector)

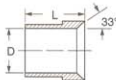


Weatherhead swivel end fittings can be used with a straight connector when space limitations will not permit full rotation of standard straight thread elbows and tees.

1. Screw connector into the O-ring boss and tighten.
2. Thread swivel nut onto connector.
3. Hold fitting in desired position and tighten swivel nut with a wrench.

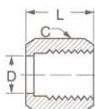
**Sleeve 3 Piece**  
**Stainless Steel No. 5177x**  
 (Ref. SAE No. 070115)


Tube O.D.	Catalog Number	D	L
1/8	C5165x2-	.130	.34
3/16	C5165x3-	.193	.34
1/4	C5165x4-	.255	.41
5/16	C5165x5-	.318	.44
3/8	C5165x6-	.380	.50
1/2	C5165x8-	.505	.56
5/8	C5165x10-	.631	.66
3/4	C5165x12-	.756	.68
7/8	C5165x14	.881	.76
1	C5165x16-	1.006	.78
1-1/4	C5165x20-	1.260	.91
1-1/2	C5165x24-	1.510	1.12
2	C5165x32-	2.014	1.19

**Sleeve 3 Piece Metric**  
 (Ref. SAE No. 070115)


Adapts Standard SAE Flare-Twin® fittings for use with metric tubing.

Tube O.D. (Inch Size)	Tube O.D. (Metric Size)	Catalog Number	D	L
1/4	6MM	C5165x4x6MM	.241	.41
5/16	8MM	C5165x5x8MM	.320	.44
3/8	10MM	C5165x6x10MM	.399	.50
1/2	12MM	C5165x8x12MM	.478	.56
5/8	14MM	C5165x10x14MM	.556	.66
5/8	15MM	C5165x10x15MM	.596	.66
5/8	16MM	C5165x10x16MM	.636	.66
3/4	18MM	C5165x12x18MM	.717	.68
7/8	20MM	C5165x14x20MM	.793	.76
1	25MM	C5165x16x25MM	.990	.78
1-1/4	30MM	C5165x20x30MM	1.191	.91
1-1/4	32MM	C5165x20x32MM	1.270	.91
1-1/2	38MM	C5165x24x38MM	1.510	1.12

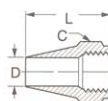
**Nut 3 Piece**  
**Stainless Steel No. 5117x**  
 (Ref. SAE No. 070110)


SAE style 'B'

Tube O.D.	Catalog Number	Hex C	D	L
1/8	C5105x2-	3/8	.181	.55
3/16	C5105x3-	7/16	.243	.61
1/4	C5105x4-	9/16	.306	.62
5/16	C5105x5-	5/8	.375	.68
3/8	C5105x6-	11/16	.441	.73
1/2	C5105x8-	7/8	.571	.85
5/8	C5105x10-	1	.698	.98
3/4	C5105x12-	1-1/4	.835	1.03
7/8	C5105x14	1-3/8	.961	1.09
1	C5105x16-	1-1/2	1.089	1.13
1-1/4	C5105x20-	2	1.347	1.23
1-1/2	C5105x24-	2-1/4	1.617	1.42
2	C5105x32-	2-7/8	2.167	1.75

**2 Piece Nut (Short)**


Tube O.D.	Catalog Number	Hex C	D	L
1/4	C5125x4	9/16	.255	.59
5/16	C5125x5	5/8	.318	.59
3/8	C5125x6	11/16	.380	.66
1/2	C5125x8	7/8	.505	.81
5/8	C5125x10	1	.631	.94
3/4	C5125x12	1-1/4	.756	1.14

**2 Piece Nut**  
 (Ref. SAE No. 070111)


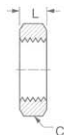
SAE style 'A'

Tube O.D.	Catalog Number	Hex C	D	L
1/4	C5115x4	9/16	.255	1.00
5/16	C5115x5	5/8	.318	1.06
3/8	C5115x6	11/16	.380	1.09
1/2	C5115x8	7/8	.505	1.28
5/8	C5115x10	1	.631	1.48
3/4	C5115x12	1-1/4	.756	1.66
7/8	C5115x14	1-3/8	.881	1.81
1	C5115x16	1-1/2	1.006	1.94
1-1/4	C5115x20	2	1.260	2.19
1-1/2	C5115x24	2-1/4	1.510	2.31

\* Available in stainless steel.

### Bulkhead Nut

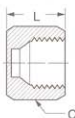
Stainless Steel No. 7936x  
(Ref. SAE No. 070118)



Tube O.D.	Catalog Number	Hex C	L
1/8	C5924x2	9/16	.22
3/16	C5924x3	5/8	.22
1/4	C5924x4	11/16	.25
5/16	C5924x5	3/4	.28
3/8	C5924x6	13/16	.27
1/2	C5924x8	1	.31
5/8	C5924x10	1-1/8	.36
3/4	C5924x12	1-3/8	.41
7/8	C5924x14	1-1/2	.41
1	C5924x16	1-5/8	.41
1-1/4	C5924x20	1-7/8	.41
1-1/2	C5924x24	2-1/8	.41
2	C5924x32	2-3/4	.41

### Cap

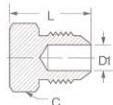
Stainless Steel No. 5141x  
(Ref. SAE No. 070112)



Tube O.D.	Catalog Number	Hex C	L
1/8	C5129x2	3/8	.50
3/16	C5129x3	7/16	.56
1/4	C5129x4	9/16	.59
5/16	C5129x5	5/8	.61
3/8	C5129x6	11/16	.62
1/2	C5129x8	7/8	.75
5/8	C5129x10	1	.84
3/4	C5129x12	1-1/4	.91
1	C5129x16	1-1/2	1.02
1-1/4	C5129x20	2	1.06
1-1/2	C5129x24	2-1/4	1.19
2	C5129x32	2-7/8	1.44

### Plug

Stainless Steel No. 5241x  
(Ref. SAE No. 070109)

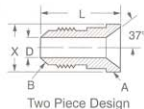
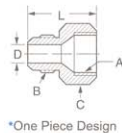
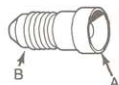


Tube O.D.	Catalog Number	Hex C	L	D1 Opt.
1/4	C5229x4	1/2	.80	.172
5/16	C5229x5	9/16	.80	.234
3/8	C5229x6	5/8	.84	.297
1/2	C5229x8	13/16	.94	.391
5/8	C5229x10	15/16	1.10	.484
3/4	C5229x12	1-1/8	1.28	.609
7/8	C5229x14	1-1/4	1.31	.719
1	C5229x16	1-3/8	1.33	.844
1-1/4	C5229x20	1-11/16	1.45	1.078
1-1/2	C5229x24	2	1.65	1.312
2	C5229x32	2-5/8	2.05	1.781

### Reducer

Stainless Steel No. 5027x  
(Ref. SAE No. 070123)

Example assembly No. C35015x



\*One Piece Design

Two Piece Design

NOTE: Order 3-piece nut C5105x to use reducer. No sleeve necessary.

Female Reduction A	Male Reduction B	Catalog Number	D	L	Dia. X	Hex C
3/8	1/4	C5015x6x4	.172	.97	.502	-
1/2	1/4	C5015x8x4	.172	1.00	.682	-
1/2	3/8	C5015x8x6	.297	1.00	.682	-
5/8*	1/4	C5015x10x4	.172	1.47	-	1
5/8*	3/8	C5015x10x6	.297	1.41	-	1
5/8*	1/2	C5015x10x8	.391	1.41	-	1
3/4	1/4	C5015x12x4	.172	1.09	.972	-
3/4	3/8	C5015x12x6	.297	1.09	.972	-
3/4	1/2	C5015x12x8	.391	1.19	.972	-
3/4*	5/8	C5015x12x10	.484	1.58	-	1-1/4
7/8*	3/8	C5015x14x6	.297	1.59	-	1-3/8
7/8*	1/2	C5015x14x8	.391	1.69	-	1-3/8
7/8*	5/8	C5015x14x10	.484	1.73	-	1-3/8
7/8*	3/4	C5015x14x12	.609	1.80	-	1-3/8
1*	1/2	C5015x16x8	.391	1.72	-	1-1/2
1*	5/8	C5015x16x10	.484	1.79	-	1-1/2
1*	3/4	C5015x16x12	.609	1.47	1.222	-
1*	7/8	C5015x16x14	.719	1.87	-	1-1/2
1-1/4	3/4	C5015x20x12	.609	1.50	1.534	-
1-1/4*	1	C5015x20x16	.844	2.00	-	2
1-1/2*	1-1/4	C5015x24x20	1.078	2.15	-	2-1/4
2*	1-1/2	C5015x32x24	1.312	2.61	-	2-7/8

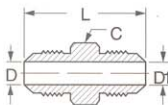
\* Available in stainless steel.

**Small Hex Union**

 Stainless Steel No. **5317x**

(Ref. SAE No. 070119)

Example assembly No. C35305x2



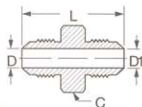
Tube O.D.	Tube O.D.	Catalog Number	Hex C	D	D1	L
1/8	1/8	C5305x2	7/16	.062	.062	1.17
3/16	3/16	C5305x3	7/16	.125	.125	1.23
1/4	1/4	C5305x4	1/2	.172	.172	1.37
5/16	1/4	C5305x5x4	9/16	.234	.172	1.37
5/16	5/16	C5305x5	9/16	.234	.234	1.37
3/8	1/4	C5305x6x4	5/8	.297	.172	1.40
3/8	5/16	C5305x6x5	5/8	.297	.234	1.40
3/8	3/8	C5305x6	5/8	.297	.297	1.41
1/2	3/8	C5305x8x6	13/16	.391	.297	1.52
1/2	1/2	C5305x8	13/16	.391	.391	1.62
5/8	1/2	C5305x10x8	15/16	.484	.391	1.78
5/8	5/8	C5305x10	15/16	.484	.484	1.88
3/4	1/2	C5305x12x8	1-1/8	.609	.391	1.95
3/4	5/8	C5305x12x10	1-1/8	.609	.484	2.05
3/4	3/4	C5305x12	1-1/8	.609	.609	2.16
7/8	7/8	C5305x14	1-1/4	.719	.719	2.21
1	3/4	C5305x16x12	1-3/8	.844	.609	2.20
1	1	C5305x16	1-3/8	.844	.844	2.25
1-1/4	1-1/4	C5305x20	1-11/16	1.078	1.078	2.43
1-1/2	1-1/2	C5305x24	2	1.312	1.312	2.75
2	2	C5305x32	2-5/8	1.781	1.781	3.40

**Large Hex Union**

 Stainless Steel No. **5318x**

(Ref. SAE No. 070119)

Example assembly No. C35306x4



Tube O.D.	Catalog Number	Hex C	D	D1	L
1/4	C5306x4	11/16	.172	.172	1.37
5/16	C5306x5	3/4	.234	.234	1.37
3/8	C5306x6	13/16	.297	.297	1.41
1/2	C5306x8	1	.391	.391	1.62
5/8	C5306x10	1-1/8	.484	.484	1.88
3/4	C5306x12	1-3/8	.609	.609	2.16
1	C5306x16	1-5/8	.844	.844	2.25
1-1/4	C5306x20	1-7/8	1.078	1.078	2.43
1-1/2	C5306x24	2-1/8	1.312	1.312	2.75

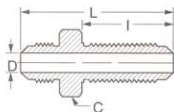
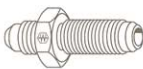
5318x6x4, 5318x8x6

**Bulkhead Union**

 Stainless Steel No. **5337x**

(Ref. SAE No. 070601)

Example assembly No. C35325x4



Tube O.D.	Catalog Number	Hex C	D	I	L
3/16	C5325x3	5/8	.125	1.14	1.90
1/4	C5325x4	11/16	.172	1.23	2.07
5/16	C5325x5	3/4	.234	1.23	2.07
3/8	C5325x6	13/16	.297	1.31	2.18
1/2	C5325x8	1	.391	1.47	2.44
5/8	C5325x10	1-1/8	.484	1.61	2.74
3/4	C5325x12	1-3/8	.609	1.78	3.09
1	C5325x16	1-5/8	.844	1.78	3.14
1-1/4	C5325x20	1-7/8	1.078	1.83	3.31

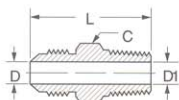
For Bulkhead nut see page 167. Included with assembly.

### Male Connector

Stainless Steel No. 5217x

(Ref. SAE No. 070102)

Example assembly No. C35205x4



\*Optional counterbore for D1.

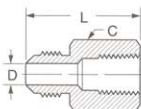
Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	D	D1 Opt.	L
1/8	1/8	C5205x2-	7/16	.062	.188*	1.11
3/16	1/8	C5205x3	7/16	.125	.188*	1.14
1/4	1/8	C5205x4-	1/2	.172	.188*	1.22
1/4	1/4	C5205x4x4-	9/16	.172	.281*	1.42
1/4	3/8	C5205x4x6	3/4	.172	.406*	1.42
1/4	1/2	C5205x4x8	7/8	.172	.531*	1.68
5/16	1/8	C5205x5	9/16	.234	.188	1.22
5/16	1/4	C5205x5x4-	5/8	.234	.281*	1.42
5/16	3/8	C5205x5x6	13/16	.234	.406*	1.42
3/8	1/8	C5205x6x2-	5/8	.297	.188	1.24
3/8	1/4	C5205x6-	5/8	.297	.281	1.43
3/8	3/8	C5205x6x6-	3/4	.297	.297*	1.43
3/8	1/2	C5205x6x8-	7/8	.297	.531*	1.69
1/2	1/4	C5205x8x4-	13/16	.391	.281	1.53
1/2	3/8	C5205x8-	13/16	.391	.406*	1.53
1/2	1/2	C5205x8x8-	15/16	.391	.531*	1.79
1/2	3/4	C5205x8x12-	1-1/8	.391	.719*	1.85
5/8	3/8	C5205x10x6	15/16	.484	.406	1.70
5/8	1/2	C5205x10-	15/16	.484	.531*	1.89
5/8	3/4	C5205x10x12	1-1/8	.484	.484*	1.95
3/4	1/2	C5205x12x8-	1-1/8	.609	.531	2.06
3/4	3/4	C5205x12-	1-1/8	.609	.719*	2.06
3/4	1	C5205x12x16	1-3/8	.609	.938*	2.25
7/8	3/4	C5205x14	1-1/4	.718	.718*	2.09
1	3/4	C5205x16x12	1-3/8	.844	.719	2.25
1	1	C5205x16-	1-3/8	.844	.938*	2.30
1	1-1/4	C5205x16x20	1-11/16	.844	1.250*	2.40
1-1/4	1	C5205x20x16	1-11/16	1.078	.938	2.42
1-1/4	1-1/4	C5205x20	1-11/16	1.078	1.250*	2.45
1-1/2	1-1/4	C5205x24x20	2	1.312	1.250*	2.65
1-1/2	1-1/2	C5205x24	2	1.312	1.500*	2.68
2	2	C5205x32	2-5/8	1.781	1.938*	3.11

### Female Connector

Stainless Steel No. 5267x

(Ref. SAE No. 070103)

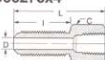
Example assembly No. C35255x4



Tube O.D.	Fem. Pipe Thread	Catalog Number	Hex C	D	L
1/8	1/8	C5255x2	9/16	.062	1.12
3/16	1/8	C5255x3	9/16	.125	1.13
1/4	1/8	C5255x4-	9/16	.172	1.19
1/4	1/4	C5255x4x4-	3/4	.172	1.39
5/16	1/8	C5255x5	9/16	.234	1.17
5/16	1/4	C5255x5x4-	3/4	.234	1.39
3/8	1/4	C5255x6-	3/4	.297	1.40
3/8	3/8	C5255x6x6-	7/8	.297	1.46
1/2	3/8	C5255x8-	7/8	.391	1.56
1/2	1/2	C5255x8x8-	1-1/8	.391	1.79
5/8	3/8	C5255x10x6	7/8	.484	1.89
5/8	1/2	C5255x10-	1-1/8	.484	1.89
3/4	1/2	C5255x12x8-	1-1/8	.609	2.05
3/4	3/4	C5255x12-	1-3/8	.609	2.06
7/8	3/4	C5255x14	1-3/8	.875	2.06
1	1	C5255x16-	1-5/8	.844	2.35
1-1/4	1-1/4	C5255x20	2	1.078	2.49
1-1/2	1-1/2	C5255x24	2-3/8	1.312	2.62
2	2	C5255x32	2-7/8	1.781	2.97

### Female Bulkhead Connector

Example assembly No. C35275x4

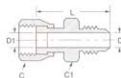


For Bulkhead nut see page 167. Included with assembly.

Tube O.D.	Fem. Pipe Thread	Catalog Number	Hex C	D	I	L
1/4	1/8	C5275x4	11/16	.172	1.23	1.84
3/8	1/4	C5275x6	13/16	.297	1.31	2.06
1/2	3/8	C5275x8	1	.391	1.47	2.35
5/8	1/2	C5275x10	1-1/8	.484	1.61	2.66
3/4	3/4	C5275x12	1-3/8	.609	1.78	2.91
1	1	C5275x16	1-5/8	.844	1.78	3.09

\* Available in stainless steel.



**Male JIC 37° SAE to Female For-Seal®**


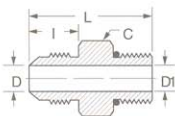
Female Tube O.D.	Male 37° Tube Size	Catalog Number	Hex C1	Hex C	D	D1	L
1/4	1/4	4213x4	11/16	5/8	.172	.165	1.50
3/8	3/8	4213x6	13/16	3/4	.297	.264	1.62
1/2	1/2	4213x8	15/16	7/8	.397	.358	1.90
5/8	5/8	4213x10	1-1/8	1-1/16	.484	.453	2.25
3/4	3/4	4213x12	1-3/16	1-1/4	.609	.547	2.48
1	1	4213x16	1-5/8	1-1/2	.811	.783	2.84

**Straight Thread O-Ring Connector**

 Stainless Steel No. **5327x**

(Ref. SAE No. 070120)

Example assembly No. C5315x4



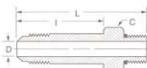
Tube O.D.	Port Size	Catalog Number	Hex C	D	D1 Opt.	I	L
1/8	1/8	C5315x2-	7/16	.062	.062*	.45	1.06
3/16	3/16	C5315x3	1/2	.125	.125*	.48	1.10
1/4	1/4	C5315x4-	9/16	.172	.172*	.55	1.23
1/4	5/16	C5315x4x5-	5/8	.172	.234*	.55	1.23
1/4	3/8	C5315x4x6-	11/16	.172	.297*	.55	1.29
1/4	1/2	C5315x4x8-	7/8	.172	.391*	.55	1.37
5/16	1/4	C5315x5x4	5/8	.234	.172	.55	1.23
5/16	5/16	C5315x5	5/8	.234	.234*	.55	1.23
5/16	3/8	C5315x5x6	11/16	.234	.297*	.55	1.29
3/8	1/4	C5315x6x4	11/16	.297	.172	.56	1.27
3/8	5/16	C5315x6x5	11/16	.297	.234	.56	1.27
3/8	3/8	C5315x6-	11/16	.297	.297*	.56	1.30
3/8	1/2	C5315x6x8-	7/8	.297	.391*	.56	1.38
3/8	5/8	C5315x6x10	1	.297	.484*	.56	1.50
1/2	3/8	C5315x8x6	13/16	.391	.297	.66	1.44
1/2	1/2	C5315x8-	7/8	.391	.391*	.66	1.48
1/2	5/8	C5315x8x10-	1	.391	.484*	.66	1.60
1/2	3/4	C5315x8x12-	1-1/4	.391	.609*	.66	1.76
5/8	1/2	C5315x10x8	1	.484	.391	.76	1.64
5/8	5/8	C5315x10-	1	.484	.484*	.76	1.70
5/8	3/4	C5315x10x12	1-1/4	.484	.609*	.76	1.86
5/8	1	C5315x10x16	1-1/2	.484	.844*	.76	1.89
3/4	1/2	C5315x12x8	1-1/4	.609	.391	.86	1.94
3/4	5/8	C5315x12x10	1-1/8	.609	.484	.86	1.88
3/4	3/4	C5315x12-	1-1/4	.609	.609*	.86	1.97
3/4	7/8	C5315x12x14	1-3/8	.609	.718*	.86	1.96
3/4	1	C5315x12x16	1-1/2	.609	.844*	.86	1.99
3/4	1-1/4	C5315x12x20	1-7/8	.609	1.078*	.86	2.08
7/8	7/8	C5315x14	1-3/8	.719	.719*	.89	1.99
1	5/8	C5315x16x10	1-1/2	.844	.484	.91	2.07
1	3/4	C5315x16x12	1-1/2	.844	.609	.91	2.04
1	1	C5315x16-	1-1/2	.844	.844*	.91	2.04
1	1-1/4	C5315x16x20	1-7/8	.844	1.078*	.91	2.12
1-1/4	1	C5315x20x16	1-7/8	1.078	.844	.96	2.33
1-1/4	1-1/4	C5315x20	1-7/8	1.078	1.078*	.96	2.17
1-1/4	1-1/2	C5315x20x24	2-1/8	1.078	1.312*	.96	2.24
1-1/2	1-1/4	C5315x24x20	2-1/8	1.312	1.078*	1.08	2.53
1-1/2	1-1/2	C5315x24	2-1/8	1.312	1.312*	1.08	2.37
1-1/2	2	C5315x24x32	2-3/4	1.312	1.781*	1.08	2.53
2	1-1/2	C5315x32x24	2-3/4	1.781	1.312*	1.33	2.81
2	2	C5315x32	2-3/4	1.781	1.781	1.33	2.78

 \*Optional counterbore for D1.  
 Replacement O-rings page 183.

**Straight Thread O-Ring Extended Connector**

(Ref. SAE No. 070122)

Example assembly No. C5316x4



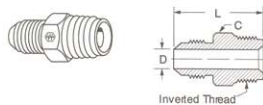
Tube O.D.	Port Size	Catalog Number	Hex C	D	I	L
1/4	1/4	C5316x4	9/16	.172	1.39	2.08
3/8	3/8	C5316x6	11/16	.297	1.56	2.31
1/2	3/8	C5316x8x6	7/8	.297	1.56	2.38
1/2	1/2	C5316x8	7/8	.391	1.88	2.70
5/8	5/8	C5316x10	1	.484	2.09	3.04
3/4	3/4	C5316x12	1-1/4	.609	2.50	3.61
1	1	C5316x16	1-1/2	.844	2.84	3.98
1-1/4	1-1/4	C5316x20	1-7/8	1.078	3.47	4.69

Replacement O-rings page 183.

\* Available in stainless steel.

### Adapter

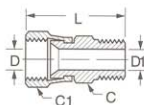
Example assembly No. C35880x4



Inverted Thread

Tube O.D.	Inverted Thread	Catalog Number	Hex C	D	L
1/4	7/16-24	C5880x4	1/2	.172	1.08
5/16	1/2-20	C5880x5	9/16	.234	1.14
3/8	5/8-18	C5880x6	11/16	.297	1.22
1/2	3/4-18	C5880x8	13/16	.391	1.46

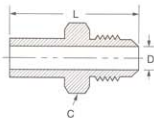
### Female JIC 37° Swivel to Male Pipe Adapter



Tube O.D.	Male Pipe Size	Catalog Number	Hex C	Hex C1	D	D1	L
1/4	1/4	9100x4x4	9/16	9/16	.172	.281*	1.50
5/16	1/4	9100x5x4	11/16	5/8	.234	.281*	1.57
3/8	1/4	9100x6x4	11/16	11/16	.297	.281	1.69
3/8	3/8	9100x6x6	11/16	11/16	.297	.406*	1.69
1/2	3/8	9100x8x6	7/8	7/8	.391	.406*	1.87
1/2	1/2	9100x8x8	7/8	7/8	.391	.531*	2.05
5/8	3/8	9100x10x6	1	1	.484	.406	1.91
5/8	1/2	9100x10x8	1	1	.484	.531*	2.11
3/4	1/2	9100x12x8	1-1/8	1-1/4	.609	.531	2.21
3/4	3/4	9100x12x12	1-1/8	1-1/4	.609	.719*	2.21
1	3/4	9100x16x12	1-3/8	1-1/2	.844	.719	2.36
1	1	9100x16x16	1-3/8	1-1/2	.844	.938*	2.55
1-1/4	1-1/4	9100x20x20	1-7/8	2	1.078	1.250*	2.73

\*Optional counterbore for D1.

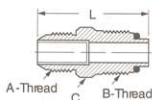
### Male JIC 37° to Male Metric Standpipe



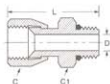
Tube O.D.	Tube O.D. (mm)	Catalog Number	Hex C	L	D
1/4	6MM	MC5019x4x6	9/16	1.58	.16
1/4	8MM	MC5019x4x8	9/16	1.68	.17
3/8	10MM	MC5019x6x10	3/4	1.67	.28
1/2	12MM	MC5019x8x12	7/8	1.97	.32
1/2	14MM	MC5019x8x14	7/8	1.89	.39
5/8	15MM	MC5019x10x15	1	2.03	.43
5/8	16MM	MC5019x10x16	1	2.07	.47
3/4	16MM	MC5019x12x16	1-1/4	2.22	.47
3/4	18MM	MC5019x12x18	1-1/4	2.12	.55
3/4	20MM	MC5019x12x20	1-1/4	2.38	.61
1	22MM	MC5019x16x22	1-1/2	2.21	.67
1	25MM	MC5019x16x25	1-1/2	2.54	.79

For metric flareless nuts and sleeves see page 211.

### Male JIC 37° to O-Ring Port Adapter



Tube Size	Port Size	Catalog Number	Replacement O-Ring	Thread A	Thread B	Hex C	L
1/4	1/4	41157x4	7629x1	7/16-20	7/16-24	7/16	1.33
3/8	3/8	41157x6	7629x3	9/16-18	5/8-18	3/4	1.91
1/2	1/2	41157x8	7629x5	3/4-16	3/4-16	3/4	1.47
5/8	5/8	41157x10	7629x7	7/8-14	7/8-14	15/16	2.23
3/4	3/4	41157x12	7629x8	1-1/16-12	1-1/16-16	1-1/8	2.13

**90° Elbow - Female JIC 37°  
Swivel to Male Straight Thread  
O-Ring**


For replacement Straight Thread O-rings, see page 183.

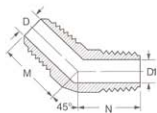
Tube O.D.	Port Size	Catalog Number	Hex C	Hex C1	L	D
1/4	1/4	C5216x4x4	9/16	9/16	1.32	.17
1/4	3/8	C5216x4x6	11/16	11/16	1.37	.17
3/8	3/8	C5216x6x6	11/16	11/16	1.51	.30
3/8	1/2	C5216x6x8	11/16	7/8	1.58	.30
1/2	3/8	C5216x8x6	7/8	3/4	1.62	.30
1/2	1/2	C5216x8x8	7/8	7/8	1.61	.39
5/8	5/8	C5216x10x10	1	1	1.96	.48
3/4	3/4	C5216x12x12	1-1/4	1-1/4	2.17	.61
1	1	C5216x16x16	1-1/2	1-1/2	2.30	.84
1-1/4	1-1/4	C5216x20x20	2	1-7/8	2.47	1.08
1-1/2	1-1/2	C5216x24x24	2-1/8	2-1/8	2.63	1.31
2	2	C5216x32x32	2-3/4	2-3/4	2.95	1.78

**Female JIC 37° Swivel to Female  
Pipe**


Tube O.D.	Female Pipe	Catalog Number	Hex C	Hex C1	L	D
1/4	1/4	C5256x4x4	9/16	3/4	1.32	.172
3/8	3/8	C5256x6x6	11/16	7/8	1.63	.297
1/2	1/2	C5256x8x8	7/8	1-1/8	1.81	.391
3/4	3/4	C5256x12	1-1/4	1-1/4	2.08	.609
1	1	C5256x16	1-1/2	1-1/2	2.62	.844

**45° Male Elbow  
Stainless Steel No. 5367x  
(Ref. SAE No. 070302)**

Example assembly No. C35355x4



Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/8	1/8	C5355x2	.062	.188	.66	.52	7/16
3/16	1/8	C5355x3	.125	.188	.66	.52	7/16
1/4	1/8	C5355x4	.172	.188	.72	.64	7/16
1/4	1/4	C5355x4x4	.172	.281	.83	.86	9/16
5/16	1/8	C5355x5	.234	.188	.77	.67	9/16
5/16	1/4	C5355x5x4	.234	.281	.83	.86	9/16
3/8	1/8	C5355x6x2	.297	.188	.83	.69	9/16
3/8	1/4	C5355x6	.297	.281	.83	.86	9/16
3/8	3/8	C5355x6x6	.297	.406	.98	.95	3/4
3/8	1/2	C5355x6x8	.297	.531	1.06	1.17	7/8
1/2	1/4	C5355x8x4	.391	.281	.98	.95	3/4
1/2	3/8	C5355x8	.391	.406	.98	.95	3/4
1/2	1/2	C5355x8x8	.391	.531	.99	1.17	7/8
5/8	3/8	C5355x10x6	.484	.406	1.11	1.00	7/8
5/8	1/2	C5355x10	.484	.531	1.11	1.17	7/8
3/4	1/2	C5355x12x8	.609	.531	1.28	1.20	1-1/16
3/4	3/4	C5355x12	.609	.719	1.28	1.20	1-1/16
1	3/4	C5355x16x12	.844	.719	1.47	1.27	1-5/16
1	1	C5355x16	.844	.938	1.47	1.48	1-5/16
1-1/2	1-1/2	C5355x24	1.312	1.500	1.78	1.77	1-7/8
1/8	1/8	TF5355x2	.062	.188	.66	.52	7/16
1/4	1/8	TF5355x4	.172	.188	.72	.64	1/2
1/4	1/4	TF5355x4x4	.172	.281	.81	.86	5/8
5/16	1/8	TF5355x5	.234	.188	.76	.64	9/16
5/16	1/4	TF5355x5x4	.234	.281	.83	.86	5/8
3/8	1/8	TF5355x6x2	.297	.188	.81	.66	5/8
3/8	1/4	TF5355x6	.297	.281	.82	.86	5/8
3/8	3/8	TF5355x6x6	.297	.406	.91	.95	13/16
3/8	1/2	TF5355x6x8	.297	.531	1.03	1.17	15/16
1/2	1/4	TF5355x8x4	.391	.281	.98	.94	13/16
1/2	3/8	TF5355x8	.391	.406	.98	.95	13/16
1/2	1/2	TF5355x8x8	.391	.531	1.12	1.17	15/16
5/8	3/8	TF5355x10x6	.484	.406	1.11	1.06	15/16
5/8	1/2	TF5355x10	.484	.531	1.11	1.17	15/16
5/8	3/4	TF5355x10x12	.484	.719	1.26	1.20	1-1/8
3/4	1/2	TF5355x12x8	.609	.531	1.28	1.17	1-1/8
3/4	3/4	TF5355x12	.609	.719	1.28	1.20	1-1/8
3/4	1	TF5355x12x16	.609	.938	1.42	1.48	1-3/8
1	3/4	TF5355x16x12	.844	.719	1.47	1.28	1-3/8
1	1	TF5355x16	.844	.938	1.47	1.48	1-3/8
1-1/4	1-1/4	TF5355x20	1.078	1.250	1.59	1.67	1-3/4
1-1/2	1-1/2	TF5355x24	1.312	1.500	1.78	1.77	2
2	2	TF5355x32	1.781	1.938	2.22	2.11	2-5/8

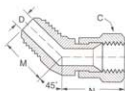
• Available in stainless steel.

### 45° Elbow - Swivel Nut

Stainless Steel No. 5368x

(Ref. SAE No. 070321)

Example assembly No. C35356x4

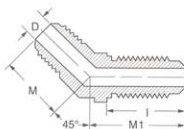
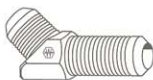


Tube O.D.	Catalog Number	Hex C	D	M	N	Across Flats
1/4	C5356x4	9/16	.172	.72	.94	7/16
5/16	C5356x5*	5/8	.234	.77	1.00	9/16
3/8	C5356x6*	11/16	.297	.83	1.12	9/16
1/2	C5356x8*	7/8	.391	.98	1.28	3/4
5/8	C5356x10	1	.484	1.11	1.44	7/8
3/4	C5356x12	1-1/4	.609	1.28	1.50	1-1/16
7/8	C5356x14	1-3/8	.718	1.39	1.62	1-5/16
1	C5356x16	1-1/2	.845	1.47	1.75	1-5/16
1-1/4	C5356x20*	2	1.078	1.59	2.03	1-5/8
1-1/2	C5356x24	2-1/4	1.312	1.78	2.25	1-7/8
1/4	TF5356x4	9/16	.172	.72	.94	1/2
5/16	TF5356x5	5/8	.234	.77	1.00	9/16
3/8	TF5356x6	11/16	.297	.83	1.12	5/8
1/2	TF5356x8	7/8	.391	.98	1.28	13/16
5/8	TF5356x10	1	.484	1.11	1.44	15/16
3/4	TF5356x12	1-1/4	.609	1.28	1.50	1-1/8
1	TF5356x16	1-1/2	.845	1.47	1.75	1-3/8
1-1/4	TF5356x20	2	1.078	1.59	2.03	1-3/4
1-1/2	TF5356x24	2-1/4	1.312	1.78	2.25	2
2	TF5356x32	2-7/8	1.781	2.22	2.91	2-5/8

\*Special Order Only

### 45° Bulkhead Union Elbow

(Ref. SAE No. 070801)



Tube O.D.	Catalog Number	D	M	M1	Across Flats	I
1/4	TF5375x4	.172	.72	1.53	1/2	1.11
5/16	TF5375x5	.234	.76	1.53	9/16	1.11
3/8	TF5375x6	.297	.83	1.67	5/8	1.18
1/2	TF5375x8	.391	.98	1.94	13/16	1.38
5/8	TF5375x10	.484	1.11	2.17	15/16	1.52
3/4	TF5375x12	.609	1.28	2.44	1-1/8	1.69
1	TF5375x16	.844	1.47	2.56	1-3/8	1.69

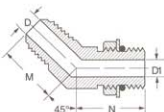
For Bulkhead nut see page 167. Included with assembly.

\* Available in stainless steel.

**45° Elbow - Straight Thread  
O-Ring**

(Ref. SAE No. 070320)

Example assembly No. C35365x4



Replacement O-rings page 183.

\*Special Order Only.

Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
1/4	1/4	C5365x4	.172	.172	.72	1.05	7/16
5/16	5/16	C5365x5	.234	.234	.77	1.05	9/16
3/8	3/8	C5365x6	.297	.297	.83	1.14	9/16
1/2	1/2	C5365x8	.391	.391	.98	1.30	3/4
1/2	5/8	C5365x8x10	.391	.484	.99	1.52	7/8
5/8	5/8	C5365x10	.484	.484	1.11	1.52	7/8
3/4	5/8	C5365x12x10	.609	.484	1.28	1.57	1-1/16
3/4	3/4	C5365x12	.609	.609	1.28	1.73	1-1/16
1	1	C5365x16	.844	.844	1.47	1.86	1-5/16
1-1/4	1-1/4	C5365x20	1.078	1.078	1.59	1.91	1-5/8
1-1/2	1-1/2	C5365x24*	1.312	1.312	1.78	1.91	1-7/8

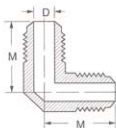
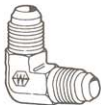
1/4	1/4	TF5365x4	.172	.172	.72	1.05	1/2
5/16	5/16	TF5365x5	.234	.234	.77	1.05	9/16
3/8	3/8	TF5365x6	.297	.297	.83	1.14	5/8
3/8	1/2	TF5365x6x8	.297	.391	.87	1.30	13/16
1/2	3/8	TF5365x8x6	.391	.297	.98	1.17	13/16
1/2	1/2	TF5365x8	.391	.391	.98	1.30	13/16
1/2	5/8	TF5365x8x10	.391	.484	.99	1.52	15/16
5/8	1/2	TF5365x10x8	.484	.391	1.09	1.41	15/16
5/8	5/8	TF5365x10	.484	.484	1.09	1.52	15/16
5/8	3/4	TF5365x10x12	.484	.609	1.22	1.73	1-1/8
3/4	5/8	TF5365x12x10	.609	.484	1.30	1.58	1-1/8
3/4	3/4	TF5365x12	.609	.609	1.28	1.73	1-1/8
3/4	1	TF5365x12x16	.609	.844	1.45	1.86	1-3/8
7/8	7/8	TF5365x14	.718	.718	1.39	1.80	1-1/4
1	3/4	TF5365x16x12	.844	.609	1.47	1.86	1-3/8
1	1	TF5365x16	.844	.844	1.47	1.86	1-3/8
1-1/4	1-1/4	TF5365x20	1.078	1.250	1.59	1.91	1-3/4
1-1/2	1-1/2	TF5365x24	1.312	1.312	1.78	1.91	2
2	2	TF5365x32	1.781	1.938	2.22	1.86	2-5/8

**90° Union Elbow**

Stainless Steel No. 5517x

(Ref. SAE No. 070201)

Example assembly No. C35505x4



\*Special Order Only

Tube O.D.	Catalog Number	D	M	Across Flats
1/4	C5505x4*	.172	.89	7/16
5/16	C5505x5*	.234	.95	9/16
3/8	C5505x6*	.297	1.06	9/16
1/2	C5505x8*	.391	1.25	3/4
5/8	C5505x10*	.484	1.45	7/8
3/4	C5505x12*	.609	1.66	1-1/16
1	C5505x16*	.844	1.81	1-5/16
1-1/4	C5505x20*	1.078	2.06	1-5/8
1-1/2	C5505x24*	1.312	2.33	1-7/8

1/4	TF5505x4	.172	.89	1/2
5/16	TF5505x5	.234	.95	1/2
3/8	TF5505x6	.297	1.06	5/8
1/2	TF5505x8	.391	1.25	13/16
5/8	TF5505x10	.484	1.45	15/16
3/4	TF5505x12	.609	1.66	1-1/8
7/8	TF5505x14	.718	1.73	1-1/4
1	TF5505x16	.844	1.81	1-3/8
1-1/4	TF5505x20	1.078	2.06	1-3/4
1-1/2	TF5505x24	1.312	2.33	2
2	TF5505x32	1.781	3.06	2-5/8

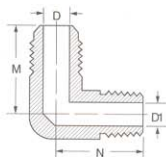
\* Available in stainless steel.

### 90° Male Elbow

Stainless Steel No. 5417x

(Ref. SAE No. 070202)

Example assembly No. C35405x4



Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/8	1/8	C5405x2	.062	.188	.77	.72	7/16
3/16	1/8	C5405x3	.125	.188	.83	.72	7/16
1/4	1/8	C5405x4	.172	.188	.89	.78	7/16
1/4	1/4	C5405x4x4*	.172	.281	1.05	1.09	9/16
5/16	1/8	C5405x5	.234	.188	.95	.78	9/16
5/16	1/4	C5405x5x4	.234	.281	1.05	1.09	9/16
3/8	1/8	C5405x6x2	.297	.188	1.06	.90	9/16
3/8	1/4	C5405x6*	.297	.281	1.06	1.09	9/16
3/8	3/8	C5405x6x6*	.297	.406	1.14	1.22	3/4
3/8	1/2	C5405x6x8*	.297	.531	1.22	1.47	7/8
1/2	1/4	C5405x8x4*	.391	.281	1.25	1.22	3/4
1/2	3/8	C5405x8*	.391	.406	1.25	1.22	3/4
1/2	1/2	C5405x8x8*	.391	.531	1.33	1.47	7/8
1/2	3/4	C5405x8x12*	.391	.719	1.42	1.59	1-1/16
5/8	3/8	C5405x10x6	.484	.406	1.45	1.28	7/8
5/8	1/2	C5405x10*	.484	.531	1.45	1.47	7/8
5/8	3/4	C5405x10x12	.484	.719	1.54	1.59	1-1/16
3/4	1/2	C5405x12x8*	.609	.531	1.66	1.59	1-1/16
3/4	3/4	C5405x12	.609	.719	1.66	1.59	1-1/16
7/8	3/4	C5405x14*	.719	.719	1.73	1.69	1-5/16
1	3/4	C5405x16x12	.844	.719	1.81	1.78	1-5/16
1	1	C5405x16*	.844	.938	1.81	1.97	1-5/16
1-1/4	1	C5405x20x16	1.078	.938	2.06	2.38	1-5/8
1-1/4	1-1/4	C5405x20	1.078	1.250	2.06	2.38	1-5/8
1-1/2	1-1/2	C5405x24	1.312	1.500	2.33	2.64	1-7/8
2	2	C5405x32	1.781	1.938	3.06	3.00	2-9/16
1/4	1/8	TF5405x4	.172	.188	.89	.78	1/2
1/4	1/4	TF5405x4x4	.172	.281	.95	1.09	5/8
1/4	3/8	TF5405x4x6	.172	.406	1.05	1.22	13/16
1/4	1/2	TF5405x4x8	.172	.531	1.11	1.47	15/16
5/16	1/8	TF5405x5	.234	.188	.95	.78	9/16
5/16	1/4	TF5405x5x4	.234	.281	.98	1.09	5/8
5/16	3/8	TF5405x5x6	.234	.406	1.08	1.22	13/16
3/8	1/8	TF5405x6x2	.297	.188	1.06	.81	5/8
3/8	1/4	TF5405x6	.297	.281	1.06	1.09	5/8
3/8	3/8	TF5405x6x6	.297	.406	1.16	1.22	13/16
3/8	1/2	TF5405x6x8	.297	.531	1.22	1.47	15/16
3/8	3/4	TF5405x6x12	.297	.719	1.31	1.59	1-1/8
1/2	1/4	TF5405x8x4	.391	.281	1.25	1.19	13/16
1/2	3/8	TF5405x8	.391	.406	1.25	1.22	13/16
1/2	1/2	TF5405x8x8	.391	.531	1.31	1.47	15/16
1/2	3/4	TF5405x8x12	.391	.719	1.41	1.59	1-1/8
5/8	3/8	TF5405x10x6	.484	.406	1.45	1.28	15/16
5/8	1/2	TF5405x10	.484	.531	1.45	1.47	15/16
5/8	3/4	TF5405x10x12	.484	.719	1.55	1.59	1-1/8
3/4	1/2	TF5405x12x8	.609	.531	1.66	1.56	1-1/8
3/4	3/4	TF5405x12	.609	.719	1.66	1.59	1-1/8
3/4	1	TF5405x12x16	.609	.938	1.78	1.97	1-3/8
7/8	3/4	TF5405x14	.718	.719	1.73	1.69	1-1/4
1	3/4	TF5405x16x12	.844	.719	1.81	1.72	1-3/8
1	1	TF5405x16	.844	.938	1.81	1.97	1-3/8
1	1-1/4	TF5405x16x20	.844	1.250	2.00	2.37	1-3/4
1-1/4	1	TF5405x20x16	1.078	.938	2.06	2.16	1-3/4
1-1/4	1-1/4	TF5405x20	1.078	1.250	2.06	2.37	1-3/4
1-1/4	1-1/2	TF5405x20x24	1.078	1.500	2.19	2.64	2
1-1/2	1-1/4	TF5405x24x20	1.312	1.250	2.33	2.50	2
1-1/2	1-1/2	TF5405x24	1.312	1.500	2.33	2.64	2
2	2	TF5405x32	1.781	1.938	3.06	3.00	2-5/8

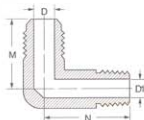
\*Special Order Only

\* Available in stainless steel.

**90° Male Elbow Long**

(Ref. SAE No. 071502)

Example assembly No. C35425x4

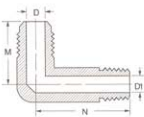
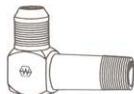


\*Special Order Only.

Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/4	C5425x4x4*	.172	.281	1.05	1.58	9/16
3/8	1/4	C5425x6	.297	.281	1.06	1.58	9/16
1/2	3/8	C5425x8*	.391	.406	1.25	1.82	3/4
3/4	3/4	C5425x12	.609	.719	1.66	2.44	1-1/16
1/4	1/8	TF5425x4	.172	.188	.89	1.17	1/2
1/4	1/4	TF5425x4x4	.172	.281	.95	1.58	5/8
5/16	1/4	TF5425x5x4	.234	.281	.95	1.55	9/16
3/8	1/4	TF5425x6	.297	.281	1.06	1.58	5/8
3/8	3/8	TF5425x6x6	.297	.406	1.16	1.83	13/16
1/2	3/8	TF5425x8	.391	.406	1.25	1.83	13/16
1/2	1/2	TF5425x8x8	.391	.531	1.31	2.17	15/16
1/2	3/4	TF5425x8x12	.391	.719	1.41	2.44	1-1/8
5/8	1/2	TF5425x10	.484	.531	1.45	2.17	15/16
3/4	3/4	TF5425x12	.609	.719	1.66	2.44	1-1/8
7/8	3/4	TF5425x14	.718	.719	1.73	2.66	1-1/4
1	1	TF5425x16	.844	.938	1.81	3.02	1-3/8
1-1/4	1-1/4	TF5425x20	1.078	1.250	2.06	3.69	1-3/4
1-1/2	1-1/2	TF5425x24	1.312	1.500	2.32	4.11	2

**90° Male Elbow Extra Long**

(Ref. SAE No. 071602)



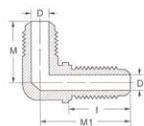
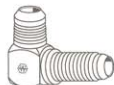
Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	TF5435x4	.172	.188	.89	1.56	1/2
1/4	1/4	TF5435x4x4	.172	.281	.95	2.07	5/8
5/16	1/8	TF5435x5	.234	.188	.95	1.62	9/16
5/16	1/4	TF5435x5x4	.234	.281	.95	2.04	9/16
3/8	1/4	TF5435x6	.297	.281	1.06	2.08	5/8
3/8	3/8	TF5435x6x6	.297	.406	1.06	2.42	13/16
1/2	3/8	TF5435x8	.391	.406	1.25	2.42	13/16
1/2	1/2	TF5435x8x8	.391	.531	1.31	2.88	15/16
5/8	1/2	TF5435x10	.484	.531	1.45	2.88	15/16
3/4	3/4	TF5435x12	.609	.719	1.66	3.28	1-1/8
7/8	3/4	TF5435x14	.718	.719	1.73	3.62	1-1/4
1	1	TF5435x16	.844	.938	1.81	4.05	1-3/8
1-1/4	1-1/4	TF5435x20	1.078	1.250	2.06	5.00	1-3/4

**90° Bulkhead Union Elbow**

Stainless Steel No. 5537x

(Ref. SAE No. 070701)

Example assembly No. C35525x4



Tube O.D.	Catalog Number	D	I	M	M1	Across Flats
1/4	C5525x4*	.172	1.11	.97	1.59	7/16
5/16	C5525x5*	.234	1.11	1.03	1.62	9/16
3/8	C5525x6*	.297	1.18	1.09	1.81	9/16
1/2	C5525x8	.391	1.38	1.36	2.11	3/4
5/8	C5525x10*	.484	1.52	1.56	2.39	7/8
3/4	C5525x12*	.609	1.69	1.78	2.67	1-1/16
1	C5525x16	.844	1.69	1.94	2.80	1-5/16
1-1/4	C5525x20	1.078	1.74	2.17	3.12	1-5/8
1/4	TF5525x4	.172	1.11	.97	1.59	1/2
5/16	TF5525x5	.234	1.11	1.03	1.62	9/16
3/8	TF5525x6	.297	1.18	1.09	1.81	5/8
1/2	TF5525x8	.391	1.38	1.36	2.11	13/16
5/8	TF5525x10	.484	1.52	1.56	2.39	15/16
3/4	TF5525x12	.609	1.69	1.78	2.67	1-1/8
1	TF5525x16	.844	1.69	1.94	2.80	1-3/8

\*Special Order Only.

For Bulkhead nut see page 167. Included with assembly.

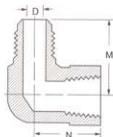
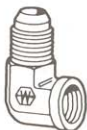
\* Available in stainless steel.

### 90° Female Elbow

Stainless Steel No. 5467x

(Ref. SAE No. 070203)

Example assembly No. C35455x4



Tube O.D.	Fem. Pipe Thread	Catalog Number	D	M	N	Across Flats
1/4	1/8	C5455x4*	.172	1.08	.66	9/16
1/4	1/4	C5455x4x4*	.172	1.22	.88	3/4
5/16	1/8	C5455x5*	.234	1.08	.66	9/16
3/8	1/8	C5455x6x2	.297	1.06	.66	9/16
3/8	1/4	C5455x6*	.297	1.23	.88	3/4
3/8	3/8	C5455x6x6*	.297	1.31	1.02	7/8
1/2	1/4	C5455x8x4	.391	1.23	.88	3/4
1/2	3/8	C5455x8*	.391	1.42	1.02	7/8
1/2	1/2	C5455x8x8*	.391	1.52	1.23	1-1/16
5/8	1/2	C5455x10	.484	1.64	1.23	1-1/16
3/4	1/2	C5455x12x8	.609	1.66	1.23	1-1/16
3/4	3/4	C5455x12*	.609	1.89	1.36	1-5/16
7/8	3/4	C5455x14	.718	1.86	1.42	1-5/16
1	1	C5455x16*	.844	2.17	1.62	1-5/8
1-1/4	1-1/4	C5455x20*	1.078	2.33	1.70	1-7/8

1/4	1/8	TF5455x4	.172	1.08	.66	5/8
1/4	1/4	TF5455x4x4	.172	1.14	.88	3/4
5/16	1/8	TF5455x5	.234	1.08	.66	5/8
5/16	1/4	TF5455x5x4	.234	1.30	1.02	7/8
3/8	1/4	TF5455x6	.297	1.23	.88	3/4
3/8	3/8	TF5455x6x6	.297	1.14	.88	3/4
1/2	3/8	TF5455x8	.391	1.42	1.02	7/8
1/2	1/2	TF5455x8x8	.391	1.55	1.23	1-1/8
5/8	1/2	TF5455x10	.484	1.64	1.23	1-1/8
3/4	3/4	TF5455x12	.609	1.89	1.36	1-3/8
7/8	3/4	TF5455x14	.718	1.86	1.42	1-3/8
1	1	TF5455x16	.814	2.17	1.62	1-5/8
1-1/4	1-1/4	TF5455x20	1.078	2.33	1.70	2
1-1/2	1-1/2	TF5455x24	1.312	2.89	2.08	2-3/8
2	2	TF5455x32	1.781	3.30	2.39	2-7/8

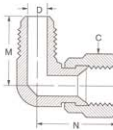
\*Special Order Only.

### 90° Elbow - Swivel Nut

Stainless Steel No. 5518x

(Ref. SAE No. 070221)

Example assembly No. C35506x4



Tube O.D.	Catalog Number	Hex C	D	M	N	Across Flats
1/4	C5506x4*	9/16	.172	.89	1.00	7/16
5/16	C5506x5	5/8	.234	.95	1.06	9/16
3/8	C5506x6*	11/16	.297	1.06	1.25	9/16
1/2	C5506x8*	7/8	.391	1.25	1.42	3/4
5/8	C5506x10	1	.484	1.43	1.62	7/8
3/4	C5506x12*	1-1/4	.609	1.66	1.75	1-1/16
7/8	C5506x14*	1-3/8	.718	1.73	1.72	1-5/16
1	C5506x16*	1-1/2	.844	1.81	2.00	1-5/16
1-1/4	C5506x20	2	1.078	2.06	2.31	1-5/8

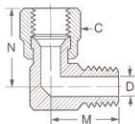
1/4	TF5506x4	9/16	.172	.89	1.00	1/2
5/16	TF5506x5	5/8	.234	.95	1.06	9/16
3/8	TF5506x6	11/16	.297	1.06	1.25	5/8
1/2	TF5506x8	7/8	.391	1.25	1.38	13/16
5/8	TF5506x10	1	.484	1.45	1.62	15/16
3/4	TF5506x12	1-1/4	.609	1.66	1.75	1-1/8
7/8	TF5506x14	1-3/8	.718	1.73	1.78	1-1/4
1	TF5506x16	1-1/2	.844	1.81	2.00	1-3/8
1-1/4	TF5506x20	2	1.078	2.06	2.31	1-3/4
1-1/2	TF5506x24	2-1/4	1.312	2.33	2.59	2
2	TF5506x32	2-7/8	1.781	3.06	3.38	2-5/8

\*Special Order Only.

\* Available in stainless steel.



## 90° Male Pipe to 37° JIC Swivel



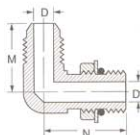
Tube O.D.	Male Pipe	Catalog Number	D	M	N	Across Flats	Hex C
1/4	1/8	TF5406x4	.188	.78	1.00	1/2	9/16
3/8	1/4	TF5406x6	.281	1.09	1.25	5/8	11/16
1/2	3/8	TF5406x8	.406	1.22	1.38	13/16	7/8
5/8	1/2	TF5406x10	.531	1.47	1.62	15/16	1
3/4	3/4	TF5406x12	.719	1.59	1.75	1-1/8	1-1/4
1	1	TF5406x16	.938	1.97	2.00	1-3/8	1-1/2
1-1/4	1-1/4	TF5406x20	1.250	2.38	2.31	1-3/4	2
1-1/2	1-1/2	TF5406x24	1.500	2.64	2.59	2	2-1/4
2	2	TF5406x32	1.938	3.00	3.38	2-5/8	2-7/8

90° Elbow - Straight Thread  
O-Ring

Stainless Steel No. 5527x

(Ref. SAE No. 070220)

Example assembly No. C35515x4



Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
3/16	3/16	C5515x3	.125	.125	.83	.94	7/16
1/4	1/4	C5515x4	.172	.172	.89	1.03	7/16
5/16	5/16	C5515x5	.234	.234	.95	1.13	9/16
3/8	3/8	C5515x6	.297	.297	1.06	1.25	9/16
3/8	1/2	C5515x6x8	.297	.391	1.14	1.45	3/4
1/2	3/8	C5515x8x6	.391	.297	1.25	1.32	3/4
1/2	1/2	C5515x8	.391	.391	1.25	1.45	3/4
1/2	5/8	C5515x8x10	.391	.484	1.33	1.70	7/8
5/8	5/8	C5515x10	.484	.484	1.45	1.70	7/8
3/4	5/8	C5515x12x10	.609	.484	1.66	1.94	1-1/16
3/4	3/4	C5515x12	.609	.609	1.66	1.94	1-1/16
7/8	7/8	C5515x14	.718	.718	1.73	2.00	1-5/16
1	3/4	C5515x16x12	.844	.609	1.81	2.05	1-5/16
1	1	C5515x16	.844	.844	1.81	2.05	1-5/16
1-1/4	1-1/4	C5515x20	1.078	1.078	2.06	2.25	1-5/8
1-1/2	1-1/2	C5515x24	1.312	1.312	2.33	2.39	1-7/8

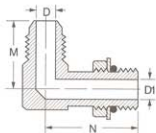
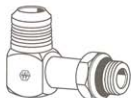


1/4	1/4	TF5515x4	.172	.172	.89	1.03	1/2
1/4	5/16	TF5515x4x5	.172	.234	.95	1.12	5/8
1/4	3/8	TF5515x4x6	.172	.297	.95	1.25	5/8
5/16	1/4	TF5515x5x4	.234	.172	.98	1.06	9/16
5/16	5/16	TF5515x5	.234	.234	.95	1.09	9/16
5/16	3/8	TF5515x5x6	.234	.297	.98	1.25	5/8
3/8	1/4	TF5515x6x4	.297	.172	1.06	1.09	5/8
3/8	5/16	TF5515x6x5	.297	.234	1.06	1.12	5/8
3/8	3/8	TF5515x6	.297	.297	1.06	1.25	5/8
3/8	1/2	TF5515x6x8	.297	.391	1.16	1.45	13/16
3/8	5/8	TF5515x6x10	.297	.484	1.22	1.70	15/16
1/2	3/8	TF5515x8x6	.391	.297	1.25	1.34	13/16
1/2	1/2	TF5515x8	.391	.391	1.25	1.45	13/16
1/2	5/8	TF5515x8x10	.391	.484	1.31	1.70	15/16
1/2	3/4	TF5515x8x12	.391	.609	1.41	1.94	1-1/8
5/8	1/2	TF5515x10x8	.484	.391	1.45	1.52	15/16
5/8	5/8	TF5515x10	.484	.484	1.45	1.70	15/16
5/8	3/4	TF5515x10x12	.484	.609	1.55	1.94	1-1/8
3/4	1/2	TF5515x12x8	.609	.391	1.66	1.61	1-1/8
3/4	5/8	TF5515x12x10	.609	.484	1.66	1.80	1-1/8
3/4	3/4	TF5515x12	.609	.609	1.66	1.94	1-1/8
3/4	7/8	TF5515x12x14	.609	.718	1.72	2.00	1-1/4
3/4	1	TF5515x12x16	.609	.844	1.78	2.05	1-3/8
7/8	7/8	TF5515x14	.718	.718	1.73	2.00	1-5/16
1	3/4	TF5515x16x12	.844	.609	1.81	2.06	1-3/8
1	7/8	TF5515x16x14	.844	.718	1.81	2.06	1-3/8
1	1	TF5515x16	.844	.844	1.81	2.05	1-3/8
1	1-1/4	TF5515x16x20	.844	1.078	2.00	2.25	1-3/4
1-1/4	1	TF5515x20x16	1.078	.844	2.06	2.25	1-3/4
1-1/4	1-1/4	TF5515x20	1.078	1.078	2.06	2.25	1-3/4
1-1/2	1-1/4	TF5515x24x20	1.312	1.078	2.33	2.37	2
1-1/2	1-1/2	TF5515x24	1.312	1.312	2.33	2.39	2
2	2	TF5515x32	1.781	1.781	3.06	2.89	2-5/8

Replacement O-rings page 183.

\* Available in stainless steel.

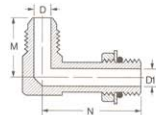
### 90° Elbow Long - Straight Thread O-Ring (Ref. SAE No. 071520)



Replacement O-rings page 183.

Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
3/8	3/8	TF5515x6L	.297	.297	1.06	1.66	5/8
1/2	1/2	TF5515x8L	.391	.391	1.25	1.81	13/16
5/8	5/8	TF5515x10L	.484	.484	1.45	2.16	15/16
3/4	3/4	TF5515x12L	.609	.609	1.66	2.47	1-1/8

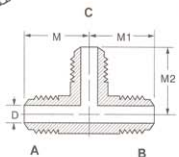
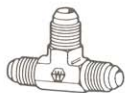
### 90° Elbow Extra Long - Straight Thread O-Ring (Ref. SAE No. 071620)



Replacement O-rings page 183.

Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
3/8	3/8	TF5515x6LL	.297	.297	1.06	2.08	5/8
1/2	1/2	TF5515x8LL	.391	.391	1.25	2.50	13/16
5/8	5/8	TF5515x10LL	.484	.484	1.45	3.25	15/16
3/4	3/4	TF5515x12LL	.609	.609	1.66	3.34	1-1/8

### Union Tee Stainless Steel No. 5717x (Ref. SAE No. 070401) Assembly No. C35705x4



Tube O.D. A	Tube O.D. B	Tube O.D. C	Catalog Number	D	M	M1	M2	Across Flats
1/8	1/8	1/8	C5705x2	.062	.77	.77	.77	7/16
3/16	3/16	3/16	C5705x3	.125	.83	.83	.83	7/16
1/4	1/4	1/4	C5705x4*	.172	.89	.89	.89	7/16
5/16	5/16	5/16	C5705x5*	.234	.95	.95	.95	9/16
3/8	3/8	3/8	C5705x6*	.297	1.06	1.06	1.06	9/16
1/2	1/2	1/2	C5705x8*	.391	1.25	1.25	1.25	3/4
5/8	5/8	5/8	C5705x10*	.484	1.45	1.45	1.45	7/8
3/4	3/4	3/4	C5705x12*	.609	1.66	1.66	1.66	1-1/16
7/8	7/8	7/8	C5705x14	.718	1.73	1.73	1.73	1-5/16
1	1	1	C5705x16	.844	1.81	1.81	1.81	1-5/16
1-1/4	1-1/4	1-1/4	C5705x20	1.078	2.06	2.06	2.06	1-5/8
1-1/2	1-1/2	1-1/2	C5705x24	1.312	2.33	2.33	2.33	1-7/8
1/4	1/4	1/4	TF5705x4	.172	.89	.89	.89	1/2
5/16	5/16	5/16	TF5705x5	.234	.95	.95	.95	1/2
3/8	3/8	3/8	TF5705x6	.297	1.06	1.06	1.06	5/8
1/2	1/2	1/2	TF5705x8	.391	1.25	1.25	1.25	13/16
5/8	1/2	1/2	TF5705x10x8x8	.484	1.45	1.31	1.31	15/16
5/8	5/8	5/8	TF5705x10	.484	1.45	1.45	1.45	15/16
5/8	5/8	1/2	TF5705x10x10x8	.484	1.45	1.45	1.31	15/16
3/4	3/4	3/4	TF5705x12	.609	1.66	1.66	1.66	1-1/8
7/8	7/8	7/8	TF5705x14	.718	1.73	1.73	1.73	1-1/4
1	1	1	TF5705x16	.844	1.81	1.81	1.81	1-3/8
1-1/4	1-1/4	1-1/4	TF5705x20	1.078	2.06	2.06	2.06	1-3/4
1-1/2	1-1/2	1-1/2	TF5705x24	1.312	2.33	2.33	2.33	1-7/8
2	2	2	TF5705x32	1.781	3.06	3.06	3.06	2-5/8

\*Special Order Only.

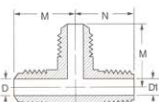
\* Available in stainless steel.

**Male Run Tee**

Stainless Steel No. 5767x

(Ref. SAE No. 070424)

Example assembly No. C35755x4

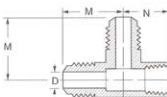


\*Special Order Only

Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	C5755x4*	.172	.188	.89	.78	7/16
1/4	1/4	C5755x4x4x4*	.172	.281	1.05	1.09	9/16
1/2	3/8	C5755x8*	.391	.406	1.25	1.22	3/4
1/2	1/2	C5755x8x8x8*	.391	.531	1.33	1.47	7/8
5/8	1/2	C5755x10	.484	.531	1.45	1.47	7/8
3/4	3/4	C5755x12	.609	.719	1.66	1.59	1-1/16
1	1	C5755x16	.844	.938	1.81	1.97	1-5/16
1/4	1/8	TF5755x4	.172	.188	.89	.78	1/2
1/4	1/4	TF5755x4x4x4	.172	.281	.95	1.09	9/16
5/16	1/8	TF5755x5	.234	.188	.95	.78	1/2
3/8	1/4	TF5755x6	.297	.281	1.06	1.09	9/16
3/8	3/8	TF5755x6x6x6	.297	.406	1.16	1.22	9/16
1/2	3/8	TF5755x8	.391	.406	1.25	1.22	13/16
1/2	1/2	TF5755x8x8x8	.391	.531	1.31	1.47	7/8
5/8	1/2	TF5755x10	.484	.531	1.45	1.47	15/16
3/4	3/4	TF5755x12	.609	.719	1.66	1.59	1-1/8
7/8	3/4	TF5755x14	.718	.719	1.73	1.69	1-1/4
1	1	TF5755x16	.844	.938	1.81	1.97	1-3/8
1-1/4	1-1/4	TF5755x20	1.078	1.250	2.06	2.38	1-3/4
1-1/2	1-1/2	TF5755x24	1.312	1.500	2.33	2.64	2
2	2	TF5755x32	1.781	1.938	3.06	3.00	2-5/8

**Female Run Tee**

(Ref. SAE No. 070426)



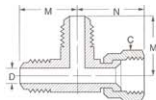
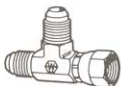
Tube O.D.	Fem. Pipe Thread	Catalog Number	D	M	N	Across Flats
1/4	1/8	TF5805x4	.172	1.08	.66	5/8
3/8	1/4	TF5805x6	.297	1.23	.88	3/4
1/2	3/8	TF5805x8	.391	1.42	1.02	7/8
5/8	1/2	TF5805x10	.484	1.64	1.23	1-1/8
3/4	3/4	TF5805x12	.609	1.89	1.36	1-3/8
7/8	3/4	TF5805x14	.718	1.86	1.42	1-3/8
1	1	TF5805x16	.844	2.17	1.62	1-5/8

**Swivel Nut Run Tee**

Stainless Steel No. 5718x

(Ref. SAE No. 070432)

Example assembly No. C35706x4

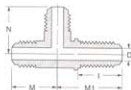
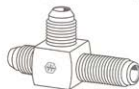


Tube O.D.	Catalog Number	Hex C	D	M	N	Across Flats
1/4	C5706x4*	9/16	.172	.89	1.00	7/16
5/16	C5706x5	5/8	.234	.95	1.06	9/16
3/8	C5706x6*	11/16	.297	1.06	1.25	9/16
1/2	C5706x8*	7/8	.391	1.25	1.44	3/4
5/8	C5706x10	1	.484	1.45	1.62	7/8
3/4	C5706x12*	1-1/4	.609	1.66	1.75	1-1/16
1	C5706x16	1-1/2	.844	1.81	2.00	1-5/16
1-1/4	C5706x20	2	1.078	2.06	2.36	1-5/8
1/4	TF5706x4	9/16	.172	.89	1.00	1/2
5/16	TF5706x5	5/8	.234	.95	1.06	9/16
3/8	TF5706x6	11/16	.297	1.06	1.25	5/8
1/2	TF5706x8	7/8	.391	1.25	1.38	13/16
5/8	TF5706x10	1	.484	1.45	1.62	15/16
3/4	TF5706x12	1-1/4	.609	1.66	1.75	1-1/8
7/8	TF5706x14	1-3/8	.719	1.73	1.78	1-1/4
1	TF5706x16	1-1/2	.844	1.81	2.00	1-3/8
1-1/4	TF5706x20	2	1.078	2.06	2.31	1-3/4
1-1/2	TF5706x24	2-1/4	1.312	2.33	2.59	2
2	TF5706x32	2-7/8	1.781	3.06	3.38	2-5/8

### Bulkhead Run Tee

(Ref. SAE No. 070958)

Example assembly No. C35726x6



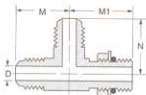
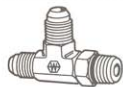
For Bulkhead nut see page 167.  
Included with assembly.

Tube O.D.	Catalog Number	D	I	N	M	M1	Across Flats
3/8	C5726x6	.297	1.18	1.09	1.06	1.81	9/16
1/2	TF5726x8	.391	1.38	1.36	1.36	2.11	3/4

### Straight Thread O-Ring Run Tee

(Ref. SAE No. 070428)

Example assembly No. C35716x4



Replacement O-rings page 183.

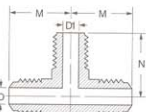
Tube O.D.	Port Size	Catalog Number	D	M	M1	Across Flats	N
1/4	1/4	C5716x4	.172	.89	1.03	7/16	.89
5/16	5/16	C5716x5	.234	.95	1.09	9/16	.95
3/8	3/8	C5716x6	.297	1.06	1.25	5/8	1.06
1/2	1/2	C5716x8	.391	1.25	1.45	3/4	1.25
5/8	5/8	C5716x10	.484	1.45	1.70	7/8	1.45
3/4	3/4	C5716x12	.609	1.66	1.94	1-1/16	1.66
1	1	C5716x16	.844	1.81	2.05	1-5/16	1.81
1-1/4	1-1/4	C5716x20	1.078	2.06	2.25	1-5/8	2.06
1/4	1/4	TF5716x4	.172	.89	1.03	1/2	.89
5/16	5/16	TF5716x5	.234	.95	1.09	9/16	.95
3/8	3/8	TF5716x6	.297	1.06	1.25	5/8	1.06
1/2	1/2	TF5716x8	.391	1.25	1.45	13/16	1.25
5/8	5/8	TF5716x10	.484	1.45	1.70	15/16	1.45
3/4	3/4	TF5716x12	.609	1.66	1.94	1-1/8	1.66
7/8	7/8	TF5716x14	.718	1.73	2.00	1-1/4	1.73
1	1	TF5716x16	.844	1.81	2.05	1-3/8	1.81
1-1/4	1-1/4	TF5716x20	1.078	2.06	2.25	1-3/4	2.06
1-1/2	1-1/2	TF5716x24	1.312	2.33	2.39	2	2.33

### Male Branch Tee

Stainless Steel No. 5617x

(Ref. SAE No. 070425)

Example assembly No. C35605x4



\*Special Order Only

Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	C5605x4*	.172	.188	.89	.78	7/16
1/4	1/4	C5605x4x4x4	.172	.281	1.05	1.09	9/16
5/16	1/8	C5605x5	.234	.188	.95	.78	9/16
3/8	1/4	C5605x6*	.297	.281	1.06	1.09	9/16
1/2	3/8	C5605x8	.391	.406	1.25	1.22	3/4
5/8	1/2	C5605x10	.484	.531	1.45	1.47	7/8
3/4	3/4	C5605x12	.609	.719	1.66	1.59	1-1/16
7/8	3/4	C5605x14*	.718	.719	1.73	1.69	1-5/16
1	1	C5605x16	.844	.938	1.81	1.97	1-5/8
1-1/4	1-1/4	C5605x20*	1.078	1.250	2.06	2.38	1-5/8
1/4	1/8	TF5605x4	.172	.188	.89	.78	1/2
1/4	1/4	TF5605x4x4x4	.172	.281	.95	1.09	5/8
5/16	1/8	TF5605x5	.234	.188	.95	.78	9/16
3/8	1/4	TF5605x6	.297	.281	1.08	1.09	5/8
3/8	3/8	TF5605x6x6x6	.297	.406	1.16	1.22	13/16
1/2	3/8	TF5605x8	.391	.406	1.25	1.22	13/16
1/2	1/2	TF5605x8x8x8	.391	.531	1.31	1.47	15/16
5/8	1/2	TF5605x10	.484	.531	1.45	1.47	15/16
3/4	3/4	TF5605x12	.609	.719	1.66	1.59	1-1/8
7/8	3/4	TF5605x14	.718	.719	1.73	1.69	1-1/4
1	1	TF5605x16	.844	.938	1.81	1.97	1-3/8
1-1/4	1-1/4	TF5605x20	1.078	1.250	2.06	2.38	1-3/4
1-1/2	1-1/2	TF5605x24	1.312	1.500	2.33	2.64	2
2	2	TF5605x32	1.781	1.938	3.06	3.00	2-5/8

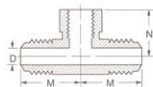
\* Available in stainless steel.

**Female Branch Tee**

Stainless Steel No. 5667x

(Ref. SAE No. 070427)

Example assembly No. C35655x4



\*Special Order Only

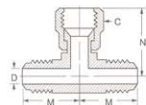
Tube O.D.	Fem. Pipe Thread	Catalog Number	D	M	N	Across Flats
1/4	1/8	C5655x4*	.172	1.08	.66	9/16
3/8	1/4	C5655x6*	.297	1.23	.88	3/4
1/2	3/8	C5655x8*	.391	1.42	1.02	7/8
5/8	1/2	C5655x10	.484	1.64	1.23	1-1/16
3/4	3/4	C5655x12	.609	1.89	1.36	1-5/16
1	1	C5655x16*	.844	2.17	1.62	1-5/8
1/4	1/8	TF5655x4	.172	1.08	.66	5/8
1/4	1/4	TF5655x4x4x4	.172	1.14	.88	3/4
5/16	1/8	TF5655x5	.234	1.08	.66	5/8
3/8	1/4	TF5655x6	.297	1.23	.88	3/4
3/8	3/8	TF5655x6x6x6	.297	1.30	1.02	7/8
1/2	3/8	TF5655x8	.391	1.42	1.02	7/8
1/2	1/2	TF5655x8x8x8	.391	1.55	1.23	1-1/8
5/8	1/2	TF5655x10	.484	1.64	1.23	1-1/8
3/4	3/4	TF5655x12	.609	1.89	1.36	1-3/8
7/8	3/4	TF5655x14	.718	1.86	1.42	1-3/8
1	1	TF5655x16	.844	2.17	1.62	1-5/8
1-1/4	1-1/4	TF5655x20	1.078	2.33	1.70	2
1-1/2	1-1/2	TF5655x24	1.312	2.89	2.08	2-3/8
2	2	TF5655x32	1.781	3.30	2.39	2-7/8

**Swivel Nut Branch Tee**

Stainless Steel No. 5719x

(Ref. SAE No. 070433)

Example assembly No. C35707x4

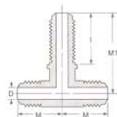
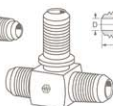
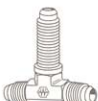


\*Special Order Only

Tube O.D.	Catalog Number	Hex C	D	M	N	Across Flats
1/4	C5707x4*	9/16	.172	.89	1.00	7/16
3/8	C5707x6*	11/16	.297	1.06	1.25	9/16
1/2	C5707x8*	7/8	.391	1.25	1.43	3/4
5/8	C5707x10*	1	.484	1.45	1.62	7/8
3/4	C5707x12*	1-1/4	.609	1.66	1.75	1-1/16
1	C5707x16	1-1/2	.844	1.81	2.00	1-5/16
1/4	TF5707x4	9/16	.172	.89	1.00	7/16
5/16	TF5707x5	5/8	.234	.95	1.06	9/16
3/8	TF5707x6	11/16	.297	1.06	1.25	5/8
1/2	TF5707x8	7/8	.391	1.25	1.38	13/16
5/8	TF5707x10	1	.484	1.45	1.62	7/8
3/4	TF5707x12	1-1/4	.609	1.66	1.75	1-1/8
7/8	TF5707x14	1-3/8	.719	1.73	1.78	1-1/4
1	TF5707x16	1-1/2	.844	1.81	2.00	1-3/8
1-1/4	TF5707x20	2	1.078	2.06	2.31	2
1-1/2	TF5707x24	2-1/4	1.312	2.33	2.59	2
2	TF5707x32	2-7/8	1.781	3.06	3.38	2-5/8

**Bulkhead Union Tee**

(Ref. SAE No. 070959)



#Stainless Steel Construction

For bulkhead nut see page 167. Included with assembly.

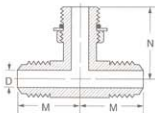
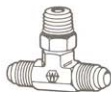
Tube O.D.	Catalog Number	I	D	M	M1	Across Flats
1/4	TF5725x4	1.11	.172	.97	1.59	1/2
3/8	TF5725x6	1.18	.297	1.06	1.81	5/8
1/2	TF5725x8	1.38	.391	1.36	2.11	13/16
5/8	TF5725x10	1.52	.484	1.56	2.39	15/16
3/4	TF5725x12	1.69	.609	1.78	2.67	1-1/8
1	TF5725x16	1.69	.844	1.94	2.80	1-3/8
1/4	5737x4#	1.11	.172	.97	1.59	7/16
3/8	5737x6#	1.18	.297	1.09	1.81	9/16

\* Available in stainless steel.

### Straight Thread O-Ring Branch Tee

(Ref. SAE No. 070429)

Example assembly No. C35715x4



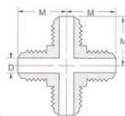
Replacement O-rings listed below.

\*Special Order Only.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	C5715x4	.172	.89	1.03	7/16
5/16	5/16	C5715x5*	.234	.95	1.09	9/16
3/8	3/8	C5715x6	.297	1.06	1.25	9/16
1/2	1/2	C5715x8	.391	1.25	1.45	3/4
5/8	5/8	C5715x10	.484	1.45	1.70	7/8
3/4	3/4	C5715x12	.609	1.66	1.94	1-1/16
1	1	C5715x16	.844	1.81	2.05	1-5/16
1/4	1/4	TF5715x4	.172	.89	1.03	7/16
5/16	5/16	TF5715x5	.234	.95	1.09	9/16
3/8	3/8	TF5715x6	.297	1.06	1.25	5/8
1/2	1/2	TF5715x8	.391	1.25	1.45	3/4
5/8	5/8	TF5715x10	.484	1.45	1.70	15/16
3/4	3/4	TF5715x12	.609	1.66	1.94	1-1/8
7/8	7/8	TF5715x14	.719	1.73	2.00	1-1/4
1	1	TF5715x16	.844	1.81	2.05	1-3/8
1-1/4	1-1/4	TF5715x20	1.078	2.06	2.25	1-3/4
1-1/2	1-1/2	TF5715x24	1.312	2.33	2.39	2

### Cross

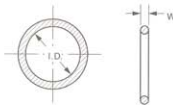
(Ref. SAE No. 070501)



#Stainless Steel Construction

Tube O.D.	Catalog Number	D	M	Across Flats
1/4	TF5955x4	.172	.89	1/2
5/16	TF5955x5	.234	.95	9/16
3/8	TF5955x6	.297	1.06	5/8
1/2	TF5955x8	.391	1.25	13/16
5/8	TF5955x10	.484	1.45	15/16
3/4	TF5955x12	.609	1.66	1-1/8
7/8	TF5955x14	.718	1.73	1-1/4
1	TF5955x16	.844	1.81	1-3/8
1-1/4	TF5955x20	1.078	2.06	1-3/4
1-1/2	TF5955x24	1.312	2.33	2
1/4	5967x4#	.172	.89	7/16
3/8	5967x6#	.297	1.06	9/16
1/2	5967x8#	.391	1.25	3/4

### Straight Thread O-Ring



Material: Buna-N 90 Durometer


Temperature Range: -40°F to +250°F

(-40°C to +121°C)

Standard O-ring complies with SAE specification

SAE J515 Type CH.

Tube O.D.	Catalog Number	W	I.D.
1/16	7629x1	.058	.185
1/8	7629x2	.064	.239
3/16	7629x3	.064	.301
1/4	7629x4	.072	.351
5/16	7629x5	.072	.414
3/8	7629x6	.078	.468
7/16	7629x7	.082	.530
1/2	7629x8	.087	.644
5/8	7629x10	.097	.755
3/4	7629x12	.116	.924
7/8	7629x14	.116	1.048
1	7629x16	.116	1.171
1-1/4	7629x20	.118	1.475
1-1/2	7629x24	.118	1.720
2	7629x32	.118	2.337

 Refer to safety information regarding tubing selection on page 1.

- **Typical Application:** Pressure hydraulic systems.
- **Sealing Method:** Performed by an elastomeric O-ring.
- **NOTE:** For pressure, material and plating information, refer to appropriate steel fitting sections of this catalog:

Pipe - See page 141. For-Seal - See page 149. JIC 37° - See page 159.

Ermeto - See page 190. Swivel Adapters - See page 214.

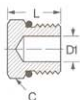
## Straight Thread O-Ring Hex Socket Plug (Ref. SAE No. 090109B)



Replacement O-rings page 194.  
NOTE: Parts furnished with zinc plate.

Port Size	Catalog Number	Hex C	L
1/8	7238x2	1/8	.40
3/16	7238x3	1/8	.40
1/4	7238x4	3/16	.47
5/16	7238x5	3/16	.47
3/8	7238x6	1/4	.50
1/2	7238x8	5/16	.58
5/8	7238x10	3/8	.65
3/4	7238x12	9/16	.77
7/8	7238x14	9/16	.77
1	7238x16	5/8	.77
1-1/4	7238x20	3/4	.78

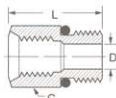
## Straight Thread O-Ring Hex Head Plug (Ref. SAE No. 090109A)



Replacement O-rings page 194.  
NOTE: Parts furnished with zinc plate.

Port Size	Catalog Number	Hex C	L	D1 Opt.
1/8	7237x2	7/16	.60	.093
3/16	7237x3	1/2	.60	.125
1/4	7237x4	9/16	.67	.203
5/16	7237x5	5/8	.67	.234
3/8	7237x6	11/16	.73	.297
1/2	7237x8	7/8	.80	.422
5/8	7237x10	1	.93	.500
3/4	7237x12	1-1/4	1.09	.656
7/8	7237x14	1-3/8	1.09	.718
1	7237x16	1-1/2	1.12	.875
1-1/4	7237x20	1-7/8	1.20	1.093
1-1/2	7237x24	2-1/8	1.27	1.344
2	7237x32	2-3/4	1.42	1.815

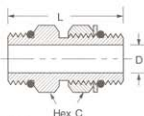
## Male Straight Thread/Female Straight Thread O-Ring Boss



Replacement O-rings page 194.  
NOTE: Parts furnished with zinc plate.

Male Port Size	Fem. Port Size	Catalog Number	Hex C	D	L
1/2	3/8	7033x8x6	7/8	.391	1.16
5/8	1/2	7033x10x8	1	.484	1.34
3/4	1/2	7033x12x8	1-1/4	.671	1.44
7/8	3/4	7033x14x12	1-3/8	.719	1.72
1	1/2	7033x16x8	1-1/2	.687	1.12
1	3/4	7033x16x12	1-1/2	.844	1.70
1-1/4	3/4	7033x20x12	1-7/8	.968	1.20
1-1/2	1-1/4	7033x24x20	2-1/8	1.312	1.75
2	1-1/2	7033x32x24	2-3/4	1.781	1.44

## Straight Thread O-Ring Union



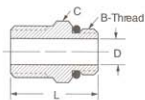
Replacement O-rings page 194.

Port Size	Catalog Number	Hex C	D	L
1/4	C5314x4x4	9/16	.172	1.37
3/8	C5314x6x6	11/16	.297	1.50
1/2	C5314x8x8	7/8	.391	1.56
5/8	C5314x10x10	1	.484	1.80
3/4	C5314x12x12	1-1/4	.609	2.33
1	C5314x16x16	1-1/2	.844	2.28
1-1/4	C5314x20x20	1-7/8	1.078	2.13
1-1/2	C5314x24x24	2-1/8	1.312	2.13
2	C5314x32x32	2-3/4	1.781	2.13

# Straight Thread O-Ring

**Steel Fittings**

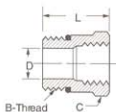
## Male Straight Thread O-Ring to Male Pipe Adapter



Replacement O-rings page 194.

Port Size	Male Pipe Thread	Catalog Number	Straight Thread B	Hex C	D	L
1/4	1/8	C3249x4x2	7/16-20	9/16	.172	1.05
3/8	1/4	C3249x6x4	9/16-18	11/16	.281	1.30
1/2	3/8	C3249x8x6	3/4-16	7/8	.391	1.36
1/2	1/2	C3249x8x8	3/4-16	7/8	.391	1.55
5/8	1/2	C3249x10x8	7/8-14	1	.484	1.69
3/4	3/4	C3249x12x12	1-1/16-12	1-1/4	.609	1.73
1	1	C3249x16x16	1-5/16-12	1-1/2	.844	2.06
1-1/4	1-1/4	C3249x20x20	1-5/8-12	1-7/8	1.078	2.17
1-1/2	1-1/2	C3249x24x24	1-7/8-12	2-1/8	1.312	2.26
2	2	C3249x32x32	2-1/2-12	2-3/4	1.781	2.47

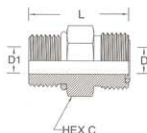
## Straight Thread O-Ring to Female Pipe Adapter



Replacement O-rings page 194.

Port Size	Female Pipe Thread	Catalog Number	Straight Thread B	Hex C	D	L
1/4	1/8	C3269x4x2	7/16-20	9/16	.172	.97
1/4	1/4	C3269x4x4	7/16-20	3/4	.172	1.16
5/16	1/8	C3269x5x2	1/2-20	5/8	.234	.94
3/8	1/4	C3269x6x4	9/16-18	3/4	.297	1.09
3/8	3/8	C3269x6x6	9/16-18	7/8	.281	1.30
3/8	1/2	C3269x6x8	9/16-18	1-1/8	.281	1.44
1/2	1/4	C3269x8x4	3/4-16	7/8	.421	1.06
1/2	3/8	C3269x8x6	3/4-16	7/8	.421	1.22
1/2	1/2	C3269x8x8	3/4-16	1-1/16	.421	1.50
5/8	1/4	C3269x10x4	7/8-14	1	.422	.81
5/8	3/8	C3269x10x6	7/8-14	1	.500	1.25
5/8	1/2	C3269x10x8	7/8-14	1-1/8	.500	1.50
5/8	3/4	C3269x10x12	7/8-14	1-3/8	.500	1.62
3/4	1/2	C3269x12x8	1-1/16-12	1-1/4	.688	1.34
3/4	3/4	C3269x12x12	1-1/16-12	1-3/8	.656	1.66
7/8	3/4	C3269x14x12	1-3/16-12	1-3/8	.718	1.63
1	1/2	C3269x16x8	1-5/16-12	1-1/2	.688	1.00
1	3/4	C3269x16x12	1-5/16-12	1-1/2	.876	1.50
1	1	C3269x16x16	1-5/16-12	1-5/8	.876	1.88
1-1/4	1	C3269x20x16	1-5/8-12	1-7/8	1.080	1.00
1-1/4	1-1/4	C3269x20x20	1-5/8-12	2	1.080	1.94
1-1/2	1-1/2	C3269x24x24	1-7/8-12	2-3/8	1.312	1.88
2	2	C3269x32x32	2-1/2-12	2-7/8	1.781	1.91

## Straight Thread O-Ring Connector to For-Seal® (Ref. SAE No. 520120)



For replacement For-Seal® O-rings, see page 163.

Male Tube O.D.	Port Size	Catalog Number	Hex C	D	D1	L
1/4	1/4	4315x4	5/8	.172	.172	1.133
1/4	3/8	4315x4x6	11/16	.172	.172	1.202
3/8	1/4	4315x6x4	3/4	.264	.172	1.343
3/8	3/8	4315x6	3/4	.264	.264	1.252
3/8	1/2	4315x6x8	7/8	.378	.264	1.378
3/8	5/8	4315x6x10	1-1/16	.264	.484	1.530
1/2	3/8	4315x8x6	7/8	.378	.264	1.472
1/2	1/2	4315x8	7/8	.378	.378	1.441
1/2	5/8	4315x8x10	1	.378	.484	1.590
1/2	3/4	4315x8x12	1-1/4	.378	.609	1.748
5/8	5/8	4315x10	1-1/16	.484	.484	1.700
3/4	3/4	4315x12	1-1/4	.609	.609	1.918
3/4	1	4315x12x16	1-1/2	.609	.609	1.960
1	3/4	4315x16x12	1-1/2	.812	.609	2.138
1	1	4315x16	1-1/2	.811	.811	1.978
1	1-1/4	4315x16x20	1-7/8	.812	1.709	2.058
1-1/4	1	4315x20x16	1-3/4	1.024	.843	2.278
1-1/4	1-1/4	4315x20	1-7/8	1.024	1.024	2.058
1-1/2	1-1/2	4315x24	2-1/8	1.260	1.260	2.125



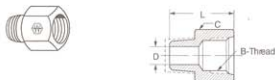
## Straight Thread O-Ring to For-Seal® Extended (Ref. SAE No. 520122)



For replacement straight thread O-ring, see page 194.  
Replacement For-Seal O-ring page 163.

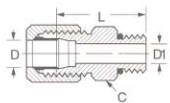
Tube O.D.	Port Size	Catalog Number	Hex C	D	I	L
3/8	3/8	4316x6	3/4	.264	1.46	2.27
1/2	1/2	4316x8	7/8	.378	1.75	2.67
3/4	3/4	4316x12	1-1/4	.609	2.52	3.76
1	1	4316x16	1-1/2	.811	2.87	4.14
1-1/4	1-1/4	4316x20	1-7/8	1.024	3.41	4.76
1-1/2	1-1/2	4316x24	2-1/8	1.260	3.82	5.26

## Female Straight Thread O-Ring to Male Pipe Adapter



Fem. Port Size	Male Pipe Thread	Catalog Number	Straight Thread B	Hex C	D	L
3/8	3/8	C3239x6x6	9/16-18	13/16	.406	1.38
3/8	1/2	C3239x6x8	9/16-18	7/8	.500	1.61
1/2	3/8	C3239x8x6	3/4-16	1	.406	1.46
1/2	1/2	C3239x8x8	3/4-16	1	.562	1.69
5/8	1/2	C3239x10x8	7/8-14	1-1/4	.531	1.81

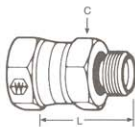
## Straight Thread O-Ring Connector to Ermeto® Stainless Steel No. 7327x (Ref. SAE No. 080120)



Replacement O-rings page 194.

Tube O.D.	Port Size	Catalog Number	Hex C	D	L	D1 Opt.
3/16	3/16	7315x3	1/2	.125	1.04	—
1/4	1/4	7315x4*	9/16	.203	1.13	—
1/4	5/16	7315x4x5*	5/8	.203	1.13	—
1/4	3/8	7315x4x6*	11/16	.203	1.19	.281
5/16	5/16	7315x5	5/8	.234	1.13	—
3/8	3/8	7315x6*	11/16	.281	1.21	—
3/8	1/2	7315x6x8	7/8	.281	1.29	.422
1/2	1/2	7315x8*	7/8	.422	1.38	—
1/2	5/8	7315x8x10*	1	.422	1.51	.500
1/2	3/4	7315x8x12*	1-1/4	.422	1.67	.656
5/8	5/8	7315x10*	1	.500	1.57	—
3/4	3/4	7315x12*	1-1/4	.656	1.79	—
3/4	1	7315x12x16	1-1/2	.656	1.82	.876
7/8	7/8	7315x14	1-3/8	.718	1.79	—
1	3/4	7315x16x12	1-1/2	.875	1.82	.656
1	1	7315x16*	1-1/2	.875	1.82	—
1-1/4	1-1/4	7315x20	1-7/8	1.093	1.90	—
1-1/2	1-1/2	7315x24	2-1/8	1.344	1.97	—
2	2	7315x32	2-3/4	1.813	2.13	—

## Male Straight Thread O-Ring to Female Pipe Swivel (Ref. SAE No. 140157)



Replacement O-rings page 194.

Port Size	NPSM Swivel Nut	Catalog Number	Hex C	L
1/4	1/4-18	9315x4x4	9/16	.970
1/4	3/8-18	9315x4x6	5/8	1.060
5/16	1/4-18	9315x5x4	5/8	1.109
3/8	1/4-18	9315x5x4	11/16	1.171
3/8	3/8-18	9315x6x6	11/16	1.090
3/8	1/2-14	9315x6x8	13/16	1.210
1/2	1/4-18	9315x8x4	7/8	1.234
1/2	3/8-18	9315x8x6	7/8	1.200
1/2	1/2-14	9315x8x8	7/8	1.260
1/2	3/4-14	9315x8x12	1	1.406
5/8	3/8-18	9315x10x6	1	1.375
5/8	1/2-14	9315x10x8	1	1.400
5/8	3/4-14	9315x10x12	1	1.546
3/4	1/2-14	9315x12x8	1-1/4	1.540
3/4	3/4-14	9315x12x12	1-1/4	1.600
7/8	3/4-14	9315x14x12	1-3/8	1.703
1	3/4-14	9315x16x12	1-1/2	1.734
1	1-11-1/2	9315x16x16	1-1/2	1.710
1-1/4	1-11-1/2	9315x20x16	1-7/8	1.828
1-1/4	1-1/2-11-1/2	9315x20x20	1-7/8	1.890
1-1/2	1-1/2-11-1/2	9315x24x24	2-1/8	1.953
2	2-11-1/2	9315x32x32	2-3/4	2.156

\* Available in stainless steel.

# Straight Thread O-Ring

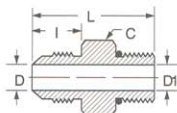
Steel  
Fittings

## Straight Thread O-Ring Connector to Male JIC 37°

Stainless Steel No. 5327x

(Ref. SAE No. 070120)

Example assembly No. C35315x4

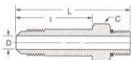
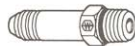


Replacement O-rings page 213.

## Straight Thread O-Ring Extended Connector to Male JIC 37°

(Ref. SAE No. 070122)

Example assembly No. C35316x4



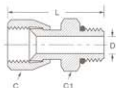
Replacement O-rings page 194.

Tube O.D.	Port Size	Catalog Number	Hex C	D	D1 Opt.	I	L
1/8	1/8	C5315x2-	7/16	.062	.062	.45	1.06
3/16	3/16	C5315x3	1/2	.125	.125	.48	1.10
1/4	1/4	C5315x4	9/16	.172	.172	.55	1.23
1/4	5/16	C5315x4x5*	5/8	.172	.234	.55	1.23
1/4	3/8	C5315x4x6	11/16	.172	.172	.55	1.29
1/4	1/2	C5315x4x8	7/8	.172	.391	.55	1.38
5/16	1/4	C5315x5x4	9/16	.234	.172	.55	1.23
5/16	5/16	C5315x5	5/8	.234	.234	.55	1.23
5/16	3/8	C5315x5x6	11/16	.234	.297	.55	1.30
3/8	1/4	C5315x6x4	5/8	.297	.172	.56	1.33
3/8	5/16	C5315x6x5	5/8	.297	.234	.56	1.30
3/8	3/8	C5315x6*	11/16	.297	.297	.56	1.30
3/8	1/2	C5315x6x8*	7/8	.297	.391	.56	1.38
3/8	5/8	C5315x6x10	1	.297	.484	.56	1.50
1/2	3/8	C5315x8x6	13/16	.391	.297	.66	1.44
1/2	1/2	C5315x8*	7/8	.391	.391	.66	1.48
1/2	5/8	C5315x8x10*	1	.391	.484	.66	1.60
1/2	3/4	C5315x8x12*	1-1/4	.391	.609	.66	1.76
5/8	1/2	C5315x10x8	15/16	.484	.391	.76	1.67
5/8	5/8	C5315x10*	1	.484	.484	.76	1.70
5/8	3/4	C5315x10x12	1-1/4	.484	.609	.76	1.86
5/8	1	C5315x10x16	1-1/2	.484	.844	.76	1.89
3/4	1/2	C5315x12x8	1-1/8	.609	.391	.86	1.94
3/4	5/8	C5315x12x10	1-1/8	.609	.484	.86	1.88
3/4	3/4	C5315x12*	1-1/4	.609	.609	.86	1.97
3/4	7/8	C5315x12x14	1-3/8	.609	.718	.86	1.97
3/4	1	C5315x12x16	1-1/2	.609	.844	.86	1.99
3/4	1-1/4	C5315x12x20	1-7/8	.609	1.078	.86	2.08
7/8	7/8	C5315x14	1-3/8	.718	.718	.89	1.99
1	5/8	C5315x16x10	1-3/8	.844	.484	.91	1.95
1	3/4	C5315x16x12	1-3/8	.844	.609	.91	2.04
1	1	C5315x16*	1-1/2	.844	.844	.91	2.04
1	1-1/4	C5315x16x20	1-7/8	.844	1.078	.91	2.12
1-1/4	1	C5315x20x16	1-11/16	1.078	.844	.96	2.20
1-1/4	1-1/4	C5315x20	1-7/8	1.078	1.078	.96	2.17
1-1/4	1-1/2	C5315x20x24	2-1/8	1.078	1.312	.96	2.25
1-1/2	1-1/4	C5315x24x20	2	1.312	1.078	1.08	2.34
1-1/2	1-1/2	C5315x24	2-1/8	1.312	1.312	1.08	2.37
1-1/2	2	C5315x24x32	2-3/4	1.312	1.781	1.08	2.53
2	1-1/2	C5315x32x24	2-5/8	1.781	1.312	1.33	2.78
2	2	C5315x32	2-3/4	1.784	1.784	1.33	2.78

STEEL

\* Available in stainless steel.

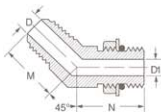
## JIC 37° Female Swivel to Straight Thread O-Ring



Tube O.D.	Port Size	Catalog Number	Hex C	Hex C1	L	D
1/4	1/4	C5216x4x4	9/16	.56	.95	.172
1/4	3/8	C5216x4x6	9/16	.69	1.00	.172
3/8	3/8	C5216x6x6	11/16	.69	1.11	.297
3/8	1/2	C5216x6x8	11/16	.88	1.18	.297
1/2	3/8	C5216x8x6	7/8	3/4	1.71	.297
1/2	1/2	C5216x8x8	7/8	.88	1.17	.391
5/8	5/8	C5216x10x10	1	1.00	1.45	.484
3/4	3/4	C5216x12x12	1-1/4	1.25	1.61	.609
1	1	C5216x16x16	1-1/2	1.50	1.69	.844
1-1/4	1-1/4	C5216x20x20	2	1.88	1.82	1.078
1-1/2	1-1/2	C5216x24x24	2-1/8	2.12	1.88	1.312
2	2	C5216x32x32	2-3/4	2.75	2.01	1.781

Replacement O-rings page 194.

## 45° Elbow - Male Straight Thread O-Ring to Male JIC 37° (Ref. SAE No. 070320) Example assembly No. C35365x4



Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
1/4	1/4	C5365x4	.172	.172	.72	1.05	7/16
5/16	5/16	C5365x5*	.234	.234	.77	1.05	9/16
3/8	3/8	C5365x6	.297	.297	.83	1.14	5/8
1/2	1/2	C5365x8	.391	.391	.98	1.30	3/4
1/2	5/8	C5365x8x10	.391	.484	.99	1.52	7/8
5/8	5/8	C5365x10	.484	.484	1.11	1.52	7/8
3/4	5/8	C5365x12x10	.609	.484	1.28	1.57	1-1/16
3/4	3/4	C5365x12	.609	.609	1.28	1.73	1-1/16
1	1	C5365x16	.844	.844	1.47	1.86	1-5/16
1-1/4	1-1/4	C5365x20	1.078	1.078	1.59	1.91	1-5/8
1-1/2	1-1/2	C5365x24*	1.312	1.312	1.78	1.91	1-7/8
1/4	1/4	TF5365x4	.172	.172	.72	1.05	1/2
5/16	5/16	TF5365x5	.234	.234	.77	1.05	9/16
3/8	3/8	TF5365x6	.297	.297	.83	1.14	5/8
3/8	1/2	TF5365x6x8	.297	.391	.87	1.30	13/16
1/2	3/8	TF5365x8x6	.391	.297	.98	1.17	13/16
1/2	1/2	TF5365x8	.391	.391	.98	1.30	13/16
1/2	5/8	TF5365x8x10	.391	.484	.99	1.52	15/16
5/8	1/2	TF5365x10x8	.484	.391	1.09	1.41	15/16
5/8	5/8	TF5365x10	.484	.484	1.09	1.52	15/16
3/4	5/8	TF5365x12x10	.609	.484	1.30	1.58	1-1/8
3/4	3/4	TF5365x12	.609	.609	1.28	1.73	1-1/8
3/4	1	TF5365x12x16	.609	.844	1.45	1.86	1-3/8
7/8	7/8	TF5365x14	.718	.718	1.39	1.80	1-1/4
1	3/4	TF5365x16x12	.844	.609	1.47	1.86	1-3/8
1	1	TF5365x16	.844	.844	1.47	1.86	1-3/8
1-1/4	1-1/4	TF5365x20	1.078	1.078	1.59	1.91	1-3/4
1-1/2	1-1/2	TF5365x24	1.312	1.312	1.78	1.91	2
2	2	TF5365x32	1.781	1.781	2.22	1.86	2-5/8

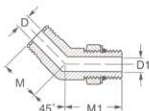
Replacement O-rings page 194.

\*Special order only.

# Straight Thread O-Ring

**Steel  
Fittings**

## 45° Elbow - For-Seal® to Straight Thread O-Ring (Ref. SAE No. 520320)

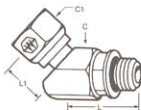


For replacement straight thread O-rings, see page 194.

For replacement For-Seal® o-rings, see page 163.

Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4365x4	.172	.172	.63	1.18	9/16
1/4	3/8	4365x4x6	.172	.264	.68	1.30	3/4
3/8	1/4	4365x6x4	.264	.172	.74	1.22	3/4
3/8	3/8	4365x6	.264	.264	.74	1.30	3/4
3/8	1/2	4365x6x8	.264	.390	.74	1.43	3/4
1/2	3/8	4365x8x6	.378	.264	.80	1.27	3/4
1/2	1/2	4365x8	.378	.390	.80	1.43	3/4
1/2	5/8	4365x8x10	.378	.484	.82	1.76	1-1/16
1/2	3/4	4365x8x12	.378	.609	.87	1.97	1-3/16
5/8	1/2	4365x10x8	.484	.390	.92	1.59	1-1/16
5/8	5/8	4365x10	.484	.484	.92	1.76	1-1/16
5/8	3/4	4365x10x12	.484	.609	.94	1.97	1-3/16
3/4	5/8	4365x12x10	.609	.484	1.02	1.81	1-3/16
3/4	3/4	4365x12	.609	.609	1.02	1.97	1-5/16
3/4	1	4365x12x16	.609	.811	1.16	2.06	1-5/16
1	3/4	4365x16x12	.811	.609	1.12	2.03	1-7/16
1	1	4365x16	.812	.811	1.18	2.06	1-1/2
1	1-1/4	4365x16x20	.811	1.081	1.26	1.11	1-5/8
1-1/4	1-1/4	4365x20	1.024	1.081	1.26	1.11	1-5/8
1-1/2	1-1/2	4365x24	1.260	1.312	1.45	1.11	1-7/8

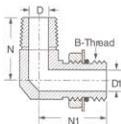
## 45° Elbow - Male Straight Thread O-Ring to Female Pipe Swivel (Ref. SAE No. 140357)



Replacement O-rings page 194.

Port Size	NPSM Swivel Nut	Catalog Number	Hex C	Hex C1	L	L1
1/4	1/4-18	9365x4x4	7/16	11/16	1.06	.66
1/4	3/8-18	9365x4x6	7/16	7/8	1.00	.75
3/8	3/8-18	9365x6x6	9/16	7/8	1.06	.70
3/8	1/2-14	9365x6x8	9/16	1	1.13	.82
1/2	3/8-18	9365x8x6	3/4	1	1.13	.88
1/2	1/2-14	9365x8x8	3/4	1	1.13	.82
5/8	1/2-14	9365x10x8	7/8	1	1.50	.78
3/4	3/4-14	9365x12x12	1-1/16	1-1/4	1.50	1.05
1	1-11-1/2	9365x16x16	1-5/16	1-1/2	1.62	1.06
1-1/4	1-1/4-11-1/2	9365x20x20	1-5/8	1-7/8	2.28	1.17
1-1/2	1-1/2-11-1/2	9365x24x24	1-7/8	2-1/8	2.61	1.34

## 90° Elbow - Straight Thread O-Ring to Male Pipe



Replacement O-rings page 194.

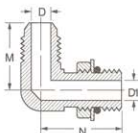
Port Size	Male Pipe Thread	Catalog Number	Straight Thread B	D1	D	N	N1	Across Flats
1/4	1/8	TF3569x4	7/16-20	.172	.188	.78	1.03	1/2
5/16	1/8	TF3569x5	1/2-20	.234	.188	.78	1.09	9/16
3/8	1/4	TF3569x6	9/16-18	.297	.281	1.09	1.25	5/8
1/2	3/8	TF3569x8	3/4-16	.391	.406	1.22	1.45	13/16
5/8	1/2	TF3569x10	7/8-14	.484	.531	1.47	1.70	15/16
3/4	3/4	TF3569x12	1-1/16-12	.609	.719	1.59	1.94	1-1/8
7/8	3/4	TF3569x14	1-3/16-12	.719	.919	1.69	2.00	1-1/4
1	1	TF3569x16	1-5/16-12	.844	.938	1.97	2.05	1-3/8
1-1/4	1-1/4	TF3569x20	1-5/8-12	1.078	1.250	2.38	2.25	1-3/4
1-1/2	1-1/2	TF3569x24	1-7/8-12	1.312	1.500	2.64	2.39	2
2	2	TF3569x32	2-1/2-12	1.781	1.938	3.00	2.89	2-5/8

90° Elbow - Straight Thread  
O-Ring to Male JIC 37°

Stainless Steel 5527x

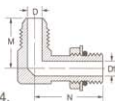
(Ref. SAE No. 070220)

Example assembly No. C35515x4



Replacement O-rings page 194.

\*Special Order Only

90° Elbow Long - Straight  
Thread O-Ring to Male JIC 37°

Replacement O-rings page 194.

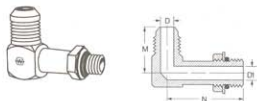
Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
3/16	3/16	C5515x3	.125	.125	.83	.94	7/16
1/4	1/4	C5515x4*	.172	.172	.89	1.03	7/16
5/16	5/16	C5515x5*	.234	.234	.95	1.13	9/16
3/8	3/8	C5515x6*	.297	.297	1.06	1.25	9/16
3/8	1/2	C5515x6x8	.297	.391	1.14	1.45	3/4
1/2	3/8	C5515x8x6	.391	.297	1.25	1.32	3/4
1/2	1/2	C5515x8*	.391	.391	1.25	1.45	3/4
1/2	5/8	C5515x8x10	.391	.484	1.33	1.70	7/8
5/8	5/8	C5515x10	.484	.484	1.45	1.70	7/8
3/4	5/8	C5515x12x10	.609	.484	1.66	1.78	1-1/16
3/4	3/4	C5515x12*	.609	.609	1.66	1.94	1-1/16
7/8	7/8	C5515x14	.718	.718	1.73	2.00	1-5/16
1	3/4	C5515x16x12	.844	.609	1.81	2.05	1-5/16
1	1	C5515x16	.844	.844	1.81	2.05	1-5/16
1-1/4	1-1/4	C5515x20	1.078	1.078	2.06	2.25	1-5/8
1-1/2	1-1/2	C5515x24*	1.312	1.312	2.33	2.39	1-7/8
1/4	1/4	TF5515x4	.172	.172	.89	1.03	1/2
1/4	5/16	TF5515x4x5	.172	.234	.95	1.12	5/8
1/4	3/8	TF5515x4x6	.172	.297	.95	1.25	5/8
5/16	1/4	TF5515x5x4	.234	.172	.98	1.06	9/16
5/16	5/16	TF5515x5*	.234	.234	.95	1.09	9/16
5/16	3/8	TF5515x5x6	.234	.297	.98	1.25	5/8
3/8	1/4	TF5515x6x4	.297	.172	1.06	1.09	5/8
3/8	5/16	TF5515x6x5	.297	.234	1.06	1.12	5/8
3/8	3/8	TF5515x6*	.297	.297	1.06	1.25	5/8
3/8	1/2	TF5515x6x8	.297	.391	1.16	1.45	13/16
3/8	5/8	TF5515x6x10	.297	.484	1.22	1.70	15/16
1/2	3/8	TF5515x8x6	.391	.297	1.25	1.34	13/16
1/2	1/2	TF5515x8*	.391	.391	1.25	1.45	13/16
1/2	5/8	TF5515x8x10	.391	.484	1.31	1.70	15/16
1/2	3/4	TF5515x8x12	.391	.609	1.41	1.94	1-1/8
5/8	1/2	TF5515x10x8	.484	.391	1.45	1.52	15/16
5/8	5/8	TF5515x10*	.484	.484	1.45	1.70	15/16
5/8	3/4	TF5515x10x12	.484	.609	1.55	1.94	1-1/8
3/4	1/2	TF5515x12x8	.609	.391	1.66	1.61	1-1/8
3/4	5/8	TF5515x12x10	.609	.484	1.66	1.80	1-1/8
3/4	3/4	TF5515x12*	.609	.609	1.66	1.94	1-1/8
3/4	7/8	TF5515x12x14	.609	.718	1.72	2.00	1-1/4
3/4	1	TF5515x12x16	.609	.844	1.78	2.05	1-3/8
7/8	7/8	TF5515x14	.718	.718	1.73	2.00	1-5/16
1	3/4	TF5515x16x12	.844	.609	1.81	2.06	1-3/8
1	7/8	TF5515x16x14	.844	.718	1.81	2.06	1-3/8
1	1	TF5515x16*	.844	.844	1.81	2.05	1-3/8
1	1-1/4	TF5515x16x20	.844	1.078	2.00	2.25	1-3/4
1-1/4	1	TF5515x20x16	1.078	.844	2.06	2.23	1-3/4
1-1/4	1-1/4	TF5515x20*	1.078	1.078	2.06	2.25	1-3/4
1-1/2	1-1/4	TF5515x24x20	1.312	1.078	2.33	2.37	2
1-1/2	1-1/2	TF5515x24*	1.312	1.312	2.33	2.39	2
2	2	TF5515x32	1.781	1.781	3.06	2.89	2-5/8

\* Available in stainless steel.

# Straight Thread O-Ring

Steel  
Fittings

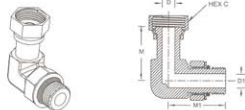
## 90° Elbow Extra Long - Male JIC 37° to Straight Thread O-Ring



Replacement O-rings page 194.

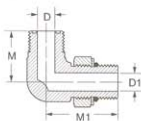
Tube O.D.	Port Size	Catalog Number	D	D1	M	N	Across Flats
3/8	3/8	TF5515x6LL	.297	.297	1.06	2.08	5/8
1/2	1/2	TF5515x8LL	.391	.391	1.25	2.50	13/16
5/8	5/8	TF5515x10LL	.484	.484	1.45	3.25	15/16
3/4	3/4	TF5515x12LL	.609	.609	1.66	3.34	1-1/8

## 90° Elbow - For-Seal® Female Swivel to Male Straight Thread O-Ring (Ref. SAE No. 520281)



Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Hex C	Across Flats
1/4	1/4	4535x4	.165	.180	1.04	1.29	11/16	9/16
3/8	3/8	4535x6	.264	.300	1.15	1.45	13/16	3/4
1/2	1/2	4535x8	.358	.398	1.49	1.60	15/16	7/8
5/8	5/8	4535x10	.453	.498	1.62	1.97	1-1/8	1-1/16
3/4	3/4	4535x12	.547	.616	1.82	2.17	1-3/8	1-3/8
1	1	4535x16	.783	.852	2.10	2.35	1-5/8	1-5/8
1-1/4	1-1/4	4535x20	1.026	1.090	2.29	2.45	1-7/8	1-5/8
1-1/2	1-1/2	4535x24	1.262	1.326	2.41	2.59	2-1/4	1-7/8

## 90° Elbow - For-Seal® to Straight Thread O-Ring (Ref. SAE No. 520220)

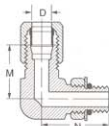


Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4515x4	.172	.172	.85	1.29	9/16
1/4	5/16	4515x4x5	.172	.234	.85	1.29	9/16
1/4	3/8	4515x4x6	.172	.264	.92	1.45	3/4
1/4	1/2	4515x4x8	.172	.390	.97	1.60	3/4
3/8	1/4	4515x6x4	.264	.172	.98	1.37	3/4
3/8	5/16	4515x6x5	.264	.234	.98	1.37	3/4
3/8	3/8	4515x6	.264	.264	.98	1.45	3/4
3/8	1/2	4515x6x8	.264	.390	1.04	1.60	3/4
3/8	5/8	4515x6x10	.264	.484	1.15	1.97	3/4
3/8	3/4	4515x6x12	.264	.609	1.25	2.17	1-3/16
1/2	3/8	4515x8x6	.378	.264	1.10	1.44	3/4
1/2	1/2	4515x8	.378	.390	1.10	1.60	3/4
1/2	5/8	4515x8x10	.378	.484	1.21	1.97	1-1/16
1/2	3/4	4515x8x12	.378	.484	1.32	2.17	1-1/16
5/8	1/2	4515x10x8	.484	.390	1.31	1.80	1-1/16
5/8	5/8	4515x10	.484	.484	1.31	1.97	1-1/16
5/8	3/4	4515x10x12	.484	.609	1.41	2.17	1-3/16
3/4	1/2	4515x12x8	.609	.390	1.47	1.84	1-3/16
3/4	5/8	4515x12x10	.609	.484	1.47	2.01	1-5/16
3/4	3/4	4515x12	.609	.609	1.47	2.17	1-5/16
3/4	1	4515x12x16	.609	.811	1.62	2.35	1-5/16
1	3/4	4515x16x12	.811	.609	1.64	2.32	1-5/8
1	7/8	4515x16x14	.811	.609	1.64	2.32	1-5/8
1	1	4515x16	.811	.811	1.64	2.35	1-5/8
1	1-1/4	4515x16x20	.811	1.081	1.76	2.45	1-5/8
1-1/4	1	4515x20x16	1.024	.811	1.76	2.42	1-5/8
1-1/4	1-1/4	4515x20	1.024	1.081	1.76	2.45	1-7/8
1-1/4	1-1/2	4515x20x24	1.024	1.312	1.92	2.59	1-7/8
1-1/2	1-1/4	4515x24x20	1.312	1.081	1.92	2.59	1-7/8
1-1/2	1-1/2	4515x24	1.312	1.312	1.92	2.59	1-7/8

Replacement Straight Thread O-rings page 194.  
Replacement For-Seal O-rings page 163.

• Available in stainless steel.

## 90° Elbow - Ermeto® to Straight Thread O-Ring Stainless Steel No. 7527x (Ref. SAE No. 080220)



Replacement O-rings page 194.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	7515x4-	.203	.89	1.03	7/16
5/16	5/16	7515x5	.234	.96	1.13	9/16
3/8	3/8	7515x6-	.281	1.05	1.25	9/16
1/2	1/2	7515x8-	.422	1.25	1.45	3/4
5/8	5/8	7515x10-	.500	1.42	1.70	7/8
3/4	3/4	7515x12-	.656	1.58	1.94	1-1/16
1	1	7515x16-	.875	1.73	2.05	1-5/16
1	3/4	7515x16x12	.875	1.73	2.05	1-5/16
1-1/4	1-1/4	7515x20	1.093	1.89	2.25	1-5/8

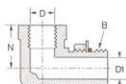
## 90° Elbow - Male Straight Thread O-Ring to Female Pipe Swivel (Ref. SAE No. 140257)



Replacement O-rings page 194.

Port Size	NPSM Swivel Nut	Catalog Number	Hex C	L	L1	Across Flats
1/4	1/4-18	9515x4x4	11/16	1.02	.75	11/16
1/4	3/8-18	9515x4x6	7/8	1.10	.90	7/8
3/8	1/4-18	9515x6x4	11/16	1.19	.78	11/16
3/8	3/8-18	9515x6x6	7/8	1.17	.90	7/8
3/8	1/2-14	9515x6x8	1	1.25	1.02	1
1/2	3/8-18	9515x8x6	1	1.36	1.00	1
1/2	1/2-14	9515x8x8	1	1.36	1.02	1
1/2	3/4-14	9515x8x12	1-1/4	1.66	1.25	1-1/4
5/8	3/8-18	9515x10x6	1	1.64	1.00	1
5/8	1/2-14	9515x10x8	1	1.50	1.02	1
5/8	3/4-14	9515x10x12	1-1/4	1.78	1.25	1-1/4
3/4	1/2-14	9515x12x8	1-1/4	1.92	1.12	1-1/4
3/4	3/4-14	9515x12x12	1-1/4	1.79	1.20	1-1/4
7/8	3/4-14	9515x14x12	1-1/4	1.92	1.25	1-1/4
1	3/4-14	9515x16x12	1-1/2	2.09	1.38	1-1/2
1	1-11/2	9515x16x16	1-1/2	2.09	1.39	1-1/2
1-1/4	3/4-14	9515x20x12	1-7/8	2.48	1.56	1-7/8
1-1/4	1-1/4-11-1/2	9515x20x20	1-7/8	2.48	1.66	1-7/8
1-1/2	1-1/2-11-1/2	9515x24x24	2-1/8	2.61	1.73	2-1/8
2	2-11-1/2	9515x32x32	2-5/8	3.25	2.31	2-5/8

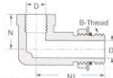
## 90° Elbow - Straight Thread O-Ring to Female Pipe



Replacement O-rings page 194.

Port Size	Fem. Pipe Thread	Catalog Number	Straight Thread B	D	D1	N	N1	Across Flats
1/2	3/8	C3459x8	3/4-16	.562	.422	.63	1.47	7/8
5/8	1/2	C3459x10	7/8-14	.687	.500	.75	1.81	1-1/16
3/4	3/4	C3459x12	1-1/16-12	.906	.656	.81	2.00	1-5/16
1	1	C3459x16	1-5/16-12	1.125	.876	1.00	2.25	1-5/8
1/4	1/8	TF3459x4	7/16-20	.332	.172	.66	1.09	5/8
5/16	1/8	TF3459x5	1/2-20	.332	.234	.66	1.13	5/8
3/8	1/4	TF3459x6	9/16-18	.437	.297	.88	1.31	3/4
1/2	3/8	TF3459x8	3/4-16	.562	.391	1.02	1.49	7/8
5/8	1/2	TF3459x10	7/8-14	.687	.484	1.23	1.80	1-1/8
3/4	3/4	TF3459x12	1-1/16-12	.906	.609	1.36	2.06	1-3/8
7/8	3/4	TF3459x14	1-3/16-12	.906	.719	1.42	2.06	1-3/8
1	1	TF3459x20	1-5/16-12	1.125	.844	1.62	2.17	1-5/8
1-1/4	1-1/4	TF3459x20	1-5/8-12	1.468	1.078	1.70	2.38	2
1-1/2	1-1/2	TF3459x24	1-7/8-12	1.703	1.312	2.08	2.58	2-3/8
2	2	TF3459x32	2-1/2-12	2.180	1.781	2.39	3.02	2-7/8

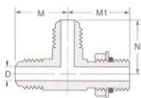
### 90° Elbow Long - Straight Thread O-Ring to Female Pipe



Replacement O-rings page 194.

Port Size	Fem. Pipe Thread	Catalog Number	Straight Thread B	D	D1	N	N1	Across Flats
1/2	3/8	C3469x8	3/4-16	.562	.422	.63	2.94	7/8
5/8	1/2	C3469x10	7/8-14	.687	.500	.75	3.56	1-1/16
3/4	3/4	C3469x12	1-1/16-12	.906	.656	.81	4.13	1-5/16
1	1	C3469x16	1-5/16-12	1.125	.876	1.00	4.63	1-5/8

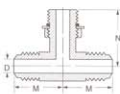
### Male JIC 37° to Straight Thread O-Ring Run Tee (Ref. SAE No. 070428) Example assembly No. C35716x4



Replacement O-rings page 194.

Tube O.D.	Port Size	Catalog Number	D	M	N	M1	Across Flats
1/4	1/4	C5716x4	.172	.89	.89	1.03	7/16
5/16	5/16	C5716x5	.234	.95	.95	1.09	9/16
3/8	3/8	C5716x6	.297	1.06	1.06	1.25	9/16
1/2	1/2	C5716x8	.391	1.25	1.25	1.45	3/4
5/8	5/8	C5716x10	.484	1.45	1.45	1.70	7/8
3/4	3/4	C5716x12	.609	1.66	1.66	1.94	1-1/16
1	1	C5716x16	.844	1.81	1.81	2.05	1-5/16
1-1/4	1-1/4	C5716x20	1.078	2.06	2.06	2.25	1-5/8
1/4	1/4	TF5716x4	.172	.89	.89	1.03	1/2
5/16	5/16	TF5716x5	.234	.95	.95	1.09	9/16
3/8	3/8	TF5716x6	.297	1.06	1.06	1.25	5/8
1/2	1/2	TF5716x8	.391	1.25	1.25	1.45	13/16
5/8	5/8	TF5716x10	.484	1.45	1.45	1.70	15/16
3/4	3/4	TF5716x12	.609	1.66	1.66	1.94	1-1/8
7/8	7/8	TF5716x14	.718	1.73	1.73	2.00	1-1/4
1	1	TF5716x16	.844	1.81	1.81	2.05	1-3/8
1-1/4	1-1/4	TF5716x20	1.078	2.06	2.06	2.25	1-3/4
1-1/2	1-1/2	TF5716x24	1.312	2.33	2.33	2.39	2

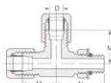
### Male JIC 37° to straight Thread O-Ring Branch Tee (Ref. SAE No. 070429) Example assembly No. C35715x4



Replacement O-rings page 194.  
\*Special order only.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	C5715x4	.172	.89	1.03	7/16
5/16	5/16	C5715x5*	.234	.95	1.09	9/16
3/8	3/8	C5715x6	.297	1.06	1.25	9/16
1/2	1/2	C5715x8	.391	1.25	1.45	3/4
5/8	5/8	C5715x10	.484	1.45	1.70	7/8
3/4	3/4	C5715x12	.609	1.66	1.94	1-1/16
1	1	C5715x16	.844	1.81	2.05	1-5/16
1/4	1/4	TF5715x4	.172	.89	1.03	7/16
5/16	5/16	TF5715x5	.234	.95	1.09	9/16
3/8	3/8	TF5715x6	.297	1.06	1.25	5/8
1/2	1/2	TF5715x8	.391	1.25	1.45	3/4
5/8	5/8	TF5715x10	.484	1.45	1.70	15/16
3/4	3/4	TF5715x12	.609	1.66	1.94	1-1/8
7/8	7/8	TF5715x14	.719	1.73	2.00	1-1/4
1	1	TF5715x16	.844	1.81	2.05	1-3/8
1-1/4	1-1/4	TF5715x20	1.078	2.06	2.25	1-3/4
1-1/2	1-1/2	TF5715x24	1.312	2.33	2.39	2

### Ermeto® Straight Thread O-Ring Run Tee (Stainless Steel No. 7728x) (Ref. SAE No. 080428)



Replacement O-rings page 194.

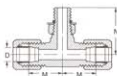
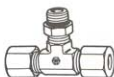
Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	7716x4*	.203	.89	1.03	7/16
3/8	3/8	7716x6*	.281	1.05	1.25	9/16
1/2	1/2	7716x8*	.422	1.25	1.45	3/4

\* Available in stainless steel.



## Ermeto® Straight Thread O-Ring Branch Tee

Stainless Steel No. 7727x  
(Ref. SAE No. 080429)

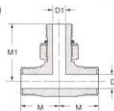


Replacement O-rings see below.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	7715x4	.203	.89	1.03	7/16
3/8	3/8	7715x6	.281	1.05	1.25	9/16
1/2	1/2	7715x8	.422	1.25	1.45	3/4

## For-Seal® to Straight Thread O-Ring Branch Tee

(Ref. SAE No. 520429)

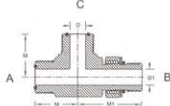


For replacement straight thread O-ring, see below.  
For replacement FOR-SEAL® O-ring, see page 163.

Tube O.D.	Port Size	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	4715x4	.172	.172	.85	1.29	9/16
3/8	3/8	4715x6	.264	.264	.98	1.45	3/4
3/8	1/2	4715x6x8	.264	.391	1.04	1.60	3/4
1/2	1/2	4715x8	.378	.390	1.10	1.60	3/4
5/8	5/8	4715x10	.484	.484	1.31	1.97	1-1/16
3/4	3/4	4715x12	.609	.609	1.47	2.17	1-3/16
1	1	4715x16	.811	.811	1.64	2.35	1-1/16

## For-Seal® to Straight Thread Run Tee

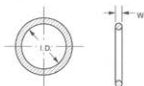
(Ref. SAE No. 520428)



For replacement straight thread O-ring, see below.  
For replacement FOR-SEAL® O-ring, see page 163.

Tube O.D. A	Tube O.D. B	Port Size C	Catalog Number	D	D1	M	M1	Across Flats
1/4	1/4	1/4	4716x4	.172	.172	.85	1.29	9/16
1/4	3/8	1/4	4716x4x4x6	.172	.264	1.39	1.45	3/4
3/8	3/8	3/8	4716x6	.264	.264	.98	1.45	3/4
1/2	1/2	1/2	4716x8	.378	.391	1.10	1.60	7/8
5/8	5/8	5/8	4716x10	.484	.484	1.31	1.97	1-1/16
3/4	3/4	3/4	4716x12	.609	.609	1.47	2.17	1-3/16
3/4	1	3/4	4716x12x12x16	.609	.812	1.62	2.32	1-7/16
3/4	3/4	1	4716x12x16x12	.609	.812	1.62	2.35	1-7/16
1	3/4	1	4716x16x16x12	.812	.609	1.64	2.35	1-7/16
1	1	1	4716x16	.812	.812	1.64	2.35	1-7/16
1-1/4	1-1/4	1-1/4	4716x20	1.046	1.046	1.76	2.45	1-7/8
1-1/2	1-1/2	1-1/2	4716x24	1.313	1.313	1.92	2.59	1-7/8

## Straight Thread O-Ring



Material: Buna-N, 90 Durometer

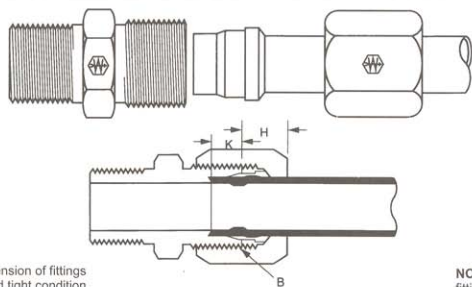
Temperature Range: -40°F to +250°F  
(-40°C to +121°C)

Standard O-ring complies with SAE specification J515 Type CH.

Port Size	Catalog Number	W	I.D.
1/16	7629x1	.058 ± .003	.185 ± .005
1/8	7629x2	.064 ± .003	.239 ± .005
3/16	7629x3	.064 ± .003	.301 ± .005
1/4	7629x4	.072 ± .003	.351 ± .005
5/16	7629x5	.072 ± .003	.414 ± .005
3/8	7629x6	.078 ± .003	.468 ± .005
7/16	7629x7	.082 ± .003	.530 ± .005
1/2	7629x8	.087 ± .003	.644 ± .005
5/8	7629x10	.097 ± .003	.755 ± .005
3/4	7629x12	.116 ± .004	.924 ± .006
7/8	7629x14	.116 ± .004	1.048 ± .006
1	7629x16	.116 ± .004	1.171 ± .006
1-1/4	7629x20	.118 ± .004	1.475 ± .010
1-1/2	7629x24	.118 ± .004	1.720 ± .010
2	7629x32	.118 ± .004	2.337 ± .010

• Available in stainless steel.

⚠ Refer to safety information regarding tubing selection on page 1.



NOTE: "H" is dimension of fittings assembled to hand tight condition.

NOTE: Illustration shows fitting fully assembled.

Tube O.D.	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
Thread Size-B	5/16-24	3/8-24	7/16-20	1/2-20	9/16-18	3/4-16	7/8-14	1-1/16-12	1-3/16-12	1-5/16-12	1-5/8-12	1-7/8-12	2-1/2-12
Seat Depth-K	.19	.24	.24	.26	.26	.31	.36	.36	.36	.42	.42	.49	.49
H (Ref.)	.31	.30	.39	.41	.47	.48	.53	.55	.53	.63	.56	.61	.64

#### • Typical Application

Hydraulic, instrumentation and chemical processing systems. Highly recommended for high pressure applications.

#### • Pressure

Operating pressure up to 10,000 psi depending on tube and fitting size. See steel fittings recommendations, pages 199.

#### • Vibration

Excellent resistance.

#### • Temperature Range

-65°F to +400°F (-53°C to +204°C) at maximum operating pressures. Has been used at 800°F and 1000 psi to 4000 psi depending on tube size. Stainless steel has been used at +1000°F and 2000 psi.

#### • Material

**Carbon Steel** - AISI/SAE 12L14

**Plating** - Weathercote®

**Stainless Steel** - Bodies and nuts: type 316. Sleeves: 17-4PH.

#### • Used With

Aluminum, hard or half copper, steel, stainless steel, monel, titanium and extra heavy wall tubing that cannot be flared. See page 28-32 for material compatibility.

#### • Advantages

An excellent high pressure fitting - NO TUBE FLARING. Used with extra heavy wall tubing. Broad selection of sizes and styles.

#### • Conformance

Meets specifications and standards of ASA, ASME and SAE.

#### • How to Order

For complete assembly (body, nut and sleeve) order individually by catalog number. Example: 7205x4. To order body only (less nut and sleeve), prefix the catalog number with the letter "B". Example: B7205x4. Nuts and sleeves can be ordered separately by catalog number.

#### • NOTE

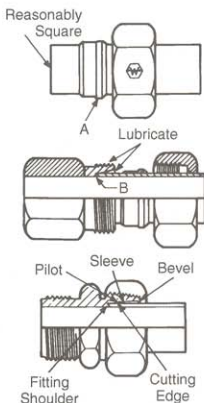
Refer to current price list for availability of cataloged items. Quotations and delivery of non-stock items supplied on request. Configurations and dimensions subject to change without notice. Additional information can be found in SAE J514.

#### • Assembly Instructions

See page 196.

#### • Label Set: FS-1600 (adhesive)

Refer to safety information regarding tubing selection on page 1.



## PRESETTING OPERATION

**Preset with Preset Tool:** (Preset tools are listed on page 222.)

- CAUTION:** All stainless steel sleeves should be preset in tool prior to installation.
- Slide nut and then sleeve on tube. Shoulder of sleeve "A" must be toward nut.
- Insert tube into presetting tool. Be sure that tube is bottomed on fitting tube stop at point "B". Lubricate threads, seat of fitting and shoulder of sleeve with good grade of lubricant.
- Turn nut slowly with wrench while turning tube with other hand. When the sleeve grips the tube, that is, when the tube can no longer be turned by hand – **STOP** – and note the position of the wrench. This is the "Ring Grip" point.
- Tighten nut an additional number of turns past the ring grip point per tube size and wall thickness as shown in Table 1, page 197.
- Disassemble from preset tool.

**Preset in Fitting Body:**

- Follow same procedure as when presetting with preset tool. Once the fitting nut has been turned the proper number of turns past ring grip, the fitting assembly is complete and ready for use.

**NOTE:** Only Carbon Steel Sleeves can be preset directly into the fitting body. Due to possible thread galling, the use of presetting tools is required when stainless steel fittings are to be assembled.

## FITTING INSTALLATION

- After sleeve and nut have been preset on the tubing and checked as described, the assembly is ready for installation into the Ermeto® fitting seat.
- Lubricate threads, seat of fitting and shoulder of sleeve with a good grade of lubricant compatible with system fluid.
- Insert tube assembly into fitting and tighten nut until sharp rise in torque is felt.
- Starting at the position of sharp torque rise, tighten nut 1/4 turn to complete assembly.

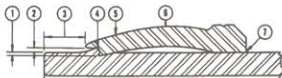
**When the assembly procedure for Ermeto fittings is followed correctly, these points will be evident:**

- Cutting edge of sleeve will be imbedded in tubing to its full depth.
- Pilot edge of sleeve should be close to or touching O.D. of tubing.
- Distance between end of tube and leading or pilot edge of sleeve will be at least 1/8".
- Metal will be piled ahead of cutting edge of sleeve under pilot.
- Contact area of sleeve will show evidence of being in perfect contact with tapered seat of fitting.
- Sleeve will show evidence of being bowed within its elastic limits.
- Back of sleeve will be in contact with tube.

**NOTE:** Performance of fitting will not be affected if sleeve rotates on tube after disassembly.

### FOR RE-INSTALLATION OF FITTING AFTER DISASSEMBLING

- Insert tube assembly into fitting, tighten nut until a sharp rise in torque is felt.
- Starting at the position of sharp torque rise, tighten nut 1/4 turn to complete the reinstallation.



Refer to safety information regarding tubing selection on page 1.

### 7000 SERIES

TABLE 1: Number of Additional Turns from "Ring Grip" for Hand Presetting Operation-Ermeto® Sleeve

Tube Size	Tube Material **	Tube Wall Thickness									
		.018	.022	.028	.035	.049	.065	.083	.095	.109	.120
2	C 1010 MIL T 8504	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6						
3	C 1010 MIL T 8504	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6	1 1						
4	C 1010 MIL T 8504			1-1/6 1-1/6	1-1/6 1	1-1/6 1	1 5/6				
5	C 1010 MIL T 8504			1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1	1 1				
6	C 1010 MIL T 8504				1-1/6 1-1/6	1-1/6 1	1 5/6	1 5/6			
8	C 1010 MIL T 8504				1-1/6 1-1/6	1-1/6 1	1 5/6	1 5/6	1 5/6		
10	C 1010 MIL T 8504					1-1/6 1-1/6	1 1	5/6 5/6	5/6 5/6	5/6	5/6
12	C 1010 MIL T 8504					1 1-1/6	1 1	5/6 5/6	5/6 5/6	5/6 5/6	
16	C 1010 MIL T 8504					1-1/6 1-1/6	1-1/6 1-1/6	5/6 5/6	5/6 5/6	5/6 5/6	
20	C 1010 MIL T 8504					1-1/6 1	1 1	1 1	1 1	5/6 5/6	5/6 5/6
24	C 1010 MIL T 8504								1	1	1
32	C 1010 MIL T 8504								1	1	1

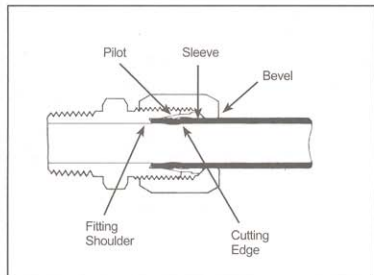
\*\* C 1010 – Carbon Steel Tubing

\*\* MIL T 8504 – Annealed Stainless Steel

S-T-10

 Refer to safety information regarding tubing selection on page 1.

Ermeto® Fittings (7000 Series) are especially designed for making leak-proof tube connections. This fitting will effectively withstand high pressure, severe vibration and extreme temperature. No special tools are needed for assembly. Simply cut tube square, preset sleeve on tubing and assemble.



### ERMETO® DESIGN PRINCIPLE PROVIDES POSITIVE SEAL

1. In presetting, as the nut is tightened it forces the sleeve forward into the body taper. See page 196 for preset instructions.
2. Pilot of sleeve contracts, forcing the cutting edge of sleeve to shear a groove into outer surface of the tube, making a tight joint between fitting and tube.
3. In assembling the preset sleeve and tube into the fitting body, the nut presses on the bevel at rear of sleeve causing it to clamp tightly to the tube. Resistance to vibration is concentrated at this point rather than at the sleeve cut.
4. When fully tightened, the case hardened sleeve is bowed slightly at the midsection and acts as a spring. This spring action of the sleeve maintains a constant tension between the body and the nut, and thus prevents the nut from loosening.
5. After the first assembly, the sleeve is permanently attached to the tube. Disassembly and reassembly of the fitting can be made without loss of strength or sealing qualities.

### "7000" SERIES FITTINGS

Specifically designed to meet all SAE approved standards for hydraulic flareless tube fittings. Available in a complete range of standard body styles. In addition, the "7000" Series includes all body styles for SAE straight thread O-ring boss mounting. Complete size range to 2".

### CARBON STEEL "7000" SERIES

Weatherhead Ermeto® Fittings have the exclusive "Weathercote" finish, which fully resists the effects of non-flammable hydraulic fluids.

### STAINLESS STEEL "7000" SERIES

Fittings also available in a complete range of body styles and sizes.

Standard stainless steel assemblies may be ordered by quoting the stainless steel part numbers appearing in this catalog. Standard stainless steel assemblies are composed of the following types of material:

BODY – Type 316 Stainless Steel

NUT – Type 316 Stainless Steel

SLEEVE – Type 17-4PH Stainless Steel

Any deviation from the standard assembly must be ordered as component parts. Example: If Type 316 bodies and 17-4PH sleeves are to be used, they can be ordered as follows:

B7217x8 Body only (Type 316 Stainless Steel)

7176x8 Sleeves (Type 17-4PH Stainless Steel)

7105x8 Nuts (Standard Carbon Steel)

In general, the "bite-action" of the sleeves in any given material varies as shown in the following table:

### STAINLESS STEEL SLEEVES

Cat. No. 7176 sleeves are made from Armco 17-4PH precipitation hardened stainless steel. When used on "fully-annealed" to 1/8 hard tubing in the 303 to 316 stainless range, they provide the typical seal.

"7000" Series Sleeve	SLEEVE MATERIAL	TUBING USED 303 to 316 Stainless and Cupro-Nickel	"BITE-ACTION"
7165	Heat Treated Carbon Steel (Standard Carbon)	Fully annealed to 1/8 hard	Excellent
7176	17-4PH Stainless (Standard Stainless)	Fully annealed	Excellent

When stainless steel tubing is used for strength and no corrosive conditions exist, use the 7165 sleeve for better performance.

### HYDRAULIC PRESSURE DATA – ERMETO® FLARELESS FITTINGS

Ermeto® fittings have been used with success on many and varied applications far exceeding the conservative conditions presented below. Specifically:

- Temperatures up to 800°F, in carbon steel and 1000°F, in stainless steel have been handled without failure.\*
- Burst pressures up to 32,000 psi with 1/4" tubing.
- Vibration conditions of 1/8" off-center amplitude with 12" overhang in 1/4" tubing have been withstood at rated operating pressure with 4-to-1 safety factors for over ten million cycles.

Obviously under extreme conditions of pressure, temperature and/or vibration, the safety factor is proportionately reduced.

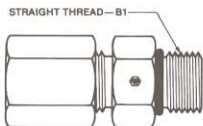
The Ermeto® flareless fitting is the ultimate hydraulic fitting available today. Special performance conditions as outlined can be accommodated; however, it is recommended that your local Weatherhead representative be consulted for engineering assistance prior to finalizing design.

The values shown in the following table are pressure ratings of Ermeto® flareless fittings under various surge conditions. They apply and are recommended for conservative operating conditions. Consult tubing selection charts on pages 22 and 23.

Size No.	Size in Inches	Maximum Pressure† No Surges PSI	Maximum Pressure† With Surges to 50%	Maximum Pressure† With Surges of 50% to 100%	Maximum Pressure† With Surges up to 150%
2	1/8	10,000	6,500	5,000	4,000
3	3/16	9,000	6,000	4,500	3,600
4	1/4	8,000	5,250	4,000	3,200
5	5/16	8,000	5,250	4,000	3,200
6	3/8	7,500	5,000	3,750	3,000
8	1/2	7,000	4,500	3,500	2,700
10	5/8	5,000	3,250	2,500	2,000
12	3/4	5,000	3,250	2,500	2,000
14	7/8	3,750	2,500	1,800	1,500
16	1	3,600	2,400	1,800	1,400
20	1-1/4	3,200	2,100	1,600	1,275
24	1-1/2	3,000	2,000	1,500	1,200
32	2	2,750	1,800	1,350	1,100

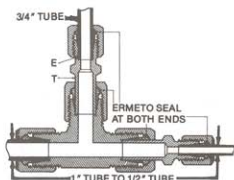
† Pressures shown do not apply to pneumatic applications or stainless steel tubing installations.

\* Zinc plating discolors at temperatures over 400°F and melts at 750°F.

Straight Thread O-Ring Thread  
Sizes

Port Size	Thread Size B1	Port Size	Thread Size B1
1/8	5/16-24	3/4	1-1/16-12
3/16	3/8-24	7/8	1-3/16-12
1/4	7/16-20	1	1-5/16-12
5/16	1/2-20	1-1/4	1-5/8-12
3/8	9/16-18	1-1/2	1-7/8-12
1/2	3/4-16	2	2-1/2-12
5/8	7/8-14		

## 7000 Series Reducer



## Enables You to Fabricate Special Fittings from Standard Parts

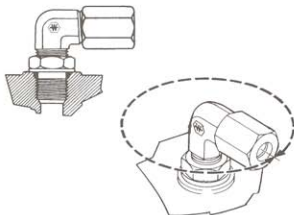
The Weatherhead reducer consists of body, nut and sleeve. It has one end (T) machined in the form of a tube with a flareless tube connection on the opposite end (E). A convenient hex wrench pad is provided to facilitate assembly.

1. Connect the tube end (T) of the reducer to the flareless fitting already assembled in the tubing system.
2. Connect the smaller O.D. tubing to end (E).

**CAUTION:** Be sure to hold reducer by the hex wrench pad while performing Step 2.

Our example of 7705x12x6x8 is made up by using reducers 7015x12x6 and 7015x12x8 with the standard 7705x12 tee.

## Straight Thread O-Ring Fitting



## Adjustable Fittings

- Permit exact positioning of tees and elbows.
  - Provide a leakproof joint.
  - Eliminate distorted bosses from overtightening.
1. Lubricate O-ring by coating with a light oil or petrolatum and push back-up washer and O-ring to the extreme rear of the O-ring groove.
  2. Turn the lock nut down until it just contacts the back-up washer.
  3. Screw fitting by hand into straight thread boss until the back-up washer contacts the face of the boss.
  4. Position the fitting by backing out (counter-clockwise) up to one full turn. Hold fitting in desired position and tighten lock nut with a wrench.
  5. Assemble tube to fitting. Re-tighten lock nut.

**NOTE:** O-Rings, lock nuts and back-up washers are preassembled on all straight thread fittings.

### Sleeve

Stainless Steel No. 7176x  
(Ref. SAE No. 080115B)



Tube O.D.	Catalog Number	L	Dia. T
1/8	7165x2-	.28	.20
3/16	7165x3-	.28	.31
1/4	7165x4-	.34	.36
5/16	7165x5-	.34	.42
3/8	7165x6-	.38	.48
1/2	7165x8-	.38	.63
5/8	7165x10-	.42	.75
3/4	7165x12-	.42	.88
7/8	7165x14-	.42	1.00
1	7165x16-	.42	1.13
1-1/4	7165x20-	.42	1.41
1-1/2	7165x24-	.42	1.66
2	7165x32-	.45	2.19

### Sleeve

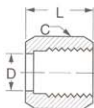


For use with diesel nuts only.

Tube O.D.	Catalog Number	L	Dia. T
1/4	8165x4	.34	.38
5/16	8165x5	.34	.44
3/8	8165x6	.38	.50

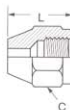
### Nut

Stainless Steel No. 7117x  
(Ref. SAE No. 080110)



Tube O.D.	Catalog Number	Hex C	L	D Dia.
1/8	7105x2-	3/8	.53	.132
3/16	7105x3-	7/16	.61	.195
1/4	7105x4-	9/16	.70	.257
5/16	7105x5-	5/8	.72	.320
3/8	7105x6-	11/16	.75	.382
1/2	7105x8-	7/8	.84	.508
5/8	7105x10-	1	.92	.634
3/4	7105x12-	1-1/4	.97	.759
7/8	7105x14-	1-3/8	1.00	.884
1	7105x16-	1-1/2	1.05	1.009
1-1/4	7105x20-	2	1.05	1.263
1-1/2	7105x24-	2-1/4	1.03	1.513
2	7105x32-	2-7/8	1.12	2.017

### Diesel Nut



Tube O.D.	Thread Size	Catalog Number	Hex C	L
1/4	9/16-18	8112x4	3/4	.94
5/16	5/8-18	8112x5	13/16	1.00
3/8	3/4-16	8112x6	15/16	1.13

### Bulkhead Nut

Stainless Steel No. 7936x  
(Ref. SAE No. 080118)



Tube O.D.	Catalog Number	Hex C	L
1/4	7924x4-	11/16	.28
3/8	7924x6-	13/16	.27
1/2	7924x8-	1	.31
5/8	7924x10	1-1/8	.36
3/4	7924x12-	1-3/8	.41
7/8	7924x14	1-1/2	.41
1	7924x16-	1-5/8	.41
1-1/4	7924x20	1-7/8	.41

\* Available in stainless steel.



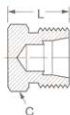
**Cap**

Stainless Steel No. 7141x



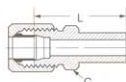
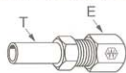
Tube O.D.	Catalog Number	Hex C	L
1/4	7129x4*	9/16	.70
3/8	7129x6*	11/16	.75
1/2	7129x8*	7/8	.84
5/8	7129x10*	1	.92
3/4	7129x12*	1-1/4	.97
1	7129x16*	1-1/2	1.05
1-1/4	7129x20	2	1.05

**Plug**

 Stainless Steel No. 7241x  
(Ref. SAE No. 080109)


Tube O.D.	Catalog Number	Hex C	L
1/8	7229x2	7/16	.63
1/4	7229x4*	1/2	.71
5/16	7229x5	9/16	.71
3/8	7229x6*	5/8	.75
1/2	7229x8*	13/16	.85
5/8	7229x10	15/16	.97
3/4	7229x12*	1-1/8	1.10
1	7229x16	1-3/8	1.10

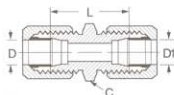
**Reducer**

 Stainless Steel No. 7027x  
(Ref. SAE No. 080123)


\* 7028x16x8

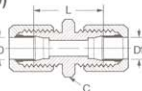
Body Size T	Tube Size E	Catalog Number	Hex C	L
3/8	1/4	7015x6x4*	1/2	1.61
1/2	1/4	7015x8x4*	9/16	1.73
1/2	3/8	7015x8x6*	5/8	1.77
5/8	1/2	7015x10x8*	13/16	1.96
3/4	3/8	7015x12x6*	13/16	1.93
3/4	1/2	7015x12x8*	13/16	2.03
1	3/4	7015x16x12*	1-1/8	2.24
1-1/4	1	7015x20x16*	1-3/8	2.28

**Small Hex Union**

 Stainless Steel No. 7317x  
(Ref. SAE No. 080101)


Tube O.D.	Tube O.D.	Catalog Number	Hex C	D	D1	L
1/8	1/8	7305x2*	7/16	.093	.093	1.02
3/16	3/16	7305x3*	7/16	.125	.125	1.11
1/4	1/4	7305x4*	1/2	.203	.203	1.18
5/16	5/16	7305x5*	9/16	.234	.234	1.18
3/8	1/4	7305x6x4*	5/8	.281	.203	1.22
3/8	3/8	7305x6*	5/8	.281	.281	1.24
1/2	3/8	7305x8x6	13/16	.422	.281	1.33
1/2	1/2	7305x8*	13/16	.422	.422	1.42
5/8	5/8	7305x10*	15/16	.500	.500	1.61
3/4	3/4	7305x12*	1-1/8	.656	.656	1.81
7/8	7/8	7305x14	1-1/4	.718	.718	1.81
1	1	7305x16*	1-3/8	.875	.875	1.81
1-1/4	1-1/4	7305x20	1-11/16	1.093	1.093	1.89
1-1/2	1-1/2	7305x24	2	1.344	1.344	1.96
2	2	7305x32	2-5/8	1.813	1.813	2.11

**Large Hex Union**

 Stainless Steel No. 7318x  
(Ref. SAE No. 080119)


Tube O.D.	Tube O.D.	Catalog Number	Hex C	D	D1	L
1/4	1/4	7306x4*	11/16	.203	.203	1.18
3/8	3/8	7306x6*	13/16	.281	.281	1.24
1/2	3/8	7306x8x6*	1	.422	.281	1.33
1/2	1/2	7306x8*	1	.422	.422	1.42
3/4	3/4	7306x12*	1-3/8	.656	.656	1.81
1	1	7306x16	1-5/8	.875	.875	1.81

\* Available in stainless steel.

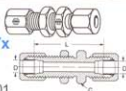
# Flareless – 7000 Series Ermeto®

## Steel Fittings

### Bulkhead Union

Stainless Steel No. 7337x  
(Ref. SAE No. 080601)

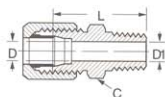
Bulkhead nut included, for replacement nuts see page 201.



Tube O.D.	Catalog Number	Hex C	D	L
1/4	7325x4	11/16	.203	1.89
3/8	7325x6	13/16	.281	1.98
1/2	7325x8	1	.422	2.22
3/4	7325x12	1-3/8	.656	2.72
1	7325x16	1-5/8	.875	2.72

### Male Connector

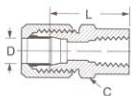
Stainless Steel No. 7217x  
(Ref. SAE No. 080102)



Tube O.D.	Male Pipe Thread	Catalog Number	Hex C	D	D1 Opt.	L
1/8	1/8	7205x2	7/16	.093	.188	1.04
1/8	1/4	7205x2x4	9/16	.093	.281	1.25
3/16	1/8	7205x3	7/16	.125	.188	1.09
1/4	1/4	7205x4	1/2	.203	.188	1.12
1/4	3/8	7205x4x4	9/16	.203	.281	1.32
1/4	1/2	7205x4x6	3/4	.203	.406	1.33
5/16	1/8	7205x5	7/8	.203	.531	1.58
5/16	1/4	7205x5x4	9/16	.234	.188	1.12
3/8	1/8	7205x6x2	5/8	.281	.188	1.15
3/8	1/4	7205x6	5/8	.281	.281	1.34
3/8	3/8	7205x6x6	3/4	.281	.406	1.35
3/8	1/2	7205x6x8	7/8	.281	.531	1.60
1/2	1/4	7205x8x4	13/16	.422	.281	1.44
1/2	3/8	7205x8	13/16	.422	.406	1.44
1/2	1/2	7205x8x8	7/8	.422	.531	1.69
1/2	3/4	7205x8x12	1-1/8	.422	.719	1.76
5/8	3/8	7205x10x6	15/16	.500	.406	1.56
5/8	1/2	7205x10	15/16	.500	.531	1.75
3/4	1/2	7205x12x8	1-1/8	.656	.531	1.88
3/4	3/4	7205x12	1-1/8	.656	.719	1.88
7/8	3/4	7205x14	1-1/4	.718	.719	1.88
1	3/4	7205x16x12	1-3/8	.875	.719	1.88
1	1	7205x16	1-3/8	.875	.938	2.07
1-1/4	1-1/4	7205x20	1-11/16	1.093	1.250	2.18
1-1/2	1-1/2	7205x24	2	1.344	1.500	2.28
2	2	7205x32	2-5/8	1.813	1.938	2.46

### Female Connector

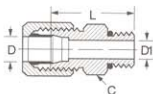
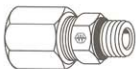
Stainless Steel No. 7267x  
(Ref. SAE No. 080103)



Tube O.D.	Fem. Pipe Thread	Catalog Number	Hex C	D	L
1/8	1/8	7255x2	9/16	.093	1.05
3/16	1/8	7255x3	9/16	.125	1.08
1/4	1/8	7255x4	9/16	.203	1.09
1/4	1/4	7255x4x4	3/4	.203	1.20
5/16	1/8	7255x5	9/16	.234	1.08
3/8	1/4	7255x6	3/4	.281	1.31
3/8	3/8	7255x6x6	7/8	.281	1.40
1/2	1/4	7255x8x4	7/8	.422	1.38
1/2	3/8	7255x8	7/8	.422	1.47
1/2	1/2	7255x8x8	1-1/8	.422	1.63
5/8	1/2	7255x10	1-1/8	.500	1.76
3/4	3/4	7255x12	1-3/8	.656	1.89
7/8	3/4	7255x14	1-3/8	.718	1.86
1	1	7255x16	1-5/8	.875	2.13
1-1/4	1-1/4	7255x20	2	1.093	2.22

### Straight Thread O-Ring Connector

Stainless Steel No. 7327x  
(Ref. SAE No. 080120)

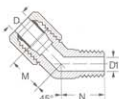


Tube O.D.	Port Size	Catalog Number	Hex C	D	L	D1 Opt.
3/16	3/16	7315x3	1/2	.125	1.04	—
1/4	1/4	7315x4	9/16	.203	1.13	—
1/4	5/16	7315x4x5	5/8	.203	1.13	—
1/4	3/8	7315x4x6	11/16	.203	1.19	.281
5/16	5/16	7315x5	5/8	.234	1.13	—
3/8	3/8	7315x6	11/16	.281	1.21	—
3/8	1/2	7315x6x8	7/8	.281	1.29	.422
1/2	1/2	7315x8	7/8	.422	1.38	—
1/2	5/8	7315x8x10	1	.422	1.51	.500
1/2	3/4	7315x8x12	1-1/4	.422	1.67	.656
5/8	5/8	7315x10	1	.500	1.57	—
3/4	3/4	7315x12	1-1/4	.656	1.79	—
3/4	1	7315x12x16	1-1/2	.656	1.82	.876
7/8	7/8	7315x14	1-3/8	.718	1.79	—
1	3/4	7315x16x12	1-3/8	.875	1.82	.656
1	1	7315x16	1-7/8	.875	1.82	—
1-1/4	1-1/4	7315x20	1-7/8	1.093	1.97	—
1-1/2	1-1/2	7315x24	2-1/8	1.344	1.97	—
2	2	7315x32	2-3/4	1.813	2.13	—

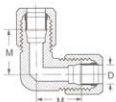
Replacement O-rings page 207.

\* Available in stainless steel.

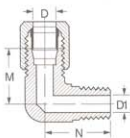
STEEL

**45° Male Elbow**  
 Stainless Steel No. 7367x  
 (Ref. SAE No. 080302)


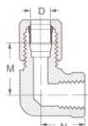
Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	7355x4*	.203	.188	.70	.64	7/16
1/4	1/4	7355x4x4*	.203	.281	.83	.86	9/16
5/16	1/8	7355x5	.234	.188	.75	.64	9/16
3/8	1/4	7355x6*	.281	.281	.83	.86	9/16
1/2	3/8	7355x8*	.422	.406	.98	.95	3/4
5/8	1/2	7355x10	.500	.531	1.08	1.17	7/8
3/4	3/4	7355x12	.656	.719	1.27	1.20	1-1/16
1	1	7355x16	.875	.938	1.36	1.48	1-5/16

**90° Union Elbow**  
 Stainless Steel No. 7517x  
 (Ref. SAE No. 080201)


Tube O.D.	Catalog Number	D	M	Across Flats
1/4	7505x4*	.203	.89	7/16
5/16	7505x5	.234	.95	1/2
3/8	7505x6*	.281	1.05	9/16
1/2	7505x8*	.422	1.25	3/4
5/8	7505x10*	.500	1.42	7/8
3/4	7505x12*	.656	1.58	1-1/16
7/8	7505x14*	.718	1.66	1-5/16
1	7505x16*	.875	1.73	1-5/16
1-1/4	7505x20	1.093	1.89	1-5/8
1-1/2	7505x24	1.346	2.02	1-7/8

**90° Male Elbow**  
 Stainless Steel No. 7417x  
 (Ref. SAE No. 080202)


Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/8	1/8	7405x2*	.093	.188	.77	.72	7/16
3/16	1/8	7405x3	.125	.188	.83	.72	7/16
1/4	1/8	7405x4*	.203	.188	.89	.78	7/16
1/4	1/4	7405x4x4*	.203	.281	1.03	1.09	9/16
5/16	1/8	7405x5*	.234	.188	.95	.81	1/2
5/16	1/4	7405x5x4*	.234	.281	1.03	1.09	9/16
3/8	1/8	7405x6x2*	.281	.188	1.05	.90	9/16
3/8	1/4	7405x6*	.281	.281	1.05	1.09	9/16
3/8	3/8	7405x6x6*	.281	.406	1.16	1.22	3/4
3/8	1/2	7405x6x8*	.281	.531	1.24	1.47	7/8
1/2	1/4	7405x8x4*	.422	.281	1.25	1.22	3/4
1/2	3/8	7405x8*	.422	.406	1.25	1.22	3/4
1/2	1/2	7405x8x8*	.422	.531	1.35	1.47	7/8
5/8	3/8	7405x10x6*	.500	.406	1.42	1.28	7/8
5/8	1/2	7405x10*	.500	.531	1.42	1.47	7/8
3/4	1/2	7405x12x8	.656	.531	1.58	1.59	1-1/16
3/4	3/4	7405x12*	.656	.719	1.58	1.59	1-1/16
7/8	3/4	7405x14	.718	.719	1.62	1.69	1-5/16
1	3/4	7405x16x12	.875	.719	1.73	1.78	1-5/16
1	1	7405x16*	.875	.938	1.73	1.97	1-5/16
1-1/4	1-1/4	7405x20	1.093	1.250	1.89	2.38	1-5/8
1-1/2	1-1/2	7405x24	1.344	1.500	2.02	2.64	1-7/8
2	2	7405x32	1.813	1.938	2.45	3.00	2-9/16

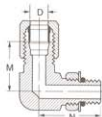
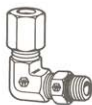
**90° Female Elbow**  
 Stainless Steel No. 7467x  
 (Ref. SAE No. 080203)


Tube O.D.	Fem. Pipe Thread	Catalog Number	D	M	N	Across Flats
1/4	1/8	7455x4*	.203	.89	.66	9/16
1/4	1/4	7455x4x4*	.203	1.03	.88	3/4
3/8	1/4	7455x6*	.281	1.05	.88	3/4
3/8	3/8	7455x6x6*	.281	1.14	1.02	7/8
1/2	3/8	7455x8*	.422	1.23	1.02	7/8
1/2	1/2	7455x8x8*	.422	1.35	1.23	1-1/16
5/8	1/2	7455x10*	.500	1.42	1.23	1-1/16
3/4	3/4	7455x12*	.656	1.58	1.36	1-5/16
7/8	3/4	7455x14	.718	1.66	1.42	1-5/16
1	1	7455x16	.875	1.73	1.62	1-5/8

\* Available in stainless steel.

### 90° Elbow - Straight Thread O-Ring

Stainless Steel No. 7527x  
(Ref. SAE No. 080220)

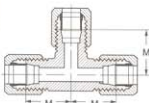
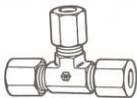


Replacement O-rings page 207.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	7515x4*	.203	.89	1.03	7/16
5/16	5/16	7515x5	.234	.96	1.13	9/16
3/8	3/8	7515x6*	.281	1.05	1.25	9/16
1/2	1/2	7515x8*	.422	1.25	1.45	3/4
5/8	5/8	7515x10*	.500	1.42	1.70	7/8
3/4	3/4	7515x12*	.656	1.58	1.94	1-1/16
1	3/4	7515x16x12	.875	1.73	2.05	1-5/16
1	1	7515x16*	.875	1.73	2.05	1-5/16
1-1/4	1-1/4	7515x20	1.093	1.89	2.25	1-5/8

### Union Tee

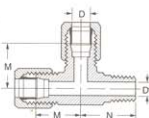
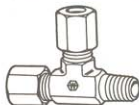
Stainless Steel No. 7717x  
(Ref. SAE No. 080401)



Tube O.D.	Catalog Number	D	M	Across Flats
3/16	7705x3	.125	.83	7/16
1/4	7705x4*	.203	.89	7/16
5/16	7705x5*	.234	.95	9/16
3/8	7705x6*	.281	1.05	9/16
1/2	7705x8*	.422	1.25	3/4
5/8	7705x10*	.500	1.42	7/8
3/4	7705x12*	.656	1.58	1-1/16
7/8	7705x14	.718	1.62	1-5/16
1	7705x16*	.875	1.73	1-5/16

### Male Run Tee

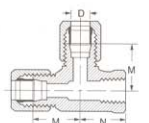
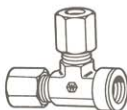
Stainless Steel No. 7767x  
(Ref. SAE No. 080424)



Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	7755x4*	.203	.188	.89	.78	7/16
1/4	1/4	7755x4x4x4*	.203	.281	1.03	1.09	9/16
3/8	1/4	7755x6*	.281	.281	1.05	1.09	9/16
1/2	3/8	7755x8	.422	.422	1.25	1.22	3/4
1/2	1/2	7755x8x8x8*	.422	.531	1.35	1.47	7/8
5/8	1/2	7755x10	.500	.531	1.42	1.47	7/8
3/4	3/4	7755x12	.656	.719	1.58	1.59	1-1/16
1	1	7755x16	.875	.938	1.73	1.97	1-5/16

### Female Run Tee

(Ref. SAE No. 080426)



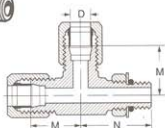
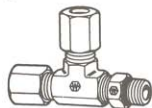
Tube O.D.	Fem. Pipe Thread	Catalog Number	D	M	N	Across Flats
1/4	1/8	7805x4	.203	.89	.66	9/16
1/4	1/4	7805x4x4x4	.203	1.03	.88	3/4
3/8	1/4	7805x6	.281	1.05	.88	3/4
1/2	3/8	7805x8	.422	1.23	1.02	7/8
5/8	1/2	7805x10	.500	1.42	1.23	1-1/16
3/4	3/4	7805x12	.656	1.58	1.36	1-5/16

\* Available in stainless steel.

## Straight Thread O-Ring Run Tee

Stainless Steel No. 7728x

(Ref. SAE No. 080428)



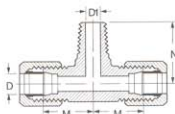
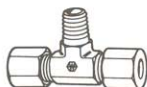
Replacement O-rings page 207.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	7716x4*	.203	.89	1.03	7/16
3/8	3/8	7716x6*	.281	1.05	1.25	9/16
1/2	1/2	7716x8*	.422	1.25	1.45	3/4

## Male Branch Tee

Stainless Steel No. 7617x

(Ref. SAE No. 080425)

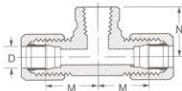


Tube O.D.	Male Pipe Thread	Catalog Number	D	D1	M	N	Across Flats
1/4	1/8	7605x4*	.203	.188	.89	.78	7/16
1/4	1/4	7605x4x4x4*	.203	.281	1.03	1.09	9/16
5/16	1/8	7605x5	.234	.188	.95	.81	9/16
3/8	1/4	7605x6*	.281	.281	1.05	1.09	9/16
1/2	3/8	7605x8*	.422	.406	1.25	1.22	3/4
1/2	1/2	7605x8x8x8*	.422	.531	1.35	1.47	7/8
5/8	1/2	7605x10	.500	.531	1.42	1.47	7/8
3/4	3/4	7605x12	.656	.719	1.58	1.59	1-1/16
1	1	7605x16	.875	.938	1.73	1.97	1-5/16

## Female Branch Tee

Stainless Steel No. 7667x

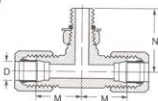
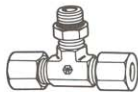
(Ref. SAE No. 080427)



Tube O.D.	Female Pipe Thread	Catalog Number	D	M	N	Across Flats
1/4	1/8	7655x4*	.203	.89	.66	9/16
1/4	1/4	7655x4x4x4*	.203	1.03	.88	3/4
3/8	1/4	7655x6*	.281	1.05	.88	3/4
1/2	3/8	7655x8*	.422	1.23	1.02	7/8
5/8	1/2	7655x10	.500	1.42	1.23	1-1/16
3/4	3/4	7655x12	.656	1.58	1.36	1-5/16
7/8	3/4	7655x14	.718	1.62	1.42	1-5/16
1	1	7655x16	.875	1.73	1.62	1-5/8
1-1/4	1-1/4	7655x20	1.093	2.08	1.70	1-7/8

### Straight Thread O-Ring Branch Tee

Stainless Steel No. 7727x  
(Ref. SAE No. 080429)

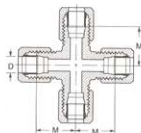
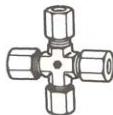


Replacement O-rings see below.

Tube O.D.	Port Size	Catalog Number	D	M	N	Across Flats
1/4	1/4	7715x4*	.203	.89	1.03	7/16
3/8	3/8	7715x6*	.281	1.05	1.25	9/16
1/2	1/2	7715x8	.422	1.25	1.45	3/4

### Cross

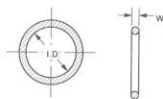
Stainless Steel No. 7967x  
(Ref. SAE No. 080501)



\*Brazed construction.

Tube O.D.	Catalog Number	D	M	Across Flats
1/4	7955x4*	.203	.89	9/16
3/8	7955x6*	.281	1.05	9/16
1/2	7955x8	.422	1.25	3/4

### Straight Thread O-Ring



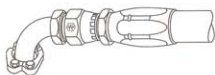
Material: Buna-N 90 Durometer

Temperature Range: -40°F to +250°F  
(-40°C to +121°C)

Standard O-ring complies with SAE J515 Type CH.

Tube O.D.	Catalog Number	W	I.D.
1/16	7629x1	.058 ± .003	.185 ± .005
1/8	7629x2	.064 ± .003	.239 ± .005
3/16	7629x3	.064 ± .003	.301 ± .005
1/4	7629x4	.072 ± .003	.351 ± .005
5/16	7629x5	.072 ± .003	.414 ± .005
3/8	7629x6	.078 ± .003	.468 ± .005
7/16	7629x7	.082 ± .003	.530 ± .005
1/2	7629x8	.087 ± .003	.644 ± .005
5/8	7629x10	.097 ± .003	.755 ± .005
3/4	7629x12	.116 ± .004	.924 ± .006
7/8	7629x14	.116 ± .004	1.048 ± .006
1	7629x16	.116 ± .004	1.171 ± .006
1-1/4	7629x20	.118 ± .004	1.475 ± .010
1-1/2	7629x24	.118 ± .004	1.720 ± .010
2	7629x32	.118 ± .004	2.337 ± .010

\* Available in stainless steel.



## Adapter Used With Standard JIC Female Swivel End (SAE Code 61)

Weatherhead® split flange adapter eliminates the need for special hose ends. Interconnect pumps and valves with SAE flange outlets using low cost standard hose assemblies to replace equipment hose assembly.

**Material:** Low carbon steel.

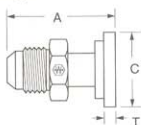
**Plating:** Zinc, Yellow Dichromate finish.

**Pressure:** Code 61 – 3000 PSI working pressure (32 sizes 2500 PSI W.P.).

**Label Set:** FS-300

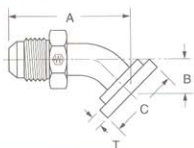
**Note:** See page 223 for hydraulic o-ring assortment

### Straight



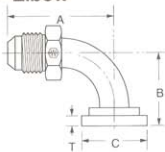
Tube Size	Code 61 Flange Size	Catalog Number	A	Dia. C	T	Thread Size
1/2	1/2	50008	2.66	1.188	.265	3/4-16
1/2	3/4	50008x12	2.72	1.500	.265	3/4-16
3/4	3/4	50012	2.62	1.500	.265	1 1/16-12
1	1	50016	2.74	1.750	.315	1 5/16-12
1	1-1/4	50016x20	2.74	2.000	.315	1 5/16-12
1-1/4	1	50020x16	2.80	1.750	.315	1 5/8-12
1-1/4	1-1/4	50020	3.27	2.000	.315	1 5/8-12
1-1/2	1-1/2	50024	3.42	2.375	.315	1 7/8-12
2	2	50032	4.24	2.812	.375	2 1/2-12

### 45° Elbow



Tube Size	Code 61 Flange Size	Catalog Number	A	B	Dia. C	T	Thread Size
1/2	1/2	54508	2.91	.78	1.188	.265	3/4-16
1/2	3/4	54508x12	2.93	.84	1.500	.265	3/4-16
3/4	3/4	54512	3.28	1.03	1.500	.265	1 1/16-12
1	1	54516	3.61	1.06	1.750	.315	1 5/16-12
1	1-1/4	54516x20	3.61	1.06	2.000	.315	1 5/16-12
1-1/4	1	54520x16	3.67	1.06	1.750	.315	1 5/8-12
1-1/4	1-1/4	54520	3.36	1.15	2.000	.315	1 5/8-12
1-1/2	1-1/2	54524	4.61	1.41	2.375	.315	1 7/8-12
2	2	54532	6.28	2.00	2.812	.375	2 1/2-12

### 90° Elbow



Tube Size	Code 61 Flange Size	Catalog Number	A	B	Dia. C	T	Thread Size
1/2	1/2	59008	2.54	1.63	1.188	.265	3/4-16
1/2	3/4	59008x12	2.54	1.69	1.500	.265	3/4-16
3/4	3/4	59012	2.79	2.19	1.500	.265	1 1/16-12
1	1	59016	3.61	2.38	1.750	.315	1 5/16-12
1	1-1/4	59016x20	3.61	2.38	2.000	.315	1 5/16-12
1-1/4	1	59020x16	3.66	2.38	1.750	.315	1 5/8-12
1-1/4	1-1/4	59020	3.52	2.62	2.000	.315	1 5/8-12
1-1/2	1-1/2	59024	4.32	3.12	2.375	.315	1 7/8-12
2	2	59032	5.95	4.50	2.812	.375	2 1/2-12

### Split Flange Kits – SAE Standard Pressure Series (Code 61) SAE J518



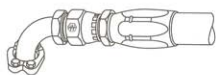
**Material:** Buna-N 90 Durometer  
**Temperature Range:** -40°F to +250°F  
 (-40°C to +121°C)

Standard O-ring complies with SAE specifications SAE J515 Type CH (See page 138 for O-ring compound and application chart)

Included in kit.

Nominal Flange Size	Catalog Number Complete Kit	Flange Halves 2 Req'd.	Included in kit.			A	B	C	Bolt Torque Range Lb.-in.
			O-Ring	Bolts	Lock Washer				
1/2	SFK-08	8x251	8x252	8x853	8x254	1.50	.69	11/32	175-225
3/4	SFK-12	12x251	12x252	12x853	12x254	1.88	.88	13/32	250-350
1	SFK-16	16x251	16x252	16x853	16x254	2.06	1.03	13/32	325-425
1-1/4	SFK-20	20x251	20x252	20x853	20x254	2.31	1.19	15/32	425-550
1-1/2	SFK-24	24x251	24x252	24x853	24x254	2.75	1.41	17/32	550-700
2	SFK-32	32x251	32x252	24x853	24x254	3.06	1.69	17/32	650-800

Flanges conform to SAE J518.



### Adapter Used With Standard JIC Female Swivel End (SAE Code 62)

Weatherhead® split flange adapter eliminates the need for special hose ends. Interconnect pumps and valves with SAE flange outlets using low cost standard hose assemblies to replace original equipment hose assembly.

**Material:** AISI/SAE 12L14 carbon steel.

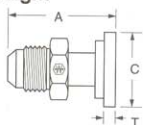
**Plating:** Zinc, Yellow Dichromate finish.

**Pressure:** Code 62 – 5000 PSI working pressure.

**Label Set:** FS-300

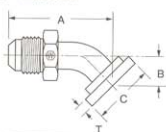
**Note:** See page 223 for hydraulic o-ring assortment.

#### Straight



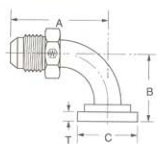
Tube Size	Code 62 Flange Size	Catalog Number	A	Dia. C	T	Thread Size
1/2	1/2	60008	2.32	1.25	.305	3/4-16
3/4	3/4	60012	2.64	1.62	.345	1 1/16-12
1	1	60016	3.44	1.88	.375	1 5/16-12
1-1/4	1-1/4	60020	3.97	2.12	.405	1 5/8-12
1-1/2	1-1/2	60024	4.97	2.50	.495	1 7/8-12
2	2	60032	5.22	3.12	.495	2 1/2-12

#### 45° Elbow



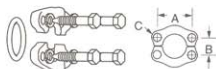
Tube Size	Code 62 Flange Size	Catalog Number	A	B	Dia. C	T	Thread Size
1/2	1/2	64508	2.12	1.10	1.25	.305	3/4-16
3/4	3/4	64512	2.56	1.32	1.62	.345	1 1/16-12
1	1	64516	3.34	1.43	1.88	.375	1 5/16-12
1-1/4	1-1/4	64520	3.49	1.87	2.12	.405	1 5/8-12
1-1/2	1-1/2	64524	6.31	3.07	2.50	.495	1 7/8-12
2	2	64532	8.19	3.74	3.12	.495	2 1/2-12

#### 90° Elbow



Tube Size	Code 62 Flange Size	Catalog Number	A	B	Dia. C	T	Thread Size
1/2	1/2	69008	1.57	2.11	1.25	.305	3/4-16
3/4	3/4	69012	1.93	2.56	1.62	.345	1 1/16-12
1	1	69016	2.35	2.90	1.88	.375	1 5/16-12
1-1/4	1-1/4	69020	2.91	3.46	2.12	.405	1 5/8-12
1-1/2	1-1/2	69024	5.44	6.53	2.50	.495	1 7/8-12
2	2	69032	7.38	8.22	3.12	.495	2 1/2-12

### Split Flange Kits – SAE High Pressure Series (Code 62) SAE J518



**Material:** Buna-N 90 Durometer  
**Temperature Range:** -40°F to +250°F  
 (-40°C to +121°C)

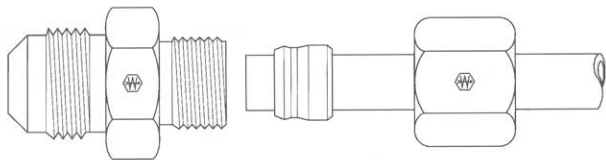
Standard O-ring complies with SAE specifications SAE J515 Type CH (See page 138 for O-ring compound and application chart)

Included in kit.

Nominal Flange Size	Catalog Number Complete Kit	Flange Halves		Lock Washer	Bolt Torque Range Lb.-In.			
		2 Req'd.	O-Ring					
1/2	SFK62-8	8x262	8x252	8x863	8x254	1.57 .72	5/16	175-225
3/4	SFK62-12	12x262	12x252	12x863	12x254	2.00 .94	13/32	300-400
1	SFK62-16	16x262	16x252	16x863	16x254	2.25 1.09	15/32	500-600
1-1/4	SFK62-20	20x262	20x252	20x863	20x254	2.63 1.25	17/32	750-900
1-1/2	SFK62-24	24x262	24x252	24x863	24x264	3.12 1.44	21/32	1400-1600
2	SFK62-32	32x262	32x252	32x863	32x264	3.81 1.75	25/32	2400-2600

Flanges conform to SAE J518.





Metric Tube O.D.	6	8	10	12	14	15	16	18	20	22	25	28	30	38
Light	M12x1.5	M14x1.5	M16x1.5	M18x1.5	—	M22x1.5	—	M26x1.5	—	M30x2.0	—	M36x2.0	—	—
Heavy	M14x1.5	M16x1.5	M18x1.5	M20x1.5	M22x1.5	—	M24x1.5	—	M30x2.0	—	M36x2.0	—	M42x2.0	M52x2.0

#### • Typical Application

Used in applications to adapt connections made to DIN (Deutsche Industrie Norme) specifications to male 37° JIC Flare.

#### • Sealing Method

Three-Piece Flareless Bite Type or 60° or 24° Tube Seat, or 37° Flare.

#### • Vibration Rating

Three-Piece Flareless Bite Type or 60° or 24° Tube Seat. Fair Resistance.

#### • Material

Carbon Steel - SAE 12L14

#### • Plating

Bodies and Sleeves - Zinc Yellow Dichromate Finish  
Nuts - Phosphate Coating.

#### • Advantages

Provides an adapter to convert a metric hose assembly to JIC 37° allowing the use of standard hose and end fittings. Can also be used in the repair of metric tubing.

#### • Presetting Instructions

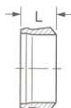
1. Preset with preset tool. All sleeves should be preset in tool prior to installation.
1. Cut the tubing squarely and lightly deburr the end of the tubing inside and out.
2. Lubricate the sleeve, nut and threads with a good grade of lubricant compatible with the system fluid.
3. Slide the nut and sleeve on the tubing. The thicker end of the sleeve should be towards the nut.
4. Insert the tube into the preset tool making sure it is bottomed on the tube stop. Tighten the nut by hand as much as possible.

5. On the tube sizes up to and including 18mm O.D., tighten the nut 1-1/2 turns past hand tight. For larger tube O.D.'s, tighten the nut 1-1/4 turns past hand tight.
6. To inspect preset, mark the nut location and remove nut.
7. To reinstall, tighten the nut 1/6 turn (one hex flat) past the previous nut location.

#### • Ordering Information

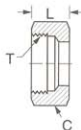
Order individually by catalog number. Preset tools found on page 222.

### Metric Flareless Sleeve



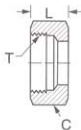
Tube O.D. (mm)	Catalog Number	L (mm)
6	7165x6MM	8.5
8	7165x8MM	8.5
10	7165x10MM	9.5
12	7165x12MM	9.5
14	7165x14MM	10.0
15	7165x15MM	10.0
16	7165x16MM	10.0
18	7165x18MM	10.0
20	7165x20MM	11.5
22	7165x22MM	11.5
25	7165x25MM	11.5
28	7165x28MM	11.5
30	7165x30MM	13.5
38	7165x38MM	13.5

### Metric Flareless Nut Light Series (DIN 3901/3902L)



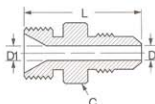
Tube O.D. (mm)	Catalog Number	T Thread	Hex C (mm)	L (mm)
6	ML7105x6	M12x1.5	14	14.5
8	ML7105x8	M14x1.5	17	14.5
10	ML7105x10	M16x1.5	19	15.5
12	ML7105x12	M18x1.5	22	15.5
15	ML7105x15	M22x1.5	27	17.0
18	ML7105x18	M26x1.5	32	18.0
22	ML7105x22	M30x2.0	36	20.0
28	ML7105x28	M36x2.0	41	21.0

### Metric Flareless Nut Heavy Series (DIN 3901/3902S)

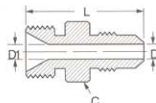


Tube O.D. (mm)	Catalog Number	T Thread	Hex C (mm)	L (mm)
6	MH7105x6	M14x1.5	17	16.5
8	MH7105x8	M16x1.5	19	16.5
10	MH7105x10	M18x1.5	22	17.5
12	MH7105x12	M20x1.5	24	17.5
14	MH7105x14	M22x1.5	27	20.5
16	MH7105x16	M24x1.5	30	20.5
20	MH7105x20	M30x2.0	36	24.0
25	MH7105x25	M36x2.0	46	27.0
30	MH7105x30	M42x2.0	50	29.0
38	MH7105x38	M52x2.0	60	32.5

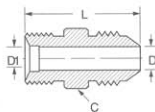
NOTE: Multiply millimeters (mm) by 0.03937 to obtain inches.

**Male JIC 37° to 24° Metric Tube  
Seat (Light)**  
(DIN 3901/3902L)


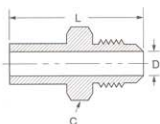
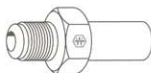
Tube O.D.	Tube O.D. (mm)	Catalog Number	Metric Thread	Hex C	D	D1	L
1/4	6	MC5206x4x6	M12x1.5	5/8	.171	.171	1.22
3/8	8	MC5206x6x8	M14x1.5	3/4	.297	.240	1.22
1/2	10	MC5206x8x10	M16x1.5	7/8	.391	.322	1.41
1/2	12	MC5206x8x12	M18x1.5	15/16	.391	.398	1.48
5/8	15	MC5206x10x15	M22x1.5	1-1/16	.484	.478	1.70
3/4	18	MC5206x12x18	M26x1.5	1-3/4	.609	.596	1.91

**Male JIC 37° to 24° Metric Tube  
Seat (Heavy)**  
(DIN 3901/3902S)


Tube O.D.	Tube O.D. (mm)	Catalog Number	Metric Thread	Hex C	D	D1	L
3/8	6	MC5208x6x6	M14x1.5	3/4	.297	.167	1.22
1/2	10	MC5208x8x10	M18x1.5	15/16	.391	.283	1.48
5/8	14	MC5208x10x14	M22x1.5	1-1/16	.484	.397	1.70
3/4	16	MC5208x12x16	M24x1.5	1-1/8	.609	.476	1.77

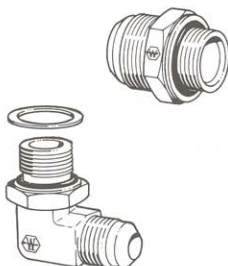
**Male JIC 37° to 60° Metric Tube  
Seat**  
(DIN 7631)


Tube O.D.	Tube O.D. (mm)	Catalog Number	Metric Thread	Hex C	D	D1	L
1/4	6	MC5207x4x6	M12x1.5	1/2	.171	.157	1.22
3/8	8	MC5207x6x8	M14x1.5	5/8	.297	.242	1.22
3/8	10	MC5207x6x10	M16x1.5	7/8	.297	.321	1.32
1/2	12	MC5207x8x12	M18x1.5	15/16	.391	.394	1.48
5/8	15	MC5207x10x15	M22x1.5	1-1/16	.472	.472	1.52
3/4	18	MC5207x12x18	M26x1.5	1-1/8	.609	.596	1.91

**Male JIC 37° to Male Metric  
Standpipe**  
(DIN 7631)


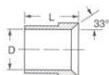
Tube O.D.	Tube O.D. (mm)	Catalog Number	Hex C	L	D
1/4	6MM	MC5019x4x6	9/16	1.58	.16
1/4	8MM	MC5019x4x8	9/16	1.68	.17
3/8	10MM	MC5019x6x10	3/4	1.67	.28
1/2	12MM	MC5019x8x12	7/8	1.97	.32
1/2	14MM	MC5019x8x14	7/8	1.89	.39
5/8	15MM	MC5019x10x15	1	2.03	.43
5/8	16MM	MC5019x10x16	1	2.07	.47
3/4	16MM	MC5019x12x16	1-1/4	2.22	.47
3/4	18MM	MC5019x12x18	1-1/4	2.12	.55
3/4	20MM	MC5019x12x20	1-1/4	2.38	.61
1	22MM	MC5019x16x22	1-1/2	2.21	.67
1	25MM	MC5019x16x25	1-1/2	2.54	.79

NOTE: Multiply millimeters (mm) by 0.03937 to obtain inches.



- **Typical Application**  
Used in applications to adapt connections and tubing to male and female swivel 37° JIC flare.
- **Sealing Method**  
Tapered pipe thread, or o-ring, or 37° flare.
- **Vibration Rating**  
Fair resistance.
- **Material**  
Carbon Steel – SAE 12L14.
- **Plating**  
Zinc yellow dichromate finish.
- **Advantages**  
Provides an adapter to convert Metric ports to 37° JIC allowing the use of standard hose and end fittings. Also metric tubing that can be flared can be adapted to a standard 37° JIC connection by the use of sleeves.
- **Ordering Information**  
Order individually by catalog number.

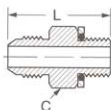
## Sleeve 3 Piece Metric (Ref. SAE No. 070115)



Adapts standard JIC Flare-Twin® fittings for use with metric tubing.

Tube O.D. (Inch Size)	Tube O.D. (Metric Size)	Catalog Number	D	L
1/4	6MM	C5165x4x6MM	.241	.41
5/16	8MM	C5165x5x8MM	.320	.44
3/8	10MM	C5165x6x10MM	.399	.50
1/2	12MM	C5165x8x12MM	.478	.56
5/8	14MM	C5165x10x14MM	.556	.66
5/8	15MM	C5165x10x15MM	.596	.66
5/8	16MM	C5165x10x16MM	.636	.66
3/4	18MM	C5165x12x18MM	.717	.68
7/8	20MM	C5165x14x20MM	.793	.76
7/8	22MM	C5165x14x22MM	.866	.76
1	25MM	C5165x16x25MM	.990	.78
1-1/4	30MM	C5165x20x30MM	1.191	.91
1-1/4	32MM	C5165x20x32MM	1.270	.91
1-1/2	38MM	C5165x24x38MM	1.500	1.12

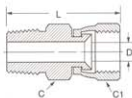
## Male JIC 37° to Male Metric Straight Thread Connector (Port Per ISO 9974)



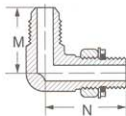
Replacement retaining rings and O-rings page 214.

Tube O.D.	Male Metric Thread	Catalog Number	L	Hex C
1/4	M10x1.0	MC5315x4x10	1.18	5/8
1/4	M12x1.5	MC5315x4x12	1.22	5/8
1/4	M14x1.5	MC5315x4x14	1.22	3/4
3/8	M14x1.5	MC5315x6x14	1.22	3/4
3/8	M16x1.5	MC5315x6x16	1.32	7/8
1/2	M18x1.5	MC5315x8x18	1.48	15/16
1/2	M22x1.5	MC5315x8x22	1.61	1-1/16
5/8	M20x1.5	MC5315x10x20	1.71	1
3/4	M22x1.5	MC5315x12x22	1.81	1-1/8
3/4	M27x2.0	MC5315x12x27	1.95	1-1/4
1	M33x2.0	MC5315x16x33	2.03	1-5/8
1-1/4	M42x2.0	MC5315x20x42	2.19	2

NOTE: Multiply millimeters (mm) by 0.03937 to obtain inches.

**Female JIC 37° Swivel to Male  
Metric Taper Pipe Thread  
(Pipe Thread Per DIN 3852)**


Tube O.D.	Metric Taper Pipe Thread	Catalog Number	Hex C	Hex C1	D	L
1/4	M10 x 1.0	M9700x4x6	9/16	9/16	.172	1.25
5/16	M12 x 1.5	M9700x5x8	11/16	5/8	.234	1.54
3/8	M14 x 1.5	M9700x6x10	11/16	11/16	.297	1.60
1/2	M16 x 1.5	M9700x8x12	7/8	7/8	.391	1.78
5/8	M20 x 1.5	M9700x10x14	1	1	.484	1.91
3/4	M24 x 1.5	M9700x12x20	1-1/8	1-1/8	.609	2.04
1	M27 x 2.0	M9700x16x25	1-3/8	1-1/2	.845	2.30
1-1/4	M36 x 2.0	M9700x20x32	1-7/8	2	1.079	2.43

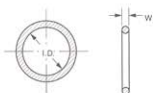
**90° Elbow - Male JIC 37° to  
Male Metric Straight Thread  
(For ISO 9974 Port)**


Replacement retaining rings and O-rings see below.

Tube O.D.	Male Metric Thread	Catalog Number	M	N
1/4	M10x1.0	MC5515x4x10	.89	1.03
1/4	M12x1.5	MC5515x4x12	.95	1.09
3/8	M14x1.5	MC5515x6x14	1.06	1.25
3/8	M16x1.5	MC5515x6x16	1.14	1.45
1/2	M18x1.5	MC5515x8x18	1.26	1.47
1/2	M22x1.5	MC5515x8x22	1.33	1.70
5/8	M18x1.5	MC5515x10x18	1.41	1.60
5/8	M20x1.5	MC5515x10x20	1.45	1.70
5/8	M22x1.5	MC5515x10x22	1.45	1.70
3/4	M22x1.5	MC5515x12x22	1.66	1.78
3/4	M27x2.0	MC5515x12x27	1.66	1.94
1	M33x2.0	MC5515x16x33	1.81	2.05

**Metric Retaining Ring**

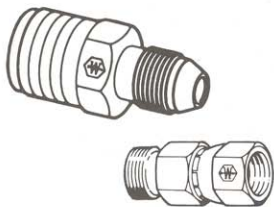

Tube O.D. (mm)	Catalog Number	Ring I.D. (mm)	Ring O.D. (mm)	W (mm)
10	M7630x10	11.33	14.85	1.00
12	M7630x12	13.72	17.85	1.42
14	M7630x14	15.73	19.85	1.42
16	M7630x16	17.73	21.85	1.42
18	M7630x18	19.73	23.80	1.42
20	M7630x20	21.73	25.85	1.42
22	M7630x22	23.73	27.85	1.42
27	M7630x27	29.44	32.85	1.90
33	M7630x33	35.44	39.85	1.90
42	M7630x42	44.44	49.85	1.90

**Metric O-Ring  
(For ISO 9974 Port)**


Material: Buna N 90 Durometer  
Temperature Range: -40°F to +250°F  
(-40°C to +121°C)

Tube O.D.	Catalog Number	W (mm)	I.D. (mm)
10	M7629x10	1.60	8.10
12	M7629x12	2.40	9.30
14	M7629x14	2.10	11.40
16	M7629x16	2.40	13.30
18	M7629x18	2.40	15.60
20	M7629x20	2.46	18.00
22	M7629x22	2.46	19.80
27	M7629x27	2.95	23.47
33	M7629x33	2.95	29.74
42	M7629x42	3.00	39.20

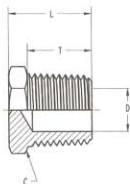
NOTE: Multiply millimeters (mm) by 0.03937 to obtain inches.



- Typical Application**  
 Used in applications to adapt connections made to BSP (British Standard Pipe) specifications to male or female swivel JIC 37° flare.
- Sealing Method**  
 Tapered (BSPT) or Parallel Pipe Thread (BSPP), O-ring or 37° flare.
- Vibration Rating**  
 Fair resistance.
- Material**  
 Carbon Steel – SAE 12L14.
- Plating**  
 Zinc with yellow or green dichromate finish.
- Advantages**  
 Provides an adapter to convert BSP ports to 37° JIC allowing the use of standard hose and end fittings.
- Ordering Information**  
 Order individually by catalog number.

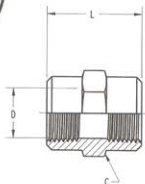
Pipe Size	1/8	1/4	3/8	1/2	5/8	3/4	1	1-1/4
Thread Size	1/8-28	1/4-19	3/8-19	1/2-14	5/8-14	3/4-14	1-11	1-1/4-11

### Hex Head Plug



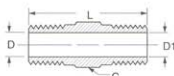
BSPT Pipe Size	Catalog Number	Hex C (mm)	Hex		D Opt. Dia.
			L	T	
1/8	MC3159x2	11	.58	.385	.16
1/4	MC3159x4	14	.76	.577	.25
3/8	MC3159x6	17	.80	.577	.38
1/2	MC3159x8	22	.98	.765	.50
3/4	MC3159x12	27	1.11	.796	.69
1	MC3159x16	36	1.27	.943	.88

### Coupling



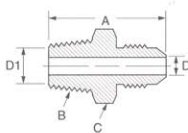
BSPT Pipe Size	Catalog Number	Hex C (mm)	Hex		D Dia.
			L	D	
1/8	MC3309x2	17	.75	.337	
1/4	MC3309x4	19	1.13	.450	
3/8	MC3309x6	22	1.13	.588	
1/2	MC3309x8	30	1.50	.733	
3/4	MC3309x12	36	1.53	.949	
1	MC3309x16	41	1.89	1.192	

## Hex Nipple



BSPT Pipe Size A	BSPT Pipe Size A1	Catalog Number	Hex C			D	D1	
			L	T	T1			
1/8	1/8	MC3069x2x2	11	1.06	.395	.395	.188	.188
1/4	1/8	MC3069x4x2	17	1.26	.575	.395	.281	.188
1/4	1/4	MC3069x4x4	17	1.45	.575	.575	.281	.281
3/8	1/4	MC3069x6x4	19	1.45	.575	.575	.406	.281
3/8	3/8	MC3069x6x6	19	1.45	.575	.575	.406	.406
1/2	3/8	MC3069x8x6	22	1.70	.765	.575	.531	.406
1/2	1/2	MC3069x8x8	22	1.89	.765	.765	.531	.531
3/4	1/2	MC3069x12x8	30	1.99	.795	.765	.719	.531
3/4	3/4	MC3069x12x12	30	2.02	.795	.795	.719	.719
1	3/4	MC3069x16x12	36	2.18	.955	.795	.939	.719
1	1	MC3069x16x16	36	2.34	.955	.955	.939	.939
1-1/4	1	MC3069x20x16	46	2.51	1.045	.955	1.252	.939
1-1/4	1-1/4	MC3069x20x20	46	2.60	1.045	1.045	1.252	1.252
1-1/2	1-1/4	MC3069x24x20	50	2.67	1.045	1.045	1.502	1.252
1-1/2	1-1/2	MC3069x24x24	50	2.67	1.045	1.045	1.502	1.502
2	1-1/2	MC3069x32x24	65	2.98	1.205	1.045	1.940	1.502
2	2	MC3069x32x32	65	3.14	1.205	1.205	1.940	1.940

## Male Connector to Male JIC 37°



37° Tube O.D.	BSPT Pipe Size	Catalog Number	BSPT Thread B	L	Hex C		D1
					D	D1	
1/4	1/8	MC5205x4x2	1/8-28	1.22	1/2	.172	.281
1/4	1/4	MC5205x4x4	1/4-19	1.42	9/16	.172	.188
1/4	3/8	MC5205x4x6	1/4-19	1.42	1/2	.172	.406
5/16	1/4	MC5205x5x4	1/4-19	1.22	9/16	.234	.281
5/16	3/8	MC5205x5x6	3/8-19	1.42	47/64	.234	.406
3/8	1/4	MC5205x6x4	1/4-19	1.21	5/8	.297	.406
3/8	3/8	MC5205x6x6	3/8-19	1.29	3/4	.297	.281
3/8	1/2	MC5205x6x8	1/2-14	1.69	55/64	.297	.531
3/8	3/4	MC5205x6x12	3/4-14	1.78	1-5/32	.297	.719
1/2	3/8	MC5205x8x6	3/8-19	1.41	13/16	.391	.531
1/2	1/2	MC5205x8x8	1/2-14	1.59	15/16	.391	.406
1/2	3/4	MC5205x8x12	3/4-14	1.88	1-5/32	.391	.719
5/8	1/2	MC5205x10x8	1/2-14	1.66	15/16	.484	.531
5/8	3/4	MC5205x10x12	3/4-14	1.99	1-1/8	.484	.719
5/8	1	MC5205x10x16	1-11	2.15	1-13/32	.484	.939
3/4	1/2	MC5205x12x8	1/2-14	2.06	1-5/32	.609	.719
3/4	3/4	MC5205x12x12	3/4-14	1.93	1-1/8	.719	.942
3/4	1	MC5205x12x16	1-11	2.25	1-13/32	.609	.531
7/8	3/4	MC5205x14x12	3/4-14	2.12	1-5/32	.609	.939
7/8	1	MC5205x14x16	1-11	2.28	1-13/32	.719	.719
1	3/4	MC5205x16x12	3/4-14	2.14	1-13/32	.845	.939
1	1	MC5205x16x16	1-11	2.13	1-3/8	.845	.719
1-1/4	1-1/4	MC5205x20x20	1-1/4-11	2.34	1-11/16	1.080	1.252
1-1/2	1-1/2	MC5205x24x24	1-1/2-11	2.71	1-15/16	1.314	1.502
2	2	MC5205x32x32	2-11	3.27	2-3/4	1.784	1.940

## BSPP Male To NPTF Female Adapter



Male BSPP Thread	Female NPTF Thread	Catalog Number	H	L	SW
					(mm)
1/8	1/8	1150x2x2PP	.27	.67	14
1/4	1/4	1150x4x4PP	.32	.91	17
3/8	3/8	1150x6x6PP	.35	.96	22
1/2	1/2	1150x8x8PP	.39	1.16	27

# BSP Fittings

## Steel Fittings

### BSP Female To NPTF Male Adapter

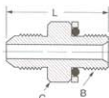


1UNF thread

Female BSPP	Male NPTF Thread	Catalog Number	H	L	SW (mm)
M5*	10-32†	1100x5MMxA	.18	.47	8
1/8	1/8	1100x2PPx2	.37	.77	14
1/4	1/4	1100x4PPx4	.51	1.06	17
3/8	3/8	1100x6PPx6	.51	1.08	19

\*M5 has 0.8mm Thread Pitch. M5 seals with nylon washer, included.

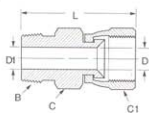
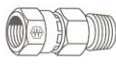
### Male British Standard Parallel Pipe to Male JIC 37°



Replacement retaining rings and O-rings page 218.

Tube O.D.	BSPP Pipe Size	Catalog Number	BSPP Thread B	L	Hex C
1/4	1/8	MB5315x4x2	1/8-28	1.10	5/8
1/4	1/4	MB5315x4x4	1/4-19	1.24	3/4
5/16	1/4	MB5315x5x4	1/4-19	1.24	3/4
3/8	1/4	MB5315x6x4	1/4-19	1.25	3/4
3/8	3/8	MB5315x6x6	3/8-19	1.31	7/8
1/2	3/8	MB5315x8x6	3/8-19	1.48	7/8
1/2	1/2	MB5315x8x8	1/2-14	1.67	1-1/8
5/8	3/4	MB5315x10x12	3/4-14	1.83	1-3/8
3/4	3/4	MB5315x12x12	3/4-14	1.93	1-3/8
1	1	MB5315x16x16	1-11	2.20	1-3/4
1-1/4	1-1/4	MB5315x20x20	1-14-11	2.32	2

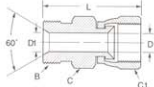
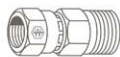
### Female JIC 37° Swivel to Male British Standard Pipe Tapered BSPT Thread



\*Optional counterbore.

Tube O.D.	BSPT Pipe Size	Catalog Number	BSPT Thread B	Hex C	Hex C1	D	D1	L
1/4	1/4	M9800x4x4	1/4-19	9/16	9/16	.172	.281*	1.56
5/16	1/4	M9800x5x4	1/4-19	11/16	5/8	.234	.281*	1.63
3/8	1/4	M9800x6x4	1/4-19	11/16	11/16	.297	.281	1.69
1/2	1/4	M9800x8x4	1/4-19	7/8	7/8	.391	.281	1.87
1/2	3/8	M9800x8x6	3/8-19	7/8	7/8	.391	.406*	1.87
1/2	1/2	M9800x8x8	1/2-14	7/8	7/8	.391	.531*	2.06
5/8	1/2	M9800x10x8	1/2-14	1	1	.484	.531*	2.11
3/4	1/2	M9800x12x8	1/2-14	1-1/8	1-1/4	.609	.531	2.21
3/4	3/4	M9800x12x12	3/4-14	1-1/8	1-1/4	.609	.719*	2.24
1	3/4	M9800x16x12	3/4-14	1-3/8	1-1/2	.845	.719	2.39
1	1	M9800x16x16	1-11	1-3/8	1-1/2	.845	.938*	2.55
1-1/4	1-1/4	M9800x20x20	1-14-11	1-7/8	2	1.079	1.125*	2.73

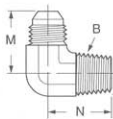
### Female 37° JIC Swivel to Male British Standard Pipe Parallel BSPP Thread



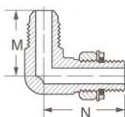
\*Optional counterbore.

Tube O.D.	BSPP Pipe Size	Catalog Number	BSPP Thread B	Hex C1	Hex C	D	D1	L
1/4	1/4	M9600x4x4	1/4-19	9/16	9/16	.172	.198*	1.43
5/16	1/4	M9600x5x4	1/4-19	5/8	11/16	.234	.198	1.50
3/8	1/4	M9600x6x4	1/4-19	11/16	11/16	.297	.198	1.56
3/8	3/8	M9600x6x6	3/8-19	11/16	11/16	.297	.322*	1.66
1/2	3/8	M9600x8x6	3/8-19	7/8	7/8	.391	.322	1.77
1/2	1/2	M9600x8x8	1/2-14	7/8	7/8	.391	.448*	1.92
5/8	1/2	M9600x10x8	1/2-14	1	1	.484	.448	1.97
3/4	3/4	M9600x12x12	3/4-14	1-1/4	1-1/8	.609	.666*	2.25
1	1	M9600x16x16	1-11	1-1/2	1-3/8	.845	.885*	2.48
1-1/4	1-1/4	M9600x20x20	1-14-11	2	1-7/8	1.078	1.125*	2.64



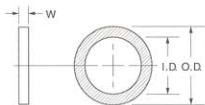
**90° Elbow - Male British  
Standard Pipe Tapered BSPT  
to Male JIC 37°**


Tube O.D.	BSPT Pipe Size	Catalog Number	BSPT Thread B	M	N	Across Flats
1/4	1/4	MC5405x4x4	1/4-19	1.05	1.09	7/16
5/16	1/4	MC5405x5x4	1/4-19	1.05	1.09	1/2
3/8	1/4	MC5405x6x4	1/4-19	1.06	1.09	9/16
3/8	3/8	MC5405x6x6	3/8-19	1.14	1.22	3/4
1/2	3/8	MC5405x8x6	3/8-19	1.25	1.22	3/4
1/2	1/2	MC5405x8x8	1/2-14	1.33	1.47	7/8
5/8	3/4	MC5405x10x12	3/4-14	1.54	1.59	1-1/16
3/4	3/4	MC5405x12x12	3/4-14	1.66	1.59	1-1/16
1	1	MC5405x16x16	1-11	1.81	1.97	1-5/16
1-1/4	1-1/4	MC5405x20x20	1-1/4-11	2.06	2.38	1-5/8

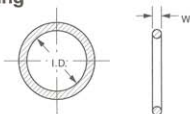
**90° Elbow - Male British  
Standard Pipe Parallel BSPP  
to Male JIC 37°**


Replacement retaining rings and O-rings see below.

Tube O.D.	BSPP Pipe Size	Catalog Number	BSPP Thread	M	N	Across Flats
1/4	1/4	MB5515x4x4	1/4-19	1.05	1.25	9/16
5/16	1/4	MB5515x5x4	1/4-19	.95	1.25	9/16
3/8	1/4	MB5515x6x4	1/4-19	1.06	1.25	9/16
3/8	3/8	MB5515x6x6	3/8-19	1.14	1.45	3/4
1/2	3/8	MB5515x8x6	3/8-19	1.25	1.45	3/4
1/2	1/2	MB5515x8x8	1/2-14	1.33	1.70	7/8
5/8	3/4	MB5515x10x12	3/4-14	1.34	1.94	1-1/16
3/4	3/4	MB5515x12x12	3/4-14	1.66	1.94	1-1/16
1	1	MB5515x16x16	1-11	1.81	2.05	1-5/16
1-1/4	1-1/4	MB5515x20x20	1-1/4-11	2.06	2.25	1-5/8

**British Retaining Ring**


Tube O.D.	Catalog Number	Ring I.D.	Ring O.D.	W
2	MB7630x2	.45	.60	.044
4	MB7630x4	.63	.81	.067
6	MB7630x6	.77	.93	.067
8	MB7630x8	.91	1.12	.067
10	MB7630x10	1.00	1.24	.067
12	MB7630x12	1.12	1.37	.067
16	MB7630x16	1.44	1.74	.092
20	MB7630x20	1.76	2.18	.092
24	MB7630x24	2.02	2.43	.092

**British O-Ring**


Material: Buna N 90 Durometer  
Temperature Range: -40°F to +250°F  
(-40°C to +121°C)

Tube O.D.	Catalog Number	W	I.D.
2	MB7629x2	.070	.239
4	MB7629x4	.103	.424
6	MB7629x6	.103	.549
8	MB7629x8	.103	.695
10	MB7629x10	.103	.818
12	MB7629x12	.103	.924
16	MB7629x16	.139	1.171
20	MB7629x20	.139	1.484