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*Piper*  
*Industries, Inc.*

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# HYDRAULIC FITTINGS

Standards and Specials Designed  
Engineered  
Manufactured

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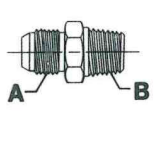
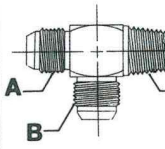
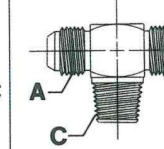
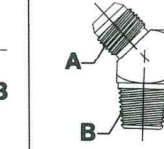
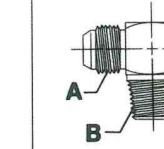
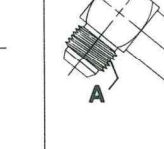
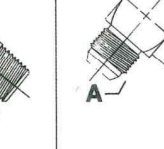
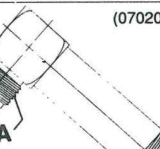
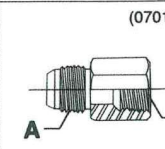
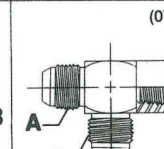
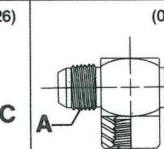
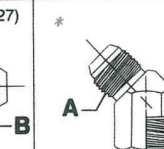
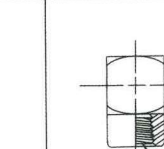
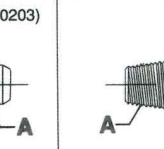
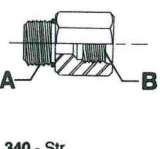
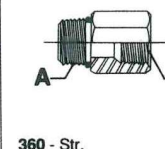
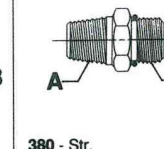
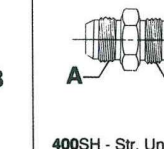
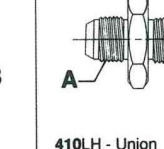
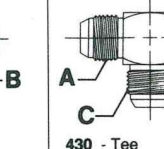
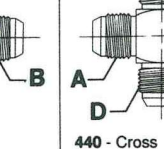
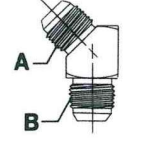
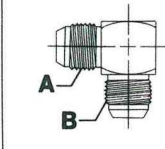
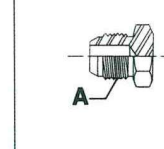
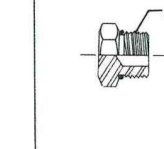
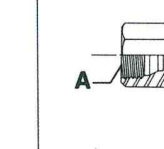
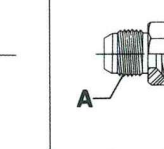
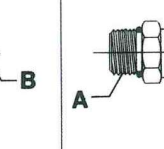
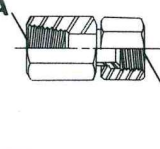
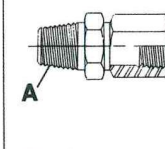
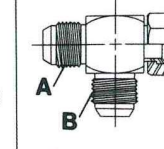
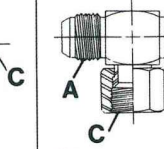
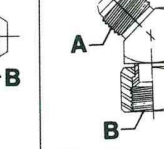
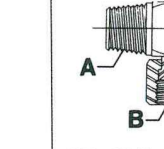
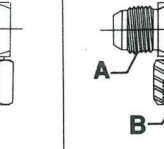
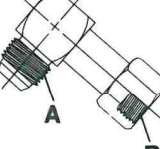
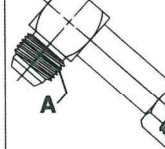
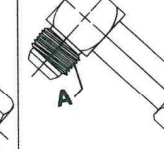
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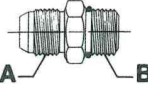
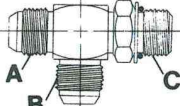
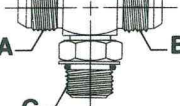
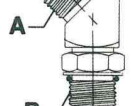
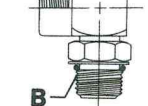
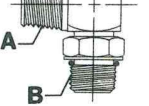
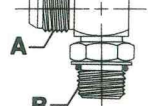
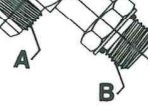
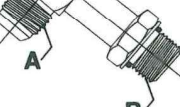
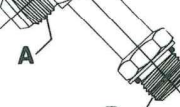
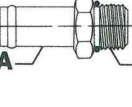
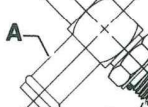
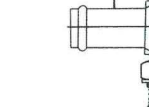
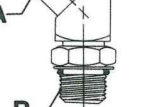
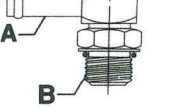
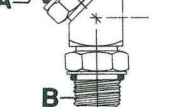
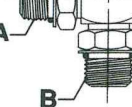
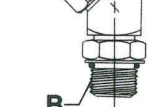
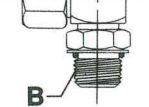
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HYDRAULIC VACUUM AIR AND WATER FITTINGS...  
 Standards and Specials Designed Engineered Manufactured

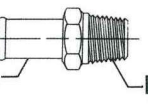
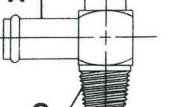

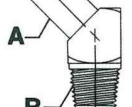
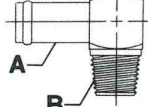
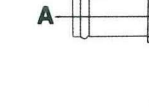
**TUBE FITTINGS, J.I.C. - S.A.E.**

 <b>100 - Str.</b> (A) Male Tube (B) Male Pipe	 <b>120 - Tee</b> (A) (B) Male Tube (C) Male Pipe	 <b>130 - Tee</b> (A) (B) Male Tube (C) Male Pipe	 <b>145 - 45° Male EL</b> (A) Male Tube (B) Male Pipe	 <b>190 - 90° Male EL</b> (A) Male Tube (B) Male Pipe	 <b>190L - 90° Male EL Long</b> (A) Male Tube (B) Male Pipe - Long	 <b>190XL - 90° Male EL X-Long</b> (A) Male Tube (B) Male Pipe X-Long
 <b>190XXL - 90° EL XX Long</b> (A) Male Tube (B) Male Pipe-XXLong	 <b>200 - Str.</b> (A) Male Tube (B) Female Pipe	 <b>220 - Tee</b> (A) (B) Male Tube (C) Female Pipe	 <b>230 - Tee</b> (A) (B) Male Tube (C) Female Pipe	 <b>245 - 45° EL</b> (A) Male Tube (B) Female Pipe	 <b>290 - 90° EL</b> (A) Male Tube (B) Female Pipe	 <b>300 - Str.</b> (A) Male Pipe (B) Female "O" Ring
 <b>340 - Str.</b> (A) Male "O" Ring (B) Female "O" Ring	 <b>360 - Str.</b> (A) Male "O" Ring (B) Female Pipe	 <b>380 - Str.</b> (A) Male Pipe (B) Male "O" Ring	 <b>400SH - Str. Union</b> (A) (B) Male Tube	 <b>410LH - Union</b> (A) (B) Male Tube	 <b>430 - Tee</b> (A) (B) (C) Male Tube	 <b>440 - Cross</b> (A) (B) (C) (D) Male Tube
 <b>445 - 45° EL</b> (A) (B) Male Tube	 <b>490 - 90° Union EL</b> (A) (B) Male Tube	 <b>500 - Tube Plug</b> (A) Male	 <b>510 - "O" Ring Plug</b> (A) Male	 <b>520 - Cap</b> (A) 37° Female	 <b>530 - Str. Reducer</b> (A) Male Tube (B) 37° Female	 <b>600 - Str.</b> (A) Male "O" Ring (B) 37° Female Swivel
 <b>605 - Str.</b> (A) Female Pipe (B) 37° Female Swivel	 <b>610 - Str.</b> (A) Male Pipe (B) 37° Female Swivel	 <b>620 - Tee</b> (A) (B) Male Tube (C) 37° Female Swivel	 <b>630 - Tee</b> (A) (B) Male Tube (C) 37° Female Swivel	 <b>645 - 45° EL</b> (A) Male Tube (B) 37° Female Swivel	 <b>660 - 90° EL</b> (A) Male Pipe (B) 37° Female Swivel	 <b>690 - 90° EL</b> (A) Male Tube (B) 37° Female Swivel
 <b>690L - 90° EL Long</b> (A) Male Tube (B) 37° Female Swivel	 <b>690XL - 90° EL X Long</b> (A) Male Tube (B) 37° Female Swivel	 <b>690XXL - 90° EL XX Long</b> (A) Male Tube (B) 37° Female Swivel	<p><b>* ARE NON-STANDARD ITEMS</b></p>			

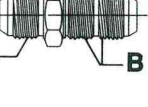
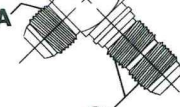
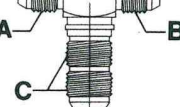
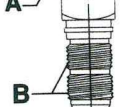
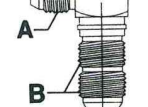
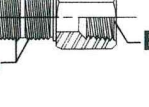
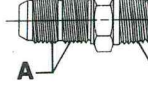
# ADJUSTABLE AND O RING FITTINGS

<p>(070120)</p>  <p><b>700 - Str.</b> (A) Male Tube (B) Male "O" Ring</p>	<p>(070428)</p>  <p><b>720 - NWO Tee</b> (A) (B) Male Tube (C) Adj. "O" Ring</p>	<p>(070429)</p>  <p><b>730 - NWO Tee</b> (A) (B) Male Tube (C) Adj. "O" Ring</p>	<p>(070320)</p>  <p><b>745 - NWO 45°</b> (A) Male Tube (B) Adj. "O" Ring</p>	<p>(070320)</p>  <p><b>760 - NWO 90°</b> (A) Female Pipe (B) Adj. "O" Ring</p>	<p>(070320)</p>  <p><b>780 - NWO 90°</b> (A) Male Pipe (B) Adj. "O" Ring</p>	<p>(070220)</p>  <p><b>790 - 90° EL NWO</b> (A) Male Tube (B) Adj. "O" Ring</p>
<p>*</p>  <p><b>790L - 90° EL Long</b> (A) Male Tube (B) Adj. "O" Ring Long</p>	<p>*</p>  <p><b>790XL-90° EL X Long</b> (A) Male Tube (B) Adj. "O" Ring X-Long</p>	<p>*</p>  <p><b>790XXL-90° EL XX Long</b> (A) Male Tube (B) Adj. "O" Ring XX-Long</p>	<p>*</p>  <p><b>800 - "O" Ring Str.</b> (A) Beaded Tube (B) Male "O" Ring</p>	<p>*</p>  <p><b>820 - Tee</b> (A)(B) Beaded Tube (C) Adj. "O" Ring</p>	<p>*</p>  <p><b>830 - Tee</b> (A)(B) Beaded Tube (C) Adj. "O" Ring</p>	
<p>*</p>  <p><b>845 - NWO 45°</b> (A) Beaded Tube (B) Adj. "O" Ring</p>	<p>*</p>  <p><b>890 - 90° EL NWO</b> (A) Beaded Tube (B) Adj. "O" Ring</p>	<p>*</p>  <p><b>7145 - 45° EL NWO</b> (A) Adj. "O" Ring (B) Adj. "O" Ring</p>	<p>*</p>  <p><b>7190 - 90° EL NWO</b> (A) Adj. "O" Ring (B) Adj. "O" Ring</p>	<p>*</p>  <p><b>7245 - 45° EL NWO</b> (A) 37° Female Swivel (B) Adj. "O" Ring</p>	<p>*</p>  <p><b>7290 - 90° EL NWO</b> (A) 37° Female Swivel (B) Adj. "O" Ring</p>	

# BEADED HOSE BARB FITTINGS

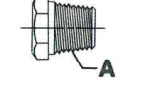
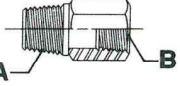
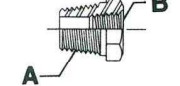
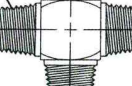
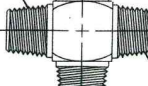
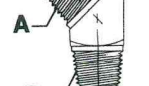
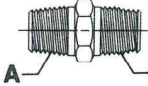
<p>(430160)</p>  <p><b>900 - Str.</b> (A) Beaded Tube (B) Male Pipe</p>	<p>*</p>  <p><b>920 - Run Tee</b> (A) (B) Beaded Tube (C) Male Pipe</p>	<p>*</p>  <p><b>930 - Branch Tee</b> (A) (B) Beaded Tube (C) Male Pipe</p>	<p>(430360)</p>  <p><b>945 - 45° EL</b> (A) Beaded Tube (B) Male Pipe</p>	<p>(430260)</p>  <p><b>990 - 90° EL</b> (A) Beaded Tube (B) Male Pipe</p>	<p>*</p>  <p><b>9230 - Hosebarb Tee</b> (A) (B) (C)</p>
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# BULKHEAD FITTINGS

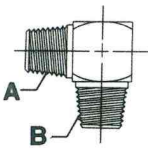
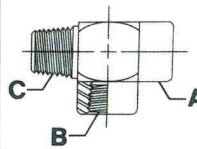
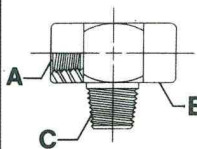
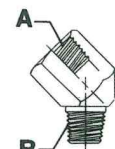
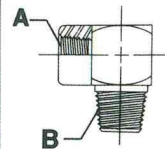
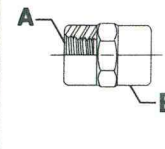
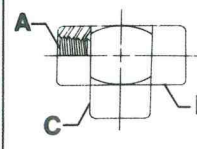
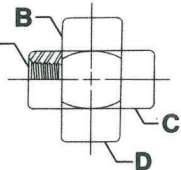
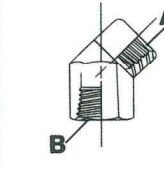
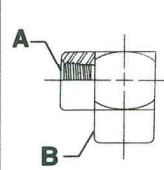
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To order bulkhead nuts add LN to part number

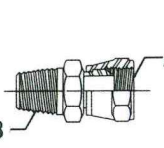
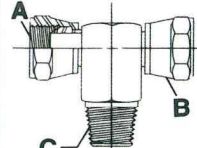
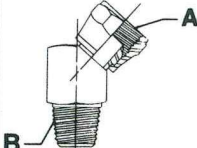
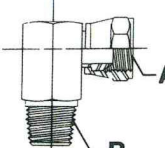
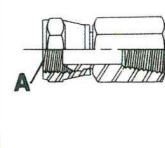
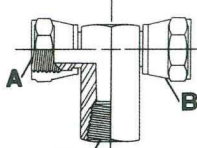
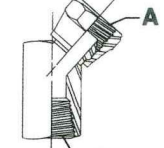
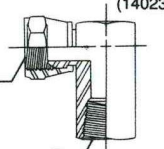
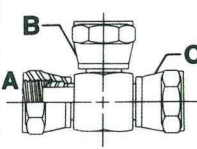
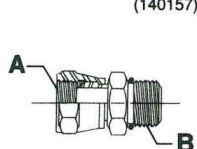
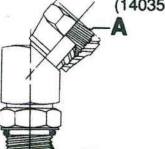
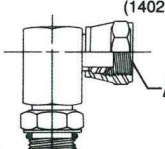
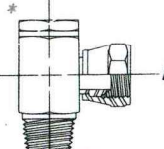
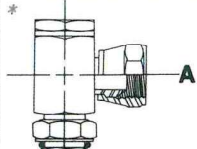
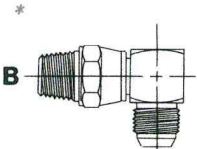
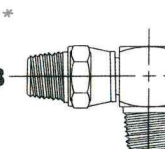
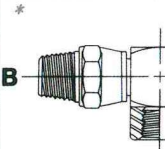
# PIPE FITTINGS

<p>(130109E)</p>  <p><b>1100 - Plug</b> (A) Male Pipe</p>	<p>(140139)</p>  <p><b>1110 - Str. Reducer</b> (A) Male Pipe (B) Female Pipe</p>	<p>(140140)</p>  <p><b>1120 - Bushings</b> (A) Male Pipe (B) Female Pipe</p>	<p>*</p>  <p><b>1130 - Tee</b> (A) (B) (C) Male Pipe</p>	<p>*</p>  <p><b>1140 - Cross</b> (A) (B) (C) (D) Male Pipe</p>	<p>*</p>  <p><b>1145 - 45° EL</b> (A) (B) Male Pipe</p>	<p>(140137)</p>  <p><b>1150 - Str.</b> (A) (B) Male Pipe</p>
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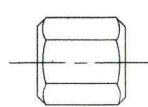
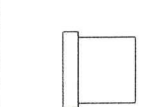
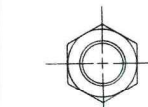
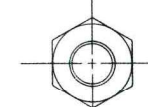
# PIPE FITTINGS (REFER TO TUBE FITTINGS, JIC-SAE, CHART, PAGE 5 FOR SIZES)

 <p><b>1190 - 90° EL</b> (A) (B) Male Pipe</p>	 <p><b>1220 - Tee</b> (A) (B) Female Pipe (C) Male Pipe</p>	 <p><b>1230 - Tee</b> (A) (B) Female Pipe (C) Male Pipe</p>	 <p><b>1245 - 45° EL</b> (A) Female Pipe (B) Male Pipe</p>	 <p><b>1290 - 90° EL</b> (A) Female Pipe (B) Male Pipe</p>	 <p><b>1300 - Str.</b> (A) (B) Female Pipe</p>	 <p><b>1330 - Tee</b> (A) (B) (C) Female Pipe</p>
 <p><b>1340 - Cross</b> (A) (B) (C) (D) Female Pipe</p>	<p>*</p>  <p><b>1345 - 45° EL</b> (A) (B) Female Pipe</p>	 <p><b>1390 - 90° EL</b> (A) (B) Female Pipe</p>				

## ADAPTOR UNIONS

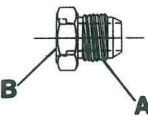
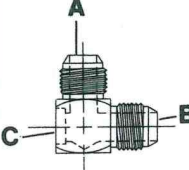
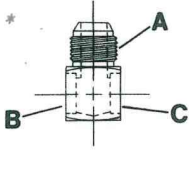
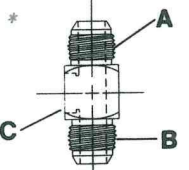
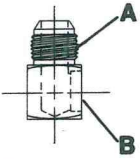
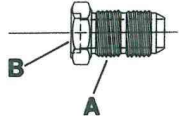
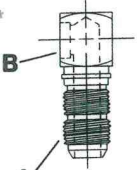
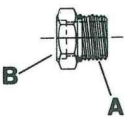
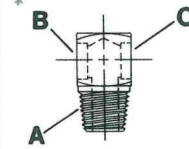
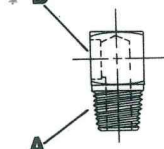
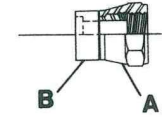
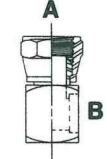
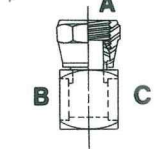
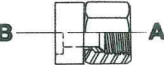
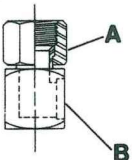
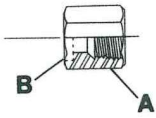
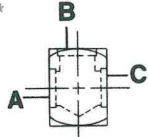
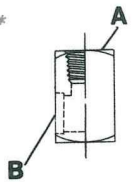
 <p><b>1400 - Str.</b> (A) Female Pipe Swivel (B) Male Pipe</p>	 <p><b>1430 - Tee</b> (A) (B) Female Pipe Swivel (C) Male Pipe</p>	 <p><b>1445 - 45° EL</b> (A) Female Pipe Swivel (B) Male Pipe</p>	 <p><b>1490 - 90° EL</b> (A) Female Pipe Swivel (B) Male Pipe</p>	 <p><b>1500 - Str.</b> (A) Female Pipe Swivel (B) Female Pipe</p>	 <p><b>1530 - Tee</b> (A) (B) Female Pipe Swivel (C) Female Pipe</p>	 <p><b>1545 - 45° EL</b> (A) Female Pipe Swivel (B) Female Pipe</p>
 <p><b>1590 - 90° EL</b> Adapter Union (A) Female Pipe Swivel (B) Female Pipe</p>	 <p><b>1630 - TEE</b> Adapter Union (A) (B) (C) Female Pipe Swivel</p>	 <p><b>1700 - Str. THD</b> Union Adapter (A) Female Pipe Swivel (B) Male "O" Ring</p>	 <p><b>1745 - 45° Str. THD</b> Union Adapter (A) Female Pipe Swivel (B) Adj. "O" Ring</p>	 <p><b>1790 - 90° Str. THD</b> Union Adapter (A) Female Pipe Swivel (B) Adj. "O" Ring</p>		
<p>*</p>  <p><b>2590 - 90° Check Valve</b> (A) Female Pipe Swivel (B) Male Pipe</p>	<p>*</p>  <p><b>2690 - 90° Check Valve</b> (A) Female Pipe Swivel (B) Adj. "O" Ring</p>	<p>*</p>  <p><b>2790 - 90° EL</b> (A) Male Tube (B) Male Pipe Swivel</p>	<p>*</p>  <p><b>2890 - 90° EL</b> (A) Male Pipe (B) Male Pipe Swivel</p>	<p>*</p>  <p><b>2990 - 90° EL</b> (A) Female Pipe (B) Male Pipe Swivel</p>		

## NUTS AND SLEEVES

 <p><b>1801 - Tube Nut</b></p>	 <p><b>1802 - Tube Sleeve</b></p>	 <p><b>1804 - Adjustable Locknut</b></p>	 <p><b>1805 - Bulkhead Locknut</b></p>
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# BRAZE FITTINGS

 <p><b>B4100 - Str.</b> (A) Male Tube (B) Bore</p>	 <p><b>B4120 - Tee</b> (A) (B) Male Tube (C) Bore</p>	 <p><b>B4130 - Tee</b> (A) Male Tube (B) (C) Bore</p>	 <p><b>B4135 - Tee</b> (A) (B) Male Tube (C) Bore</p>	 <p><b>B4190 - 90° EL</b> (A) Male Tube (B) Bore</p>	 <p><b>B5100 - Str.</b> (A) Bulkhead (B) Bore</p>	 <p><b>B5190 - 90° EL</b> (A) Bulkhead (B) Bore</p>
 <p><b>B6100 - Str.</b> (A) Male "O" Ring (B) Bore</p>	 <p><b>B6130 - Tee</b> (A) Male Pipe (B) (C) Bore</p>	 <p><b>B6190 - 90° EL</b> (A) Male Pipe (B) Bore</p>	 <p><b>B7000 - Str.</b> (A) Female Pipe Swivel (B) Bore</p>	 <p><b>B7190 - 90° EL</b> (A) Female Pipe Swivel (B) Bore</p>	 <p><b>B7130 - Tee</b> (A) Female Pipe Swivel (B) (C) Bore</p>	 <p><b>B8000 - Str.</b> (A) 37° Female Swivel (B) Bore</p>
 <p><b>B8190 - Tee</b> (A) 37° Female Swivel (B) Bore</p>	 <p><b>B9100 - Str.</b> (A) Female Pipe (B) Bore</p>	 <p><b>B9130 - Tee</b> (A) (B) (C) Bore</p>	 <p><b>B9190 - 90° EL</b> (A) Female Pipe (B) Bore</p>			

Piper Industries is a leading supplier of standard and non-catalogue hydraulic adaptors. We also specialize in the manufacture of air, water, vacuum, hydraulic fittings and manifolds.

We provide complete engineering, design and manufacturing services, specializing in solutions to your fitting problems. Our people have worked with O.E.M. manufacturers in every industry, in their plants, all over the country. Piper Industries is ready to offer the same service, experience and ability to you.

Piper Industries designs and manufactures many special manifolds and compound fittings to solve specific problems.

A single manifold or fitting can replace an assembly of several standard parts. The savings in such a situation can be quite dramatic when all factors are considered. In just one instance a single special steel fitting replaced five brass fittings and a twenty minute assembly operation. When you take into account the cost of purchasing, inventorying and handling the five separate fittings, we feel a sizable savings can be experienced.

Our special manifolds and fittings also greatly reduce the potential for leaks by eliminating numerous unnecessary joints, reducing production and field problems.

If you are currently "assembling" a fitting anywhere in your production process, we can reduce your inventory and purchase costs, as well as save you labor time and reduce field problems. We would be pleased to assist you in this process.

# PIPER PART NUMBER SYSTEM

There is a method to the part numbering system used by Piper to describe and catalogue hydraulic adaptors.

The first digit of a part number denotes the style of adaptor. **FOR EXAMPLE:** The 100 series part numbers are all Male JIC by Male Pipe adaptors.

The second two digits denote what shape the adaptor is:

- The 100's are straight
- The 120's are male run tee
- The 130's are male branch tee
- The 145's are 45° male elbow
- The 190's are 90° male elbow

The same system follows on the balance of the part numbers. Once a minimum number of series are memorized, the shape and style of the adaptors are self-evident from the part number.

This also applies to O'RING FACE SEAL and FLARELESS FITTINGS. To order a FLARELESS FITTING place a 2 in front of the standard part number. The letters **FS** in front of a standard part number denotes an O' RING FACE SEAL fitting.

Normally the first dimension in the sequence denoting size is the part of the adaptor that attaches to the companion hose or tube assembly rather than the port size. For example: A 1400-6-8 is a 3/8" swivel female pipe by 1/2" male pipe.

The numerical size code for ends follows the industry standard "dash number" system which specifies the size in sixteenths of an inch.

## TUBE FITTINGS

DASH NUMBER	2-2	3-2	4-2	5-2	5-4	5-6	6-2	6-4	6-8	8-4	8-6	8-8	8-12	10-8	10-12	12-8
TUBE O. D.	1/8	3/16	1/4	5/16	5/16	5/16	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	3/4
STR. THD.	5/16-24	3/8-24	7/16-20	1/2-20	1/2-20	1/2-20	9/16-18	9/16-18	9/16-18	3/4-16	3/4-16	3/4-16	3/4-16	7/8-14	7/8-14	1 1/16-12
PIPE THD.	1/8	1/8	1/8	1/8	1/4	3/8	1/8	1/4	1/2	1/4	3/8	1/2	3/4	1/2	3/4	1/2
DASH NUMBER	12-12	12-16	14-12	16-12	16-16	16-20	20-16	20-20	20-24	24-20	24-24	24-32	32-24	32-32	40-40	48-48
TUBE O.D.	3/4	3/4	7/8	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2	2	2 1/2	3
STR. THD.	1 1/16-12	1 1/16-12	1 3/16-12	1 5/16-12	1 5/16-12	1 5/8-12	1 5/8-12	1 5/8-12	1 5/8-12	1 7/8-12	1 7/8-12	1 7/8-12	2 1/2-12	2 1/2-12	3-12	3 1/2-12
PIPE THD.	3/4	1	3/4	3/4	1	1 1/4	1	1 1/4	1 1/2	1 1/4	1 1/2	2	1 1/2	2	2 1/2	3

## ADAPTOR UNIONS

DASH NUMBER	2	4	6	8	12	16	20	24	32
PIPE THD. NPSM-NPTF	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2

The following chart was designed to assist in the ordering of a standard adaptor with an additional fitting, incorporated for your need. The chart and examples below will provide you with the necessary information.

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|---|--|
| <ol style="list-style-type: none"> <li>1. F.P. - Female Pipe</li> <li>2. M.P. - Male Pipe</li> <li>3. F.O.B. - Female "O" Ring Boss</li> <li>4. M.F. - 37 J.I.C. Flare</li> </ol> | <ol style="list-style-type: none"> <li>5. H.B. - Hose Barb</li> <li>6. F.L. - Male Flareless</li> <li>7. F.S. - Male O'Ring Face Seal</li> </ol> |
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### EXAMPLE

