Pipe Thread Reducer
PTR

Male Pipe Thread/Female Pipe Thread
SAE 140140
Part Number Information
PTR - Body Only

### Table

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<th>TUBE FITTING PART #</th>
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Please see following pages for further details.
These recommended working pressure represent the capability of the subject fitting. Nevertheless, in some instances, the wall thickness or type of tubing, hose, or hose connector, assembled to the fitting may dictate the maximum pressure to which the assembly should be exposed. It is strongly suggested that these fitting working pressure charts be used in conjunction with appropriate pressure charts for tubing or hose during the fitting selection process.

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</tbody>
</table>

Shaped connectors (elbows, tees and crosses) with pipe threads have low reliability for leak free operation in dynamic systems. For total leak free reliability in such systems, connectors with o-ring sealing such as SAE straight thread or SAE four bolt split flange are recommended.

Stainless steel fitting pressure ratings for some configurations are higher than shown on the following Pipe charts. Please contact Parker Tube Fittings Division for this data. The following values are based on a minimum design factor of 4:1.

**PTR may be used for higher service pressures than shown in the chart above. Consult the Tube Fittings Division where necessary, for these additional PTR pressure ratings.**
Introduction

A broad range of pipe fittings and adaptors are available from the Tube Fittings Division. These products include: male and female pipe fittings, male to female pipe adaptors, straight thread adaptors, straight thread to pipe adaptors, straight thread and pipe plugs, and various conversion adaptors.

The pipe thread connection is one of the oldest methods used to connect pipes and other components in a hydraulic system. Despite some known limitations, various forms of pipe thread still enjoy wide popularity throughout the world. For instance, the British Standard Pipe, BSP in both the parallel (BSPP) and tapered (BSPT) forms is widely used in Europe, Japan and many of the former British Commonwealth Nations. Metric threads are also common in many parts of Europe.

The most commonly used pipe thread in the United States and Canada is the National Pipe Thread. National Pipe Threads come in a variety of forms, which include: National Pipe Tapered for Fuels (NPTF), National Pipe Straight for Mechanical Joints (NPSM) and National Pipe Straight for Fuels (NPSF).

Design and Construction

Shaped products (elbows, tees and crosses) are hot forged and machined, while straights are manufactured from cold drawn barstock. Where applicable, these products are made in conformance with the design criteria of Society of Automotive Engineers Standard, SAE J514.

Standard Material Specifications. The standard materials used in the manufacture of Industrial Pipe and Adaptor fittings are shown below.

<table>
<thead>
<tr>
<th>Pipe Fittings, Adaptors, and Plugs</th>
<th>Steel</th>
<th>Stainless Steel</th>
<th>Brass</th>
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<td>ASTM 576 12L14</td>
<td>ASTM 182</td>
<td>ASTM B124 316</td>
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<td>Barstock Bodies</td>
<td>A108 12L14</td>
<td>A479 316</td>
<td>B16 416 CA360 CA345</td>
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</table>

Note: Upon request, pipe fittings, adaptors and plugs could be furnished in materials other than those shown above in the material specifications chart.

Threads - Standard products are manufactured with the applicable thread(s) from the thread forms listed below.

1. SAE Straight Thread, UN/UNF Class 2A or 2B
2. NPTF and NPT
3. BSPP
4. BSPT
5. Metric Parallel Thread

Steel Pipe Products - *(Dryseal) National Pipe Tapered for Fuels, NPTF.
Stainless Steel Pipe Products - National Pipe Tapered, NPT.
*Except conversion adaptors which are manufactured with BSPP, BSPT or Metric Parallel threads.

**Finish** - Cadmium plating with clear chromate is currently used on standard products.

**Conformance Standards**

Parker pipe fittings and adaptors, where applicable, conform to SAE J514.

**How Pipe Threads Works**

NPTF thread has controlled truncation at the crest and root, thus ensuring metal to metal crest-root contact prior to, or just as the male-female thread flanks make contact. This contact at the crest and root along with contact at flanks reduces the risk of spiral leakage.

NPT thread does not have the controlled truncation, and hence the crest-root contact is not assured. NPT thread form is generally used for pipe thread components made from stainless steel or any other material which has a high propensity to galling. Thread galling occurs during fitting assembly and it makes wrench tightening difficult, and minimizes or eliminates reusability of components. A sealer/lubricant is recommended for use with either the NPT or the NPTF thread to assist in sealing and reduce galling.

The NPT and NPTF thread perform the sealing function, as well as providing resistance (holding power) for service pressure. This differs sharply from the SAE straight thread, where the O-ring creates the seal, while the threads provide the holding power.

If the fitting leaks after it has been tightened properly, troubleshoot as follows:

<table>
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<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no sealant used</td>
<td>Apply new sealant and retighten to specification.</td>
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<tr>
<td>or sealant has worn thin.</td>
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<tr>
<td>Threads are galled.</td>
<td>Replace fitting and/or component.</td>
</tr>
<tr>
<td>Fitting screws in too far into the port</td>
<td>Port opened up or cracked. Replace component.</td>
</tr>
<tr>
<td>Threads are severely nicked.</td>
<td>Replace fitting.</td>
</tr>
<tr>
<td>Seals initially but vibrates loose after some time.</td>
<td>Replace with SAE straight thread port</td>
</tr>
</tbody>
</table>

**Features, Advantages & Benefits**

1. **Compact Size** - Pipe port and end provide very compact connection - especially useful in tight places.
2. **Adaptability** - Pipe fittings can be used in system using pipe or tubing.
3. **High Temperature Capability** - Metal to metal sealing makes pipe fittings especially suitable for low pressure, high temperature applications.
4. **Wide Spread General Use** - Pipe fittings are the oldest of all fittings used in varied applications ranging from household plumbing to high technology instrumentation. They are especially suited for low pressure general use such as air, water, gas, oil and chemical processing.
5. **Availability** - Pipe fittings and adaptors are readily available in a broad range of sizes, materials and configurations.
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How to Order Industrial Pipe Fittings and Adaptors

Nomenclature

Pipe fitting parts numbers are constructed from symbols that identify the size and style of the fitting and material used.

Sizes

2 (1/8") through 32 (2"). Tube sizes are determined by the number of sixteenths of an inch in the tube O.D.

Materials

Type 316 Stainless Steel, Steel and Brass. Pipe fittings for special applications can be furnished in almost any material suitable for machining.

Example

Fitting needed - (Pipe fitting) - Steel Male Connector for 1/4" Female Port to 1/8" Female Port. Part number: 1/4 x 3/8 FF

1/4" male pipe thread x 1/8" male pipe thread FF - S BP

1/4" male pipe thread (where avail.) 1/8" male nipple Material steel Bulk Pack (where avail.)

*On Straight Thread fittings the number "5" is used to designate Straight Thread.

Crosses and Tees

For tees - first size the run (1 to 2) and then the branch (3). For crosses - first size the run (1 to 2) and then the branch (3 to 4).

Special Fittings

If design or configuration is questionable, please provide a detailed sketch, drawing or sample part to the Division.

Pricing

Only items priced in current price list are carried in stock. Price and delivery for non-stock items furnished on request for specified quantity.
NPTF MALE x NPTF FEMALE HEX BUSH

Standard materials available.
Suffix:  
S - Carbon Steel  
B - Brass  
C - AISI 316L BS970 316 S11 Stainless Steel

Other metals such as Monel, Titanium, Aluminium Bronze, Phosphor Bronze, Brass and Duplex Stainless Steel are also available upon request.

Pmax
Pmax is the maximum working pressure of a component including the pressure peaks, for limited dynamic applications. If a component is used over the full dynamic range from zero pressure to Pmax, it will withstand 200,000 cycles at 1Hz. Static burst test pressures are at least 2.5 times the Pmax value.

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