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# INSTRUMENT PIPE & ISO CONVERSION FITTINGS

Catalog 4260 | October 2025



Parker Instrumentation Products Division provides highly engineered pressure and temperature process control instrumentation and systems. These range from compression tube fittings, cone and thread fittings, needle valves, ball valves, compact stream switching valves to modular process to instrument valve packages. These items are all developed and manufactured to increase our customer's up-time, maintain safety, improve production and quality control.

**Industries and Markets we serve:**

- Down and Up-Stream Oil and Gas
- Power Generation
- Industrial Gas
- Clean Technologies
- Industrial Manufacturing
- Research Laboratories
- Space Exploration
- Transportation
- Mining

To learn more about our wide range of products visit us online at...

[parker.com/ipd](http://parker.com/ipd)



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## INSTRUMENT PIPE FITTINGS

Parker Instrumentation Pipe Fittings are designed as leak-free connections for process, power, instrumentation and general industrial applications. They are manufactured to the highest quality standards and are available in broad ranges of sizes, materials and configurations.

Parker Instrumentation Pipe fittings are made at the Instrumentation Products Division of Parker Hannifin in Huntsville, Alabama. These fittings are manufactured where strict adherence to quality control programs is maintained.

The Parker Quality Program is a measure of the efficiency with which Parker transforms materials, our employee efforts, machinery and information into customer-satisfying products and services.

### Material

Parker Pipe Fittings are standard in steel and brass. Other materials may be special ordered within the Parker Quick Response Department. Straight fittings are manufactured from applicable ASTM bar stock specifications shaped fittings are manufactured from close grain forgings.

## ISO CONVERSION FITTINGS

Parker ISO Conversion Fittings are designed to the highest quality standards to allow connections between components and systems which use both NPT and ISO Thread configurations. Conversion fittings are maintained under strict quality control programs.

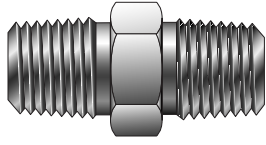
### Design

Parker ISO Conversion Fittings are designed to the most commonly used ISO thread forms. These thread forms are used where pressure tight joints are either made on threads utilizing a thread sealant or where pressure tight joints utilize a peripheral seal on the face of the mating component.

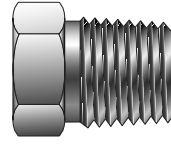
### Material

Parker ISO Conversion Fittings are standard in stainless steel and brass. Other materials may be special ordered within the Parker Quick Response Department. Straight fittings are manufactured from applicable ASTM bar stock specifications shaped fittings are manufactured from close grain forgings.

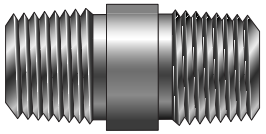
## Visual Index: Instrument Pipe Fittings



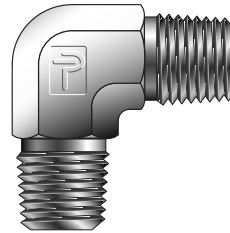
**MHN**  
Male Hex Nipple  
Page 14



**RB**  
Reducing Bushing  
Page 16



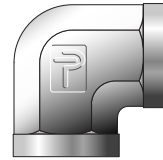
**MCN**  
Male Close Nipple  
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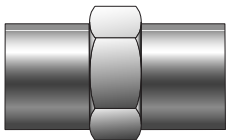
**ME**  
Male Elbow  
Page 17



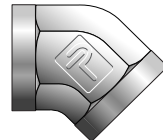
**MHLN**  
Male Hex Long Nipple  
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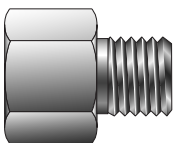
**FE**  
Female Elbow  
Page 17



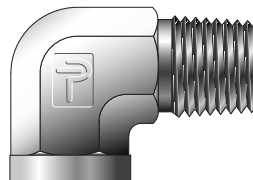
**FHC**  
Female Hex Coupling  
Page 15



**FVE**  
Female Elbow 45°  
Page 18

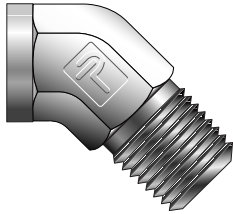


**RA**  
Adapter  
Page 16



**SE**  
Street Elbow  
Page 18

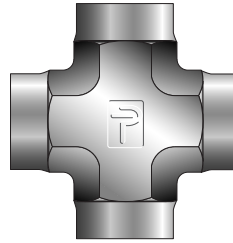
## Visual Index: Instrument Pipe Fittings - con't



### SVE

Street Elbow 45°

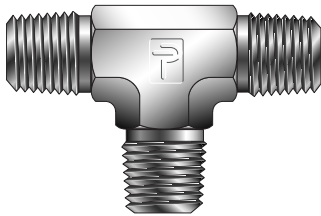
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### FX

Female Cross

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### MT

Male Tee

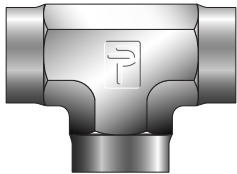
Page 19



### CP

Pipe Cap

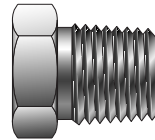
Page 22



### FT

Female Tee

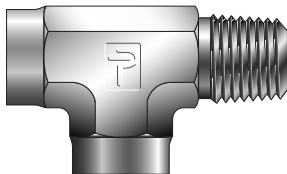
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### PH

Hex Head Plug

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### ST

Street Tee

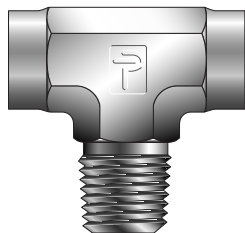
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### PHH

Hollow Hex Plug

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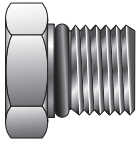


### MBT

Male Branch Tee

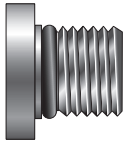
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## Visual Index: *Straight Thread Adapters*



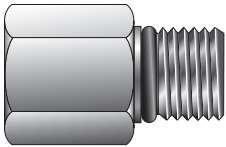
**P50N**  
Hex Head Plug

Page 24



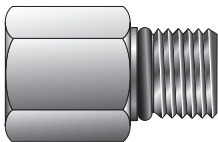
**HP50N**  
Hollow Hex Plug

Page 24



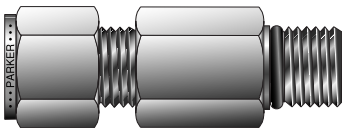
**F50G5**  
Straight Thread  
Reducer/Expander

Page 24



**GOA**  
Male SAE Straight Thread  
to Female NPT Thread

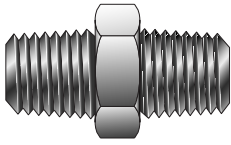
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**ZH3BA**  
Male Connector to  
SAE Straight Thread

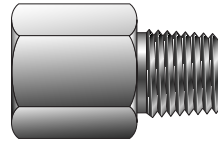
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## Visual Index: ISO Conversion Fittings



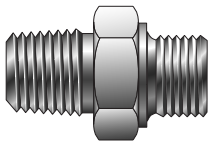
**Male Hex Nipple NPT  
to BSP Taper**

Page 30



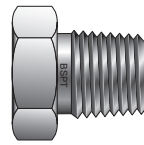
**Female BSPP to  
Male NPT Adapter**

Page 31



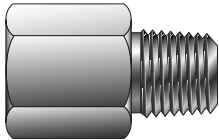
**Male Hex Nipple NPT  
to BSPP**

Page 30



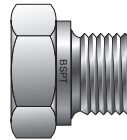
**BSP Taper Male Hex  
to Pipe Plug**

Page 32



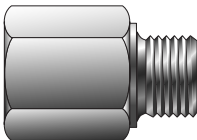
**Female NPT to  
Male BSP Taper Adapter**

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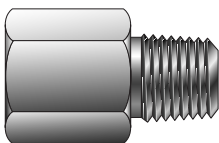
**BSPP Parallel Male Hex  
to Pipe Plug**

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**Female NPT to  
Male BSPP Adapter**

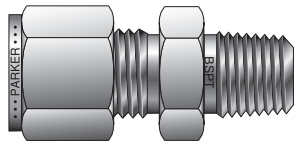
Page 31



**Female BSP Taper to  
Male NPT Adapter**

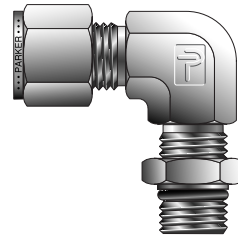
Page 31

# Visual Index: ISO Thread/Fractional Tube Connectors



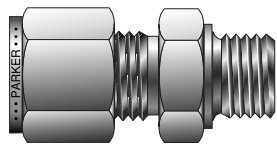
**BSP Taper Male Connector**

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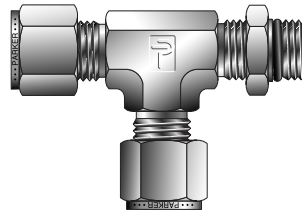
**BSP Male Elbow (Positionable)**

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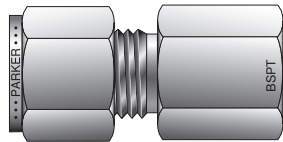
**BSPP Male Connector**

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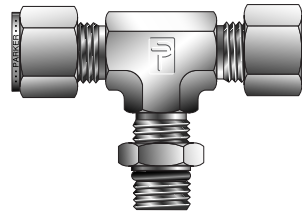
**BSPP Male Run Tee (Positionable)**

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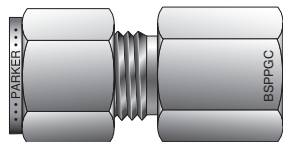
**BSP Taper Female Connector**

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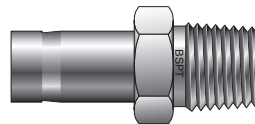
**BSPP Male Branch Tee (Positionable)**

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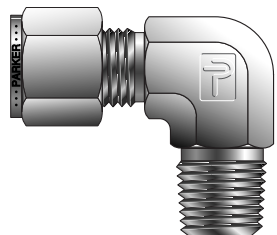
**BSPP Female Gauge Connector**

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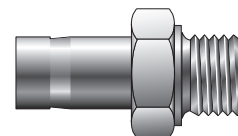
**BSP Taper Male Adapter**

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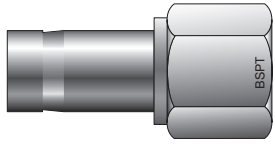
**BSP Taper Male Elbow**

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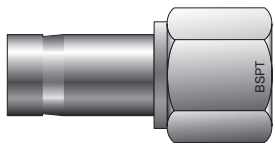


**BSPP Male Adapter**

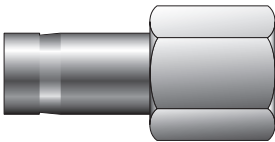
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**Visual Index: ISO Thread/Fractional Tube Connectors - con't****BSP Taper  
Female Adapter**

Page 37

**BSPP  
Female Adapter**

Page 38

**BSPP  
Female Gauge Adapter**

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## Visual Index: *Sealing Washers*



**Bonded Seals  
(Stainless)**

Page 39



**Copper Washers**

Page 39

## Instrumentation Pipe Fittings

### Features and Technical Data

Parker Instrument Pipe Fittings are precision machined from forgings for elbows, tees and crosses and from bar stock for straight connectors. They are designed to be used for process control and instrumentation connections between pipe sizes and tube sizes.

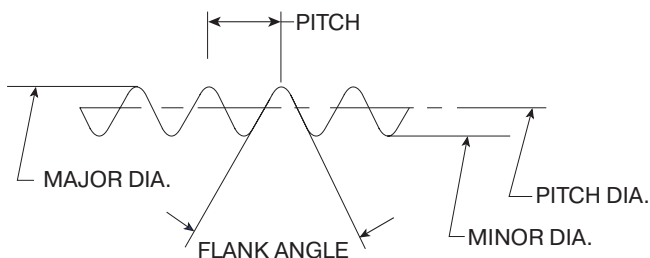
- Quality engineered for instrumentation applications
- Packaged in sealed, clear plastic shrink wrapped boxes for cleanliness
- Working pressures calculated in accordance with Power Piping Code ANSI B31.1 and Refiner Piping Code ANSI B31.3.
- All pipe threads are National Pipe Taper (NPT) and exceed the requirements of ANSI B1.20.1.
- Rolled male threads for extra strength
- Straight bodies machined from applicable ASTM bar stock specifications
- Shapes machined from close grain forgings
- Size ranges from 1/16" through 2" NPT
- Materials – 316 Stainless Steel, Brass and Steel. (Other materials by special order)
- All exposed threads protected to prevent damage

### NPT Threads

The *National Pipe Taper (NPT)* thread has a thread flank angle of 60° inclusive, and is mainly used in the petrochemical and process industries.

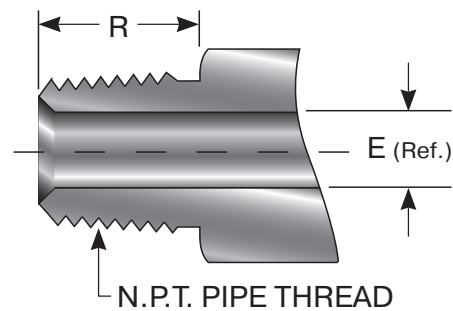
**NPT** – National Pipe Taper threads for connections where pressure-tight joints are made on the threads utilizing a thread sealant.

### Generic Thread



### Pipe Dimensions

| Pipe Size. | Inches          |      |          |
|------------|-----------------|------|----------|
|            | NPT Pipe Thread | R    | E (Ref.) |
| 1/16       | 1/16 – 27       | .38  | .11      |
| 1/8        | 1/8 – 27        | .38  | .19      |
| 1/4        | 1/4 – 18        | .56  | .28      |
| 3/8        | 3/8 – 18        | .56  | .41      |
| 1/2        | 1/2 – 14        | .75  | .50      |
| 3/4        | 3/4 – 14        | .75  | .62      |
| 1          | 1 – 11 1/2      | .94  | .94      |
| 1 1/4      | 1 1/4 – 11 1/2  | .97  | 1.25     |
| 1 1/2      | 1 1/2 – 11 1/2  | 1.00 | 1.50     |
| 2          | 2 – 11 1/2      | 1.03 | 1.94     |



## How to Order: Instrument Pipe Fittings

Parker Instrument Pipe Fittings part numbers are constructed from symbols that identify the size and style of the fitting and material used.

The example shown below describes a male hex nipple for 3/8" NPT male pipe and 1/4" NPT male pipe in 316 stainless steel with CRN Number required.

### Example: **6-4 MHN-SS-CRN**

*(Part number is created based on customer selection of product parameters, see below for example)*

| 6                  | - | 4                  | MHN             | - | SS            | - | CRN        |
|--------------------|---|--------------------|-----------------|---|---------------|---|------------|
| 1st END            |   | 2nd END            | Fitting Type    |   | Body Material |   | Option     |
| 3/8" NPT Male Pipe |   | 1/4" NPT Male Pipe | Male Hex Nipple |   | 316 SS        |   | See Below* |

Parker Instrument Pipe Fittings are ordered by part number as listed in this catalog.

**Size:** Pipe thread sizes are designated by the number of sixteenths of an inch. (3/8 NPT pipe = 6/16 = 6)

**Thread Type:** All pipe threads are National Pipe Taper (NPT) unless otherwise designated.

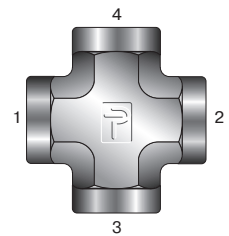
**Straights and Elbows:** Call out the largest pipe end first followed by the smaller pipe size. See MHN example on page 14.

**Tees and Crosses:** For tees that are the same pipe sizes on all ends the size designation is shown below:

**Example:** 6-6-6 FT-B would be a 3/8" NPT Female Tee in brass.

**Example:** 4 FX-SS would be a 1/4" NPT Female Cross in 316 SS.

If a reducing tee or cross were specified, each size must be in sequence. First size the largest run (1 to 2) and then the branch (3 to 4).



**Example:** 6-6-6-4 FX-SS

**Material:** Basic Material Type (**B** = Brass, **SS** = 316 Stainless Steel, **S** = Steel)

**Special Fittings:** If there is any question as to the fitting desired, particularly for special fitting configurations, it is suggested that a customer print be submitted with the fitting request for quote.

**Availability:** Items priced in current Price List 4260 are carried in stock. Price and delivery for non-standard items quoted on request through the quick response department.

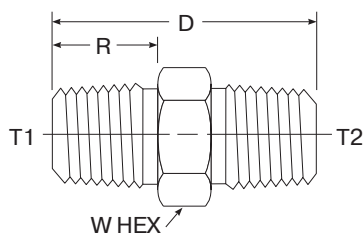
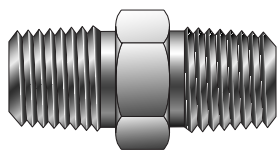
**\*OPTIONS:**

**CRN** If a Canadian Registration Number (**CRN**) is required, the **-CRN** suffix must be added to the part number suffix

**10K** High Pressure **10k** Pipe Fittings

**MHN**

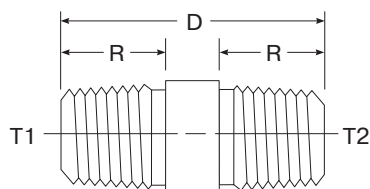
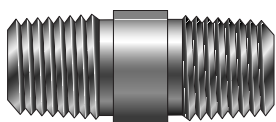
## Male Hex Nipple



| Parker Part No. | NPT Thread Male |       | W Hex | D (in) | R (in)  | Working Pressure (psig) |                 |       |
|-----------------|-----------------|-------|-------|--------|---------|-------------------------|-----------------|-------|
|                 | T1              | T2    |       |        |         | Brass                   | Stainless Steel | Steel |
| 1-1 MHN         | 1/16            | 1/16  | 7/16  | 1.06   | .38     | 6000                    | 10000           | 10500 |
| 2-1 MHN         | 1/8             | 1/16  | 7/16  | 1.06   | .38     | 5600                    | 9100            | 9700  |
| 2-2 MHN         | 1/8             | 1/8   | 7/16  | 1.06   | .38     | 5600                    | 9100            | 9700  |
| 4-1 MHN         | 1/4             | 1/16  | 5/8   | 1.25   | .56/.38 | 4100                    | 7500            | 8000  |
| 4-2 MHN         | 1/4             | 1/8   | 5/8   | 1.25   | .56/.38 | 4100                    | 7500            | 8000  |
| 4-4 MHN         | 1/4             | 1/4   | 5/8   | 1.45   | .56     | 4100                    | 7500            | 8000  |
| 6-1 MHN         | 3/8             | 1/16  | 3/4   | 1.27   | .56/.38 | 4000                    | 7200            | 7600  |
| 6-2 MHN         | 3/8             | 1/8   | 3/4   | 1.27   | .56/.38 | 4000                    | 7200            | 7600  |
| 6-4 MHN         | 3/8             | 1/4   | 3/4   | 1.45   | .56     | 4000                    | 7200            | 7600  |
| 6-6 MHN         | 3/8             | 3/8   | 3/4   | 1.45   | .56     | 4000                    | 7200            | 7600  |
| 8-2 MHN         | 1/2             | 1/8   | 7/8   | 1.52   | .75/.38 | 3900                    | 6600            | 7000  |
| 8-4 MHN         | 1/2             | 1/4   | 7/8   | 1.70   | .75/.56 | 3900                    | 6600            | 7000  |
| 8-6 MHN         | 1/2             | 3/8   | 7/8   | 1.70   | .75/.56 | 3900                    | 6600            | 7000  |
| 8-8 MHN         | 1/2             | 1/2   | 7/8   | 1.89   | .75     | 3900                    | 6600            | 7000  |
| 12-2 MHN        | 3/4             | 1/8   | 1-1/8 | 1.59   | .75/.38 | 3800                    | 6400            | 6800  |
| 12-4 MHN        | 3/4             | 1/4   | 1-1/8 | 1.78   | .75/.56 | 3800                    | 6400            | 6800  |
| 12-6 MHN        | 3/4             | 3/8   | 1-1/8 | 1.78   | .75/.56 | 3800                    | 6400            | 6800  |
| 12-8 MHN        | 3/4             | 1/2   | 1-1/8 | 1.97   | .75     | 3800                    | 6400            | 6800  |
| 12-12 MHN       | 3/4             | 3/4   | 1-1/8 | 1.97   | .75     | 3800                    | 6400            | 6800  |
| 16-2 MHN        | 1               | 1/8   | 1-3/8 | 1.78   | .94/.38 | 2700                    | 4600            | 4900  |
| 16-4 MHN        | 1               | 1/4   | 1-3/8 | 1.97   | .94/.56 | 2700                    | 4600            | 4900  |
| 16-6 MHN        | 1               | 3/8   | 1-3/8 | 1.97   | .94/.56 | 2700                    | 4600            | 4900  |
| 16-8 MHN        | 1               | 1/2   | 1-3/8 | 2.16   | .94/.75 | 2700                    | 4600            | 4900  |
| 16-12 MHN       | 1               | 3/4   | 1-3/8 | 2.09   | .94/.75 | 2700                    | 4600            | 4900  |
| 16-16 MHN       | 1               | 1     | 1-3/8 | 2.34   | .94     | 2700                    | 4600            | 4900  |
| 20-16 MHN       | 1-1/4           | 1     | 1-3/4 | 2.45   | .97/.94 | 2000                    | 3500            | 3700  |
| 20-20 MHN       | 1-1/4           | 1-1/4 | 1-3/4 | 2.48   | .97     | 2000                    | 3500            | 3700  |
| 24-24 MHN       | 1-1/2           | 1-1/2 | 2     | 2.61   | 1.00    | 1800                    | 2900            | 3100  |

**MCN**

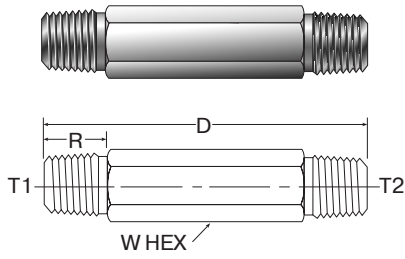
## Male Close Nipple



| Parker Part No. | NPT Thread Male | D (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|--------|--------|-------------------------|-----------------|-------|
|                 |                 |        |        | Brass                   | Stainless Steel | Steel |
| 1-1 MCN         | 1/16            | .75    | .34    | 6000                    | 10000           | 10500 |
| 2-2 MCN         | 1/8             | .75    | .34    | 5600                    | 9100            | 9700  |
| 4-4 MCN         | 1/4             | 1.13   | .49    | 4100                    | 7500            | 8000  |
| 6-6 MCN         | 3/8             | 1.13   | .48    | 4000                    | 7200            | 7600  |
| 8-8 MCN         | 1/2             | 1.50   | .66    | 3900                    | 6600            | 7000  |
| 12-12 MCN       | 3/4             | 1.50   | .66    | 3800                    | 6400            | 6800  |
| 16-16 MCN       | 1               | 1.88   | .84    | 2700                    | 4600            | 4900  |

**MHLN**

Male Hex Long Nipple



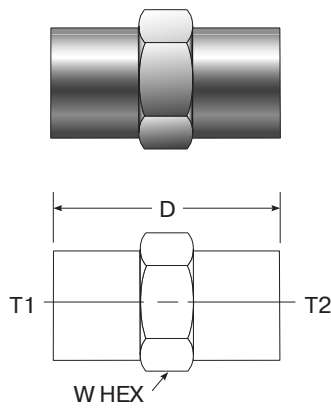
| Parker Part No. | NPT Thread Male |      | W Hex | D (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|------|-------|--------|--------|-------------------------|-----------------|-------|
|                 | T1              | T2   |       |        |        | Brass                   | Stainless Steel | Steel |
|                 | 1-1 MHLN-# †    | 1/16 |       |        |        |                         |                 |       |
| 2-2 MHLN-# †    | 1/8             | 1/8  | 7/16  | *      | .38    | 5600                    | 9100            | 9700  |
| 2-2 MHLN-# 1.5  | 1/8             | 1/8  | 7/16  | 1.50   | .38    | 5600                    | 9100            | 9700  |
| 2-2 MHLN-# 2.0  | 1/8             | 1/8  | 7/16  | 2.00   | .38    | 5600                    | 9100            | 9700  |
| 2-2 MHLN-# 2.5  | 1/8             | 1/8  | 7/16  | 2.50   | .38    | 5600                    | 9100            | 9700  |
| 4-4 MHLN-# †    | 1/4             | 1/4  | 5/8   | *      | .56    | 4100                    | 7500            | 8000  |
| 4-4 MHLN-# 2.0  | 1/4             | 1/4  | 5/8   | 2.00   | .56    | 4100                    | 7500            | 8000  |
| 4-4 MHLN-# 2.5  | 1/4             | 1/4  | 5/8   | 2.50   | .56    | 4100                    | 7500            | 8000  |
| 4-4 MHLN-# 3.0  | 1/4             | 1/4  | 5/8   | 3.00   | .56    | 4100                    | 7500            | 8000  |
| 4-4 MHLN-# 4.0  | 1/4             | 1/4  | 5/8   | 4.00   | .56    | 4100                    | 7500            | 8000  |
| 6-6 MHLN-# †    | 3/8             | 3/8  | 3/4   | *      | .56    | 4000                    | 7200            | 7600  |
| 8-8 MHLN-# †    | 1/2             | 1/2  | 7/8   | *      | .75    | 3900                    | 6600            | 7000  |
| 8-8 MHLN-# 2.0  | 1/2             | 1/2  | 7/8   | 2.00   | .75    | 3900                    | 6600            | 7000  |
| 8-8 MHLN-# 3.0  | 1/2             | 1/2  | 7/8   | 3.00   | .75    | 3900                    | 6600            | 7000  |

# Insert material designator  
 † Specify Length in 0.5 inch increments

\*Part Number Example: 8-8 MHLN-SS 3.0

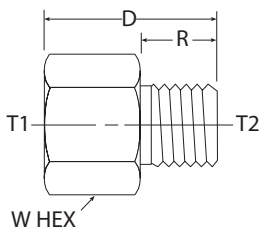
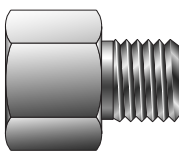
**FHC**

Female Hex Coupling



| Parker Part No. | NPT Thread Male |       | W Hex | D (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|-------|-------|--------|-------------------------|-----------------|-------|
|                 | T1              | T2    |       |        | Brass                   | Stainless Steel | Steel |
|                 | 1-1 FHC         | 1/16  |       |        |                         |                 |       |
| 2-1 FHC         | 1/8             | 1/16  | 5/8   | .75    | 4000                    | 6400            | 6800  |
| 2-2 FHC         | 1/8             | 1/8   | 5/8   | .75    | 4000                    | 6400            | 6800  |
| 4-1 FHC         | 1/4             | 1/16  | 3/4   | .92    | 4300                    | 6600            | 7000  |
| 4-2 FHC         | 1/4             | 1/8   | 3/4   | .94    | 4300                    | 6600            | 7000  |
| 4-4 FHC         | 1/4             | 1/4   | 3/4   | 1.13   | 4300                    | 6600            | 7000  |
| 6-1 FHC         | 3/8             | 1/16  | 7/8   | .95    | 3500                    | 5300            | 5600  |
| 6-2 FHC         | 3/8             | 1/8   | 7/8   | 1.03   | 3500                    | 5300            | 5600  |
| 6-4 FHC         | 3/8             | 1/4   | 7/8   | 1.13   | 3500                    | 5300            | 5600  |
| 6-6 FHC         | 3/8             | 3/8   | 7/8   | 1.13   | 3500                    | 5300            | 5600  |
| 8-2 FHC         | 1/2             | 1/8   | 1-1/8 | 1.22   | 3600                    | 5200            | 5500  |
| 8-4 FHC         | 1/2             | 1/4   | 1-1/8 | 1.38   | 3600                    | 5200            | 5500  |
| 8-6 FHC         | 1/2             | 3/8   | 1-1/8 | 1.50   | 3600                    | 5200            | 5500  |
| 8-8 FHC         | 1/2             | 1/2   | 1-1/8 | 1.50   | 3600                    | 5200            | 5500  |
| 12-2 FHC        | 3/4             | 1/8   | 1-3/8 | 1.39   | 3000                    | 4300            | 4600  |
| 12-4 FHC        | 3/4             | 1/4   | 1-3/8 | 1.55   | 3000                    | 4300            | 4600  |
| 12-6 FHC        | 3/4             | 3/8   | 1-3/8 | 1.69   | 3000                    | 4300            | 4600  |
| 12-8 FHC        | 3/4             | 1/2   | 1-3/8 | 1.88   | 3000                    | 4300            | 4600  |
| 12-12 FHC       | 3/4             | 3/4   | 1-3/8 | 1.53   | 3000                    | 4300            | 4600  |
| 16-2 FHC        | 1               | 1/8   | 1-5/8 | 1.44   | 3100                    | 4500            | 4800  |
| 16-4 FHC        | 1               | 1/4   | 1-5/8 | 1.63   | 3100                    | 4500            | 4800  |
| 16-6 FHC        | 1               | 3/8   | 1-5/8 | 1.63   | 3100                    | 4500            | 4800  |
| 16-8 FHC        | 1               | 1/2   | 1-5/8 | 1.77   | 3100                    | 4500            | 4800  |
| 16-12 FHC       | 1               | 3/4   | 1-5/8 | 1.72   | 3100                    | 4500            | 4800  |
| 16-16 FHC       | 1               | 1     | 1-5/8 | 1.89   | 3100                    | 4500            | 4800  |
| 20-16 FHC       | 1-1/4           | 1     | 2     | 1.94   | 2300                    | 3500            | 3700  |
| 20-20 FHC       | 1-1/4           | 1-1/4 | 2     | 1.94   | 2300                    | 3500            | 3700  |
| 24-24 FHC       | 1-1/2           | 1-1/2 | 2-3/8 | 1.94   | 2100                    | 3200            | 3400  |

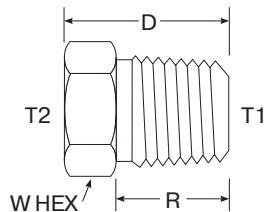
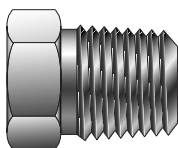
**RA**  
Adapter



Instrument Pipe Fittings

| Parker Part No. | NPT Thread Male |         | W Hex | D (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|---------|-------|--------|--------|-------------------------|-----------------|-------|
|                 | Female T1       | Male T2 |       |        |        | Brass                   | Stainless Steel | Steel |
|                 | 2-1 RA          | 1/8     |       |        |        |                         |                 |       |
| 2-2 RA          | 1/8             | 1/8     | 5/8   | 1.03   | .38    | 4000                    | 6400            | 6800  |
| 4-1 RA          | 1/4             | 1/16    | 3/4   | 1.20   | .38    | 4300                    | 6600            | 7000  |
| 4-2 RA          | 1/4             | 1/8     | 3/4   | 1.20   | .38    | 4300                    | 6600            | 7000  |
| 4-4 RA          | 1/4             | 1/4     | 3/4   | 1.39   | .56    | 4300                    | 6600            | 7000  |
| 6-1 RA          | 3/8             | 1/16    | 7/8   | 1.25   | .38    | 3500                    | 5300            | 5600  |
| 6-2 RA          | 3/8             | 1/8     | 7/8   | 1.25   | .38    | 3500                    | 5300            | 5600  |
| 6-4 RA          | 3/8             | 1/4     | 7/8   | 1.44   | .56    | 3500                    | 5300            | 5600  |
| 6-6 RA          | 3/8             | 3/8     | 7/8   | 1.44   | .56    | 3500                    | 5300            | 5600  |
| 8-2 RA          | 1/2             | 1/8     | 1-1/8 | 1.50   | .38    | 3600                    | 5200            | 5500  |
| 8-4 RA          | 1/2             | 1/4     | 1-1/8 | 1.69   | .56    | 3600                    | 5200            | 5500  |
| 8-6 RA          | 1/2             | 3/8     | 1-1/8 | 1.69   | .56    | 3600                    | 5200            | 5500  |
| 8-8 RA          | 1/2             | 1/2     | 1-1/8 | 1.88   | .75    | 3600                    | 5200            | 5500  |
| 12-2 RA         | 3/4             | 1/8     | 1-3/8 | 1.56   | .38    | 3000                    | 4300            | 4600  |
| 12-4 RA         | 3/4             | 1/4     | 1-3/8 | 1.75   | .56    | 3000                    | 4300            | 4600  |
| 12-6 RA         | 3/4             | 3/8     | 1-3/8 | 1.75   | .56    | 3000                    | 4300            | 4600  |
| 12-8 RA         | 3/4             | 1/2     | 1-3/8 | 1.94   | .75    | 3000                    | 4300            | 4600  |
| 16-2 RA         | 1               | 1/8     | 1-5/8 | 1.81   | .38    | 3100                    | 4500            | 4800  |
| 16-4 RA         | 1               | 1/4     | 1-5/8 | 2.00   | .56    | 3100                    | 4500            | 4800  |
| 16-6 RA         | 1               | 3/8     | 1-5/8 | 2.00   | .56    | 3100                    | 4500            | 4800  |
| 16-8 RA         | 1               | 1/2     | 1-5/8 | 2.19   | .75    | 3100                    | 4500            | 4800  |
| 16-12 RA        | 1               | 3/4     | 1-5/8 | 2.19   | .75    | 3100                    | 4500            | 4800  |
| 16-16 RA        | 1               | 1       | 1-5/8 | 2.38   | .94    | 2700                    | 4500            | 4800  |
| 20-16 RA        | 1-1/4           | 1       | 2     | 2.47   | .94    | 2300                    | 3500            | 3700  |

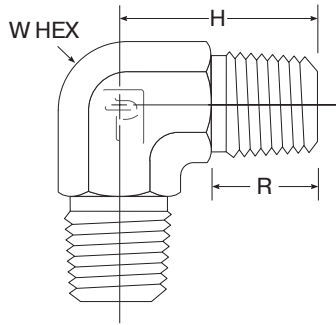
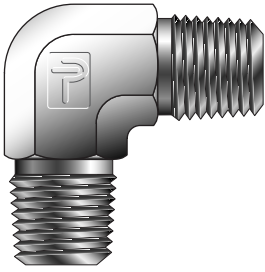
**RB**  
Reducing Bushing



| Parker Part No. | NPT Thread Male |           | W Hex | D (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|-----------|-------|--------|--------|-------------------------|-----------------|-------|
|                 | Male T1         | Female T2 |       |        |        | Brass                   | Stainless Steel | Steel |
|                 | 2-1 RB          | 1/8       |       |        |        |                         |                 |       |
| 4-1 RB          | 1/4             | 1/16      | 5/8   | .86    | .56    | 4100                    | 7500            | 8000  |
| 4-2 RB          | 1/4             | 1/8       | 5/8   | .86    | .56    | 3600                    | 6000            | 6400  |
| 6-1 RB          | 3/8             | 1/16      | 3/4   | .86    | .56    | 4000                    | 7200            | 7600  |
| 6-2 RB          | 3/8             | 1/8       | 3/4   | .86    | .56    | 4000                    | 6400            | 6800  |
| 6-4 RB          | 3/8             | 1/4       | 3/4   | .86    | .56    | 3000                    | 5300            | 5600  |
| 8-2 RB          | 1/2             | 1/8       | 7/8   | 1.11   | .75    | 3900                    | 6600            | 6800  |
| 8-4 RB          | 1/2             | 1/4       | 7/8   | 1.11   | .75    | 3900                    | 6400            | 7000  |
| 8-6 RB          | 1/2             | 3/8       | 7/8   | 1.11   | .75    | 2800                    | 4600            | 4900  |
| 12-2 RB         | 3/4             | 1/8       | 1-1/8 | 1.17   | .75    | 3800                    | 6400            | 6800  |
| 12-4 RB         | 3/4             | 1/4       | 1-1/8 | 1.17   | .75    | 3800                    | 6400            | 6800  |
| 12-6 RB         | 3/4             | 3/8       | 1-1/8 | 1.17   | .75    | 3500                    | 5300            | 5600  |
| 12-8 RB         | 3/4             | 1/2       | 1-1/8 | 1.17   | .75    | 2800                    | 4900            | 5200  |
| 16-2 RB         | 1               | 1/8       | 1-3/8 | 1.36   | .94    | 2700                    | 4600            | 4900  |
| 16-4 RB         | 1               | 1/4       | 1-3/8 | 1.36   | .94    | 2700                    | 4600            | 4900  |
| 16-6 RB         | 1               | 3/8       | 1-3/8 | 1.36   | .94    | 2700                    | 4600            | 4900  |
| 16-8 RB         | 1               | 1/2       | 1-3/8 | 1.36   | .94    | 2700                    | 4600            | 4900  |
| 16-12 RB        | 1               | 3/4       | 1-3/8 | 1.36   | .94    | 2500                    | 4200            | 4500  |
| 20-12 RB        | 1-1/4           | 3/4       | 1-3/4 | 1.47   | .97    | 2000                    | 3500            | 3700  |
| 20-16 RB        | 1-1/4           | 1         | 1-3/4 | 1.47   | .97    | 2000                    | 3500            | 3700  |
| 24-16 RB        | 1-1/2           | 1         | 2     | 1.58   | 1.00   | 1800                    | 2900            | 3100  |
| 24-20 RB        | 1-1/2           | 1-1/4     | 2     | 1.58   | 1.00   | 1700                    | 2700            | 2800  |

**ME**

Male Elbow

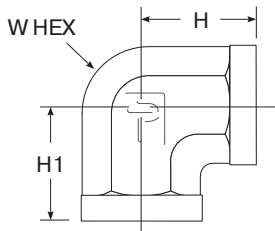
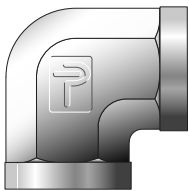


| Parker Part No. | NPT Thread Male | W Hex  | H (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|--------|--------|--------|-------------------------|-----------------|-------|
|                 |                 |        |        |        | Brass                   | Stainless Steel | Steel |
| 1-1 ME          | 1/16            | 3/8    | .66    | .38    | 5500                    | 9500            | 10100 |
| 2-2 ME          | 1/8             | 7/16   | .76    | .38    | 5000                    | 9100            | 9700  |
| 4-4 ME          | 1/4             | 9/16   | 1.09   | .56    | 4100                    | 7500            | 8000  |
| 6-6 ME          | 3/8             | 3/4    | 1.22   | .56    | 4000                    | 7200            | 7600  |
| 8-8 ME          | 1/2             | 7/8    | 1.47   | .75    | 3100                    | 5800            | 6200  |
| 12-12 ME        | 3/4             | 1-1/16 | 1.59   | .75    | 3400                    | 6400            | 6800  |
| 16-16 ME        | 1               | 1-5/16 | 1.97   | .94    | 2700                    | 4600            | 4900  |

Instrument Pipe Fittings

**FE**

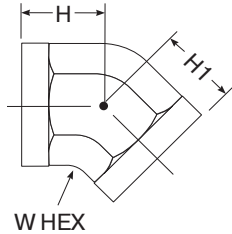
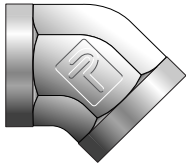
Female Elbow



| Parker Part No. | NPT Thread Male | W Hex  | H (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|--------|--------|--------|-------------------------|-----------------|-------|
|                 |                 |        |        |        | Brass                   | Stainless Steel | Steel |
| 1-1 FE          | 1/16            | 7/16   | .50    | .50    | 3800                    | 7000            | 7500  |
| 2-1 FE          | 1/8 - 1/16      | 9/16   | .66    | .66    | 2900                    | 5500            | 5900  |
| 2-2 FE          | 1/8             | 9/16   | .66    | .66    | 2900                    | 5500            | 5900  |
| 4-2 FE          | 1/4 - 1/8       | 3/4    | .88    | .88    | 2900                    | 5500            | 5900  |
| 4-4 FE          | 1/4             | 3/4    | .88    | .88    | 3000                    | 5600            | 6000  |
| 6-6 FE          | 3/8             | 7/8    | 1.02   | 1.02   | 2700                    | 5000            | 5300  |
| 8-8 FE          | 1/2             | 1-1/16 | 1.23   | 1.23   | 2500                    | 4500            | 4800  |
| 12-12 FE        | 3/4             | 1-5/16 | 1.36   | 1.36   | 2000                    | 3500            | 3700  |
| 16-16 FE        | 1               | 1-5/8  | 1.63   | 1.63   | 2300                    | 3900            | 4200  |
| 20-20 FE        | 1-1/4           | 1-7/8  | 1.70   | 1.70   | 1900                    | 3100            | 3300  |
| 24-24 FE        | 1-1/2           | 2-1/2  | 2.08   | 2.08   | 1700                    | 2500            | 2600  |

**FVE**

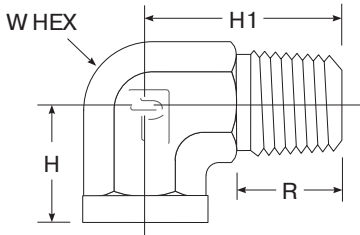
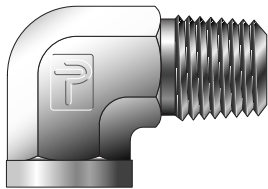
Female Elbow 45°



| Parker Part No. | NPT Thread Male | W Hex  | H (in) | H1 (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|--------|--------|---------|-------------------------|-----------------|-------|
|                 |                 |        |        |         | Brass                   | Stainless Steel | Steel |
| 1-1 FVE         | 1/16            | 7/16   | .47    | .47     | 3800                    | 7000            | 7500  |
| 2-2 FVE         | 1/8             | 9/16   | .47    | .47     | 2900                    | 5500            | 5900  |
| 4-4 FVE         | 1/4             | 3/4    | .69    | .69     | 3000                    | 5600            | 6000  |
| 6-6 FVE         | 3/8             | 7/8    | .75    | .75     | 2700                    | 5000            | 5300  |
| 8-8 FVE         | 1/2             | 1-1/16 | .94    | .94     | 2500                    | 4500            | 4800  |
| 12-12 FVE       | 3/4             | 1-5/16 | 1.00   | 1.00    | 2000                    | 3500            | 3700  |
| 16-16 FVE       | 1               | 1-5/8  | 1.19   | 1.19    | 2300                    | 3900            | 4200  |

**SE**

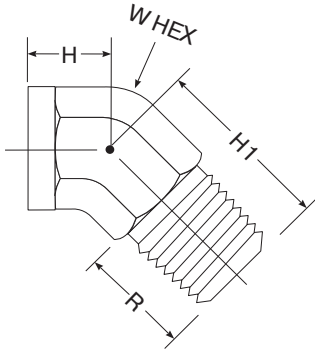
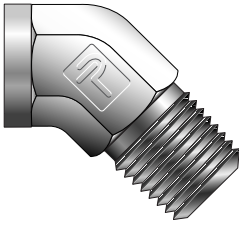
Street Elbow



| Parker Part No. | NPT Thread |        | W Hex  | H (in) | H1 (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|--------|---------|--------|-------------------------|-----------------|-------|
|                 | Male       | Female |        |        |         |        | Brass                   | Stainless Steel | Steel |
| 1-1 SE          | 1/16       | 1/16   | 9/16   | .66    | .72     | .38    | 3800                    | 7000            | 7500  |
| 2-1 SE          | 1/8        | 1/16   | 9/16   | .66    | .78     | .38    | 3800                    | 7000            | 7500  |
| 2-2 SE          | 1/8        | 1/8    | 9/16   | .66    | .78     | .38    | 2900                    | 5500            | 5900  |
| 4-1 SE          | 1/4        | 1/16   | 9/16   | .66    | 1.09    | .56    | 3800                    | 7000            | 7500  |
| 4-2 SE          | 1/4        | 1/8    | 9/16   | .66    | 1.09    | .56    | 2900                    | 5500            | 5900  |
| 4-4 SE          | 1/4        | 1/4    | 3/4    | .88    | 1.09    | .56    | 3000                    | 5600            | 6000  |
| 6-1 SE          | 3/8        | 1/16   | 3/4    | .88    | 1.09    | .56    | 3800                    | 7000            | 7500  |
| 6-2 SE          | 3/8        | 1/8    | 3/4    | .88    | 1.22    | .58    | 2900                    | 5500            | 5900  |
| 6-4 SE          | 3/8        | 1/4    | 3/4    | .88    | 1.22    | .56    | 3000                    | 5600            | 6000  |
| 6-6 SE          | 3/8        | 3/8    | 7/8    | 1.02   | 1.22    | .56    | 2700                    | 5000            | 5300  |
| 8-2 SE          | 1/2        | 1/8    | 7/8    | .95    | 1.47    | .75    | 2900                    | 5500            | 5900  |
| 8-4 SE          | 1/2        | 1/4    | 7/8    | .95    | 1.47    | .75    | 3000                    | 5600            | 6000  |
| 8-6 SE          | 1/2        | 3/8    | 7/8    | 1.23   | 1.47    | .75    | 2700                    | 5000            | 5300  |
| 8-8 SE          | 1/2        | 1/2    | 1-1/16 | 1.23   | 1.47    | .75    | 2500                    | 4500            | 4800  |
| 12-2 SE         | 3/4        | 1/8    | 1-1/16 | 1.00   | 1.59    | .75    | 2900                    | 5500            | 5900  |
| 12-4 SE         | 3/4        | 1/4    | 1-1/16 | 1.00   | 1.59    | .75    | 3000                    | 5600            | 6000  |
| 12-6 SE         | 3/4        | 3/8    | 1-1/16 | 1.23   | 1.59    | .75    | 2700                    | 5000            | 5300  |
| 12-8 SE         | 3/4        | 1/2    | 1-1/16 | 1.23   | 1.59    | .75    | 2500                    | 4500            | 4800  |
| 12-12 SE        | 3/4        | 3/4    | 1-5/16 | 1.36   | 1.59    | .75    | 2000                    | 3500            | 3700  |
| 16-2 SE         | 1          | 1/8    | 1-5/16 | 1.63   | 1.97    | .94    | 2700                    | 5500            | 5900  |
| 16-4 SE         | 1          | 1/4    | 1-5/16 | 1.63   | 1.97    | .94    | 2700                    | 5600            | 6000  |
| 16-6 SE         | 1          | 3/8    | 1-5/16 | 1.50   | 1.97    | .94    | 2700                    | 5000            | 5300  |
| 16-8 SE         | 1          | 1/2    | 1-5/16 | 1.63   | 1.97    | .94    | 2500                    | 4500            | 4800  |
| 16-12 SE        | 1          | 3/4    | 1-5/16 | 1.36   | 1.97    | .94    | 2000                    | 3500            | 3700  |
| 16-16 SE        | 1          | 1      | 1-5/8  | 1.63   | 1.97    | .94    | 2300                    | 3900            | 4200  |
| 20-20 SE        | 1-1/4      | 1-1/4  | 1-7/8  | 1.70   | 2.38    | .97    | 1900                    | 3100            | 3300  |

**SVE**

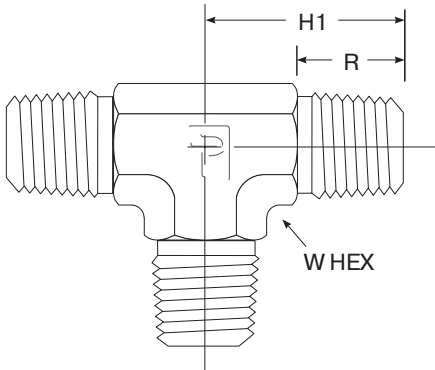
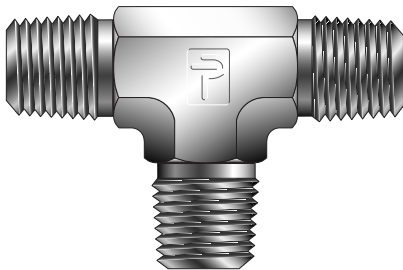
Street Elbow 45°



| Parker Part No. | NPT Thread |        | W Hex  | H (in) | H1 (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|--------|---------|--------|-------------------------|-----------------|-------|
|                 | Male       | Female |        |        |         |        | Brass                   | Stainless Steel | Steel |
| 1-1 SVE         | 1/16       | 1/16   | 7/16   | .47    | .66     | .38    | 3800                    | 7000            | 7500  |
| 2-2 SVE         | 1/8        | 1/8    | 9/16   | .47    | .72     | .38    | 2900                    | 5500            | 5900  |
| 4-4 SVE         | 1/4        | 1/4    | 3/4    | .63    | 1.05    | .56    | 3000                    | 5600            | 6000  |
| 6-6 SVE         | 3/8        | 3/8    | 7/8    | .72    | 1.06    | .56    | 2700                    | 5000            | 5300  |
| 8-8 SVE         | 1/2        | 1/2    | 1-1/16 | .91    | 1.34    | .75    | 2500                    | 4500            | 4800  |
| 12-12 SVE       | 3/4        | 3/4    | 1-5/16 | .97    | 1.38    | .75    | 2000                    | 3500            | 3700  |
| 16-16 SVE       | 1          | 1      | 1-5/8  | 1.13   | 1.72    | .94    | 2300                    | 3900            | 4200  |

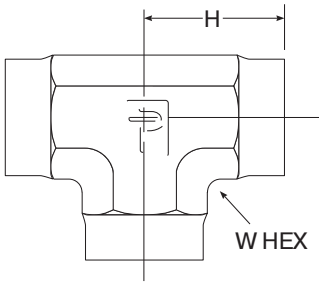
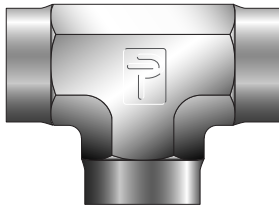
**MT**

Male Tee



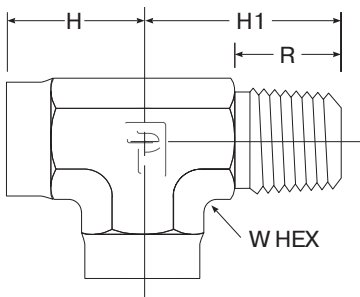
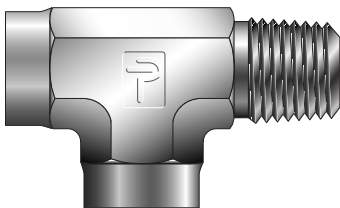
| Parker Part No. | NPT Thread Male | W Hex  | H (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|--------|--------|--------|-------------------------|-----------------|-------|
|                 |                 |        |        |        | Brass                   | Stainless Steel | Steel |
| 1-1-1 MT        | 1/16            | 5/16   | .72    | .38    | 5500                    | 9500            | 10100 |
| 2-2-2 MT        | 1/8             | 7/16   | .76    | .38    | 5000                    | 9100            | 9700  |
| 4-4-4 MT        | 1/4             | 9/16   | 1.09   | .56    | 4100                    | 7500            | 8000  |
| 6-6-6 MT        | 3/8             | 3/4    | 1.22   | .56    | 4000                    | 7200            | 7600  |
| 8-8-8 MT        | 1/2             | 7/8    | 1.47   | .75    | 3100                    | 5800            | 6200  |
| 12-12-12 MT     | 3/4             | 1-1/16 | 1.59   | .75    | 3400                    | 6400            | 6800  |
| 16-16-16 MT     | 1               | 1-5/16 | 1.97   | .94    | 2700                    | 4600            | 4900  |
| 20-20-20 MT     | 1-1/4           | 1-5/8  | 2.22   | .97    | 2000                    | 3500            | 3700  |
| 24-24-24 MT     | 1-1/2           | 1-7/8  | 2.64   | 1.00   | 1800                    | 2900            | 3100  |

**FT**  
Female Tee



| Parker Part No. | NPT Thread Male | W Hex  | H (in) | Working Pressure (psig) |                 |       |
|-----------------|-----------------|--------|--------|-------------------------|-----------------|-------|
|                 |                 |        |        | Brass                   | Stainless Steel | Steel |
| 1-1-1 FT        | 1/16            | 7/16   | .50    | 3800                    | 7000            | 7500  |
| 2-2-2 FT        | 1/8             | 9/16   | .66    | 2900                    | 5500            | 5900  |
| 4-4-4 FT        | 1/4             | 3/4    | .88    | 3000                    | 5600            | 6000  |
| 6-6-6 FT        | 3/8             | 7/8    | 1.02   | 2700                    | 5000            | 5300  |
| 8-8-8 FT        | 1/2             | 1-1/16 | 1.23   | 2500                    | 4500            | 4800  |
| 12-12-12 FT     | 3/4             | 1-5/16 | 1.36   | 2000                    | 3500            | 3700  |
| 16-16-16 FT     | 1               | 1-5/8  | 1.63   | 2300                    | 3900            | 4200  |
| 20-20-20 FT     | 1-1/4           | 1-7/8  | 1.70   | 1900                    | 3100            | 3300  |
| 24-24-24 FT     | 1-1/2           | 2-1/2  | 2.08   | 1700                    | 2500            | 3600  |

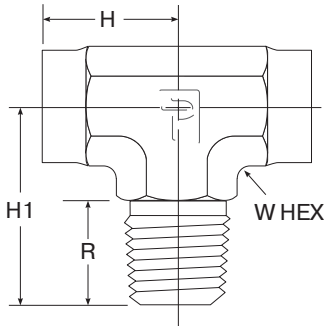
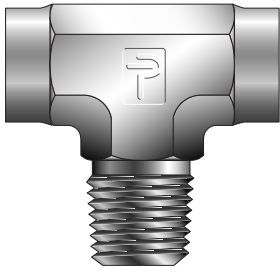
**ST**  
Street Tee



| Parker Part No. | NPT Thread |        | W Hex  | H (in) | H1 (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|--------|---------|--------|-------------------------|-----------------|-------|
|                 | Male       | Female |        |        |         |        | Brass                   | Stainless Steel | Steel |
| 1-1-1 ST        | 1/16       | 1/16   | 7/16   | .50    | .72     | .38    | 3800                    | 7000            | 7500  |
| 2-2-2 ST        | 1/8        | 1/8    | 9/16   | .66    | .78     | .38    | 2900                    | 5500            | 5900  |
| 4-4-4 ST        | 1/4        | 1/4    | 3/4    | .88    | 1.09    | .56    | 3000                    | 5600            | 6000  |
| 6-6-6 ST        | 3/8        | 3/8    | 7/8    | 1.02   | 1.22    | .56    | 2700                    | 5000            | 5300  |
| 8-8-8 ST        | 1/2        | 1/2    | 1-1/16 | 1.23   | 1.47    | .75    | 2500                    | 4500            | 4800  |
| 12-12-12 ST     | 3/4        | 3/4    | 1-5/16 | 1.36   | 1.59    | .75    | 2000                    | 3500            | 3700  |
| 16-16-16 ST     | 1          | 1      | 1-5/8  | 1.63   | 1.97    | .94    | 2300                    | 3900            | 4200  |

### MBT

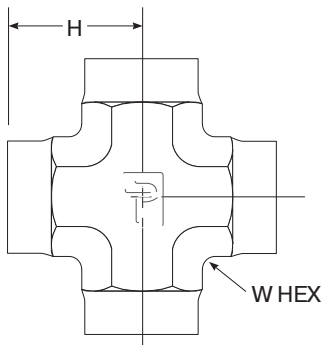
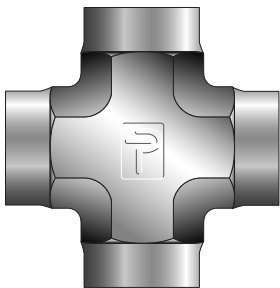
Male Branch Tee



| Parker Part No. | NPT Thread |        | W Hex  | H (in) | H1 (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|--------|---------|--------|-------------------------|-----------------|-------|
|                 | Male       | Female |        |        |         |        | Brass                   | Stainless Steel | Steel |
| 1-1-1 MBT       | 1/16       | 1/16   | 7/16   | .50    | .72     | .38    | 3800                    | 7000            | 7500  |
| 2-2-2 MBT       | 1/8        | 1/8    | 9/16   | .66    | .78     | .38    | 2900                    | 5500            | 5900  |
| 4-4-4 MBT       | 1/4        | 1/4    | 3/4    | .88    | 1.09    | .56    | 3000                    | 5600            | 6000  |
| 6-6-6 MBT       | 3/8        | 3/8    | 7/8    | 1.02   | 1.22    | .56    | 2700                    | 5000            | 5300  |
| 8-8-8 MBT       | 1/2        | 1/2    | 1-1/16 | 1.23   | 1.47    | .75    | 2500                    | 4500            | 4800  |
| 12-12-12 MBT    | 3/4        | 3/4    | 1-5/16 | 1.36   | 1.59    | .75    | 2000                    | 3500            | 3700  |
| 16-16-16 MBT    | 1          | 1      | 1-5/8  | 1.63   | 1.97    | .94    | 2300                    | 3900            | 4200  |

### FX

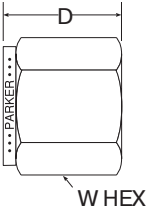
Female Cross



| Parker Part No. | NPT Thread | W Hex  | H (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|-------------------------|-----------------|-------|
|                 | Female     |        |        | Brass                   | Stainless Steel | Steel |
| 1 FX            | 1/16       | 7/16   | .50    | 3800                    | 7000            | 7500  |
| 2 FX            | 1/8        | 9/16   | .66    | 2900                    | 5500            | 5900  |
| 4 FX            | 1/4        | 3/4    | .88    | 3000                    | 5600            | 6000  |
| 6 FX            | 3/8        | 7/8    | 1.06   | 2700                    | 5000            | 5300  |
| 8 FX            | 1/2        | 1-1/16 | 1.23   | 2500                    | 4500            | 4800  |
| 12 FX           | 3/4        | 1-5/16 | 1.36   | 2000                    | 3500            | 3700  |
| 16 FX           | 1          | 1-5/8  | 1.63   | 2300                    | 3900            | 4200  |

**CP**

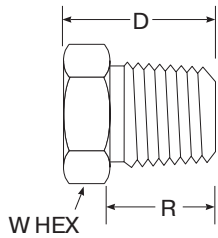
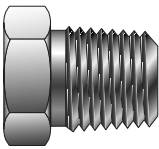
## Pipe Cap



| Parker Part No. | NPT Thread | W Hex  | D (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|-------------------------|-----------------|-------|
|                 | Female     |        |        | Brass                   | Stainless Steel | Steel |
| 1 CP            | 1/16       | 7/16   | .50    | 4500                    | 7500            | 8000  |
| 2 CP            | 1/8        | 9/16   | .75    | 4000                    | 6400            | 6800  |
| 4 CP            | 1/4        | 3/4    | .91    | 4300                    | 6600            | 7000  |
| 6 CP            | 3/8        | 7/8    | 1.03   | 3500                    | 5300            | 5600  |
| 8 CP            | 1/2        | 1-1/16 | 1.34   | 3600                    | 5200            | 5500  |
| 12 CP           | 3/4        | 1-1/4  | 1.44   | 3000                    | 4300            | 4600  |
| 16 CP           | 1          | 1-5/8  | 1.63   | 3100                    | 4500            | 4800  |

**PH**

## Hex Head Plug

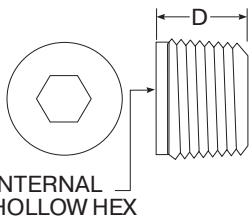
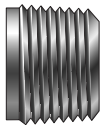


| Parker Part No. | NPT Thread | W Hex  | D (in) | R (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|--------|--------|--------|-------------------------|-----------------|-------|
|                 | Male       |        |        |        | Brass                   | Stainless Steel | Steel |
| 1 PH            | 1/16       | 3/8    | .54    | .38    | 6000                    | 10000           | 10500 |
| 2 PH            | 1/8        | 7/16   | .56    | .38    | 5600                    | 9100            | 9700  |
| 4 PH            | 1/4        | 9/16   | .75    | .56    | 4100                    | 7500            | 8000  |
| 6 PH            | 3/8        | 11/16  | .78    | .56    | 4000                    | 7200            | 7600  |
| 8 PH            | 1/2        | 7/8    | 1.06   | .75    | 3900                    | 6600            | 7000  |
| 12 PH           | 3/4        | 1-1/16 | 1.06   | .75    | 3800                    | 6400            | 6800  |
| 16 PH           | 1          | 1-5/16 | 1.25   | .94    | 2700                    | 4600            | 4900  |

Fittings of this group may be back-drilled at the pipe end.

**PHH**

## Hollow Hex Plug

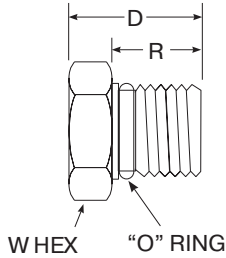
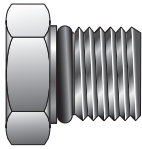


| Parker Part No. | NPT Thread | W Internal Hex | D (in) | Working Pressure (psig) |                 |       |
|-----------------|------------|----------------|--------|-------------------------|-----------------|-------|
|                 | Male       |                |        | Brass                   | Stainless Steel | Steel |
| 1 PHH           | 1/16       | 5/32           | .30    | 6000                    | 10000           | 10500 |
| 2 PHH           | 1/8        | 3/16           | .30    | 5600                    | 9100            | 9700  |
| 4 PHH           | 1/4        | 1/4            | .47    | 4100                    | 7500            | 8000  |
| 6 PHH           | 3/8        | 5/16           | .47    | 4000                    | 7200            | 7600  |
| 8 PHH           | 1/2        | 3/8            | .61    | 3900                    | 6600            | 7000  |
| 12 PHH          | 3/4        | 9/16           | .62    | 3800                    | 6400            | 6800  |
| 16 PHH          | 1          | 5/8            | .77    | 2700                    | 4600            | 4900  |

Intentionally Blank

### P50N

Hex Head Plug



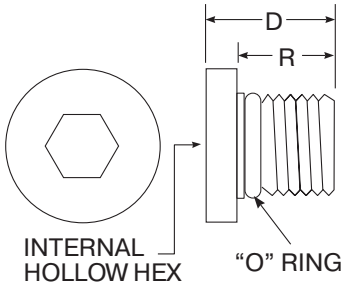
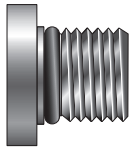
| Parker Part No. | Interchanges with | Port Thread UN/UNF-2A | W Hex | D (in) | R (in) | *D2 Drill (in) | L2 (in) | O-Ring |
|-----------------|-------------------|-----------------------|-------|--------|--------|----------------|---------|--------|
| 4 P50N          | 4 PST             | 7/16-20               | 9/16  | 0.67   | 0.36   | 0.203          | 0.41    | 3-904  |
| 6 P50N          | 6 PST             | 9/16-18               | 11/16 | 0.73   | 0.39   | 0.297          | 0.44    | 3-906  |
| 8 P50N          | 8 PST             | 3/4-16                | 7/8   | 0.80   | 0.44   | 0.422          | 0.44    | 3-908  |
| 12 P50N         | 12 PST            | 1-1/16-12             | 1-1/4 | 1.09   | 0.59   | 0.656          | 0.59    | 3-912  |
| 16 P50N         | 16 PST            | 1-5/16-12             | 1-1/2 | 1.13   | 0.59   | 0.875          | 0.50    | 3-916  |

\*D2 drill and L2 depth are optional manufacturing method per SAE.

Straight Thread Adapters

### HP50N

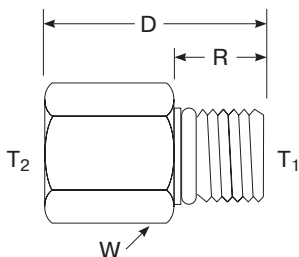
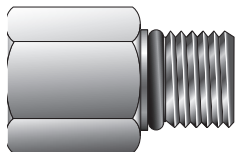
Hollow Hex Plug



| Parker Part No. | Interchanges with | Port Thread UN/UNF-2A | Internal Hex | D (in) | R (in) | X Dia. (in) | O-Ring |
|-----------------|-------------------|-----------------------|--------------|--------|--------|-------------|--------|
| 4 HP50N         | 4 HPST            | 7/16-20               | 3/16         | 0.47   | 0.36   | 0.56        | 3-904  |
| 6 HP50N         | 6 HPST            | 9/16-18               | 1/4          | 0.50   | 0.39   | 0.69        | 3-906  |
| 8 HP50N         | 8 HPST            | 3/4-16                | 5/16         | 0.58   | 0.44   | 0.88        | 3-908  |
| 12 HP50N        | 12 HPST           | 1-1/16-12             | 9/16         | 0.77   | 0.59   | 1.25        | 3-912  |
| 16 HP50N        | 16 HPST           | 1-5/16-12             | 5/8          | 0.77   | 0.59   | 1.50        | 3-916  |

### F50G5

Hollow Hex Plug



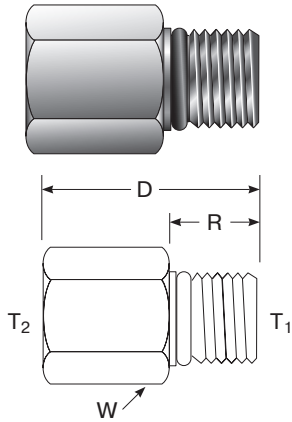
| Parker Part No. | Interchanges with | T2 Port Thread UN/UNF-2B | T1 Port Thread UN/UNF-2A | W Hex | *D2 Drill (in) | D (in) | R (in) | O-Ring |
|-----------------|-------------------|--------------------------|--------------------------|-------|----------------|--------|--------|--------|
| 6-4 F50G5       | 6-RBST-4          | 7/16-20                  | 9/16-18                  | 11/16 | .297           | 1.03   | .36    | 3-904  |
| 8-4 F50G5       | 8-RBST-4          | 7/16-20                  | 3/4-16                   | 7/8   | .375           | 1.09   | .36    | 3-904  |
| 12-8 F50G5      | 12-RBST-8         | 3/4-16                   | 1-1/16-12                | 1-1/4 | .625           | 1.00   | .44    | 3-908  |
| 16-12 F50G5     | 16-RBST-12        | 1-1/16-12                | 1-5/16-12                | 1-1/2 | .750           | 1.75   | .59    | 3-912  |

#### O-Ring Seals

All standard O-Rings are Nitrile material, 70 Durometer hardness. For other materials state material after part number.

## GOA

Male SAE Straight Thread  
to Female NPT Thread

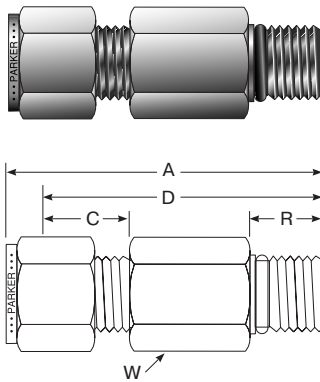


| Parker Part No. | Interchanges with | T2 Port Thread UN/UNF-2B | T1 Port Thread UN/UNF-2A | D (in) | R (in) | E Minimum Opening (in) | W Hex | ST O-Ring Uniform Size # |
|-----------------|-------------------|--------------------------|--------------------------|--------|--------|------------------------|-------|--------------------------|
| 4-4 GOA         | 4SAE-7-4          | 7/16-20                  | 1/4                      | 1.19   | .36    | .20                    | 3/4   | 3-904                    |
| 6-6 GOA         | 6SAE-7-6          | 9/16-18                  | 3/8                      | 1.26   | .39    | .30                    | 7/8   | 3-906                    |
| 8-8 GOA         | 8-8SAE-7-8        | 3/4-16                   | 1/2                      | 1.50   | .44    | .39                    | 1-1/8 | 3-908                    |
| 12-12 GOA       | 12-8SAE-7-12      | 1-1/16-12                | 3/4                      | 1.83   | .59    | .66                    | 1-1/4 | 3-912                    |
| 16-16 GOA       | 16-8SAE-7-16      | 1-5/16-12                | 1                        | 1.88   | .59    | .88                    | 1-5/8 | 3-916                    |

Includes O-ring.

## ZH3BA

Male Connector  
to SAE Straight Thread



| Parker CPI™ Part No. | Parker A-LOKI® Part No. | Interchanges with | Tube O.D. | Straight Thread Size | W Hex | A† (in) | C† (in) | D (in) | R (in) | O-Ring Dash # |
|----------------------|-------------------------|-------------------|-----------|----------------------|-------|---------|---------|--------|--------|---------------|
| 4-4 ZH3BA            | 4-4 ZH3LA               | 400-IL-4ST        | 1/4       | 7/16-20              | 9/16  | 2.26    | .70     | 1.97   | .36    | 3-904         |
| 5-5 ZH3BA            | 5-5 ZH3LA               | 500-IL-5ST        | 5/16      | 1/2-20               | 5/8   | 2.32    | .73     | 2.03   | .36    | 3-905         |
| 6-6 ZH3BA            | 6-6 ZH3LA               | 600-IL-6ST        | 3/8       | 9/16-18              | 11/16 | 2.48    | .76     | 2.19   | .39    | 3-906         |
| 8-8 ZH3BA            | 8-8 ZH3LA               | 810-IL-8ST        | 1/2       | 3/4-16               | 7/8   | 2.99    | .87     | 2.58   | .44    | 3-908         |
| 10-10 ZH3BA          | 10-10 ZH3LA             | 1010-IL-10ST      | 5/8       | 7/8-14               | 1     | 3.34    | .87     | 2.94   | .50    | 3-910         |
| 12-12 ZH3BA          | 12-12 ZH3LA             | 1210-IL-12ST      | 3/4       | 1-1/16-12            | 1-1/4 | 3.88    | .87     | 3.48   | .59    | 3-912         |
| 14-14 ZH3BA          | 14-14 ZH3LA             | 1410-IL-14ST      | 7/8       | 1-3/16-12            | 1-3/8 | 4.07    | .87     | 3.67   | .59    | 3-914         |
| 16-16 ZH3BA          | 16-16 ZH3LA             | 1610-IL-16ST      | 1         | 1-5/16-12            | 1-1/2 | 4.35    | 1.05    | 3.86   | .59    | 3-916         |

Includes body, nut, ferrule and O-ring.

†Average value.

## O-Ring Seals

All standard O-Rings are Nitrile material, 70 Durometer hardness.  
For other materials state material after part number.

## ISO Conversion Fittings

### Typical Fastening Threads

#### BSP Threads

BSP Parallel and BSP Taper threads have a thread flank angle of 55° inclusive.

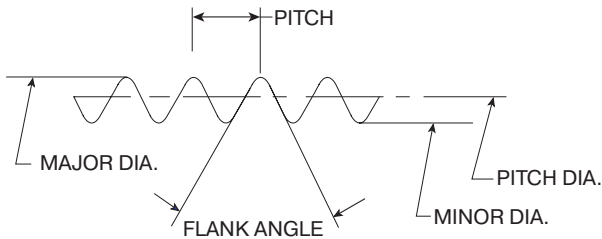
**BSPP** – British Standard Pipe Parallel threads for tubes and fittings where pressure-tight joints are not made on the thread, i.e., a peripheral seal is used.

**BSP Taper** – British Standard Pipe Taper threads for tubes and fittings where pressure-tight joints are made on the threads.

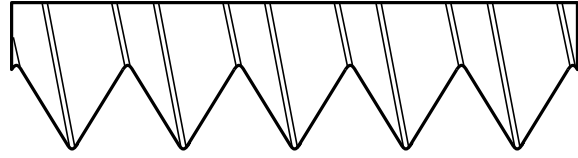
### Comparison of Thread Forms

| NPT<br>Pipe<br>Size. | Threads<br>per<br>inch | BSPP        | BSPT  | Threads<br>per<br>inch |
|----------------------|------------------------|-------------|-------|------------------------|
|                      |                        | Thread Size |       |                        |
| 1/8                  | 27                     | 1/8         | 1/8   | 28                     |
| 1/4                  | 18                     | 1/4         | 1/4   | 19                     |
| 3/8                  | 18                     | 3/8         | 3/8   | 19                     |
| 1/2                  | 14                     | 1/2         | 1/2   | 14                     |
| 3/4                  | 14                     | 3/4         | 3/4   | 14                     |
| 1                    | 11 1/2                 | 1           | 1     | 11                     |
| 1 1/4                | 11 1/2                 | 1 1/4       | 1 1/4 | 11                     |
| 1 1/2                | 11 1/2                 | 1 1/2       | 1 1/2 | 11                     |

### Generic Thread



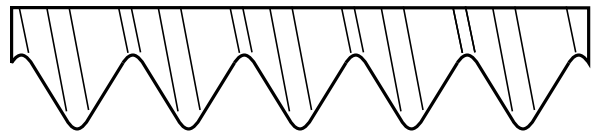
### American Standard Pipe Thread (NPT)



- 60° inclusive thread flank angle
- Pitch measured in inches
- Truncation of root and crest are flat
- Taper angle 1°47'

#### (ISO 7/1)

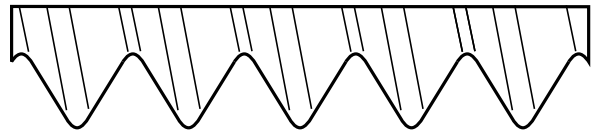
#### BSPT



- 55° inclusive thread flank angle
- Pitch measured in inches
- Truncation of root and crest are round
- Taper angle 1°47'

#### (ISO 228/1)

#### BSPP

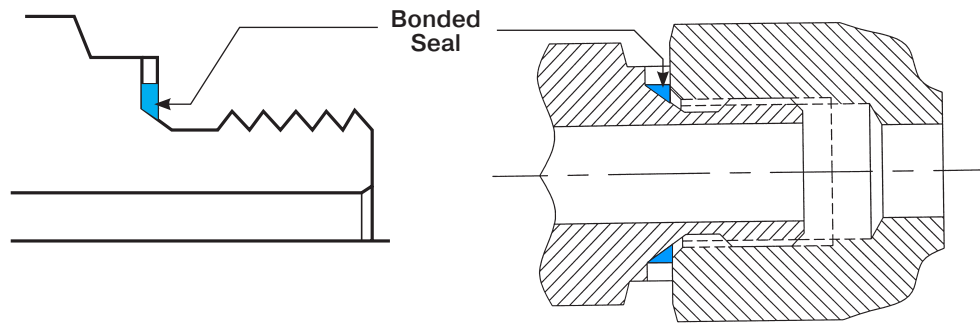


- 55° inclusive thread flank angle
- Pitch measured in inches
- Truncation of root and crest are round
- Diameter measured in inches

## BSPP Thread Forms

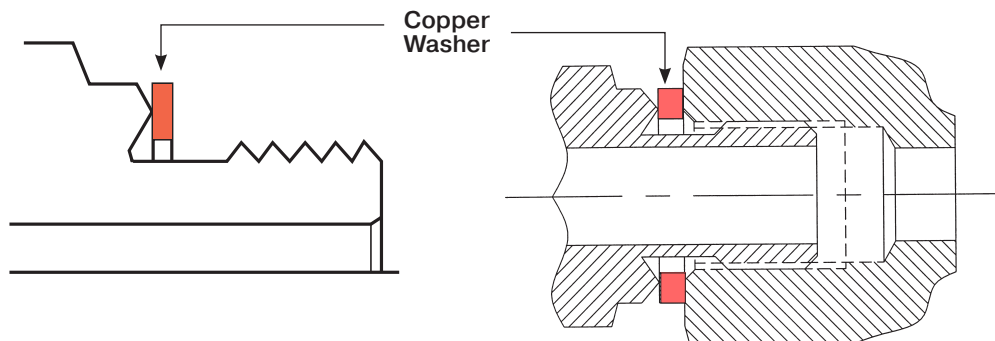
### Form A

A self centering taper is used at the hex which centers a “bonded” washer (usually metal and elastomer) to seal to the surface surrounding the female thread.

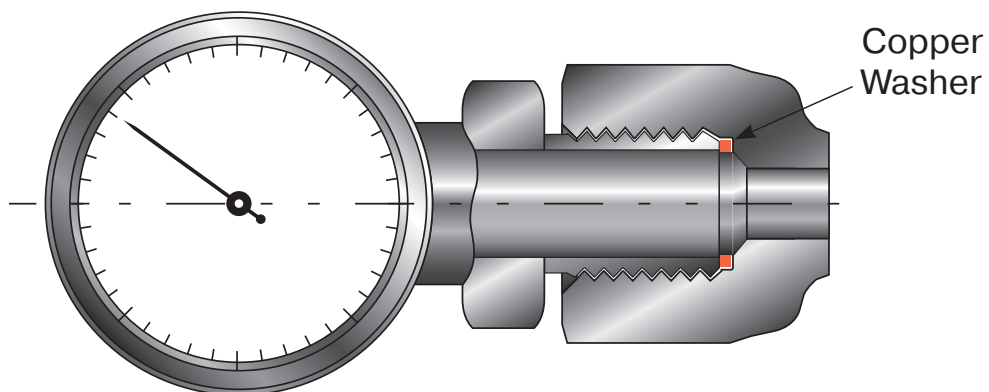


### Form B

A metal gasket (usually copper) performs the seal between the face of the body and the face of the female threaded component. For Form “B” replace “R” in part number with “BR”.



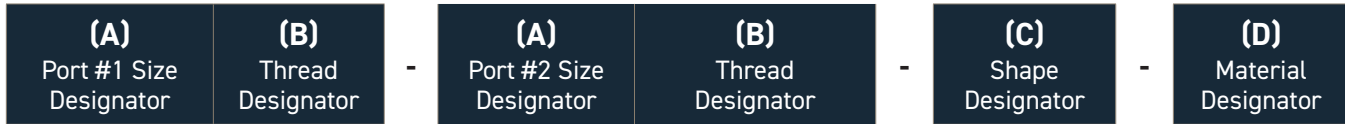
### Gauge Port BSPP (Female)



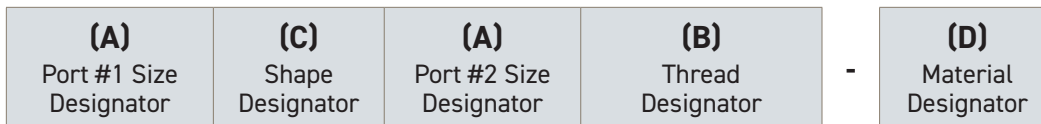
## Parker ISO Fitting Nomenclature

Parker ISO Adapters utilize the same basic part numbering system that you are already familiar with from our CPI™ and A-LOK® Catalogs. To specify a Parker Instrumentation Connector with an ISO thread form, simply suffix the size designator with the thread form designator as illustrated.

Build a CPI™ or Pipe part number by filling in the following boxes:



Build a A-LOK® part number by filling in the following boxes:



### (A) Port Size Designators:

Port sizes are incremented by 1/16" and only the numerator is required to specify a size in a part number.

|   |       |    |                             |
|---|-------|----|-----------------------------|
| 1 | 1/6   | 6  | 3/8"                        |
| 2 | 1/8   | 8  | 1/2"                        |
| 3 | 3/16" | 10 | 5/8"                        |
| 4 | 1/4"  | 12 | 3/4"                        |
| 5 | 5/16" | 16 | 1" (larger sizes available) |

### (B) Thread Type Designators:

|       |  |
|-------|--|
| Blank | Fractional Tube Size   |
| N*    | NPT per ANSI B1.20.1   |
| K     | ISO Taper per; ISO 7/1, BS21, JIS B0203, DIN 2999                        |
| R     | ISO Parallel per; ISO 228/1+2, DIN 3852 Form A, BS2779 (BSPP), JIS B0202 |
| BR    | ISO Parallel per; ISO 228/1+2, DIN 3852 Form B, BS2779 (BSPP), JIS B0202 |
| R-ED  | ISO Parallel per; ISO 228/1+2, DIN 3852 BS2779 with EOlastic sealing.    |
| GC    | ISO Parallel, Female Gauge connector                                     |

*\* N thread type designator is only required for A-LOK® nomenclature*

### (C) Body Shape Designators:

|     |                       |
|-----|-----------------------|
| FBZ | CPI™ Male Connector   |
| MSC | A-LOK® Male Connector |
| RA  | Pipe Reducing Adapter |
| MHN | Pipe Male Hex Nipple  |

*Note: See Catalog for further detail*

# Parker ISO Fitting Nomenclature

## (D) Material Designators:

|     |  |
|-----|--|
| SS  | Stainless Steel for CPI™ and Pipe Fittings |
| 316 | Stainless Steel for A-LOK®                 |
| B   | Brass                                      |

| Material        | Standard    |
|-----------------|-------------|
| Stainless Steel | ASTM A276   |
|                 | ASME SA 479 |
| Brass           | ASTM B16    |
|                 | ASTM B 453  |

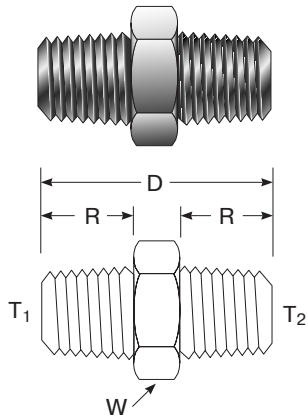
## Sealing

**BSP Taper** threads require the use of a thread sealant. **BSPP** threads require a sealing washer. This washer may either be a metal gasket (copper is standard) or a “bonded seal” (elastomer bonded to a metal retaining washer). The **BSPP**, form “**A**” requires the use of a bonded seal (page 26). The **BSPP**, form “**B**” (cutting face) may be used with or without a sealing washer. For applications where the cutting face may not seal or where galling is a potential problem, the use of a washer is suggested.

**Examples:** The Thread Type Designators have been highlighted in the following examples for easy recognition:

|                    |   |
|--------------------|---|
| <b>4-4K FBZ-SS</b> | 1/4" CPI™ tube fitting by 1/4" BSPT pipe thread   |
| <b>6-4R RA-SS</b>  | 3/8" female NPT by 1/4" BSPP (form A) reducing adapter. A bonded seal should be used with this fitting (page 39). |
| <b>6MSC4BR-316</b> | 3/8" A-LOK® tube fitting by 1/4" BSPP (form B). A copper washer should be used with this fitting (page 39).       |

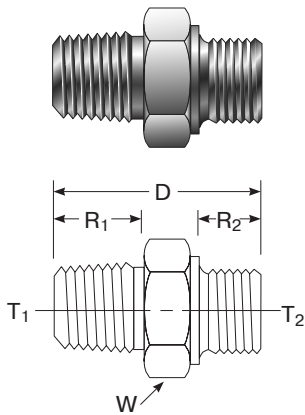
### Male Hex Nipple NPT to BSP Taper



| Parker Part No. | NPT Thread T1 | BSPT Thread T2 | W Hex | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|---------------|----------------|-------|--------|--------|------------------|-----|-----------------|-----|
|                 |               |                |       |        |        | Brass            |     | Stainless Steel |     |
|                 |               |                |       |        |        | PSI              | Bar | PSI             | Bar |
| 2-2K MHN        | 1/8-27        | 1/8-28         | 7/16  | 1.06   | .38    | 5600             | 390 | 9100            | 630 |
| 4-4K MHN        | 1/4-18        | 1/4-19         | 5/8   | 1.45   | .56    | 4100             | 280 | 7500            | 520 |
| 6-6K MHN        | 3/8-18        | 3/8-19         | 3/4   | 1.45   | .56    | 4000             | 280 | 7200            | 500 |
| 8-8K MHN        | 1/2-14        | 1/2-14         | 7/8   | 1.89   | .75    | 3900             | 270 | 6600            | 460 |
| 12-12K MHN      | 3/4-14        | 3/4-14         | 1 1/8 | 1.97   | .75    | 3800             | 260 | 6400            | 440 |
| 16-16K MHN      | 1-11 1/2      | 1-11           | 1 3/8 | 2.34   | .94    | 2700             | 190 | 4600            | 320 |

Used to connect a female NPT and a female BSPT threaded component.

### Male Hex Nipple NPT to BSPP



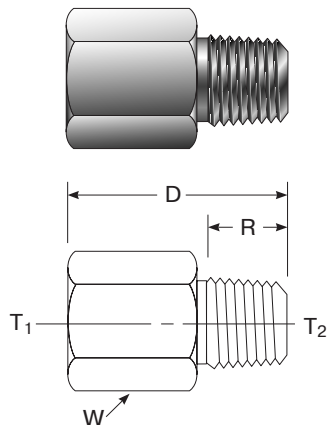
| Parker Part No. | NPT Thread T1 | BSPP Thread T2 | W Hex  | D (in) | R1 (in) | R2 (in) | Working Pressure |     |                 |     |
|-----------------|---------------|----------------|--------|--------|---------|---------|------------------|-----|-----------------|-----|
|                 |               |                |        |        |         |         | Brass            |     | Stainless Steel |     |
|                 |               |                |        |        |         |         | PSI              | Bar | PSI             | Bar |
| 2-2R MHN        | 1/8-27        | 1/8-28         | 9/16   | 1.07   | .38     | .28     | 5000             | 340 | 9100            | 630 |
| 4-4R MHN        | 1/4-18        | 1/4-19         | 3/4    | 1.44   | .56     | .44     | 4000             | 280 | 7500            | 520 |
| 6-6R MHN        | 3/8-18        | 3/8-19         | 7/8    | 1.47   | .56     | .44     | 3900             | 270 | 7200            | 500 |
| 8-8R MHN        | 1/2-14        | 1/2-14         | 1 1/16 | 1.78   | .75     | .56     | 3800             | 260 | 6600            | 460 |
| 12-12R MHN      | 3/4-14        | 3/4-14         | 1 5/16 | 1.95   | .75     | .63     | 3600             | 250 | 6400            | 440 |
| 16-16R MHN      | 1-11 1/2      | 1-11           | 1 5/8  | 2.26   | .94     | .72     | 2600             | 180 | 4600            | 320 |

Used to connect a female NPT and a female BSPP threaded component.

**Note:** Bonded seal, page 39, must be used on BSPP end shown.

Please note the pressure ratings are based on taper threaded ends. The pressure rating for the BSPP ends are dependent on the type of sealing washer used.

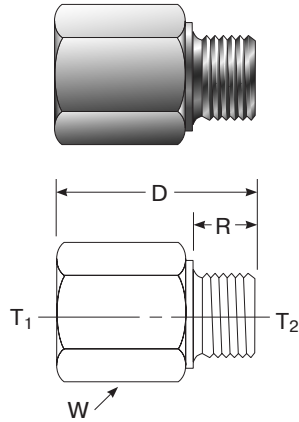
### Female NPT to Male BSP Taper Adapter



| Parker Part No. | NPT Thread T1 | BSPT Thread T2 | W Hex  | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|---------------|----------------|--------|--------|--------|------------------|-----|-----------------|-----|
|                 |               |                |        |        |        | Brass            |     | Stainless Steel |     |
|                 |               |                |        |        |        | PSI              | Bar | PSI             | Bar |
| 2-2K RA         | 1/8-27        | 1/8-28         | 9/16   | 1.09   | .38    | 3200             | 220 | 6100            | 420 |
| 4-4K RA         | 1/4-18        | 1/4-19         | 3/4    | 1.42   | .56    | 3300             | 230 | 6200            | 430 |
| 6-6K RA         | 3/8-18        | 3/8-19         | 7/8    | 1.49   | .56    | 2600             | 180 | 5000            | 340 |
| 8-8K RA         | 1/2-14        | 1/2-14         | 1 1/16 | 1.94   | .75    | 2400             | 160 | 4600            | 320 |
| 12-12K RA       | 3/4-14        | 3/4-14         | 1 5/16 | 2.00   | .75    | 2300             | 160 | 4300            | 300 |
| 16-16K RA       | 1-11 1/2      | 1-11           | 1 5/8  | 2.28   | .94    | 2200             | 150 | 4100            | 280 |

Used to connect a male NPT and a female BSPT threaded component.

## Female NPT to Male BSPP Adapter

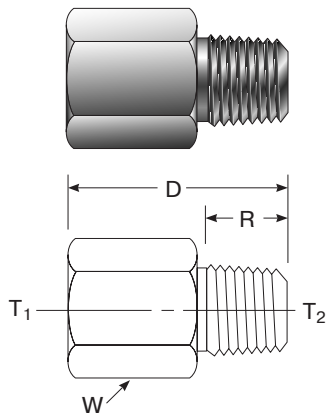


| Parker Part No. | NPT Thread T1 | BSPP Thread T2 | W Hex  | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|---------------|----------------|--------|--------|--------|------------------|-----|-----------------|-----|
|                 |               |                |        |        |        | Brass            |     | Stainless Steel |     |
|                 |               |                |        |        |        | PSI              | Bar | PSI             | Bar |
| 2-2R RA         | 1/8-27        | 1/8-28         | 9/16   | .99    | .28    | 3200             | 220 | 6100            | 420 |
| 4-4R RA         | 1/4-18        | 1/4-19         | 3/4    | 1.31   | .44    | 3300             | 230 | 6200            | 430 |
| 6-6R RA         | 3/8-18        | 3/8-19         | 7/8    | 1.41   | .44    | 2600             | 180 | 5000            | 340 |
| 8-8R RA         | 1/2-14        | 1/2-14         | 1 1/8  | 1.74   | .56    | 2400             | 160 | 4600            | 320 |
| 12-12R RA       | 3/4-14        | 3/4-14         | 1 5/16 | 2.00   | .63    | 2300             | 160 | 4300            | 300 |
| 16-16R RA       | 1-11 1/2      | 1-11           | 1 5/8  | 2.10   | .72    | 2200             | 150 | 4100            | 280 |

Used to connect a male NPT and a female BSPP threaded component.

**Note:** Bonded Seal, page 39, must be used with BSPP end shown.

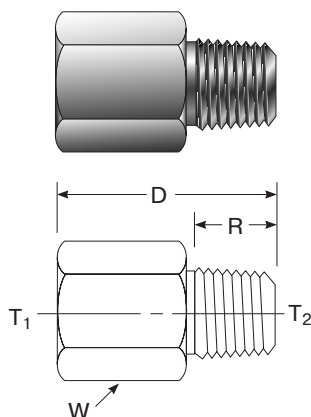
## Female BSP Taper to Male NPT Adapter



| Parker Part No. | BSPT Thread T1 | NPT Thread T2 | W Hex  | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|----------------|---------------|--------|--------|--------|------------------|-----|-----------------|-----|
|                 |                |               |        |        |        | Brass            |     | Stainless Steel |     |
|                 |                |               |        |        |        | PSI              | Bar | PSI             | Bar |
| 2K-2 RA         | 1/8-28         | 1/8-27        | 9/16   | 1.09   | .38    | 3200             | 220 | 6100            | 420 |
| 4K-4 RA         | 1/4-19         | 1/4-18        | 3/4    | 1.42   | .56    | 3300             | 230 | 6200            | 430 |
| 6K-6 RA         | 3/8-19         | 3/8-18        | 7/8    | 1.49   | .56    | 2600             | 180 | 5000            | 340 |
| 8K-8 RA         | 1/2-14         | 1/2-14        | 1 1/8  | 1.94   | .75    | 2400             | 160 | 4600            | 320 |
| 12K-12 RA       | 3/4-14         | 3/4-14        | 1 5/16 | 2.00   | .75    | 2300             | 160 | 4300            | 300 |
| 16K-16 RA       | 1-11           | 1-11 1/2      | 1 5/8  | 2.28   | .94    | 2200             | 150 | 4100            | 280 |

Used to connect a male BSPT and a female NPT threaded component.

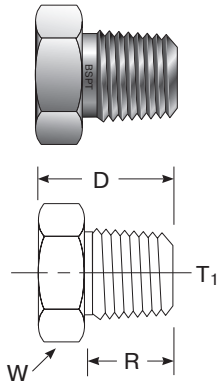
## Female BSPP to Male NPT Adapter



| Parker Part No. | BSPP Thread T1 | NPT Thread T2 | W Hex  | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|----------------|---------------|--------|--------|--------|------------------|-----|-----------------|-----|
|                 |                |               |        |        |        | Brass            |     | Stainless Steel |     |
|                 |                |               |        |        |        | PSI              | Bar | PSI             | Bar |
| 2R-2 RA         | 1/8-28         | 1/8-27        | 9/16   | 1.09   | .38    | 3200             | 220 | 6100            | 420 |
| 4R-4 RA         | 1/4-19         | 1/4-18        | 3/4    | 1.50   | .56    | 3300             | 230 | 6200            | 430 |
| 6R-6 RA         | 3/8-19         | 3/8-18        | 7/8    | 1.49   | .56    | 2600             | 180 | 5000            | 340 |
| 8R-8 RA         | 1/2-14         | 1/2-14        | 1 1/8  | 1.88   | .75    | 2400             | 160 | 4600            | 320 |
| 12R-12 RA       | 3/4-14         | 3/4-14        | 1 5/16 | 2.00   | .75    | 2300             | 160 | 4300            | 300 |
| 16R-16 RA       | 1-11           | 1-11 1/2      | 1 5/8  | 2.28   | .94    | 2200             | 150 | 4100            | 280 |

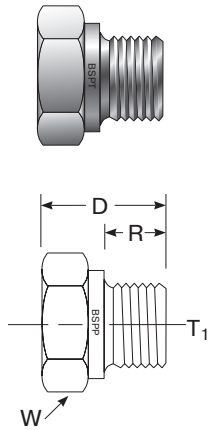
Used to connect a male BSPP and a female NPT threaded component.

### BSP Taper Male Hex to Pipe Plug



| Parker Part No. | BSPT Thread T1 | W Hex | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|----------------|-------|--------|--------|------------------|-----|-----------------|-----|
|                 |                |       |        |        | Brass            |     | Stainless Steel |     |
|                 |                |       |        |        | PSI              | Bar | PSI             | Bar |
| 2K PH           | 1/8-28         | 7/16  | .59    | .38    | 3200             | 220 | 6100            | 420 |
| 4K PH           | 1/4-19         | 5/8   | .81    | .56    | 3300             | 230 | 6200            | 430 |
| 6K PH           | 3/8-19         | 3/4   | .81    | .56    | 2600             | 180 | 5000            | 340 |
| 8K PH           | 1/2-14         | 7/8   | 1.06   | .75    | 2400             | 160 | 3600            | 320 |
| 12K PH          | 3/4-14         | 1 1/8 | 1.13   | .75    | 2300             | 160 | 4300            | 300 |
| 16K PH          | 1-11           | 1 3/8 | 1.31   | .94    | 2200             | 150 | 4100            | 280 |

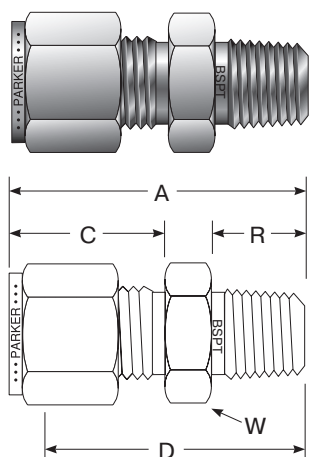
### BSPP Parallel Male Hex Pipe Plug



| Parker Part No. | BSPP Thread T1 | W Hex  | D (in) | R (in) | Working Pressure |     |                 |     |
|-----------------|----------------|--------|--------|--------|------------------|-----|-----------------|-----|
|                 |                |        |        |        | Brass            |     | Stainless Steel |     |
|                 |                |        |        |        | PSI              | Bar | PSI             | Bar |
| 2R PH           | 1/8-28         | 9/16   | .55    | .28    | 5000             | 340 | 9100            | 630 |
| 4R PH           | 1/4-19         | 3/4    | .78    | .44    | 4000             | 280 | 7500            | 520 |
| 6R PH           | 3/8-19         | 7/8    | .78    | .44    | 3900             | 270 | 7200            | 500 |
| 8R PH           | 1/2-14         | 1-1/16 | .99    | .56    | 3800             | 260 | 6600            | 460 |
| 12R PH          | 3/4-14         | 1-5/16 | 1.13   | .63    | 3600             | 250 | 6400            | 440 |
| 16R PH          | 1-11           | 1-5/8  | 1.21   | .72    | 2600             | 180 | 4600            | 320 |

**Note:** Bonded seal page 39 must be used on BSPP end shown.  
Please note the pressure ratings are based on taper threaded ends. The pressure rating for the BSPP ends are dependent on the type of sealing washer used.

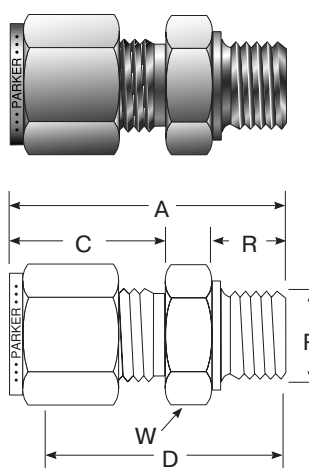
## BSP Taper Male Connector



| Tube O.D. (in) | BSP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | A (in) | C (in) | D (in) | R (in) | W Hex |
|----------------|------------|--------------------|----------------------|--------|--------|--------|--------|-------|
| 1/8            | 1/8-28     | 2-2K FBZ           | 2MSC2K               | 1.20   | .60    | .94    | .38    | 7/16  |
| 1/8            | 1/4-19     | 2-4K FBZ           | 2MSC4K               | 1.40   | .60    | 1.14   | .56    | 9/16  |
| 1/4            | 1/8-28     | 4-2K FBZ           | 4MSC2K               | 1.30   | .70    | 1.00   | .38    | 1/2   |
| 1/4            | 1/4-19     | 4-4K FBZ           | 4MSC4K               | 1.50   | .70    | 1.20   | .56    | 9/16  |
| 1/4            | 3/8-19     | 4-6K FBZ           | 4MSC6K               | 1.52   | .70    | 1.22   | .56    | 11/16 |
| 1/4            | 1/2-14     | 4-8K FBZ           | 4MSC8K               | 1.76   | .70    | 1.44   | .75    | 7/8   |
| 5/16           | 1/8-28     | 5-2K FBZ           | 5MSC2K               | 1.34   | .73    | 1.05   | .38    | 9/16  |
| 5/16           | 1/4-19     | 5-4K FBZ           | 5MSC4K               | 1.53   | .73    | 1.23   | .56    | 9/16  |
| 3/8            | 1/8-28     | 6-2K FBZ           | 6MSC2K               | 1.39   | .76    | 1.09   | .38    | 5/8   |
| 3/8            | 1/4-19     | 6-4K FBZ           | 6MSC4K               | 1.59   | .76    | 1.28   | .56    | 5/8   |
| 3/8            | 3/8-19     | 6-6K FBZ           | 6MSC6K               | 1.59   | .76    | 1.28   | .56    | 11/16 |
| 3/8            | 1/2-14     | 6-8K FBZ           | 6MSC8K               | 1.82   | .76    | 1.53   | .75    | 7/8   |
| 1/2            | 1/4-19     | 8-4K FBZ           | 8MSC4K               | 1.75   | .87    | 1.31   | .56    | 13/16 |
| 1/2            | 3/8-19     | 8-6K FBZ           | 8MSC6K               | 1.75   | .87    | 1.31   | .56    | 13/16 |
| 1/2            | 1/2-14     | 8-8K FBZ           | 8MSC8K               | 1.93   | .87    | 1.53   | .75    | 7/8   |

Connects fractional tube to female ISO taper thread.

## BSPP Male Connector

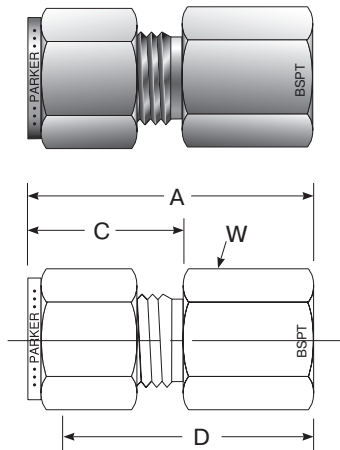


| Tube O.D. (in) | BSP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | A (in) | C (in) | D (in) | R (in) | W Hex  |
|----------------|------------|--------------------|----------------------|--------|--------|--------|--------|--------|
| 1/8            | 1/8-28     | 2-2R FBZ           | 2MSC2R               | 1.18   | .60    | 0.92   | .28    | 9/16   |
| 1/8            | 1/4-19     | 2-4R FBZ           | 2MSC4R               | 1.38   | .60    | 1.13   | .44    | 3/4    |
| 1/8            | 3/8-19     | 2-6R FBZ           | 2MSC6R               | 1.43   | .60    | 1.17   | .44    | 7/8    |
| 1/4            | 1/8-28     | 4-2R FBZ           | 4MSC2R               | 1.28   | .70    | 0.98   | .28    | 9/16   |
| 1/4            | 1/4-19     | 4-4R FBZ           | 4MSC4R               | 1.49   | .70    | 1.19   | .44    | 3/4    |
| 1/4            | 3/8-19     | 4-6R FBZ           | 4MSC6R               | 1.55   | .70    | 1.25   | .44    | 7/8    |
| 1/4            | 1/2-14     | 4-8R FBZ           | 4MSC8R               | 1.77   | .70    | 1.47   | .56    | 1 1/16 |
| 3/8            | 1/8-28     | 6-2R FBZ           | 6MSC2R               | 1.37   | .76    | 1.06   | .28    | 5/8    |
| 3/8            | 1/4-19     | 6-4R FBZ           | 6MSC4R               | 1.57   | .76    | 1.25   | .44    | 3/4    |
| 3/8            | 3/8-19     | 6-6R FBZ           | 6MSC6R               | 1.59   | .76    | 1.30   | .44    | 7/8    |
| 3/8            | 1/2-14     | 6-8R FBZ           | 6MSC8R               | 1.84   | .76    | 1.53   | .56    | 1 1/16 |
| 1/2            | 1/4-19     | 8-4R FBZ           | 8MSC4R               | 1.71   | .87    | 1.28   | .44    | 13/16  |
| 1/2            | 3/8-19     | 8-6R FBZ           | 8MSC6R               | 1.74   | .87    | 1.30   | .44    | 7/8    |
| 1/2            | 1/2-14     | 8-8R FBZ           | 8MSC8R               | 1.96   | .87    | 1.53   | .56    | 1 1/16 |
| 3/4            | 1/2-14     | 12-8R FBZ          | 12MSC8R              | 1.93   | .87    | 1.53   | .56    | 1 1/16 |
| 3/4            | 3/4-19     | 12-12R FBZ         | 12MSC12R             | 2.10   | .87    | 1.69   | .63    | 1 3/8  |
| 1              | 1/2-14     | 16-8R FBZ          | 16MSC8R              | 2.21   | 1.05   | 1.72   | .56    | 1 3/8  |
| 1              | 1-11       | 16-16R FBZ         | 16MSC16R             | 2.37   | 1.05   | 1.88   | .72    | 1 5/8  |

Connects fractional tube to female ISO parallel thread.

**Note:** Bonded Seal, page 26, must be used with BSPP end shown.

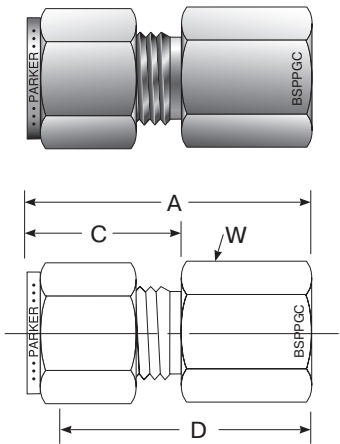
### BSP Taper Female Connector



| Tube O.D. (in) | BSPT Thread | Parker CPI™ Part # | Parker A-LOK® Part # | A (in) | C (in) | D (in) | W Hex  |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|
| 1/4            | 1/8-28      | 4-2K GBZ           | 4FSC2K               | 1.23   | .70    | .94    | 9/16   |
| 1/4            | 1/4-19      | 4-4K GBZ           | 4FSC4K               | 1.42   | .70    | 1.13   | 3/4    |
| 1/4            | 3/8-19      | 4-6K GBZ           | 4FSC6K               | 1.48   | .70    | 1.19   | 7/8    |
| 1/4            | 1/2-14      | 4-8K GBZ           | 4FSC8K               | 1.67   | .70    | 1.38   | 1 1/16 |
| 3/8            | 1/4-19      | 6-4K GBZ           | 6FSC4K               | 1.48   | .76    | 1.19   | 3/4    |
| 3/8            | 3/8-19      | 6-6K GBZ           | 6FSC6K               | 1.54   | .76    | 1.25   | 7/8    |
| 3/8            | 1/2-14      | 6-8K GBZ           | 6FSC8K               | 1.73   | .76    | 1.44   | 1 1/16 |
| 1/2            | 1/4-19      | 8-4K GBZ           | 8FSC4K               | 1.59   | .87    | 1.19   | 13/16  |
| 1/2            | 3/8-19      | 8-6K GBZ           | 8FSC6K               | 1.65   | .87    | 1.25   | 7/8    |
| 1/2            | 1/2-14      | 8-8K GBZ           | 8FSC8K               | 1.84   | .87    | 1.44   | 1 1/16 |

Connects fractional tube to female ISO taper thread.

### BSPP Female Gauge Connector

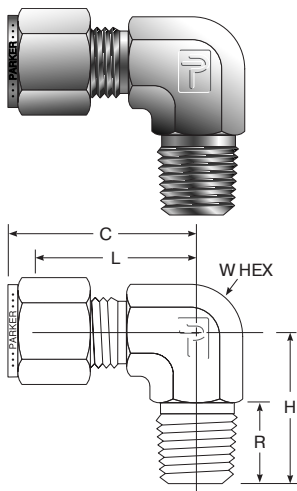


| Tube O.D. (in) | BSPT Thread | Parker CPI™ Part # | Parker A-LOK® Part # | A (in) | C (in) | D (in) | W Hex  |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|
| 1/4            | 1/4-19      | 4-4GC GBZ          | 4FSC4GC              | 1.48   | .70    | 1.19   | 3/4    |
| 1/4            | 3/8-19      | 4-6GC GBZ          | 4FSC6GC              | 1.48   | .70    | 1.19   | 7/8    |
| 1/4            | 1/2-14      | 4-8GC GBZ          | 4FSC8GC              | 1.72   | .70    | 1.42   | 1 1/16 |
| 5/16           | 1/4-19      | 5-4GC GBZ          | 5FSC4GC              | 1.51   | .73    | 1.22   | 3/4    |
| 5/16           | 1/2-14      | 5-8GC GBZ          | 5FSC8GC              | 1.61   | .73    | 1.32   | 1 1/16 |
| 3/8            | 1/4-19      | 6-4GC GBZ          | 6FSC4GC              | 1.54   | .76    | 1.25   | 3/4    |
| 3/8            | 3/8-19      | 6-6GC GBZ          | 6FSC6GC              | 1.53   | .76    | 1.23   | 7/8    |
| 3/8            | 1/2-14      | 6-8GC GBZ          | 6FSC8GC              | 1.65   | .76    | 1.36   | 1 1/16 |
| 1/2            | 3/8-19      | 8-6GC GBZ          | 8FSC6GC              | 1.75   | .87    | 1.35   | 7/8    |
| 1/2            | 1/2-14      | 8-8GC GBZ          | 8FSC8GC              | 1.90   | .87    | 1.50   | 1 1/16 |

Connects fractional tube to male ISO parallel (gauge).

**Note:** Copper Washer, page 39, for female thread sealing, must be used on BSPP female end shown.

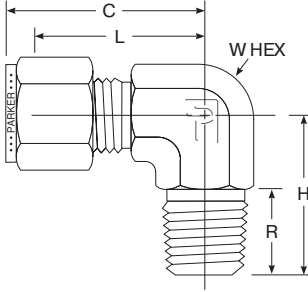
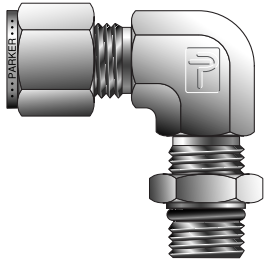
### BSP Taper Male Elbow



| Tube O.D. (in) | BSPT Thread | Parker CPI™ Part # | Parker A-LOK® Part # | C (in) | H (in) | L (in) | R (in) | W Hex |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|-------|
| 1/4            | 1/8-28      | 4-2K CBZ           | 4MSEL2K              | 1.06   | .74    | .77    | .38    | 1/2   |
| 1/4            | 1/4-19      | 4-4K CBZ           | 4MSEL4K              | 1.08   | 1.00   | .78    | .56    | 9/16  |
| 1/4            | 3/8-19      | 4-6K CBZ           | 4MSEL6K              | 1.17   | 1.13   | .88    | .56    | 3/4   |
| 1/4            | 1/2-14      | 4-8K CBZ           | 4MSEL8K              | 1.26   | 1.31   | .97    | .75    | 7/8   |
| 5/16           | 1/4-19      | 5-4K CBZ           | 5MSEL4K              | 1.11   | 1.00   | .81    | .56    | 5/8   |
| 3/8            | 1/8-28      | 6-2K CBZ           | 6MSEL2K              | 1.20   | .82    | .91    | .38    | 5/8   |
| 3/8            | 1/4-19      | 6-4K CBZ           | 6MSEL4K              | 1.20   | 1.01   | .91    | .56    | 5/8   |
| 3/8            | 3/8-19      | 6-6K CBZ           | 6MSEL6K              | 1.26   | 1.13   | .97    | .56    | 3/4   |
| 1/2            | 3/8-19      | 8-6K CBZ           | 8MSEL6K              | 1.42   | 1.15   | 1.02   | .56    | 13/16 |
| 1/2            | 1/2-14      | 8-8K CBZ           | 8MSEL8K              | 1.42   | 1.30   | 1.02   | .75    | 7/8   |

Connects fractional tube to female ISO taper thread.

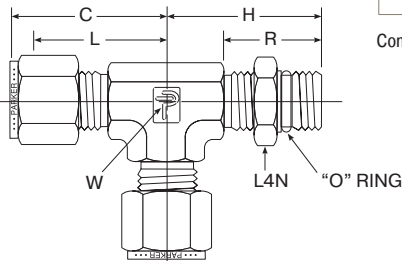
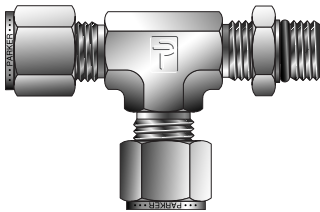
### BSPP Male Elbow (Positionable)



| Tube O.D. (in) | BSPP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | C (in) | H (in) | L (in) | R (in) | W Hex  |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|
| 1/4            | 1/8-28      | 4-2R CBZ           | 4MSEL2R              | 1.06   | 1.04   | .77    | .63    | 9/16   |
| 1/4            | 1/4-19      | 4-4R CBZ           | 4MSEL4R              | 1.14   | 1.27   | .85    | .79    | 9/16   |
| 3/8            | 1/4-19      | 6-4R CBZ           | 6MSEL4R              | 1.14   | 1.27   | .85    | .79    | 9/16   |
| 3/8            | 3/8-19      | 6-6R CBZ           | 6MSEL6R              | 1.50   | 1.46   | 1.02   | .79    | 3/4    |
| 1/2            | 1/4-19      | 8-4R CBZ           | 8MSEL4R              | 1.50   | 1.38   | 1.10   | .79    | 7/8    |
| 1/2            | 3/8-19      | 8-6R CBZ           | 8MSEL6R              | 1.50   | 1.46   | 1.10   | .79    | 7/8    |
| 1/2            | 1/2-14      | 8-8R CBZ           | 8MSEL8R              | 1.50   | 1.71   | 1.10   | 1.03   | 7/8    |
| 5/8            | 1/2-14      | 10-8R CBZ          | 10MSEL8R             | 1.50   | 1.81   | 1.10   | 1.03   | 1 1/16 |
| 3/4            | 1/2-14      | 12-8R CBZ          | 12MSEL8R             | 1.57   | 1.81   | 1.17   | 1.03   | 1 1/16 |
| 3/4            | 3/4-14      | 12-12R CBZ         | 12MSEL12R            | 1.57   | 1.92   | 1.17   | 1.03   | 1 1/16 |
| 1              | 3/4-14      | 16-12R CBZ         | 16MSEL12R            | 1.94   | 2.11   | 1.45   | 1.03   | 1 5/16 |
| 1              | 1-11        | 16-16R CBZ         | 16MSEL16R            | 1.94   | 2.11   | 1.45   | 1.20   | 1 5/16 |

Connects fractional tube to female ISO taper thread.

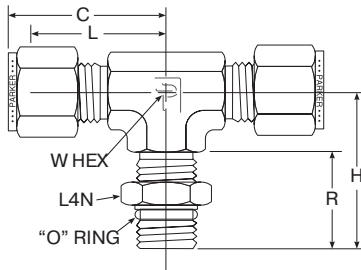
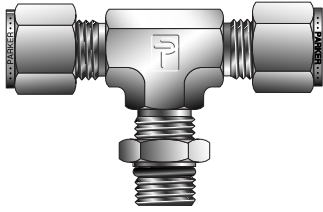
### BSPP Male Run Tee (Positionable)



| Tube O.D. (in) | BSPP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | C (in) | H (in) | L (in) | R (in) | W Hex  |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|
| 1/4            | 1/8-28      | 4-2R-4 RBZ         | 4MRT2R               | 1.06   | 1.04   | .77    | .63    | 9/16   |
| 1/4            | 1/4-19      | 4-4R-4 RBZ         | 4MRT4R               | 1.14   | 1.27   | .85    | .79    | 9/16   |
| 3/8            | 1/4-19      | 6-4R-6 RBZ         | 6MRT6R               | 1.20   | 1.27   | .91    | .79    | 9/16   |
| 1/2            | 3/8-19      | 8-6R-8 RBZ         | 8MRT8R               | 1.50   | 1.46   | 1.10   | .79    | 7/8    |
| 1/2            | 1/2-14      | 8-8R-8 RBZ         | 8MRT8R               | 1.50   | 1.71   | 1.10   | 1.03   | 7/8    |
| 5/8            | 1/2-14      | 10-8R-10 RBZ       | 10MRT8R              | 1.50   | 1.81   | 1.10   | 1.03   | 1 1/16 |
| 3/4            | 1/2-14      | 12-8R-12 RBZ       | 12MRT8R              | 1.57   | 1.81   | 1.17   | 1.03   | 1 1/16 |
| 3/4            | 3/4-14      | 12-12R-12 RBZ      | 12MRT12R             | 1.57   | 1.92   | 1.17   | 1.03   | 1 1/16 |
| 1              | 1-11        | 16-16R-16 RBZ      | 16MRT16R             | 1.94   | 2.11   | 1.45   | 1.20   | 1 5/16 |

Connects fractional tube to female ISO taper thread.

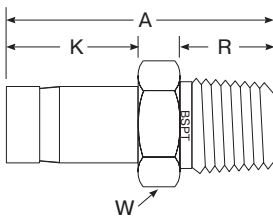
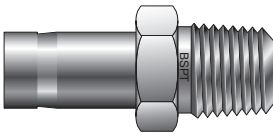
## BSPP Male Branch Tee (Positionable)



| Tube O.D. (in) | BSPP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | C (in) | H (in) | L (in) | R (in) | W Hex  |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|
| 1/4            | 1/8-28      | 4-4-2R SBZ         | 4MBT2R               | 1.06   | 1.04   | .77    | .63    | 9/16   |
| 1/4            | 1/4-19      | 4-4-4R SBZ         | 4MBT4R               | 1.14   | 1.27   | .85    | .79    | 9/16   |
| 3/8            | 1/4-19      | 6-6-4R SBZ         | 6MBT4R               | 1.14   | 1.27   | .85    | .79    | 9/16   |
| 1/2            | 3/8-19      | 8-8-6R SBZ         | 8MBT6R               | 1.50   | 1.46   | 1.10   | .79    | 7/8    |
| 1/2            | 1/2-14      | 8-8-8R SBZ         | 8MBT8R               | 1.50   | 1.71   | 1.10   | 1.03   | 7/8    |
| 5/8            | 1/2-14      | 10-10-8R SBZ       | 10MBT8R              | 1.50   | 1.81   | 1.10   | 1.03   | 1 1/16 |
| 3/4            | 1/2-14      | 12-12-8R SBZ       | 12MBT8R              | 1.57   | 1.81   | 1.17   | 1.03   | 1 1/16 |
| 3/4            | 3/4-14      | 12-12-12R SBZ      | 12MBT12R             | 1.57   | 1.92   | 1.17   | 1.03   | 1 1/16 |
| 1              | 1-11        | 16-16-16R SBZ      | 16MBT16R             | 1.94   | 2.11   | 1.45   | 1.20   | 1 5/16 |

Connects fractional tube to female ISO parallel thread.

## BSP Taper Male Adapter

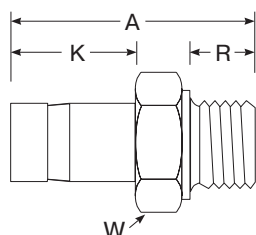
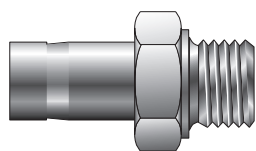


| Tube O.D. (in) | BSPT Thread | Parker CPI™ Part # | Parker A-LOK® Part # | CPI™   |        | A-LOK® |        | R (in) | W Hex  | Min. Bore (in) |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|--------|----------------|
|                |             |                    |                      | A (in) | K (in) | A (in) | K (in) |        |        |                |
| 1/8            | 1/8-28      | 2-2K T2HF          | 2MA2K                | 1.16   | 0.54   | 1.16   | .54    | .38    | 7/16   | .078           |
| 1/8            | 1/4-19      | 2-4K T2HF          | 2MA4K                | 1.39   | 0.54   | 1.39   | .54    | .56    | 9/16   | .281           |
| 1/4            | 1/8-28      | 4-2K T2HF          | 4MA2K                | 1.27   | 0.64   | 1.25   | .63    | .38    | 7/16   | .156           |
| 1/4            | 1/4-19      | 4-4K T2HF          | 4MA4K                | 1.49   | 0.64   | 1.46   | .63    | .56    | 9/16   | .078           |
| 5/16           | 1/8-28      | 5-2K T2HF          | 5MA2K                | 1.32   | 0.68   | 1.28   | .66    | .38    | 7/16   | .219           |
| 5/16           | 1/4-19      | 5-4K T2HF          | 5MA4K                | 1.53   | 0.68   | 1.49   | .66    | .56    | 9/16   | .219           |
| 3/8            | 1/4-19      | 6-4K T2HF          | 6MA4K                | 1.57   | 0.72   | 1.53   | .69    | .56    | 9/16   | .281           |
| 3/8            | 3/8-19      | 6-6K T2HF          | 6MA6K                | 1.61   | 0.72   | 1.56   | .69    | .56    | 11/16  | .281           |
| 3/8            | 1/2-14      | 6-8K T2HF          | 6MA8K                | 1.82   | 0.72   | 1.78   | .69    | .75    | 7/8    | .281           |
| 1/2            | 1/4-19      | 8-4K T2HF          | 8MA4K                | 1.84   | 0.98   | 1.75   | .91    | .75    | 9/16   | .281           |
| 1/2            | 3/8-19      | 8-6K T2HF          | 8MA6K                | 1.87   | 0.98   | 1.78   | .91    | .56    | 11/16  | .375           |
| 1/2            | 1/2-14      | 8-8K T2HF          | 8MA8K                | 2.09   | 0.98   | 2.00   | .91    | .75    | 7/8    | .375           |
| 5/8            | 3/8-19      | 10-6K T2HF         | 10MA6K               | 1.91   | 1.03   | 1.84   | .97    | .56    | 11/16  | .469           |
| 5/8            | 1/2-14      | 10-8K T2HF         | 10MA8K               | 2.14   | 1.03   | 2.06   | .97    | .75    | 7/8    | .469           |
| 3/4            | 3/4-14      | 12-12K T2HF        | 12MA12K              | 2.14   | 1.03   | 2.06   | .97    | .75    | 1 1/16 | .594           |
| 1              | 1-11        | 16-16K T2HF        | 16MA16K              | 2.68   | 1.30   | 2.60   | 1.22   | .94    | 1 3/8  | .813           |

Connects fractional tube to female ISO taper thread.

Generic, annealed tube stub for effective ferrule sealing.

## BSPP Male Adapter



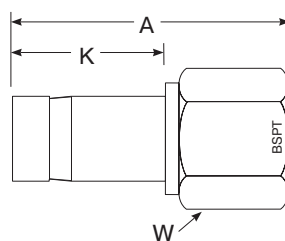
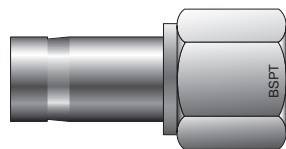
| Tube O.D. (in) | BSPP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | CPI™   |        | A-LOK® |        | R (in) | W Hex  | Min. Bore (in) |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|--------|----------------|
|                |             |                    |                      | A (in) | K (in) | A (in) | K (in) |        |        |                |
| 1/8            | 1/8-28      | 2-2R T2HF          | 2MA2R                | 1.16   | .54    | 1.16   | .54    | .28    | 9/16   | .078           |
| 1/8            | 1/4-19      | 2-4R T2HF          | 2MA4R                | 1.37   | .54    | 1.37   | .54    | .44    | 3/4    | .078           |
| 1/4            | 1/8-28      | 4-2R T2HF          | 4MA2R                | 1.26   | .64    | 1.31   | .63    | .28    | 9/16   | .156           |
| 1/4            | 1/4-19      | 4-4R T2HF          | 4MA4R                | 1.48   | .64    | 1.50   | .63    | .44    | 3/4    | .156           |
| 3/8            | 1/4-19      | 6-4R T2HF          | 6MA4R                | 1.56   | .72    | 1.57   | .69    | .44    | 3/4    | .281           |
| 3/8            | 3/8-19      | 6-6R T2HF          | 6MA6R                | 1.59   | .72    | 1.60   | .69    | .44    | 7/8    | .281           |
| 1/2            | 1/4-19      | 8-4R T2HF          | 8MA4R                | 1.81   | .98    | 1.79   | .91    | .44    | 3/4    | .375           |
| 1/2            | 3/8-19      | 8-6R T2HF          | 8MA6R                | 1.85   | .98    | 1.82   | .91    | .44    | 7/8    | .375           |
| 1/2            | 1/2-14      | 8-8R T2HF          | 8MA8R                | 2.10   | .98    | 1.94   | .91    | .44    | 1-1/8  | .375           |
| 3/4            | 3/4-14      | 12-12R T2HF        | 12MA12R              | 2.22   | 1.03   | 2.16   | .97    | .63    | 1-3/8  | .594           |
| 1              | 1-11        | 16-16R T2HF        | 16MA16R              | 2.67   | 1.30   | 2.54   | 1.22   | .72    | 1-3/4  | .813           |
| 5/8            | 1/2-14      | 10-8K T2HF         | 10MA8K               | 2.14   | 1.03   | 2.06   | .97    | .75    | 7/8    | .469           |
| 3/4            | 3/4-14      | 12-12K T2HF        | 12MA12K              | 2.14   | 1.03   | 2.06   | .97    | .75    | 1 1/16 | .594           |
| 1              | 1-11        | 16-16K T2HF        | 16MA16K              | 2.68   | 1.30   | 2.60   | 1.22   | .94    | 1 3/8  | .813           |

Connects fractional tube end to female ISO parallel thread.

**Note:** Bonded Seal, page 39 must be used on BSPP end shown.

Generic, annealed tube stub for effective sealing.

## BSP Taper Female Adapter

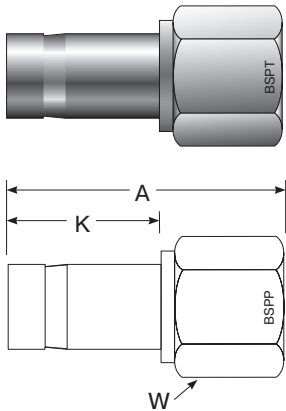


| Tube O.D. (in) | BSPT Thread | Parker CPI™ Part # | Parker A-LOK® Part # | CPI™   |        | A-LOK® |        | W Hex  | Min. Bore (in) |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|----------------|
|                |             |                    |                      | A (in) | K (in) | A (in) | K (in) |        |                |
| 1/4            | 1/8-28      | 4-2K T2HG          | 4FA2K                | 1.31   | .64    | 1.30   | .63    | 9/16   | .156           |
| 1/4            | 1/4-19      | 4-4K T2HG          | 4FA4K                | 1.48   | .64    | 1.45   | .63    | 3/4    | .156           |
| 3/8            | 1/4-19      | 6-4K T2HG          | 6FA4K                | 1.56   | .72    | 1.50   | .69    | 3/4    | .281           |
| 3/8            | 3/8-19      | 6-6K T2HG          | 6FA6K                | 1.63   | .72    | 1.59   | .69    | 7/8    | .281           |
| 1/2            | 1/4-19      | 8-4K T2HG          | 8FA4K                | 1.83   | .98    | 1.71   | .91    | 3/4    | .375           |
| 1/2            | 3/8-19      | 8-6K T2HG          | 8FA6K                | 1.89   | .98    | 1.80   | .91    | 7/8    | .375           |
| 1/2            | 1/2-14      | 8-8K T2HG          | 8FA8K                | 2.14   | .98    | 2.05   | .91    | 1-1/16 | .375           |

Connects fractional tube end to male ISO taper thread.

**Note:** Tube stub is pre-grooved as standard. Generic (non-grooved) can be ordered through Quick Response.

## BSPP Female Adapter

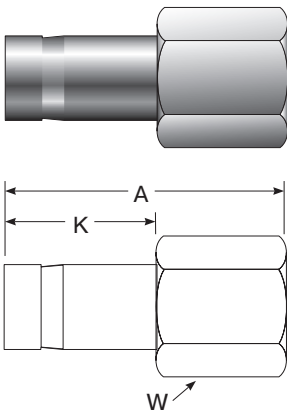


| Tube O.D. (in) | BSPP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | CPI™   |        | A-LOK® |        | W Hex  | Min. Bore (in) |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|----------------|
|                |             |                    |                      | A (in) | K (in) | A (in) | K (in) |        |                |
| 1/8            | 1/8-28      | 2-2R T2HG          | 2FA2R                | 1.21   | .54    | 1.21   | .54    | 9/16   | .078           |
| 1/4            | 1/8-28      | 4-2R T2HG          | 4FA2R                | 1.31   | .64    | 1.25   | .63    | 9/16   | .156           |
| 1/4            | 1/4-19      | 4-4R T2HG          | 4FA4R                | 1.48   | .64    | 1.50   | .63    | 3/4    | .156           |
| 3/8            | 1/4-19      | 6-4R T2HG          | 6FA4R                | 1.56   | .72    | 1.55   | .69    | 3/4    | .281           |
| 3/8            | 3/8-19      | 6-6R T2HG          | 6FA6R                | 1.63   | .72    | 1.57   | .69    | 7/8    | .281           |
| 1/2            | 3/8-19      | 8-6R T2HG          | 8FA6R                | 1.89   | .98    | 1.78   | .91    | 7/8    | .375           |
| 1/2            | 1/2-14      | 8-8R T2HG          | 8FA8R                | 2.14   | .98    | 1.95   | .91    | 1-1/16 | .375           |

Connects fractional tube end to male ISO parallel thread.

**Note:** Tube stub is pre-grooved as standard. Generic (non-grooved) can be ordered through Quick Response.

## BSPP Female Gauge Adapter



| Tube O.D. (in) | BSPP Thread | Parker CPI™ Part # | Parker A-LOK® Part # | CPI™   |        | A-LOK® |        | W Hex  | Min. Bore (in) |
|----------------|-------------|--------------------|----------------------|--------|--------|--------|--------|--------|----------------|
|                |             |                    |                      | A (in) | K (in) | A (in) | K (in) |        |                |
| 1/4            | 1/4-19      | 4-4GC T2HG         | 4FA4GC               | 1.48   | .64    | 1.34   | .63    | 3/4    | .156           |
| 3/8            | 3/8-19      | 6-6GC T2HG         | 6FA6GC               | 1.63   | .72    | 1.55   | .69    | 7/8    | .281           |
| 1/2            | 1/2-14      | 8-8GC T2HG         | 8FA8GC               | 2.14   | .98    | 1.92   | .91    | 1 1/16 | .375           |

Connects fractional tube end to male ISO parallel thread (gauge).

**Note:** Copper Washer, on page 39 is for female thread sealing, must be used on BSPP female end shown.

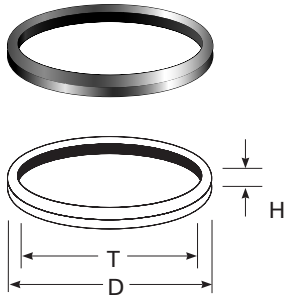
**Note:** Tube stub is pre-grooved as standard. Generic (non-grooved) can be ordered through Quick Response.

## Sealing Washers

### Bonded Seals

For BSPP female thread sealing.

Consists of an outer stainless steel ring with a bonded Viton® inner ring used to seal a male ISO parallel thread.



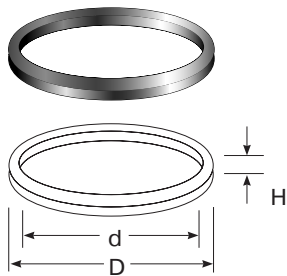
| Part Number | T<br>BSPP<br>Thread | D<br>(in) | H<br>(in) |
|-------------|---------------------|-----------|-----------|
| M30201-SS   | 1/8                 | .63       | .08       |
| M30202-SS   | 1/4                 | .81       | .08       |
| M30203-SS   | 3/8                 | .94       | .08       |
| M30204-SS   | 1/2                 | 1.12      | .10       |
| M30206-SS   | 3/4                 | 1.38      | .10       |
| M30208-SS   | 1                   | 1.69      | .10       |

These seals are also available in steel with a Nitrile inner ring. Simply replace Suffix SS with **S**.

| Pressure Rating for Sealing Washers |      |     |
|-------------------------------------|------|-----|
| Thread Size                         | PSI  | Bar |
| 1/8                                 | 5300 | 370 |
| 1/4                                 | 5500 | 380 |
| 3/8                                 | 4400 | 300 |
| 1/2                                 | 4000 | 280 |
| 3/4                                 | 3700 | 260 |
| 1                                   | 2800 | 190 |

### Copper Washers

For BSPP male thread sealing



| Part Number | Thread | D<br>(in) | d<br>(in) | H<br>(in) |
|-------------|--------|-----------|-----------|-----------|
| M28329      | 1/8    | .71       | .39       | .09       |
| M28330      | 1/4    | .87       | .55       | .09       |
| M28331      | 3/8    | .94       | .67       | .09       |
| M28332      | 1/2    | 1.18      | .87       | .10       |
| M28334      | 3/4    | 1.38      | 1.06      | .09       |
| M28336      | 1      | 1.65      | 1.34      | .09       |
| M25179      | 1/8    | 0.322     | 0.188     | 0.062     |
| M25180      | 1/4    | 0.436     | 0.250     | 0.062     |
| M25181      | 3/8    | 0.574     | 0.375     | 0.062     |
| M25182      | 1/2    | 0.719     | 0.500     | 0.062     |
| M25184      | 3/4    | 0.935     | 0.719     | 0.062     |
| M25186      | 1      | 1.178     | 0.969     | 0.093     |

Used to provide a seal with male or female parallel ISO threads.

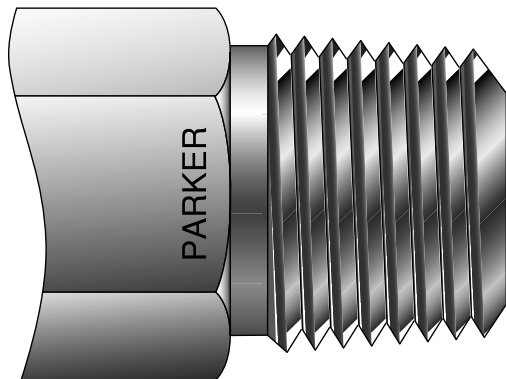
\* Gasket fits ISO 1179-1 type G/H port.

**Note:** The pressure ratings are based on taper threaded ends. The pressure rating for the BSPP ends are dependent on the type of sealing washer used.

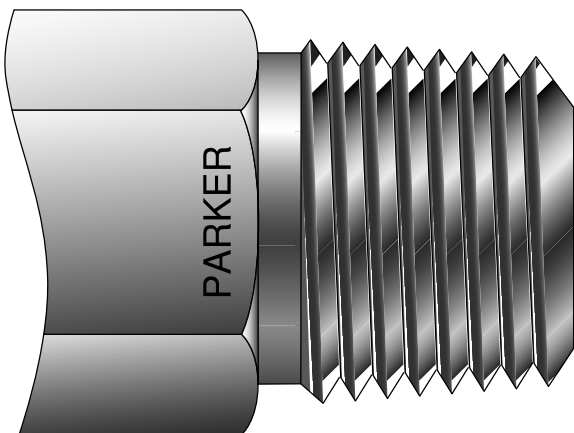
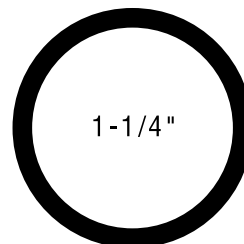
### Pipe & Tube End Size Chart (USA)

NPT Thread

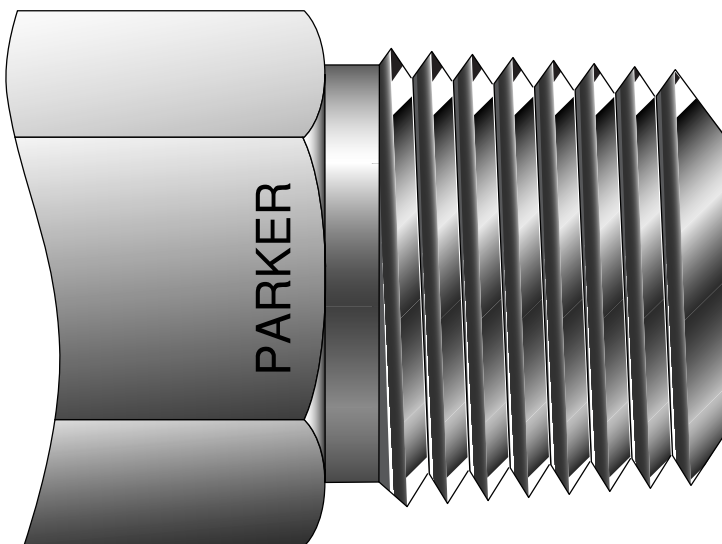
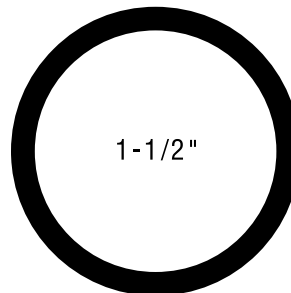
Tubing O.D. Size



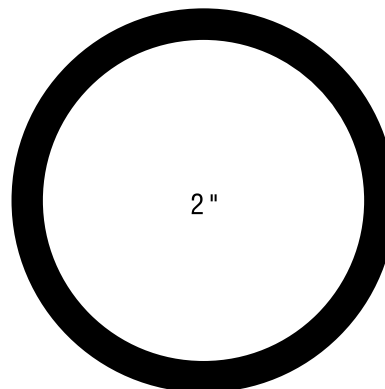
1-1/4"  
(1-1/4" - 11-1/2")



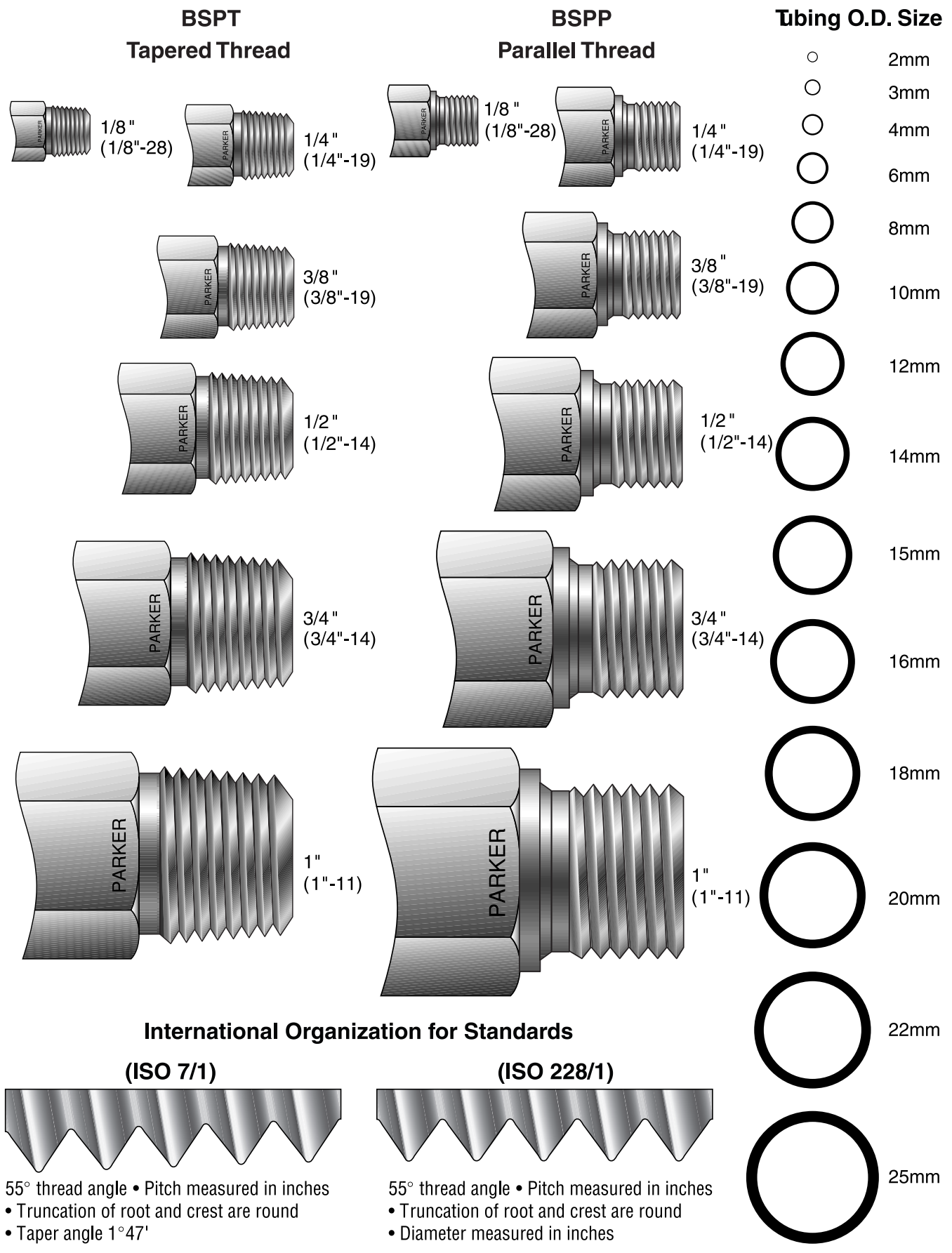
1-1/2"  
(1-1/2" - 11-1/2")



2"  
(2" - 11-1/2")



# Pipe & Tube End Size Chart (International)



## Pipe Data and Dimensions

| Pipe Size (Inches) | Schedule Number | Iron Pipe Size | Dimensions                |                          |                         |
|--------------------|-----------------|----------------|---------------------------|--------------------------|-------------------------|
|                    |                 |                | Outside Diameter (Inches) | Inside Diameter (Inches) | Wall Thickness (Inches) |
| 1/8                | –               | –              | 0.405                     | 0.307                    | 0.049                   |
|                    | 40              | STD            |                           | 0.269                    | 0.068                   |
|                    | 80              | XS             |                           | 0.215                    | 0.095                   |
| 1/4                | –               | –              | 0.540                     | 0.410                    | 0.065                   |
|                    | 40              | STD            |                           | 0.364                    | 0.088                   |
|                    | 80              | XS             |                           | 0.302                    | 0.119                   |
| 3/8                | –               | –              | 0.675                     | 0.545                    | 0.065                   |
|                    | 40              | STD            |                           | 0.493                    | 0.091                   |
|                    | 80              | XS             |                           | 0.423                    | 0.126                   |
| 1/2                | –               | –              | 0.840                     | 0.710                    | 0.065                   |
|                    | –               | –              |                           | 0.674                    | 0.083                   |
|                    | 40              | STD            |                           | 0.622                    | 0.109                   |
|                    | 80              | XS             |                           | 0.546                    | 0.147                   |
|                    | 160             | –              |                           | 0.466                    | 0.187                   |
|                    | –               | XXS            |                           | 0.252                    | 0.294                   |
| 3/4                | –               | –              | 1.050                     | 0.920                    | 0.065                   |
|                    | –               | –              |                           | 0.884                    | 0.083                   |
|                    | 40              | STD            |                           | 0.824                    | 0.113                   |
|                    | 80              | XS             |                           | 0.742                    | 0.154                   |
|                    | 160             | –              |                           | 0.612                    | 0.219                   |
|                    | –               | XXS            |                           | 0.434                    | 0.308                   |
| 1                  | –               | –              | 1.315                     | 1.185                    | 0.065                   |
|                    | –               | –              |                           | 1.097                    | 0.109                   |
|                    | 40              | STD            |                           | 1.049                    | 0.133                   |
|                    | 80              | XS             |                           | 0.957                    | 0.179                   |
|                    | 160             | –              |                           | 0.815                    | 0.25                    |
|                    | –               | XXS            |                           | 0.599                    | 0.358                   |
| 1-1/4              | –               | –              | 1.660                     | 1.530                    | 0.065                   |
|                    | –               | –              |                           | 1.442                    | 0.109                   |
|                    | 40              | STD            |                           | 1.38                     | 0.140                   |
|                    | 80              | XS             |                           | 1.278                    | 0.191                   |
|                    | 160             | –              |                           | 1.160                    | 0.250                   |
|                    | –               | XXS            |                           | 0.896                    | 0.382                   |
| 1-1/2              | –               | –              | 1.900                     | 1.770                    | 0.065                   |
|                    | –               | –              |                           | 1.682                    | 0.109                   |
|                    | 40              | STD            |                           | 1.610                    | 0.145                   |
|                    | 80              | XS             |                           | 1.500                    | 0.200                   |
|                    | 160             | –              |                           | 1.338                    | 0.281                   |
|                    | –               | XXS            |                           | 1.100                    | 0.400                   |
| 2                  | –               | –              | 2.375                     | 2.245                    | 0.065                   |
|                    | –               | –              |                           | 2.157                    | 0.109                   |
|                    | 40              | STD            |                           | 2.067                    | 0.154                   |
|                    | 80              | XS             |                           | 1.939                    | 0.218                   |
|                    | 160             | –              |                           | 1.687                    | 0.344                   |
|                    | –               | XXS            |                           | 1.503                    | 0.436                   |

## Heat Code Traceability

Parker Hannifin's Instrumentation Connectors Division offers Heat Code Traceability (**HCT**) on CPI™, A-LOK®, Instrumentation Pipe, and Weld-Lok fittings.

HCT refers to the fact that a specific part can be traced back to the original mill heat of metal from which it was made. Beginning with the original melt, a package of documents is created which completely describes the metal in physical and chemical terms. The end result is that a number, which is permanently stamped to the part, refers back to the document package.

The HCT number is stamped on the material (bar stock or forging) prior to manufacturing. The concept is useful because it provides a method for complete material accountability for the manufacturer and end customer.

### **HCT offers these advantages:**

- Raw materials for manufacture must meet code requirements. This can be verified through documentation so that the customer is certain that what is ordered is received.
- HCT provides a record of chemical analysis with the raw material. Thus, in areas requiring welding, the correct welding technique is applied.
- HCT relieves the user of Parker instrumentation tube fittings of any doubts. It acts as an assurance for today and for tomorrow.

The material used in Parker Hannifin instrumentation fitting components is 316 or 316L (welded products) stainless steel as specified and referenced in Section III of the ASME Boiler and Pressure Vessel code.

The American Society of Mechanical Engineers (ASME) Boiler and Vessel Code, Section III, latest issue, entitled Rules for Construction of Nuclear Power Plant Components, is the principal document covering this type of fitting in the nuclear field. ANSI Standard B.31.1.0, Power Piping, and ANSI Standard B.31.7, Nuclear Power Piping, are also important documents in the field.

In addition to the documentation of chemical and physical properties, great care is taken throughout the manufacture of Parker's tube fittings to ensure that potential stress corrosion will not be a problem in normal usage of the parts. Manufacturing processes avoid exposure of the parts to mercury or halogens, and control of thermal treatment avoids the condition known as continuous grain boundary carbide precipitation.

For additional information please contact your local authorized Parker Instrumentation distributor or call Parker Instrumentation Products Division and ask for Bulletin 4230-B15.

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**4. Shipment; Delivery; Title and Risk of Loss.** All delivery dates are approximate, and Seller is not responsible for damages or additional costs resulting from any delay. All deliveries are subject to our ability to procure materials from our suppliers. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

**5. Warranty.** The warranty for the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULTTOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED, UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH-RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

**6. Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the nonconformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

**7. LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCTS, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

**8. Confidential Information.** Buyer acknowledges and agrees that Confidential Information has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller and shall return all such Confidential Information to Seller within thirty (30) days upon request.

**9. Loss to Buyer's Property.** Buyer's Property will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property. Also, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control. **10. Special Tooling.** Seller may impose a tooling charge for any Special Tooling. Special Tooling shall be and remain Seller's property. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property owned by Seller in its sole determination at any time.

**11. Security Interest.** To secure payment of all sums due from Buyer, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect Seller's security interest.

**12. User Responsibility.** Buyer, through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and any technical information provided with the Quote or the Products, such as Seller's instructions, guides and specifications. If Seller provides options of or for Products based upon data or specifications provided by Buyer, Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event Buyer is not the end-user of the Products, Buyer will ensure such end-user complies with this paragraph.

**13. Use of Products, Indemnity by Buyer.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of Buyer's Property; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms, including any legal or

administrative proceedings, collection efforts, or other actions arising from or relating to such failure to comply. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

**14. Cancellations and Changes.** Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, any order for any reason except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

**15. Assignment.** Buyer may not assign its rights or obligations without the prior written consent of Seller.

**16. Force Majeure.** Seller is not liable for delay or failure to perform any of its obligations by reason of any events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, cyber related disruptions, cyber-attacks, ransomware sabotage, delays or failures in delivery from carriers or suppliers, shortages of materials, sudden increases in the price of raw material or components, shutdowns or slowdowns affecting the supply of raw materials or components, or the transportation thereof, oil shortages or oil price increases, energy crisis, energy or fuel interruption, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, embargoes, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by an event of force majeure shall be tolled for the duration of such event of force majeure and rescheduled for mutually agreed dates as soon as practicable after the event of force majeure ceases to exist. The right to allocate capacity is in the Seller's sole discretion. An event of force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or subcontractors. An event of force majeure in the meaning of these Terms means any circumstances beyond Seller's control that permanently or temporarily hinders performance, even where that circumstance was already foreseen. Buyer shall not be entitled to cancel any orders following its claim of an event of force majeure.

**17. Waiver and Severability.** Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

**18. Duration.** Unless otherwise stated in the Quote, any agreement governed by or arising from these Terms shall: (a) be for an initial duration of one (1) year; and (b) shall automatically renew for successive one-year terms unless terminated by Buyer with at least 180-days written notice to Seller or if Seller terminates the agreement pursuant to Section 19 of these Terms.

**19. Termination.** Seller may, without liability to Buyer, terminate any agreement governed by or arising from these Terms for any reason and at anytime by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property, (d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

**20. Ownership of Rights.** Buyer agrees that (a) Seller (and/or its affiliates) owns or is the valid licensee of Seller's IP and (b) the furnishing of information, related documents or other materials by Seller to Buyer does not grant or transfer any ownership interest or license in or to Seller's IP to Buyer, unless expressly agreed in writing. Without limiting the foregoing, Seller retains ownership of all Software supplied to Buyer. In no event shall Buyer obtain any greater right in and to the Software than a right in a license limited to the use thereof and subject to compliance with any other terms provided with the Software. Buyer further agrees that it will not, directly or through intermediaries, reverse engineer, decompile, or disassemble any Software (including firmware) comprising or contained within a Product, except and only to the extent that such activity may be expressly permitted, either by applicable law or, in the case of open source software, the applicable open source license.

**21. Indemnity for Infringement of Intellectual Property Rights.**

Seller is not liable for infringement of any Intellectual Property Rights except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third-party claim that one or more of the Products infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by Seller to Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer (including Seller's use of Buyer's Property); or (ii) directed to any Products for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for claims of infringement of Intellectual Property Rights.

**22. Governing Law.** These Terms, the terms of any Quote, and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

**23. Entire Agreement.** These Terms, along with the terms set forth in the Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the Quote and these Terms, the terms set forth in the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. No modification to these Terms will be binding on Seller unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence, 'clickwrap' or other purported electronic assent to different or additional terms. Sections 2-25 of these Terms shall survive termination or cancellation of any agreement governed by or arising from these Terms.

**24. No 'Wrap' Agreements/No Authority to Bind.** Seller's clicking any buttons or any similar action, such as clicking "I Agree" or "Confirm," to utilize Buyer's software or webpage for the placement of orders, is NOT an agreement to Buyer's Terms and Conditions. NO EMPLOYEE, AGENT OR REPRESENTATIVE OF SELLER HAS THE AUTHORITY TO BIND SELLER BY THE ACT OF CLICKING ANY BUTTON OR SIMILAR ACTION ON BUYER'S WEBSITE OR PORTAL.

**25. Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer represents that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Products from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws. Buyer agrees to promptly and reliably provide Seller all requested information or documents, including end-user statements and other written assurances, concerning Buyer's ongoing compliance with Export Law.

09/2022

If you have questions about the products contained in this catalog, or their applications, please contact:

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**WARNING**

The products described in this catalog can expose you to chemicals, including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov).



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