


Visual Index

Pipe Fittings

Male Hex Nipple
MHN
page 4



Male Close Nipple
MCN
page 4



Male Hex Long Nipple
MHLN
page 5




Female Hex Coupling
FHC
page 5



Adapter
RA
page 6



Reducing Bushing
RB
page 6




Male Elbow
ME
page 7



Female Elbow
FE
page 7



Female Elbow 45°
FVE
page 7



Street Elbow
SE
page 8




Street Elbow 45°
SVE
page 8



Male Tee
MT
page 9




Female Tee
FT
page 9




Street Tee
ST
page 10




Male Branch Tee
MBT
page 10



Female Cross
FX
page 10



Pipe Cap
CP
page 11



Hex Head Plug
PH
page 12



Hollow Hex Plug
PHH
page 12



Straight Thread Adapters


Hex Head Plug
P5ON
page 12



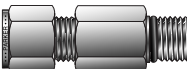
Hollow Hex Plug
HP5ON
page 12



Straight Thread Reducer/Expander
F5OG5
page 12



Male SAE Straight Thread to Female NPT Thread
GOA
page 13



Male Connector to SAE Straight Thread
page 13

www.steelmart.com

Instrument Pipe Fittings

Features and Technical Data

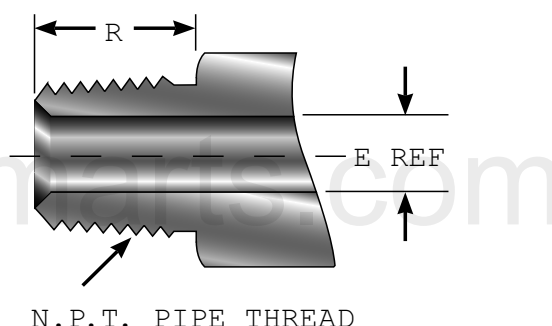
Steel Mart India Instrument Pipe Fittings are precision machined from forgings for elbows, tees and crosses and from bar stock for straight connectors. They are designed to be used for process control and instrumentation connections between pipe sizes and tube sizes.

Features

- 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

Pipe Dimensions

| Pipe Size | N.P.T. 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 |

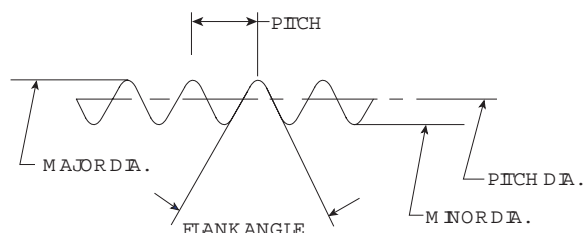


NPT Threads

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



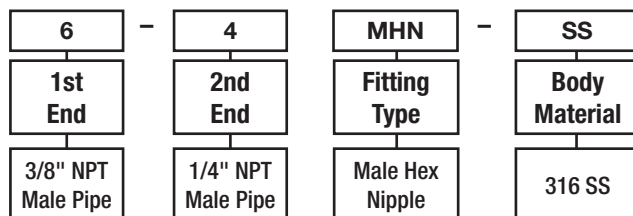
Instrument Pipe Fittings

How To Order

Steel Mart India 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.

Example: 6-4 MHN-SS



Steel Mart India 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 4.

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.

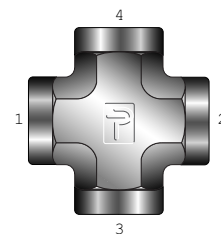
If a reducing tee or cross were specified, each size must be in sequence. First size the largest run (1 to 2) and then the branch (3 to 4).

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

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

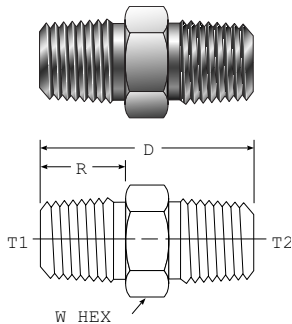
Special Fittings: If there is any question as to the fitting desired, particularly for special fitting configurations, it is suggested that a customer print be submitted with the fitting request for quote.

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.



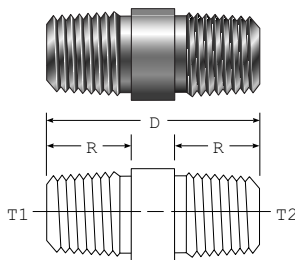
Instrument Pipe Fittings

Male Hex Nipple MHN



| Steel Mart India Part No. | NPT Thread Male | | W Hex | D (in.) | R (in.) | Working Pressures (PSIG) | | |
|------------------------------|--------------------|----------------|----------|------------|------------|-----------------------------|--------------------|-------|
| | T ₁ | T ₂ | | | | 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 |

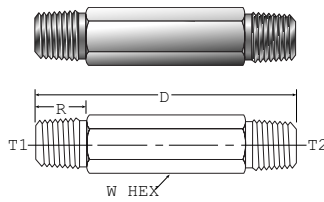
Male Close Nipple MCN



| Steel Mart India 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 |

Instrument Pipe Fittings

Male Hex Long Nipple MHLN

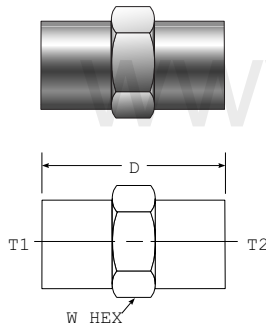


| Steel Mart Part No. | NPT Thread Male | | W Hex | D (in.) | R (in.) | Working Pressure (PSIG) | | |
|---------------------|-----------------|----------------|-------|---------|---------|-------------------------|-----------------|-------|
| | T ₁ | T ₂ | | | | Brass | Stainless Steel | Steel |
| 1-1 MHLN-(**) (*) | 1/16 | 1/16 | 7/16 | * | .38 | 6000 | 10000 | 10500 |
| 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 |

*Specify Length

** Specify Material (B = Brass, SS = Stainless Steel, S = Steel)

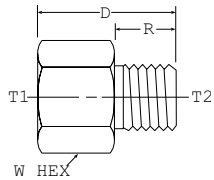
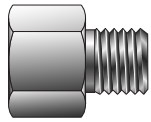
Female Hex Coupling FHC



| Steel Mart Part No. | NPT Thread Female | | W Hex | D (in.) | Working Pressures (PSIG) | | |
|---------------------|-------------------|----------------|-------|---------|--------------------------|-----------------|-------|
| | T ₁ | T ₂ | | | Brass | Stainless Steel | Steel |
| 1-1 FHC | 1/16 | 1/16 | 1/2 | .75 | 4500 | 7500 | 8000 |
| 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 |

Instrument Pipe Fittings

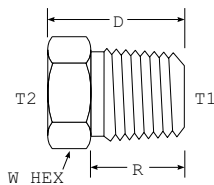
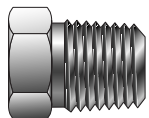
Adapter RA



| Steel Mart Part No. | NPT Thread | | W Hex | D (in.) | R (in.) | Working Pressures (PSIG) | | |
|------------------------|--------------------------|------------------------|----------|------------|------------|--------------------------|--------------------|-------|
| | Female T ₁ | Male T ₂ | | | | 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 |

www.steelmart.com

Reducing Bushing RB

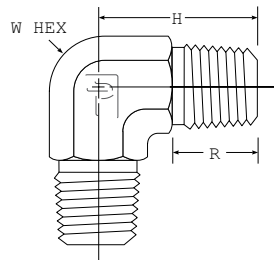
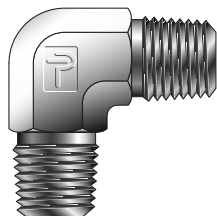


| Steel Mart Part No. | NPT Thread | | W Hex | D (in.) | R (in.) | Working Pressures (PSIG) | | |
|------------------------|------------------------|--------------------------|----------|------------|------------|--------------------------|--------------------|-------|
| | Male T ₁ | Female T ₂ | | | | 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 |

Dimensions for reference only, subject to change.

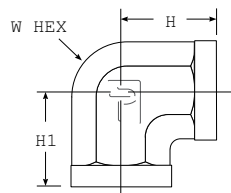
Instrument Pipe Fittings

Male Elbow ME



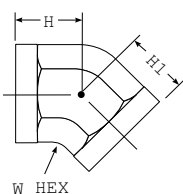
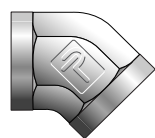
| Steel Mart Part No. | NPT Thread Male | W Hex | H (in.) | R (in.) | Working Pressures (PSIG) | | |
|---------------------|-----------------|--------|---------|---------|--------------------------|-----------------|-------|
| | | | | | Brass | Stainless Steel | Steel |
| 1-1 ME | 1/16 | 3/8 | .66 | .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 |

Female Elbow FE



| Steel Mart Part No. | NPT Thread Female | W Hex | H (in.) | H ₁ (in.) | Working Pressures (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 |

Female Elbow 45° FVE

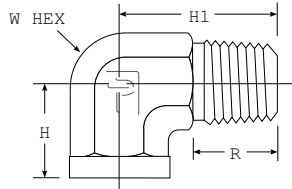
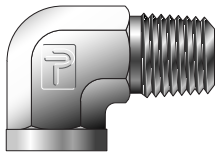


| Steel Mart Part No. | NPT Thread Female | W Hex | H (in.) | H ₁ (in.) | Working Pressures (PSIG) | | |
|---------------------|-------------------|--------|---------|----------------------|--------------------------|-----------------|-------|
| | | | | | Brass | Stainless Steel | Steel |
| 1-1 FVE | 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 |

Dimensions for reference only, subject to change.

Instrument Pipe Fittings

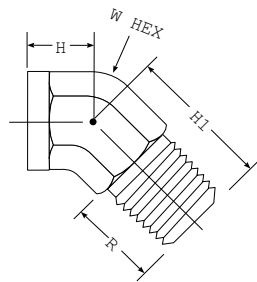
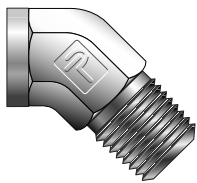
Street Elbow SE



| Steel Mart Part No. | NPT Thread | | W Hex | H (in.) | H ₁ (in.) | R (in.) | Working Pressures (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 |

www.steelmart.com

Street Elbow 45° SVE

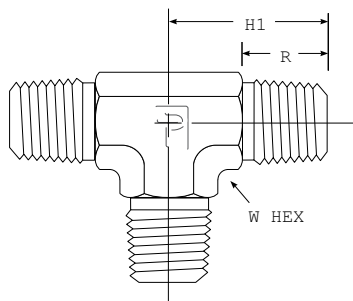
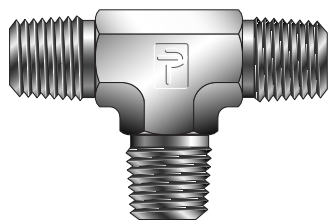


| Steel Mart Part No. | NPT Thread | | W Hex | H (in.) | H ₁ (in.) | R (in.) | Working Pressures (PSIG) | | |
|---------------------|------------|--------|--------|---------|----------------------|---------|--------------------------|-----------------|-------|
| | Male | Female | | | | | Brass | Stainless 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 |

Dimensions for reference only, subject to change.

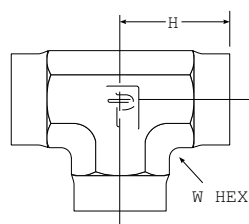
Instrument Pipe Fittings

Male Tee MT



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

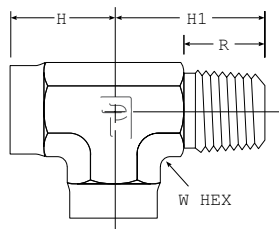
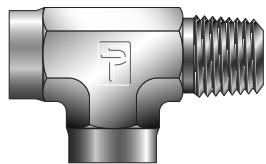
Female Tee FT



| Steel Mart Part No. | NPT Thread Female | W Hex | H (in.) | Working Pressures (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 |

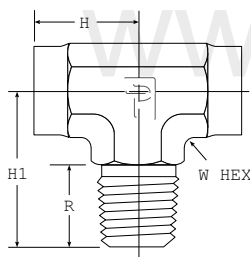
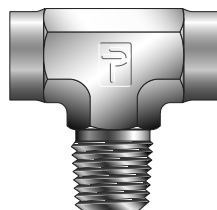
Instrument Pipe Fittings

Street Tee ST



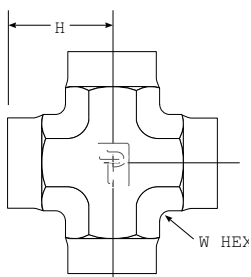
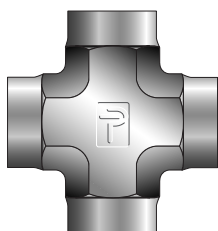
| Steel Mart Part No. | NPT Thread | | W Hex | H (in.) | H ₁ (in.) | R (in.) | Working Pressures (PSIG) | | |
|---------------------|------------|--------|--------|---------|----------------------|---------|--------------------------|-----------------|-------|
| | Male | Female | | | | | Brass | Stainless 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 |

Male Branch Tee MBT



| Steel Mart Part No. | NPT Thread | | W Hex | H (in.) | H ₁ (in.) | R (in.) | Working Pressures (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 |

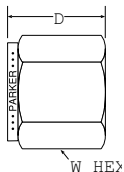
Female Cross FX



| Steel Mart Part No. | NPT Thread Female | W Hex | H (in.) | Working Pressures (PSIG) | | |
|---------------------|-------------------|--------|---------|--------------------------|-----------------|-------|
| | | | | 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 |

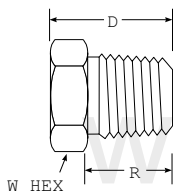
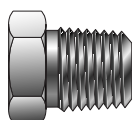
Instrument Pipe Fittings

Pipe Cap CP



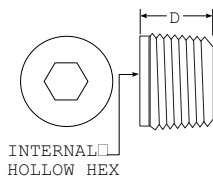
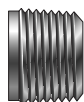
| Steel Mart Part No. | NPT Thread Female | W Hex | D (in.) | Working Pressures (PSIG) | | |
|---------------------|-------------------|--------|---------|--------------------------|-----------------|-------|
| | | | | Brass | Stainless Steel | Steel |
| 1 CP | 1/16 | 7/16 | .50 | 4500 | 7500 | 8000 |
| 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 |

Hex Head Plug PH



| Steel Mart Part No. | NPT Thread Male | W Hex | D (in.) | R (in.) | Working Pressures (PSIG) | | |
|---------------------|-----------------|--------|---------|---------|--------------------------|-----------------|-------|
| | | | | | Brass | Stainless Steel | Steel |
| 1 PH | 1/16 | 3/8 | .54 | .38 | 6000 | 10500 | 10000 |
| 2 PH | 1/8 | 7/16 | .56 | .38 | 5600 | 9700 | 9100 |
| 4 PH | 1/4 | 9/16 | .75 | .56 | 4100 | 8000 | 7500 |
| 6 PH | 3/8 | 11/16 | .78 | .56 | 4000 | 7600 | 7200 |
| 8 PH | 1/2 | 7/8 | .97 | .75 | 3900 | 7000 | 6600 |
| 12 PH | 3/4 | 1-1/16 | 1.06 | .75 | 3800 | 6800 | 6400 |
| 16 PH | 1 | 1-5/16 | 1.25 | .94 | 2700 | 4900 | 4600 |

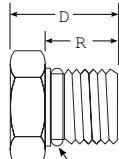
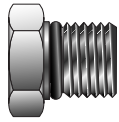
Hollow Hex Plug PHH



| Steel Mart Part No. | NPT Thread Male | W Internal Hex | D (in.) | Working Pressures (PSIG) | | |
|---------------------|-----------------|----------------|---------|--------------------------|-----------------|-------|
| | | | | 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 |

Instrument Pipe Fittings

Hex Head Plug P50N

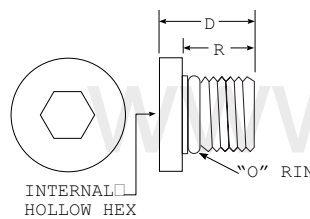
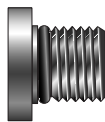


W HEX "O" RIN

| Steel Mart Part No. | Interchanges With | Port Thd UN/UNF-2A | W Hex | D (in.) | R (in.) | *D ₂ Drill (in.) | *L ₂ (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.

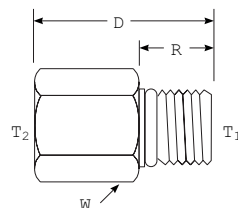
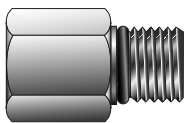
Hollow Hex Plug HP50N



INTERNAL HOLLOW HEX

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

Straight Thread Reducer/Expander F50G5

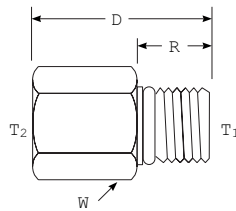
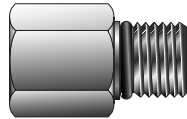


| Steel Mart Part No. | Interchanges With | T ₂ Port THD UN/UNF-2B | T ₁ Port THD UN/UNF-2A | W Hex | *D ₂ Drill (in.) | D (in.) | R (in.) | O-Ring |
|---------------------|-------------------|-----------------------------------|-----------------------------------|-------|-----------------------------|---------|---------|--------|
| 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 |

*D2 drill is optional manufacturing method per SAE.

Dimensions for reference only, subject to change.

Male SAE Straight Thread to Female NPT Thread GOA

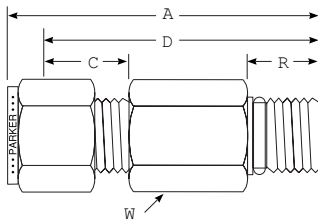
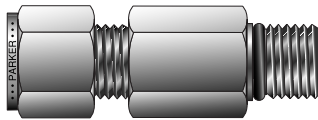


| Steel Mart Part No. | Interchanges With | T ₁ Straight Thread Size | T ₂ - NPT Female Pipe Size | D (in.) | R (in.) | E Minimum Opening (in.) | W Hex | ST O-Ring Uniform Size # |
|---------------------|-------------------|-------------------------------------|---------------------------------------|---------|---------|-------------------------|-------|--------------------------|
| 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-SAE-7-8 | 3/4-16 | 1/2 | 1.50 | .44 | .39 | 1-1/8 | 3-908 |
| 12-12 GOA | 12-SAE-7-12 | 1-1/16-12 | 3/4 | 1.83 | .59 | .66 | 1-1/4 | 3-912 |
| 16-16 GOA | 16-SAE-7-16 | 1-5/16-12 | 1 | 1.88 | .59 | .88 | 1-5/8 | 3-916 |

Includes O-ring.

www.steelmart.com

Male Connector to SAE Straight Thread



| Steel Mart CPI™ Part No. | Steel Mart A-LOK® Part No. | Interchanges With | Tube O.D. | Straight Thread Size | W Hex | A† (in.) | C† (in.) | D (in.) | R (in.) | O-Ring Dash No. |
|--------------------------|----------------------------|-------------------|-----------|----------------------|-------|----------|----------|---------|---------|-----------------|
| 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.