

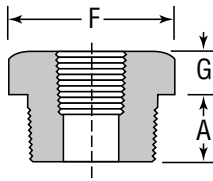
## High Pressure Bushings

### Fig. 2139 Hex Head Bushings

### Fig. 2140 Flush Bushings

**Figure 2139**

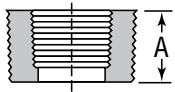
Hex Head Bushings



| Size             |     |       |    | A    |    | F    |     | G    |    | Unit Weight |      |
|------------------|-----|-------|----|------|----|------|-----|------|----|-------------|------|
| Lowest Reduction |     |       |    | in   | mm | in   | mm  | in   | mm | lbs         | kg   |
| NPS              | DN  | NPS   | DN |      |    |      |     |      |    |             |      |
| 1/4              | 8   | 1/8   | 6  | 0.44 | 11 | 0.62 | 16  | 0.12 | 3  | 0.02        | 0.01 |
| 3/8              | 10  | 1/8   | 6  | 0.50 | 13 | 0.69 | 18  | 0.16 | 4  | 0.03        | 0.01 |
| 1/2              | 15  | 1/8   | 6  | 0.56 | 14 | 0.88 | 22  | 0.19 | 5  | 0.06        | 0.03 |
| 3/4              | 20  | 1/8   | 6  | 0.62 | 16 | 1.06 | 27  | 0.22 | 6  | 0.11        | 0.05 |
| 1                | 25  | 1/8   | 6  | 0.75 | 19 | 1.38 | 36  | 0.25 | 6  | 0.20        | 0.09 |
| 1 1/4            | 32  | 1/8   | 6  | 0.81 | 21 | 1.75 | 46  | 0.28 | 7  | 0.40        | 0.18 |
| 1 1/2            | 40  | 1/4   | 8  | 0.81 | 21 | 2.00 | 50  | 0.31 | 8  | 0.50        | 0.23 |
| 2                | 50  | 1/4   | 8  | 0.88 | 22 | 2.50 | 65  | 0.34 | 9  | 0.85        | 0.39 |
| 2 1/2            | 65  | 1/2   | 15 | 1.06 | 27 | 3.00 | 75  | 0.38 | 10 | 1.20        | 0.54 |
| 3                | 80  | 1/2   | 15 | 1.12 | 28 | 3.50 | 90  | 0.41 | 10 | 2.60        | 1.18 |
| 4                | 100 | 1 1/2 | 40 | 1.25 | 32 | 4.62 | 115 | 0.50 | 13 | 7.00        | 3.17 |

**Figure 2140**

Flush Bushings



| Size             |    |     |    | A    |    | Unit Weight |      |
|------------------|----|-----|----|------|----|-------------|------|
| Lowest Reduction |    |     |    | in   | mm | lbs         | kg   |
| NPS              | DN | NPS | DN |      |    |             |      |
| 1/4              | 8  | 1/8 | 6  | 0.44 | 11 | 0.03        | 0.01 |
| 3/8              | 10 | 1/8 | 6  | 0.50 | 13 | 0.03        | 0.01 |
| 1/2              | 15 | 1/8 | 6  | 0.56 | 14 | 0.06        | 0.03 |
| 3/4              | 20 | 1/8 | 6  | 0.62 | 16 | 0.09        | 0.04 |
| 1                | 25 | 1/8 | 6  | 0.75 | 19 | 0.12        | 0.05 |
| 1 1/4            | 32 | 1/8 | 6  | 0.81 | 21 | 0.15        | 0.07 |
| 1 1/2            | 40 | 1/4 | 8  | 0.81 | 21 | 0.20        | 0.09 |
| 2                | 50 | 1/4 | 8  | 0.88 | 22 | 0.35        | 0.16 |

**Note:** Plugs and bushings are not identified by Pressure Class. They may be used for ratings up to Pressure Class 6000 (per ASME B16.11)

| PROJECT INFORMATION | APPROVAL STAMP    |
|---------------------|-------------------|
| Project:            | Approved          |
| Address:            | Approved as noted |
| Contractor:         | Not approved      |
| Engineer:           | Remarks:          |
| Submittal Date:     |                   |
| Notes 1:            |                   |
| Notes 2:            |                   |

**Fig. 2139** Hex Head Bushings  
**Fig. 2140** Flush Bushings



## Materials

The steel for Anvil Forged Carbon Steel Fittings consists of forging, bars, seamless pipe or tubes which conform to the requirements for melting process, chemical composition and mechanical properties of ASTM A105.

## Design Basis

ASME B16.11 – Forged fittings, socket-weld and threaded

## Dimensions

ASME B16.11, unless otherwise noted

## Threads

ASME B1.20.1 NPT Threads

## Forged Steel Fittings

In accordance with ASME standard B16.11 – “Forged Fittings, Socket-Welding and Threaded” this table shows the schedule of pipe corresponding to each class of fitting for rating purposes.

| Pressure Ratings |          |      |
|------------------|----------|------|
| Class            | Schedule |      |
|                  | N.P.T.   | S.W. |
| 2000             | 80       | –    |
| 3000             | 160      | 80   |
| 6000             | XXS/XXH  | 160  |

ASME B16.11 provides that the maximum allowable pressure of a fitting be computed in accordance with the applicable piping code or regulation for straight seamless pipe or for material of equivalent composition and mechanical properties to the fitting. Any corrosion or mechanical allowances and any reduction in allowable stress due to temperature or other service conditions must be applied to the pipe and fitting alike.

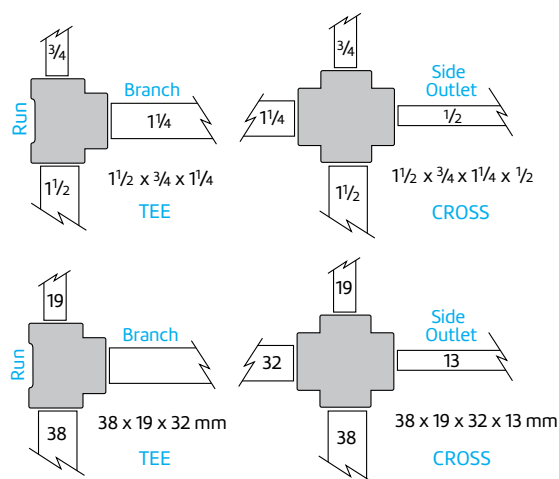
## Standards and Specifications

| Dimensions                     | Material                                             | Thread       | Pressure Rating |
|--------------------------------|------------------------------------------------------|--------------|-----------------|
| Forged Steel Threaded Fittings |                                                      |              |                 |
| Class 2000, 3000, 6000         | ASME B16.11<br>ASTM A105,<br>ASTM A182,<br>ASTM A350 | ASME B1.20.1 | ASME B16.11     |

## Reducing Fittings

Reducing elbows, tees and crosses are available in both threaded and socket-welding.

On reducing tees and crosses give the size of the largest run opening; then give the opposite opening. On a tee give the branch size last. On a cross give the largest side outlet third and the opposite opening last.



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**Fig. 2139** Hex Head Bushings  
**Fig. 2140** Flush Bushings

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## General Assembly of Threaded Fittings

### 1) Inspect Both Male and Female Components Prior To Assembly

- Threads should be free from mechanical damage, dirt, chips and excess cutting oil.
- Clean or replace components as necessary.

### 2) Application of Thread Sealant

- Use a thread sealant that is fast drying, sets-up to a semi hard condition and is vibration resistant. Alternately, an anaerobic sealant may be utilized.
- Thoroughly mix the thread sealant prior to application.
- Apply a thick even coat to the male threads only. Best application is achieved with a brush stiff enough to force sealant down to the root of the threads.

### 3) Joint Makeup

- For sizes up to and including 2" pipe, wrench tight makeup is considered three full turns past handtight. Handtight engagement for ½" through 2" thread varies from 4½ turns to 5 turns.
- For 2½" through 4" sizes, wrench tight makeup is considered two full turns past handtight. Handtight engagement for 2½" through 4" thread varies from 5½ turns to 6¾ turns.