

# Pipe Fittings



- 1/16 to 1 in. sizes
- 316 stainless steel, brass, and carbon steel
- NPT, ISO/BSP, and SAE threads

## Contents

### Nipples Page 4



### Crosses Page 14



### Adapters, Gaskets Page 6



### Union Ball Joints Page 14



### Reducing Bushings, Reducers Page 9



### Pipe Caps Page 15



### Couplings Page 10



### Pipe Plugs Page 15



### Elbows Page 11



### Hollow Hex Plugs Page 15



### Tees Page 13



### Hex Head Plugs Page 15



## Pipe Thread Sealants

Always use a pipe thread sealant when assembling tapered threads. SWAK® anaerobic pipe thread sealant, PTFE-FREE pipe thread sealant, and Swagelok® PTFE Tape are available.

See the Swagelok *Tools and Accessories* and *PTFE-Free Pipe Thread Sealant* catalogs, MS-01-169 and MS-02-26, for more information.



## Ordering Information

Add a material designator to the basic ordering number.

Example: **SS-2-CN**

| Material            | Designator |
|---------------------|------------|
| 316 stainless steel | SS         |
| Brass               | B          |
| Carbon steel        | S          |

- Heavy-wall fittings are available only in 316 stainless steel. The basic ordering numbers for these fittings include the material designator.
- SAE/MS fittings are not available in brass.
- Minimum order quantities may apply to certain materials and configurations.
- Contact your authorized Swagelok sales and service representative for information about additional sizes and special alloys.

## Materials

### Material Standards

| Material            | Bar Stock                | Forgings                 |
|---------------------|--------------------------|--------------------------|
| 316 stainless steel | ASME SA479,<br>ASTM A276 | ASME SA182,<br>ASTM A182 |
| Brass               | ASME B16,<br>ASTM B453   | ASTM B283                |
| Carbon steel        | ASTM A108                | —                        |

### Plating and Coating

To resist corrosion, all carbon steel fittings are treated with an electrodeposited zinc plating.

## Dimensions

- Dimensions are for reference only and are subject to change.
- E dimensions refer to the minimum opening.

## Pressure Ratings Basis

Ratings are based on ASME Code for Pressure Piping B31.3, Process Piping, at ambient temperature.

| Material            | Allowable Stress Value |
|---------------------|------------------------|
| 316 stainless steel | 20 000 psig (1378 bar) |
| Brass               | 10 000 psig (689 bar)  |
| Carbon steel        | 20 000 psig (1378 bar) |

- To determine pressure ratings in accordance with B31.1, Power Piping:

- stainless steel material—multiply by 0.94
- carbon steel material—multiply by 0.75.

Brass material ratings remain the same.

- To determine MPa, multiply bar by 0.10.

## Temperature Ratings

System temperatures may be limited by the thread sealant or, when applicable, the gasket or O-ring material.

### Fitting Materials

| Material            | Maximum Temperature, °F (°C) |
|---------------------|------------------------------|
| 316 stainless steel | 1000 (537)                   |
| Brass               | 400 (204)                    |
| Carbon steel        | 375 (190)                    |

### Gasket, O-ring Materials

| Component      | Material         | Maximum Temperature °F (°C) | Minimum Temperature °F (°C) |
|----------------|------------------|-----------------------------|-----------------------------|
| RS gaskets     | Buna N           | 230 (110)                   | –13 (–25)                   |
|                | Fluorocarbon FKM | 400 (204)                   | 5 (–15)                     |
| RG, RP gaskets | Copper           | 400 (204)                   | –325 (–198)                 |
| SAE O-rings    | Fluorocarbon FKM |                             | –20 (–28)                   |

## Thread Specifications

| Thread Type                                      | Specification                        |
|--------------------------------------------------|--------------------------------------|
| NPT                                              | ASME B1.20.1, SAE AS71051            |
| ISO/BSP (parallel)                               | ISO 228, JIS B 0202                  |
| ISO/BSP (tapered)                                | ISO 7/1, BS EN 10226-1<br>JIS B 0203 |
| ISO/BSP (gauge)<br>(Based on EN 837-1 and 837-3) | ISO 228, JIS B 0202                  |
| Unified (SAE)                                    | ASME B1.1                            |

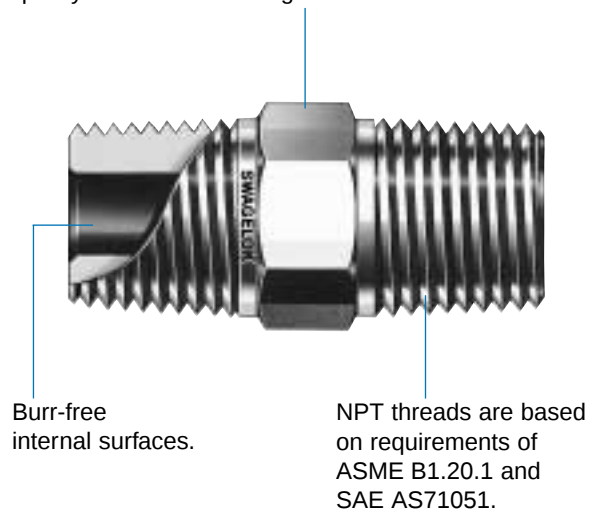
## Cleaning

Components are cleaned to remove oil, grease, and loose particles. For more information, see Swagelok standard cleaning and packaging specification (SC-10).

## Features

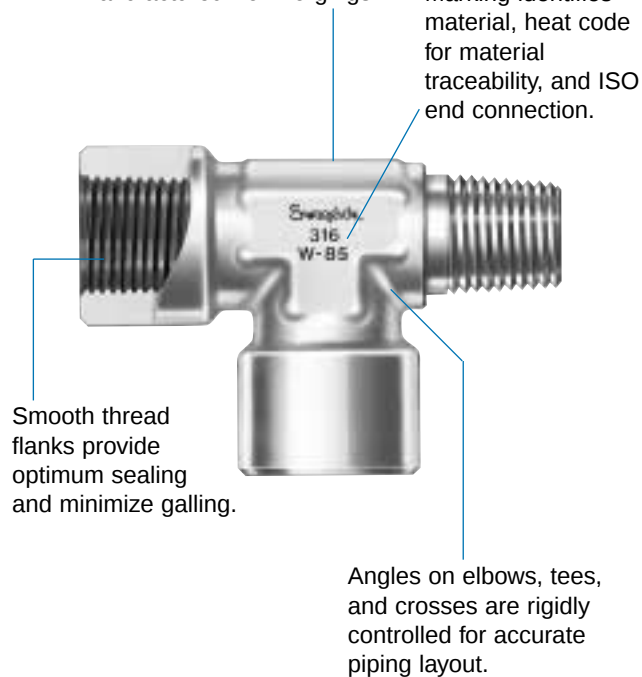
- All fittings have a high-quality appearance.
- Every fitting is marked with manufacturer's name for easy source tracing.
- Male threads are capped for protection.

Straight fittings are manufactured from quality bar stock for strength.

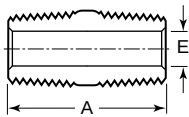


Shaped fittings are manufactured from forgings.

Marking identifies material, heat code for material traceability, and ISO end connection.



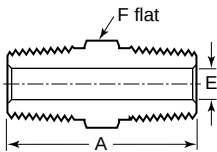
## Close Nipples



## Male NPT Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|------------------------------|------------|
|                  |                             | A                    | E           | 316 SS, Steel                | Brass      |
| 1/8              | -2-CN                       | 0.75 (19.1)          | 0.19 (4.8)  | 10 000 (689)                 | 5000 (344) |
| 1/4              | -4-CN                       | 1.12 (28.4)          | 0.28 (7.1)  | 8 000 (551)                  | 4000 (275) |
| 3/8              | -6-CN                       |                      | 0.38 (9.6)  | 7 800 (537)                  | 3900 (268) |
| 1/2              | -8-CN                       | 1.50 (38.1)          | 0.47 (11.9) | 7 700 (530)                  | 3800 (261) |
| 3/4              | -12-CN                      |                      | 0.62 (15.7) | 7 300 (502)                  | 3600 (248) |
| 1                | -16-CN                      | 1.88 (47.8)          | 0.88 (22.4) | 5 300 (365)                  | 2600 (179) |

## Hex Nipples



## Male NPT Threads

| Pipe Size<br>in.            | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|-----------------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                             |                             | A                    | E           |          | 316 SS, Steel                | Brass      |
| 1/16                        | -1-HN                       | 1.01 (25.6)          | 0.12 (3.0)  | 5/16     | 11 000 (757)                 | 5500 (378) |
| 1/8                         | -2-HN                       |                      | 0.19 (4.8)  | 7/16     | 10 000 (689)                 | 5000 (344) |
| 1/4                         | -4-HN                       | 1.40 (35.6)          | 0.28 (7.1)  | 9/16     | 8 000 (551)                  | 4000 (275) |
| 3/8                         | -6-HN                       | 1.43 (36.3)          | 0.38 (9.6)  | 11/16    | 7 800 (537)                  | 3900 (268) |
| 1/2                         | -8-HN                       | 1.84 (46.7)          | 0.47 (11.9) | 7/8      | 7 700 (530)                  | 3800 (261) |
| 3/4                         | -12-HN                      |                      | 0.62 (15.7) | 1 1/16   | 7 300 (502)                  | 3600 (248) |
| 1                           | -16-HN                      | 2.32 (58.9)          | 0.88 (22.4) | 1 3/8    | 5 300 (365)                  | 2600 (179) |
| Heavy-Wall Male NPT Threads |                             |                      |             |          |                              |            |
| 1/4                         | SS-4-HN-10K                 | 1.40 (35.6)          | 0.23 (5.8)  | 9/16     | 10 000 (689)                 | —          |
| 1/2                         | SS-8-HN-10K                 | 1.84 (46.7)          | 0.39 (9.9)  | 7/8      |                              |            |

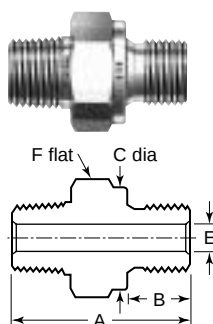
## Male ISO Tapered Pipe Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           |          | 316 SS, Steel                | Brass      |
| 1/8              | -2-HN-RT                    | 1.01 (25.6)          | 0.19 (4.8)  | 7/16     | 10 000 (689)                 | 5000 (344) |
| 1/4              | -4-HN-RT                    | 1.40 (35.6)          | 0.28 (7.1)  | 9/16     | 8 000 (551)                  | 4000 (275) |
| 3/8              | -6-HN-RT                    | 1.43 (36.3)          | 0.38 (9.6)  | 11/16    | 7 800 (537)                  | 3900 (268) |
| 1/2              | -8-HN-RT                    | 1.84 (46.7)          | 0.47 (11.9) | 7/8      | 7 700 (530)                  | 3800 (261) |

## Male NPT to Male ISO Tapered Pipe Threads

| NPT<br>Pipe Size<br>in. | ISO<br>Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-------------------------|-------------------------|-----------------------------|------------------------|-------------|----------|--------------------------------|------------|
|                         |                         |                             | A                      | E           |          | 316 SS, Steel                  | Brass      |
| 1/8                     | 1/8                     | -2-HN-2RT                   | 1.01 (25.6)            | 0.19 (4.8)  | 7/16     | 10 000 (689)                   | 5000 (344) |
| 1/4                     | 1/4                     | -4-HN-4RT                   | 1.40 (35.6)            | 0.28 (7.1)  | 9/16     | 8 000 (551)                    | 4000 (275) |
| 3/8                     | 3/8                     | -6-HN-6RT                   | 1.43 (36.3)            | 0.38 (9.6)  | 11/16    | 7 800 (537)                    | 3900 (268) |
| 1/2                     | 1/2                     | -8-HN-8RT                   | 1.84 (46.7)            | 0.47 (11.9) | 7/8      | 7 700 (530)                    | 3800 (261) |
| 3/4                     | 3/4                     | -12-HN-12RT                 |                        | 0.62 (15.7) | 1 1/16   | 7 300 (502)                    | 3600 (248) |
| 1                       | 1                       | -16-HN-16RT                 | 2.32 (58.9)            | 0.88 (22.4) | 1 3/8    | 5 300 (365)                    | 2600 (179) |

## Hex Nipples

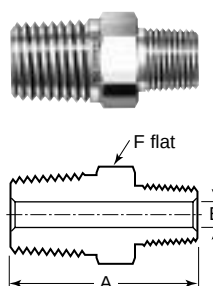


## Male NPT to Male ISO Parallel Pipe Threads

| NPT Pipe Size in. | ISO Pipe Size in. | Basic Ordering Number | Dimensions in. (mm) |             |             |             | F in.  | Pressure Ratings psig (bar) |            |
|-------------------|-------------------|-----------------------|---------------------|-------------|-------------|-------------|--------|-----------------------------|------------|
|                   |                   |                       | A                   | B           | C           | E           |        | 316 SS, Steel               | Brass      |
| 1/8               | 1/8               | -2-HN-2RS             | 1.09 (27.7)         | 0.28 (7.1)  | 0.54 (13.7) | 0.16 (4.1)  | 9/16   | 11 400 (785)                | 5700 (392) |
| 1/4               | 1/4               | -4-HN-4RS             | 1.45 (36.8)         | 0.44 (11.2) | 0.71 (18.0) | 0.23 (5.8)  | 3/4    | 10 300 (709)                | 5100 (351) |
| 3/8               | 3/8               | -6-HN-6RS             | 1.48 (37.6)         |             | 0.85 (21.6) | 0.31 (7.9)  | 7/8    |                             |            |
| 1/2               | 1/2               | -8-HN-8RS             | 1.75 (44.4)         | 0.56 (14.2) | 1.02 (25.9) | 0.47 (11.9) | 1 1/16 | 7 600 (523)                 | 3800 (261) |
| 3/4               | 3/4               | -12-HN-12RS           | 1.93 (49.0)         | 0.62 (15.7) | 1.26 (32.0) | 0.62 (15.7) | 1 5/16 | 7 300 (502)                 | 3600 (248) |
| 1                 | 1                 | -16-HN-16RS           | 2.23 (56.6)         | 0.72 (18.3) | 1.53 (38.9) | 0.78 (19.8) | 1 5/8  | 7 400 (509)                 | 3700 (254) |

For gasket information, see page 7.

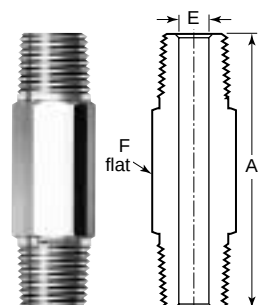
## Hex Reducing Nipples



## Male NPT Threads

| Pipe Size<br>in.            | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in.    | Pressure Ratings, psig (bar) |            |
|-----------------------------|-----------------------------|----------------------|-------------|-------------|------------------------------|------------|
|                             |                             | A                    | E           |             | 316 SS, Steel                | Brass      |
| 1/8 to 1/16                 | -2-HRN-1                    | 1.01 (25.6)          | 0.12 (3.0)  | 7/16        | 11 000 (757)                 | 5500 (378) |
| 1/4 to 1/8                  | -4-HRN-2                    | 1.22 (31.0)          | 0.19 (4.8)  | 9/16        | 10 000 (689)                 | 5000 (344) |
| 3/8 to 1/8                  | -6-HRN-2                    | 1.25 (31.8)          |             | 11/16       |                              |            |
| 3/8 to 1/4                  | -6-HRN-4                    | 1.43 (36.3)          | 0.28 (7.1)  | 7/8         | 8 000 (551)                  | 4000 (275) |
| 1/2 to 1/8                  | -8-HRN-2                    | 1.47 (37.3)          | 0.19 (4.8)  |             | 7 700 (530)                  | 3800 (261) |
| 1/2 to 1/4                  | -8-HRN-4                    | 1.65 (41.9)          | 0.28 (7.1)  |             | 8 000 (551)                  | 4000 (275) |
| 1/2 to 3/8                  | -8-HRN-6                    |                      | 0.38 (9.6)  |             | 7 800 (537)                  | 3900 (268) |
| 3/4 to 1/4                  | -12-HRN-4                   |                      | 0.28 (7.1)  | 8 000 (551) | 4000 (275)                   |            |
| 3/4 to 1/2                  | -12-HRN-8                   |                      | 1.84 (46.7) | 0.47 (11.9) | 7 700 (530)                  | 3800 (261) |
| 1 to 1/4                    | -16-HRN-4                   | 1.94 (49.3)          | 0.28 (7.1)  | 1 3/8       | 5 300 (365)                  | 2600 (179) |
| 1 to 1/2                    | -16-HRN-8                   | 2.13 (54.1)          | 0.47 (11.9) |             | 7 700 (530)                  | 3800 (261) |
| 1 to 3/4                    | -16-HRN-12                  |                      | 0.62 (15.7) |             | 7 300 (502)                  | 3600 (248) |
| Heavy-Wall Male NPT Threads |                             |                      |             |             |                              |            |
| 1/2 to 1/4                  | SS-8-HRN-4-10K              | 1.65 (41.9)          | 0.23 (5.8)  | 7/8         | 10 000 (689)                 | —          |

## Hex Long Nipples



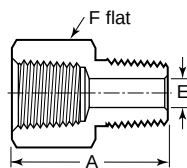
## Male NPT Threads

| Pipe Size in. | A (Available Lengths), in. |      |      |      |      |      | Basic Ordering Number | E in. (mm)  | F in.  | Pressure Ratings, psig (bar) |            |
|---------------|----------------------------|------|------|------|------|------|-----------------------|-------------|--------|------------------------------|------------|
|               | 1.50                       | 2.00 | 2.50 | 3.00 | 4.00 | 6.00 |                       |             |        | 316 SS, Steel                | Brass      |
| 1/8           | ✓                          | ✓    | ✓    | ✓    | —    | —    | -2-HLN-               | 0.19 (4.8)  | 7/16   | 10 000 (689)                 | 5000 (344) |
| 1/4           | ✓                          | ✓    | ✓    | ✓    | ✓    | —    | -4-HLN-               | 0.28 (7.1)  | 9/16   | 8 000 (551)                  | 4000 (275) |
| 3/8           | ✓                          | ✓    | ✓    | ✓    | ✓    | —    | -6-HLN-               | 0.38 (9.6)  | 11/16  | 7 800 (537)                  | 3900 (268) |
| 1/2           | —                          | ✓    | —    | ✓    | ✓    | ✓    | -8-HLN-               | 0.47 (11.9) | 7/8    | 7 700 (530)                  | 3800 (261) |
| 3/4           | —                          | ✓    | —    | ✓    | ✓    | —    | -12-HLN-              | 0.62 (15.7) | 1 1/16 | 7 300 (502)                  | 3600 (248) |
| 1             | —                          | —    | —    | ✓    | ✓    | —    | -16-HLN-              | 0.88 (22.4) | 1 3/8  | 5 300 (365)                  | 2600 (179) |

To order, insert the material designator as a prefix and the available length as a suffix to the basic ordering number.

Example: **SS-2-HLN-1.50**

## Adapters



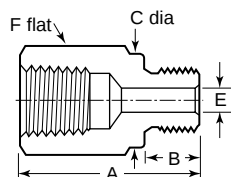
## Female to Male NPT Threads

| Pipe Size<br>in.                      | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|---------------------------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                                       |                             | A                    | E           |          | 316 SS, Steel                | Brass      |
| 1/8                                   | -2-A                        | 1.10 (27.9)          | 0.19 (4.8)  | 9/16     | 6 500 (447)                  | 3200 (220) |
| 1/4                                   | -4-A                        | 1.40 (35.6)          | 0.28 (7.1)  | 3/4      | 6 600 (454)                  | 3300 (227) |
| 3/8                                   | -6-A                        | 1.51 (38.4)          | 0.38 (9.6)  | 7/8      | 5 300 (365)                  | 2600 (179) |
| 1/2                                   | -8-A                        | 1.94 (49.3)          | 0.47 (11.9) | 1 1/16   | 4 900 (337)                  | 2400 (165) |
| 3/4                                   | -12-A                       | 2.02 (51.3)          | 0.62 (15.7) | 1 5/16   | 4 600 (316)                  | 2300 (158) |
| 1                                     | -16-A                       | 2.28 (57.9)          | 0.88 (22.4) | 1 5/8    | 4 400 (303)                  | 2200 (151) |
| Heavy-Wall Female to Male NPT Threads |                             |                      |             |          |                              |            |
| 1/4                                   | SS-4-A-10K                  | 1.43 (36.3)          | 0.23 (5.8)  | 1        | 10 000 (689)                 | —          |
| 1/2                                   | SS-8-A-10K                  | 2.02 (51.3)          | 0.39 (9.9)  | 1 1/2    |                              |            |

## Female to Male ISO Tapered Pipe Threads

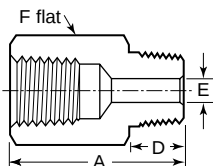
| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           |          | 316 SS, Steel                | Brass      |
| 1/8              | -2-A-RT                     | 1.09 (27.7)          | 0.19 (4.8)  | 9/16     | 6500 (447)                   | 3200 (220) |
| 1/4              | -4-A-RT                     | 1.42 (36.1)          | 0.28 (7.1)  | 3/4      | 6600 (454)                   | 3300 (227) |
| 3/8              | -6-A-RT                     | 1.50 (38.1)          | 0.38 (9.6)  | 7/8      | 5300 (365)                   | 2600 (179) |
| 1/2              | -8-A-RT                     | 1.95 (49.5)          | 0.47 (11.9) | 1 1/16   | 4900 (337)                   | 2400 (165) |

## Female NPT to Male ISO Parallel Pipe Threads



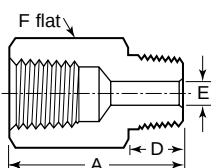
| NPT<br>Pipe Size<br>in. | ISO<br>Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             |             |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-------------------------|-------------------------|-----------------------------|------------------------|-------------|-------------|-------------|----------|--------------------------------|------------|
|                         |                         |                             | A                      | B           | C           | E           |          | 316 SS, Steel                  | Brass      |
| 1/8                     | 1/8                     | -2-A-2RS                    | 0.99 (25.1)            | 0.28 (7.1)  | 0.54 (13.7) | 0.16 (4.1)  | 9/16     | 6500 (447)                     | 3200 (220) |
| 1/4                     | 1/4                     | -4-A-4RS                    | 1.32 (33.5)            | 0.44 (11.2) | 0.71 (18.0) | 0.23 (5.8)  | 3/4      | 6600 (454)                     | 3300 (227) |
| 3/8                     | 3/8                     | -6-A-6RS                    | 1.41 (35.8)            |             | 0.85 (21.6) | 0.31 (7.9)  | 7/8      | 5300 (365)                     | 2600 (179) |
| 1/2                     | 1/2                     | -8-A-8RS                    | 1.74 (44.2)            | 0.56 (14.2) | 1.02 (25.9) | 0.47 (11.9) | 1 1/16   | 4900 (337)                     | 2400 (165) |
| 3/4                     | 3/4                     | -12-A-12RS                  | 1.89 (48.0)            | 0.62 (15.7) | 1.26 (32.0) | 0.62 (15.7) | 1 5/16   | 4600 (316)                     | 2300 (158) |
| 1                       | 1                       | -16-A-16RS                  | 2.10 (53.3)            | 0.72 (18.3) | 1.53 (38.9) | 0.78 (19.8) | 1 5/8    | 4400 (303)                     | 2200 (151) |

## Female NPT to Male ISO Tapered Pipe Threads



| NPT<br>Pipe Size<br>in. | ISO<br>Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-------------------------|-------------------------|-----------------------------|------------------------|-------------|-------------|----------|--------------------------------|------------|
|                         |                         |                             | A                      | D           | E           |          | 316 SS, Steel                  | Brass      |
| 1/8                     | 1/8                     | -2-A-2RT                    | 1.09 (27.7)            | 0.38 (9.6)  | 0.19 (4.8)  | 9/16     | 6500 (447)                     | 3200 (220) |
| 1/4                     | 1/4                     | -4-A-4RT                    | 1.42 (36.1)            | 0.56 (14.2) | 0.28 (7.1)  | 3/4      | 6600 (454)                     | 3300 (227) |
| 3/8                     | 3/8                     | -6-A-6RT                    | 1.50 (38.1)            |             | 0.38 (9.6)  | 7/8      | 5300 (365)                     | 2600 (179) |
| 1/2                     | 1/2                     | -8-A-8RT                    | 1.94 (49.3)            | 0.75 (19.1) | 0.47 (11.9) | 1 1/16   | 4900 (337)                     | 2400 (165) |
| 3/4                     | 3/4                     | -12-A-12RT                  | 2.02 (51.3)            |             | 0.62 (15.7) | 1 5/16   | 4600 (316)                     | 2300 (158) |
| 1                       | 1                       | -16-A-16RT                  | 2.30 (58.4)            | 0.94 (23.9) | 0.88 (22.4) | 1 5/8    | 4400 (303)                     | 2200 (151) |

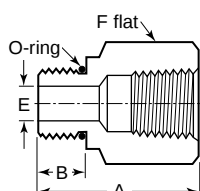
## Adapters



### Female ISO Tapered to Male NPT Threads

| ISO Pipe Size in. | NPT Pipe Size in. | Basic Ordering Number | Dimensions in. (mm) |             |             | F in.  | Pressure Ratings psig (bar) |            |
|-------------------|-------------------|-----------------------|---------------------|-------------|-------------|--------|-----------------------------|------------|
|                   |                   |                       | A                   | D           | E           |        | 316 SS, Steel               | Brass      |
| 1/4               | 1/4               | -4-AT-4               | 1.43 (36.3)         | 0.56 (14.2) | 0.28 (7.1)  | 3/4    | 6600 (454)                  | 3300 (227) |
| 3/8               | 3/8               | -6-AT-6               | 1.51 (38.4)         |             | 0.38 (9.6)  | 7/8    | 5300 (365)                  | 2600 (179) |
| 1/2               | 1/2               | -8-AT-8               | 1.96 (49.8)         | 0.75 (19.1) | 0.47 (11.9) | 1 1/16 | 4900 (337)                  | 2400 (165) |

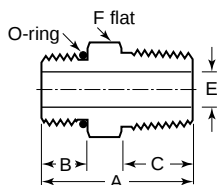
### Male SAE/MS Straight Thread to Female NPT Threads



| SAE/MS Thread Size in. | NPT Pipe Size in. | Basic Ordering Number | Dimensions in. (mm) |             |             | F in.  | O-ring <sup>①</sup> Uniform Size | Pressure Ratings 316 SS, Steel psig (bar) |
|------------------------|-------------------|-----------------------|---------------------|-------------|-------------|--------|----------------------------------|-------------------------------------------|
|                        |                   |                       | A                   | B           | E           |        |                                  |                                           |
| 7/16-20                | 1/4               | -4-SAE-7-4            | 1.32 (33.5)         | 0.36 (9.1)  | 0.20 (5.1)  | 3/4    | -904                             | 4500 (310)                                |
| 9/16-18                | 3/8               | -6-SAE-7-6            | 1.39 (35.3)         | 0.39 (9.9)  | 0.28 (7.1)  | 15/16  | -906                             |                                           |
| 3/4-16                 | 1/2               | -8-SAE-7-8            | 1.76 (44.7)         | 0.44 (11.2) | 0.42 (10.7) | 1 1/16 | -908                             |                                           |
| 1 1/16-12              | 3/4               | -12-SAE-7-12          | 1.99 (50.5)         | 0.59 (15.0) | 0.66 (16.7) | 1 3/8  | -912                             | 3600 (248)                                |
| 1 5/16-12              | 1                 | -16-SAE-7-16          | 2.12 (53.8)         |             | 0.88 (22.4) | 1 5/8  | -916                             | 2900 (199)                                |

① O-ring material is 90 durometer fluorocarbon FKM.

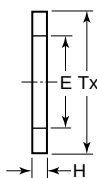
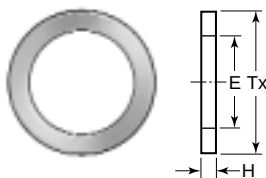
### Male SAE/MS Straight Thread to Male NPT Threads



| SAE/MS<br>Thread<br>Size<br>in. | NPT<br>Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             |             |             | F<br>in. | O-ring <sup>①</sup><br>Uniform<br>Size | Pressure<br>Ratings<br>316 SS, Steel<br>psig (bar) |
|---------------------------------|----------------------------|-----------------------------|------------------------|-------------|-------------|-------------|----------|----------------------------------------|----------------------------------------------------|
|                                 |                            |                             | A                      | B           | C           | E           |          |                                        |                                                    |
| 7/16-20                         | 1/4                        | -4-SAE-1-4                  | 1.20 (30.5)            | 0.36 (9.1)  | 0.56 (14.2) | 0.20 (5.1)  | 9/16     | -904                                   | 4500 (310)                                         |
| 9/16-18                         | 3/8                        | -6-SAE-1-6                  | 1.26 (32.0)            |             |             | 0.28 (7.1)  | 11/16    | -906                                   |                                                    |
| 3/4-16                          | 1/2                        | -8-SAE-1-8                  | 1.53 (38.9)            | 0.44 (11.2) | 0.75 (19.1) | 0.42 (10.7) | 7/8      | -908                                   |                                                    |
| 1 1/16-12                       | 3/4                        | -12-SAE-1-12                | 1.75 (44.4)            | 0.59 (15.0) |             | 0.62 (15.7) | 1 1/4    | -912                                   | 3600 (248)                                         |
| 1 5/16-12                       | 1                          | -16-SAE-1-16                | 2.00 (50.8)            |             | 0.94 (23.9) | 0.88 (22.4) | 1 1/2    | -916                                   | 2900 (199)                                         |

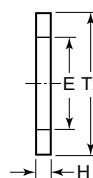
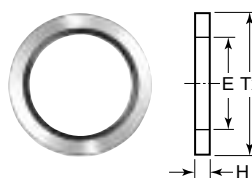
① O-ring material is 90 durometer fluorocarbon FKM.

## Adapter Gaskets



### Copper Gasket for Male RS or RP Fittings

| Ordering Number | Dimensions, in. (mm) |            |             |
|-----------------|----------------------|------------|-------------|
|                 | E                    | H          | Tx          |
| CU-2-RP-2       | 0.39 (9.9)           | 0.04 (1.0) | 0.59 (15.0) |
| CU-4-RP-2       | 0.53 (13.5)          |            | 0.74 (18.8) |
| CU-6-RP-2       | 0.67 (17.0)          | 0.06 (1.5) | 0.90 (22.9) |
| CU-8-RP-2       | 0.84 (21.3)          |            | 1.06 (26.9) |
| CU-12-RP-2      | 1.05 (26.7)          | 0.08 (2.0) | 1.30 (33.0) |
| CU-16-RP-2      | 1.32 (33.5)          |            | 1.57 (39.9) |



Gasket consists of a fluorocarbon FKM or Buna inner ring bonded to a carbon steel outer ring. To order, add **V** for fluorocarbon FKM or **B** for Buna to the basic ordering number.

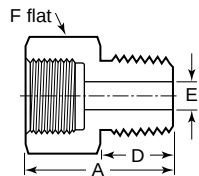
Example: S-8-RS-2V

### Steel Gasket for Male RS Fittings

| Basic Ordering Number   | Dimensions, in. (mm) |            |             |
|-------------------------|----------------------|------------|-------------|
|                         | E                    | H          | Tx          |
| S-2-RS-2__              | 0.41 (10.4)          |            | 0.63 (16.0) |
| S-4-RS-2__ <sup>①</sup> | 0.54 (13.7)          | 0.08 (2.0) | 0.81 (20.6) |
| S-6-RS-2__ <sup>①</sup> | 0.68 (17.3)          |            | 0.94 (23.9) |
| S-8-RS-2__ <sup>①</sup> | 0.85 (21.6)          | 0.10 (2.5) | 1.13 (28.7) |
| S-12-RS-2__             | 1.06 (26.9)          |            | 1.38 (35.1) |
| S-16-RS-2__             | 1.33 (33.8)          |            | 1.69 (42.9) |

For use with RS end connections only.  
 ① Also available with fluorocarbon FKM inner ring bonded to stainless steel outer ring. To order, replace **S** with **SS** in the basic ordering number.  
 Example: **SS-8-RS-2V**

## Gauge Adapters

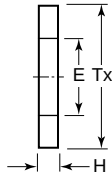


### Female ISO Parallel (Gauge) to Male NPT Pipe Threads

| ISO Pipe Size in. | NPT Pipe Size in. | Basic Ordering Number | Dimensions in. (mm) |             |            | F in.  | Pressure Ratings 316 SS, Steel psig (bar) |
|-------------------|-------------------|-----------------------|---------------------|-------------|------------|--------|-------------------------------------------|
|                   |                   |                       | A                   | D           | E          |        |                                           |
| 1/4               | 1/4               | SS-4-AG-4             | 1.19 (30.2)         | 0.56 (14.2) | 0.22 (5.6) | 3/4    | 5700 (392)                                |
| 3/8               | 3/8               | SS-6-AG-6             | 1.27 (32.2)         |             | 0.26 (6.6) | 15/16  |                                           |
| 1/2               | 1/2               | SS-8-AG-8             | 1.68 (42.7)         | 0.75 (19.1) | 0.28 (7.1) | 1 1/16 | 3900 (268)                                |

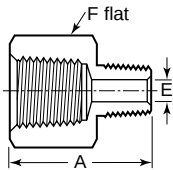
## Gauge Adapter Gaskets

### Copper Gasket for AG Gauge Adapters



| Ordering Number | Dimensions, in. (mm) |            |             |
|-----------------|----------------------|------------|-------------|
|                 | E                    | H          | Tx          |
| CU-4-RG-2       | 0.30 (7.6)           | 0.07 (1.8) | 0.42 (10.7) |
| CU-6-RG-2       | 0.34 (8.6)           | 0.09 (2.3) | 0.56 (14.2) |
| CU-8-RG -2      | 0.36 (9.1)           | 0.10 (2.5) | 0.70 (17.8) |

## Reducing Adapters



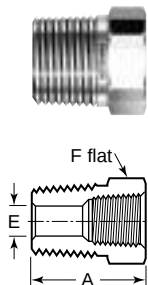
### Female to Male NPT Threads

| Female<br>Pipe<br>Size<br>in.         | Male<br>Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|---------------------------------------|-----------------------------|-----------------------------|------------------------|-------------|----------|--------------------------------|------------|
|                                       |                             |                             | A                      | E           |          | 316 SS, Steel                  | Brass      |
| 1/8                                   | 1/16                        | -2-RA-1                     | 1.09 (27.7)            | 0.12 (3.0)  | 9/16     | 6 500 (447)                    | 3200 (220) |
| 1/4                                   | 1/8                         | -4-RA-2                     | 1.26 (32.0)            | 0.19 (4.8)  | 3/4      | 6 600 (454)                    | 3300 (227) |
| 3/8                                   |                             | -6-RA-2                     | 1.33 (33.8)            |             | 7/8      | 5 300 (365)                    | 2600 (179) |
|                                       | 1/4                         | -6-RA-4                     | 1.50 (38.1)            | 0.28 (7.1)  |          |                                |            |
| 1/2                                   | 1/8                         | -8-RA-2                     | 1.58 (40.1)            | 0.19 (4.8)  | 1 1/16   | 4 900 (337)                    | 2400 (165) |
|                                       | 1/4                         | -8-RA-4                     | 1.76 (44.7)            | 0.28 (7.1)  |          |                                |            |
|                                       | 3/8                         | -8-RA-6                     | 1.75 (44.4)            | 0.38 (9.6)  |          |                                |            |
| 3/4                                   | 1/4                         | -12-RA-4                    | 1.85 (47.0)            | 0.28 (7.1)  | 1 5/16   | 4 600 (316)                    | 2300 (158) |
|                                       | 3/8                         | -12-RA-6                    | 1.82 (46.2)            | 0.38 (9.6)  |          |                                |            |
|                                       | 1/2                         | -12-RA-8                    | 2.02 (51.3)            | 0.47 (11.9) |          |                                |            |
| 1                                     | 1/4                         | -16-RA-4                    | 1.96 (49.8)            | 0.28 (7.1)  | 1 5/8    | 4 400 (303)                    | 2200 (151) |
|                                       | 1/2                         | -16-RA-8                    | 2.16 (54.9)            | 0.47 (11.9) |          |                                |            |
|                                       | 3/4                         | -16-RA-12                   | 2.17 (55.1)            | 0.62 (15.7) |          |                                |            |
| Heavy-Wall Female to Male NPT Threads |                             |                             |                        |             |          |                                |            |
| 1/2                                   | 1/4                         | SS-8-RA-4-10K               | 1.81 (46.0)            | 0.23 (5.8)  | 1 1/2    | 10 000 (689)                   | —          |

### Female to Male ISO Tapered Pipe Threads

| Female<br>Pipe<br>Size<br>in. | Male<br>Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |            | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-------------------------------|-----------------------------|-----------------------------|------------------------|------------|----------|--------------------------------|------------|
|                               |                             |                             | A                      | E          |          | 316 SS, Steel                  | Brass      |
| 1/4                           | 1/8                         | -4-RAT-2RT                  | 1.26 (32.0)            | 0.19 (4.8) | 3/4      | 6600 (454)                     | 3300 (227) |
| 3/8                           | 1/4                         | -6-RAT-4RT                  | 1.50 (38.1)            | 0.28 (7.1) | 7/8      | 5300 (365)                     | 2600 (179) |
| 1/2                           |                             | -8-RAT-4RT                  | 1.76 (44.7)            |            | 1 1/16   | 4900 (337)                     | 2400 (165) |
|                               | 3/8                         | -8-RAT-6RT                  | 1.75 (44.4)            | 0.38 (9.6) |          |                                |            |

## Reducing Bushings



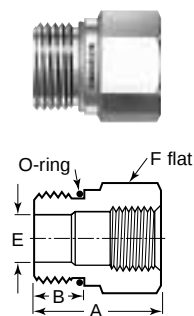
### Male to Female NPT Threads

| Male<br>Pipe<br>Size<br>in. | Female<br>Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-----------------------------|-------------------------------|-----------------------------|------------------------|-------------|----------|--------------------------------|------------|
|                             |                               |                             | A                      | E           |          | 316 SS, Steel                  | Brass      |
| 1/8                         | 1/16                          | -2-RB-1                     | 1.03 (26.2)            | 0.19 (4.8)  | 7/16     | 6 700 (461)                    | 3300 (227) |
| 1/4                         | 1/8                           | -4-RB-2                     | 1.06 (26.9)            | 0.28 (7.1)  | 9/16     | 6 500 (447)                    |            |
| 3/8                         |                               | -6-RB-2                     | 0.86 (21.8)            | 0.34 (8.6)  | 11/16    | 9 200 (633)                    |            |
|                             | 1/4                           | -6-RB-4                     | 1.19 (30.2)            | 0.38 (9.6)  | 3/4      | 6 600 (454)                    | 3300 (227) |
| 1/2                         | 1/8                           | -8-RB-2                     | 1.08 (27.4)            | 0.34 (8.6)  | 7/8      | 12 200 (840)                   | 6200 (427) |
|                             | 1/4                           | -8-RB-4                     |                        | 0.45 (11.4) |          | 8 300 (571)                    | 4400 (303) |
|                             | 3/8                           | -8-RB-6                     | 1.41 (35.8)            | 0.47 (11.9) |          | 5 300 (365)                    | 2600 (179) |
| 3/4                         | 1/4                           | -12-RB-4                    | 1.08 (27.4)            | 0.45 (11.4) | 1 1/16   | 12 000 (826)                   | 6000 (413) |
|                             | 3/8                           | -12-RB-6                    |                        | 0.59 (15.0) |          | 8 200 (564)                    | 4300 (296) |
|                             | 1/2                           | -12-RB-8                    | 1.63 (41.4)            | 0.62 (15.7) |          | 4 900 (337)                    | 2400 (165) |
| 1                           | 1/4                           | -16-RB-4                    | 1.37 (34.8)            | 0.45 (11.4) | 1 3/8    | 14 500 (999)                   | 7400 (509) |
|                             | 3/8                           | -16-RB-6                    |                        | 0.59 (15.0) |          | 11 600 (799)                   | 5900 (406) |
|                             | 1/2                           | -16-RB-8                    |                        | 0.73 (18.5) |          | 8 600 (592)                    | 4300 (296) |
|                             | 3/4                           | -16-RB-12                   | 1.85 (47.0)            | 0.88 (22.4) |          | 5 300 (365)                    | 2600 (179) |

### Male to Female ISO Tapered Pipe Threads

| Male<br>Pipe<br>Size<br>in. | Female<br>Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-----------------------------|-------------------------------|-----------------------------|------------------------|-------------|----------|--------------------------------|------------|
|                             |                               |                             | A                      | E           |          | 316 SS, Steel                  | Brass      |
| 1/4                         | 1/8                           | -4-RBT-2RT                  | 1.06 (26.9)            | 0.28 (7.1)  | 9/16     | 6500 (447)                     | 3200 (220) |
| 3/8                         | 1/4                           | -6-RBT-4RT                  | 1.19 (30.2)            | 0.38 (9.6)  | 3/4      | 6600 (454)                     | 3300 (227) |
| 1/2                         |                               | -8-RBT-4RT                  | 1.08 (27.4)            | 0.44 (11.2) | 7/8      | 8300 (571)                     | 4400 (303) |
|                             | 3/8                           | -8-RBT-6RT                  | 1.41 (35.8)            | 0.47 (11.9) |          | 5300 (365)                     | 2600 (179) |

## Reducers

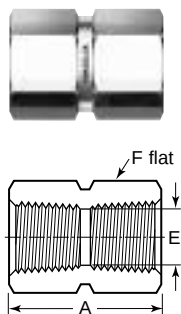


## Male to Female SAE/MS Straight Threads

| Male Thread Size in. | Female Thread Size in. | Basic Ordering Number | Dimensions in. (mm) |             |             | F in.       | O-ring <sup>①</sup> Uniform Size Number | Pressure Ratings, 316 SS, Steel psig (bar) |
|----------------------|------------------------|-----------------------|---------------------|-------------|-------------|-------------|-----------------------------------------|--------------------------------------------|
|                      |                        |                       | A                   | B           | E           |             |                                         |                                            |
| 9/16-18              | 7/16-20                | -6-RBST-4             | 1.12 (28.4)         | 0.39 (9.9)  | 0.28 (7.1)  | 13/16       | -906                                    | 4500 (310)                                 |
| 3/4-16               |                        | -8-RBST-4             | 0.98 (24.9)         | 0.44 (11.2) | 0.39 (9.9)  | 7/8         | -908                                    |                                            |
|                      | 9/16-18                | -8-RBST-6             | 1.19 (30.2)         |             | 0.42 (10.7) | 1           | -910                                    | 3600 (248)                                 |
| 7/8-14               |                        | -10-RBST-6            | 1.10 (27.9)         | 0.50 (12.7) | 0.50 (12.7) |             |                                         |                                            |
|                      | 3/4-16                 | -10-RBST-8            | 1.42 (36.1)         | 0.59 (15.0) | 0.65 (16.5) | 1 3/16      | -912                                    | 2900 (199)                                 |
| -12-RBST-8           |                        | 1.27 (32.3)           | 1 1/4               |             |             |             |                                         |                                            |
| 1 1/16-12            | 1 1/16-12              | -16-RBST-12           | 1.61 (40.9)         |             |             | 0.59 (15.0) | 0.87 (22.1)                             | 1 5/8                                      |
| 1 5/16-12            | 1 5/16-12              | -20-RBST-16           | 1.98 (50.3)         | 1.09 (27.7) | 2 1/8       |             | -920                                    | 2300 (158)                                 |
| 1 7/8-12             |                        | -24-RBST-16           | 1.27 (32.2)         | 1.23 (31.2) |             |             | -924                                    |                                            |

① O-ring material is 90 durometer fluorocarbon FKM.

## Hex Couplings



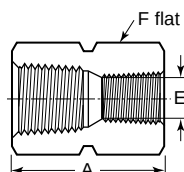
## Female NPT Threads

| Pipe Size in.                 | Basic Ordering Number | Dimensions, in. (mm) |             | F in.  | Pressure Ratings, psig (bar) |            |
|-------------------------------|-----------------------|----------------------|-------------|--------|------------------------------|------------|
|                               |                       | A                    | E           |        | 316 SS, Steel                | Brass      |
| 1/8                           | -2-HCG                | 0.81 (20.6)          | 0.34 (8.6)  | 9/16   | 6 500 (447)                  | 3200 (220) |
| 1/4                           | -4-HCG                | 1.19 (30.2)          | 0.45 (11.4) | 3/4    | 6 600 (454)                  | 3300 (227) |
| 3/8                           | -6-HCG                | 1.31 (33.3)          | 0.59 (15.0) | 7/8    | 5 300 (365)                  | 2600 (179) |
| 1/2                           | -8-HCG                | 1.56 (39.6)          | 0.73 (18.5) | 1 1/16 | 4 900 (337)                  | 2400 (165) |
| 3/4                           | -12-HCG               | 1.62 (41.1)          | 0.94 (23.9) | 1 5/16 | 4 600 (316)                  | 2300 (158) |
| 1                             | -16-HCG               | 2.00 (50.8)          | 1.17 (29.7) | 1 5/8  | 4 400 (303)                  | 2200 (151) |
| Heavy-Wall Female NPT Threads |                       |                      |             |        |                              |            |
| 1/4                           | SS-4-HCG-10K          | 1.19 (30.2)          | 0.45 (11.4) | 1      | 10 000 (689)                 | —          |
| 1/2                           | SS-8-HCG-10K          | 1.56 (39.6)          | 0.73 (18.5) | 1 1/2  |                              |            |

## Female ISO Tapered Pipe Threads

| Pipe Size in. | Basic Ordering Number | Dimensions, in. (mm) |             | F in.  | Pressure Ratings, psig (bar) |            |
|---------------|-----------------------|----------------------|-------------|--------|------------------------------|------------|
|               |                       | A                    | E           |        | 316 SS, Steel                | Brass      |
| 1/8           | -2-HCG-RT             | 0.81 (20.6)          | 0.33 (8.4)  | 9/16   | 6500 (447)                   | 3200 (220) |
| 1/4           | -4-HCG-RT             | 1.19 (30.2)          | 0.44 (11.2) | 3/4    | 6600 (454)                   | 3300 (227) |
| 3/8           | -6-HCG-RT             | 1.31 (33.3)          | 0.58 (14.7) | 7/8    | 5300 (365)                   | 2600 (179) |
| 1/2           | -8-HCG-RT             | 1.56 (39.6)          | 0.72 (18.3) | 1 1/16 | 4900 (337)                   | 2400 (165) |

## Hex Reducing Couplings



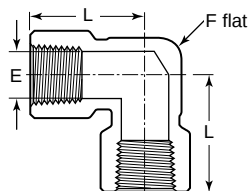
## Female NPT Threads

| Pipe Size<br>in.              | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|-------------------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                               |                             | A                    | E           |          | 316 SS, Steel                | Brass      |
| 1/4 to 1/8                    | -4-HRCG-2                   | 1.22 (31.0)          | 0.34 (8.6)  | 3/4      | 6 600 (454)                  | 3300 (227) |
| 3/8 to 1/4                    | -6-HRCG-4                   | 1.38 (35.1)          | 0.45 (11.4) | 7/8      | 5 300 (365)                  | 2600 (179) |
| 1/2 to 1/8                    | -8-HRCG-2                   | 1.56 (39.6)          | 0.34 (8.6)  | 1 1/16   | 4 900 (337)                  | 2400 (165) |
| 1/2 to 1/4                    | -8-HRCG-4                   | 1.75 (44.4)          | 0.45 (11.4) |          |                              |            |
| 1/2 to 3/8                    | -8-HRCG-6                   | 1.78 (45.2)          | 0.59 (15.0) |          |                              |            |
| 3/4 to 1/4                    | -12-HRCG-4                  | 1.81 (46.0)          | 0.45 (11.4) | 1 5/16   | 4 600 (316)                  | 2300 (158) |
| 3/4 to 1/2                    | -12-HRCG-8                  | 2.06 (52.3)          | 0.73 (18.5) |          |                              |            |
| 1 to 1/2                      | -16-HRCG-8                  | 2.19 (55.6)          |             | 1 5/8    | 4 400 (303)                  | 2200 (151) |
| 1 to 3/4                      | -16-HRCG-12                 | 2.25 (57.2)          | 0.94 (23.9) |          |                              |            |
| Heavy-Wall Female NPT Threads |                             |                      |             |          |                              |            |
| 1/2 to 1/4                    | SS-8-HRCG-4-10K             | 1.75 (44.4)          | 0.45 (11.4) | 1 1/2    | 10 000 (689)                 | —          |

## Female ISO Tapered Pipe Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           |          | 316 SS, Steel                | Brass      |
| 3/8 to 1/4       | -6-HRCGT-4RT                | 1.38 (35.1)          | 0.44 (11.2) | 7/8      | 5300 (365)                   | 2600 (179) |
| 1/2 to 1/4       | -8-HRCGT-4RT                | 1.75 (44.4)          |             | 1 1/16   | 4900 (337)                   | 2400 (165) |
| 1/2 to 3/8       | -8-HRCGT-6RT                | 1.78 (45.2)          | 0.58 (14.7) |          |                              |            |

## Elbows



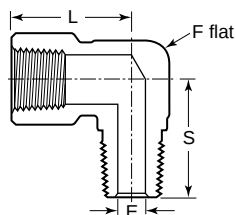
## Female NPT Threads

| Pipe<br>Size<br>in.           | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|-------------------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                               |                             | A                    | L           |          | 316 SS, Steel                | Brass      |
| 1/8                           | -2-E                        | 0.34 (8.6)           | 1.04 (26.4) | 1/2      | 6 200 (427)                  | 3100 (213) |
| 1/4                           | -4-E                        | 0.45 (11.4)          | 1.17 (29.7) | 11/16    | 7 200 (496)                  | 3600 (248) |
| 3/8                           | -6-E                        | 0.59 (15.0)          | 1.42 (36.1) | 13/16    | 5 600 (385)                  | 2800 (192) |
| 1/2                           | -8-E                        | 0.73 (18.5)          | 1.56 (39.6) | 1        |                              |            |
| 3/4                           | -12-E                       | 0.94 (23.9)          | 1.92 (48.8) | 1 1/4    | 5 100 (351)                  | 2500 (172) |
| 1                             | -16-E                       | 1.17 (29.7)          | 1.91 (48.5) | 1 11/16  | 6 400 (440)                  | 3200 (220) |
| Heavy-Wall Female NPT Threads |                             |                      |             |          |                              |            |
| 1/4                           | SS-4-E-10K                  | 0.45 (11.4)          | 1.56 (39.6) | 1        | 10 000 (689)                 | —          |
| 1/2                           | SS-8-E-10K                  | 0.73 (18.5)          | 1.97 (50.0) | 1 11/16  |                              |            |

## Female ISO Tapered Pipe Threads

| Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|---------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                     |                             | E                    | L           |          | 316 SS, Steel                | Brass      |
| 1/4                 | -4-E-RT                     | 0.44 (11.2)          | 1.17 (29.7) | 11/16    | 7200 (496)                   | 3600 (248) |
| 3/8                 | -6-E-RT                     | 0.58 (14.7)          | 1.42 (36.1) | 13/16    | 5600 (385)                   | 2800 (192) |
| 1/2                 | -8-E-RT                     | 0.72 (18.3)          | 1.56 (39.6) | 1        |                              |            |

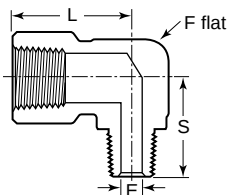
## Street Elbows



### Female to Male NPT Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|-------------|----------|------------------------------|------------|
|                  |                             | E                    | L           | S           |          | 316 SS, Steel                | Brass      |
| 1/16             | -1-SE                       | 0.12 (3.0)           | 0.86 (21.8) | 0.88 (22.4) | 7/16     | 9200 (633)                   | 4600 (316) |
| 1/8              | -2-SE                       | 0.19 (4.8)           | 1.04 (26.4) | 0.87 (22.1) | 1/2      | 6200 (427)                   | 3100 (213) |
| 1/4              | -4-SE                       | 0.28 (7.1)           | 1.17 (29.7) | 1.17 (29.7) | 11/16    | 7200 (496)                   | 3600 (248) |
| 3/8              | -6-SE                       | 0.38 (9.6)           | 1.42 (36.1) | 1.26 (32.0) | 13/16    | 5600 (385)                   | 2800 (192) |
| 1/2              | -8-SE                       | 0.47 (11.9)          | 1.56 (39.6) | 1.56 (39.6) | 1        |                              |            |
| 3/4              | -12-SE                      | 0.62 (15.7)          | 1.92 (48.8) | 1.67 (42.4) | 1 1/4    | 5100 (351)                   | 2500 (172) |
| 1                | -16-SE                      | 0.88 (22.4)          | 1.91 (48.5) | 1.94 (49.3) | 1 11/16  | 5300 (365)                   | 2600 (179) |

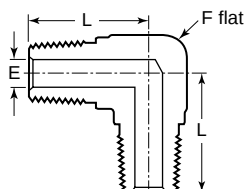
## Reducing Street Elbows



### Female to Male NPT Threads

| Female<br>Pipe<br>Size<br>in. | Male<br>Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions<br>in. (mm) |             |             | F<br>in. | Pressure Ratings<br>psig (bar) |            |
|-------------------------------|-----------------------------|-----------------------------|------------------------|-------------|-------------|----------|--------------------------------|------------|
|                               |                             |                             | E                      | L           | S           |          | 316 SS, Steel                  | Brass      |
| 1/8                           | 1/16                        | -2-RSE-1                    | 0.12 (3.0)             | 1.04 (26.4) | 0.87 (22.1) | 1/2      | 6200 (427)                     | 3100 (213) |
| 1/4                           | 1/8                         | -4-RSE-2                    | 0.19 (4.8)             | 1.17 (29.7) | 1.00 (25.4) | 11/16    | 7200 (496)                     | 3600 (248) |
| 3/8                           | 1/4                         | -6-RSE-4                    | 0.28 (7.1)             | 1.42 (36.1) | 1.26 (32.0) | 13/16    | 5600 (385)                     | 2800 (192) |
| 1/2                           |                             | -8-RSE-4                    |                        | 1.56 (39.6) | 1.38 (35.1) | 1        |                                |            |
|                               | 3/8                         | -8-RSE-6                    | 0.38 (9.6)             |             |             |          |                                |            |

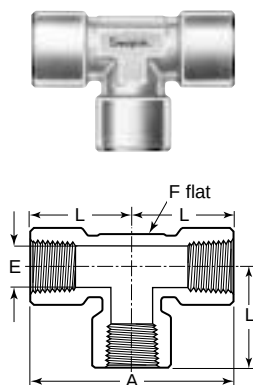
## Male Elbows



### Male NPT Threads

| Pipe<br>Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|---------------------|-----------------------------|----------------------|-------------|----------|------------------------------|------------|
|                     |                             | E                    | L           |          | 316 SS, Steel                | Brass      |
| 1/8                 | -2-ME                       | 0.19 (4.8)           | 0.88 (22.4) | 7/16     | 10 000 (689)                 | 5000 (344) |
| 1/4                 | -4-ME                       | 0.28 (7.1)           | 1.05 (26.7) | 1/2      | 8 000 (551)                  | 4000 (275) |
| 3/8                 | -6-ME                       | 0.38 (9.6)           | 1.17 (29.7) | 11/16    | 7 800 (537)                  | 3900 (268) |
| 1/2                 | -8-ME                       | 0.47 (11.9)          | 1.45 (36.8) | 13/16    | 7 700 (530)                  | 3800 (261) |

## Tees



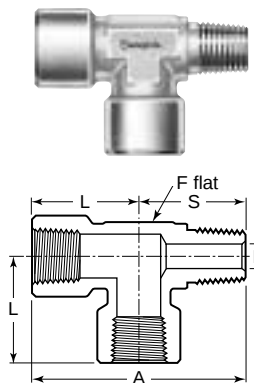
## Female NPT Threads

| Pipe Size<br>in.              | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|-------------------------------|-----------------------------|----------------------|-------------|-------------|----------|------------------------------|------------|
|                               |                             | A                    | E           | L           |          | 316 SS, Steel                | Brass      |
| 1/8                           | -2-T                        | 2.08 (52.8)          | 0.34 (8.6)  | 1.04 (26.4) | 1/2      | 6 200 (427)                  | 3100 (213) |
| 1/4                           | -4-T                        | 2.34 (59.4)          | 0.45 (11.4) | 1.17 (29.7) | 11/16    | 7 200 (496)                  | 3600 (248) |
| 3/8                           | -6-T                        | 2.84 (72.1)          | 0.59 (15.0) | 1.42 (36.1) | 13/16    | 5 600 (385)                  | 2800 (192) |
| 1/2                           | -8-T                        | 3.12 (79.2)          | 0.73 (18.5) | 1.56 (39.6) | 1        |                              |            |
| 3/4                           | -12-T                       | 3.84 (97.5)          | 0.94 (23.9) | 1.92 (48.8) | 1 1/4    | 5 100 (351)                  | 2500 (172) |
| 1                             | -16-T                       | 3.82 (97.0)          | 1.17 (29.7) | 1.91 (48.5) | 1 11/16  | 6 400 (440)                  | 3200 (220) |
| Heavy-Wall Female NPT Threads |                             |                      |             |             |          |                              |            |
| 1/4                           | SS-4-T-10K                  | 3.12 (79.2)          | 0.45 (11.4) | 1.56 (39.6) | 1        | 10 000 (689)                 | —          |
| 1/2                           | SS-8-T-10K                  | 3.94 (100)           | 0.73 (18.5) | 1.97 (50.0) | 1 11/16  |                              |            |

## Female ISO Tapered Pipe Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           | L           |          | 316 SS, Steel                | Brass      |
| 1/4              | -4-T-RT                     | 2.34 (59.4)          | 0.44 (11.2) | 1.17 (29.7) | 11/16    | 7200 (496)                   | 3600 (248) |
| 3/8              | -6-T-RT                     | 2.84 (72.1)          | 0.58 (14.7) | 1.42 (36.1) | 13/16    | 5600 (385)                   | 2800 (192) |
| 1/2              | -8-T-RT                     | 3.12 (79.2)          | 0.72 (18.3) | 1.56 (39.6) | 1        |                              |            |

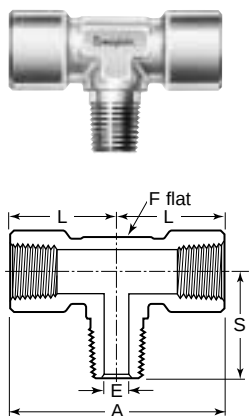
## Street Tees



## Male and Female NPT Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|-------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           | L           | S           |          | 316 SS, Steel                | Brass      |
| 1/8              | -2-ST                       | 1.91 (48.5)          | 0.19 (4.8)  | 1.04 (26.4) | 0.87 (22.1) | 1/2      | 6200 (427)                   | 3100 (213) |
| 1/4              | -4-ST                       | 2.34 (59.4)          | 0.28 (7.1)  | 1.17 (29.7) | 1.17 (29.7) | 11/16    | 7200 (496)                   | 3600 (248) |
| 3/8              | -6-ST                       | 2.68 (68.1)          | 0.38 (9.6)  | 1.42 (36.1) | 1.26 (32.0) | 13/16    | 5600 (385)                   | 2800 (192) |
| 1/2              | -8-ST                       | 3.12 (79.2)          | 0.47 (11.9) | 1.56 (39.6) | 1.56 (39.6) | 1        |                              |            |

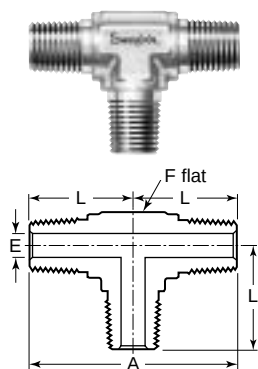
## Branch Tees



## Male and Female NPT Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|-------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           | L           | S           |          | 316 SS, Steel                | Brass      |
| 1/8              | -2-BT                       | 2.08 (52.8)          | 0.19 (4.8)  | 1.04 (26.4) | 0.87 (22.1) | 1/2      | 6200 (427)                   | 3100 (213) |
| 1/4              | -4-BT                       | 2.34 (59.4)          | 0.28 (7.1)  | 1.17 (29.7) | 1.17 (29.7) | 11/16    | 7200 (496)                   | 3600 (248) |
| 3/8              | -6-BT                       | 2.84 (72.1)          | 0.38 (9.6)  | 1.42 (36.1) | 1.26 (32.0) | 13/16    | 5600 (385)                   | 2800 (192) |
| 1/2              | -8-BT                       | 3.12 (79.2)          | 0.47 (11.9) | 1.56 (39.6) | 1.56 (39.6) | 1        |                              |            |

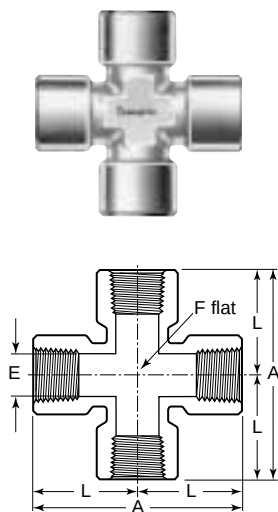
## Male Tees



## Male NPT Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           | L           |          | 316 SS, Steel                | Brass      |
| 1/8              | -2-MT                       | 1.76 (44.7)          | 0.19 (4.8)  | 0.88 (22.4) | 7/16     | 10 000 (689)                 | 5000 (344) |
| 1/4              | -4-MT                       | 2.10 (53.3)          | 0.28 (7.1)  | 1.05 (26.7) | 1/2      | 8 000 (551)                  | 4000 (275) |
| 3/8              | -6-MT                       | 2.34 (59.4)          | 0.38 (9.6)  | 1.17 (29.7) | 11/16    | 7 800 (537)                  | 3900 (268) |
| 1/2              | -8-MT                       | 2.90 (73.7)          | 0.47 (11.9) | 1.45 (36.8) | 13/16    | 7 700 (530)                  | 3800 (261) |

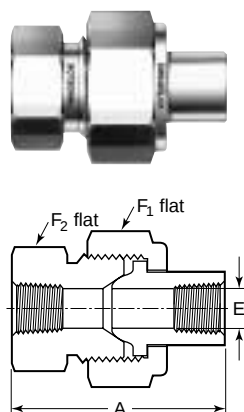
## Crosses



## Female NPT Threads

| Pipe Size<br>in. | Basic<br>Ordering<br>Number | Dimensions, in. (mm) |             |             | F<br>in. | Pressure Ratings, psig (bar) |            |
|------------------|-----------------------------|----------------------|-------------|-------------|----------|------------------------------|------------|
|                  |                             | A                    | E           | L           |          | 316 SS, Steel                | Brass      |
| 1/8              | -2-CS                       | 2.08 (52.8)          | 0.34 (8.6)  | 1.04 (26.4) | 1/2      | 6200 (427)                   | 3100 (213) |
| 1/4              | -4-CS                       | 2.34 (59.4)          | 0.45 (11.4) | 1.17 (29.7) | 11/16    | 7200 (496)                   | 3600 (248) |
| 3/8              | -6-CS                       | 2.84 (72.1)          | 0.59 (15.0) | 1.42 (36.1) | 13/16    | 5600 (385)                   | 2800 (192) |
| 1/2              | -8-CS                       | 3.12 (79.2)          | 0.73 (18.5) | 1.56 (39.6) | 1        |                              |            |
| 3/4              | -12-CS                      | 3.84 (97.5)          | 0.94 (23.9) | 1.92 (48.8) | 1 1/4    | 5100 (351)                   | 2500 (172) |
| 1                | -16-CS                      | 3.82 (97.0)          | 1.17 (29.7) | 1.91 (48.5) | 1 11/16  | 6400 (440)                   | 3200 (220) |

## Union Ball Joints

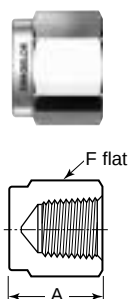


## Female NPT Threads

| Pipe Size<br>in. | Ordering<br>Number | Dimensions, in. (mm) |             | F <sub>1</sub><br>in. | F <sub>2</sub><br>in. | Pressure Ratings<br>316 SS<br>psig (bar) |
|------------------|--------------------|----------------------|-------------|-----------------------|-----------------------|------------------------------------------|
|                  |                    | A                    | E           |                       |                       |                                          |
| 1/8              | SS-2-UBJ           | 1.81 (46.0)          | 0.27 (6.8)  | 1 1/8                 | 15/16                 | 8400 (578)                               |
| 1/4              | SS-4-UBJ           | 2.34 (59.4)          | 0.36 (9.1)  | 1 3/8                 | 1 3/16                | 6600 (454)                               |
| 3/8              | SS-6-UBJ           | 2.50 (63.5)          | 0.52 (13.2) | 1 1/2                 | 1 5/16                | 5300 (365)                               |
| 1/2              | SS-8-UBJ           | 2.69 (68.3)          | 0.62 (15.7) | 1 3/4                 | 1 5/8                 | 6000 (413)                               |
| 3/4              | SS-12-UBJ          | 3.12 (79.2)          | 0.88 (22.4) | 2 1/8                 | 1 7/8                 | 4600 (316)                               |
| 1                | SS-16-UBJ          | 3.56 (90.4)          | 1.03 (26.2) | 2 1/2                 | 2 3/8                 | 6800 (468)                               |

Union ball joint nuts are silver plated. A lubricant is utilized for assembly.

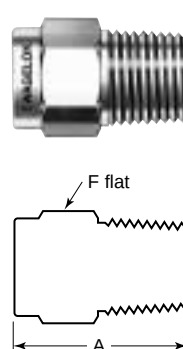
## Pipe Caps



## Female NPT Threads

| Pipe Size in.                        | Basic Ordering Number | A in. (mm)  | F in.  |
|--------------------------------------|-----------------------|-------------|--------|
| 1/8                                  | -2-CP                 | 0.75 (19.1) | 9/16   |
| 1/4                                  | -4-CP                 | 0.91 (23.1) | 3/4    |
| 3/8                                  | -6-CP                 | 1.03 (26.2) | 7/8    |
| 1/2                                  | -8-CP                 | 1.34 (34.0) | 1 1/16 |
| 3/4                                  | -12-CP                | 1.44 (36.6) | 1 5/16 |
| 1                                    | -16-CP                | 1.62 (41.1) | 1 5/8  |
| <b>Heavy-Wall Female NPT Threads</b> |                       |             |        |
| 1/4                                  | SS-4-CP-10K           | 1.11 (28.2) | 1      |
| 1/2                                  | SS-8-CP-10K           | 1.58 (40.1) | 1 1/2  |

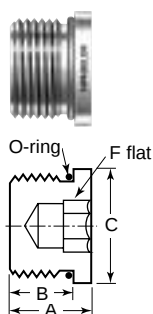
## Pipe Plugs



## Male NPT Threads

| Pipe Size in. | Basic Ordering Number | A in. (mm)  | F in.  |
|---------------|-----------------------|-------------|--------|
| 1/16          | -1-P                  | 0.75 (19.1) | 5/16   |
| 1/8           | -2-P                  |             | 7/16   |
| 1/4           | -4-P                  | 0.96 (24.4) | 9/16   |
| 3/8           | -6-P                  | 0.99 (25.1) | 11/16  |
| 1/2           | -8-P                  | 1.21 (30.7) | 7/8    |
| 3/4           | -12-P                 |             | 1 1/16 |
| 1             | -16-P                 | 1.50 (38.1) | 1 3/8  |

## Hollow Hex Plugs

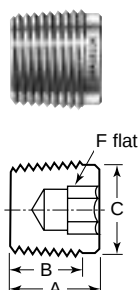


## Male SAE/MS Straight Threads

| Thread Size in. | Basic Ordering Number | Dimensions, in. (mm) |             |             | F in. | O-ring <sup>①</sup> Uniform Size |
|-----------------|-----------------------|----------------------|-------------|-------------|-------|----------------------------------|
|                 |                       | A                    | B           | C           |       |                                  |
| 7/16-20         | -4-HPST               | 0.45 (11.4)          | 0.36 (9.1)  | 0.56 (14.2) | 3/16  | -904                             |
| 9/16-18         | -6-HPST               | 0.48 (12.2)          | 0.39 (9.9)  | 0.69 (17.5) | 1/4   | -906                             |
| 3/4-16          | -8-HPST               | 0.56 (14.2)          | 0.44 (11.2) | 0.88 (22.4) | 5/16  | -908                             |
| 1 1/16-12       | -12-HPST              | 0.75 (19.1)          | 0.59 (15.0) | 1.25 (31.8) | 9/16  | -912                             |
| 1 5/16-12       | -16-HPST              |                      |             | 1.50 (38.1) | 5/8   | -916                             |

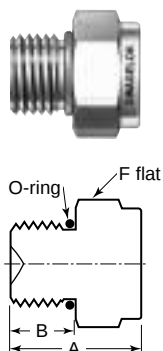
① O-ring material is 90 durometer fluorocarbon FKM.

## Male NPT Threads



| Pipe Size in. | Ordering Number | Dimensions, in. (mm) |             |             | F in. |
|---------------|-----------------|----------------------|-------------|-------------|-------|
|               |                 | A                    | B           | C           |       |
| 1/8           | SS-2-HP         | 0.41 (10.4)          | 0.29 (7.4)  | 0.37 (9.4)  | 3/16  |
| 1/4           | SS-4-HP         | 0.61 (15.5)          | 0.49 (12.4) | 0.48 (12.1) | 1/4   |
| 3/8           | SS-6-HP         | 0.59 (15.0)          | 0.47 (11.9) | 0.62 (15.7) | 5/16  |
| 1/2           | SS-8-HP         | 0.76 (19.3)          | 0.64 (16.2) | 0.76 (19.3) | 3/8   |

## Hex Head Plugs



## Male SAE/MS Straight Threads

| Thread Size in. | Basic Ordering Number | Dimensions, in. (mm) |             | F in. | O-ring <sup>①</sup> Uniform Size |
|-----------------|-----------------------|----------------------|-------------|-------|----------------------------------|
|                 |                       | A                    | B           |       |                                  |
| 7/16-20         | -4-PST                | 0.76 (19.3)          | 0.36 (9.1)  | 9/16  | -904                             |
| 9/16-18         | -6-PST                | 0.82 (20.8)          | 0.39 (9.9)  | 11/16 | -906                             |
| 3/4-16          | -8-PST                | 0.89 (22.6)          | 0.44 (11.2) | 7/8   | -908                             |
| 1 1/16-12       | -12-PST               | 1.12 (28.4)          | 0.59 (15.0) | 1 1/4 | -912                             |
| 1 5/16-12       | -16-PST               | 1.18 (30.0)          |             | 1 1/2 | -916                             |

① O-ring material is 90 durometer fluorocarbon FKM.

**Safe Product Selection**

**When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.**