

# 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 *Swagelok PTFE Free Pipe Thread Sealant* catalogs 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 includes the material designator.
- SAE/MS fittings are not available in brass.
- Minimum order quantities may apply to certain materials and configurations.
- Contact your independent 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, ASTM A276	ASME SA182, ASTM A182
Brass	ASME B16, ASTM B453	ASTM B283
Carbon steel	ASTM A108	—

### Plating and Coating

To resist corrosion, all carbon steel threaded connector 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, BS 2779, JIS B 0202
ISO/BSP (tapered)	ISO 7/1, BS 21, JIS B 0203
ISO/BSP (gauge) (Based on DIN 16288-1987)	ISO 228, BS 2779, JIS B 0202
Unified (SAE)	ASME B1.1

## Cleaning

Components are cleaned to remove oil, grease, and loose particles. For more information, see Swagelok 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.

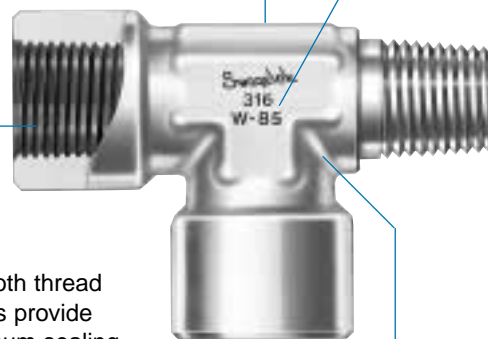


Burr-free internal surfaces.

NPT threads are based on requirements of ASME B1.20.1 and SAE AS71051.

Shaped fittings are manufactured from forgings.

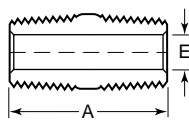
Marking identifies material, heat code for material traceability, and ISO end connection.



Smooth thread flanks provide optimum sealing and minimize galling.

Angles on elbows, tees, and crosses are rigidly controlled for accurate piping layout.

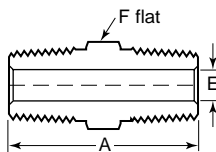
## Close Nipples



### Male NPT Threads

Pipe Size in.	Basic Ordering 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 in.	Basic Ordering Number	Dimensions, in. (mm)		F 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		

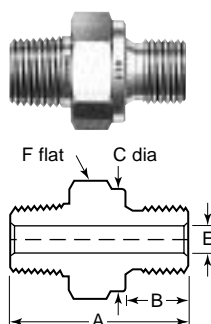
### Male ISO Tapered Pipe Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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 Pipe Size in.	ISO Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)		F in.	Pressure Ratings psig (bar)	
			A	E		316 SS, Steel	Brass
1/8	1/8	-2-HN-12RT	1.01 (25.6)	0.19 (4.8)	7/16	10 000 (689)	5000 (344)
1/4	1/4	-4-HN-12RT	1.40 (35.6)	0.28 (7.1)	9/16	8 000 (551)	4000 (275)
3/8	3/8	-6-HN-12RT	1.43 (36.3)	0.38 (9.6)	11/16	7 800 (537)	3900 (268)
1/2	1/2	-8-HN-12RT	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

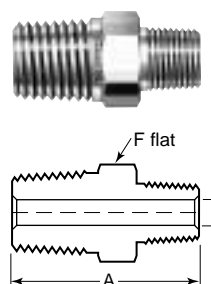


### Male NPT to Male ISO Parallel Pipe Threads

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	1.07 (27.2)	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	1.44 (36.6)	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	1.47 (37.3)		0.85 (21.6)	0.31 (7.9)	7/8		
1/2	1/2	-8-HN-8RS	1.78 (45.2)	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	1.95 (49.5)	0.62 (15.7)	1.26 (32.0)	0.62 (15.7)	1 5/8	7 300 (502)	3600 (248)
1	1	-16-HN-12RS	2.26 (57.4)	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.

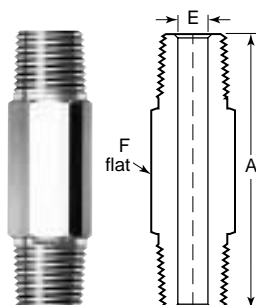
## Hex Reducing Nipples



### Male NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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-4	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	7 700 (530)
1/2 to 1/8	-8-HRN-2	1.47 (37.3)	0.19 (4.8)	8 000 (551)		4000 (275)
1/2 to 1/4	-8-HRN-4	1.65 (41.9)	0.28 (7.1)	7 800 (537)		3900 (268)
1/2 to 3/8	-8-HRN-6		0.38 (9.6)	1 1/16		8 000 (551)
3/4 to 1/4	-12-HRN-4		0.28 (7.1)		7 700 (530)	3800 (261)
3/4 to 1/2	-12-HRN-8	1.84 (46.7)	0.47 (11.9)	1 3/8	5 300 (365)	2600 (179)
1 to 1/4	-16-HRN-4	1.94 (49.3)	0.28 (7.1)		7 700 (530)	3800 (261)
1 to 1/2	-16-HRN-8	2.13 (54.1)	0.47 (11.9)		7 300 (502)	3600 (248)
1 to 3/4	-16-HRN-12		0.62 (15.7)			
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



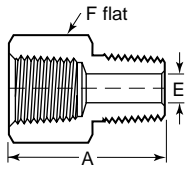
### Male NPT Threads

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



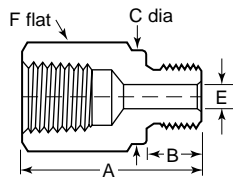
## Female to Male NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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 (22.1)	1 5/8	4 400 (303)	2200 (151)
<b>Heavy-Wall Female to Male NPT Threads</b>						
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

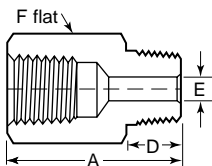
Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F in.	Pressure Ratings, psig (bar)	
		A	E		316 SS, Steel	Brass
1/8	-2-A-RT	1.09 (27.7)	0.19 (4.8)	9/16	6500 (447)	3200 (220)
1/4	-4-A-RT	1.42 (36.1)	0.28 (7.1)	3/4	6600 (454)	3300 (227)
3/8	-6-A-RT	1.50 (38.1)	0.38 (9.6)	7/8	5300 (365)	2600 (179)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

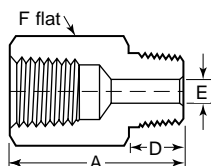
## Female NPT to Male ISO Tapered Pipe Threads



NPT Pipe Size in.	ISO Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)			F in.	Pressure Ratings 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)



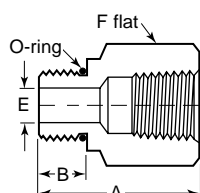
## Adapters



## 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)

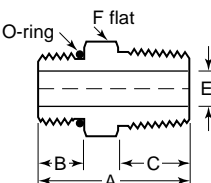
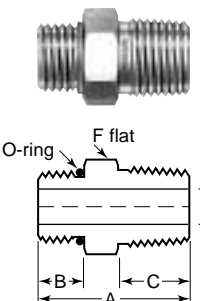
## Male SAE/MS Straight Thread to Female NPT Threads



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 (5.0)	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 (10.6)	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 (22.3)	1 5/8	-916	2900 (199)

① O-ring material is 90 durometer fluorocarbon FKM.

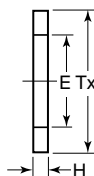
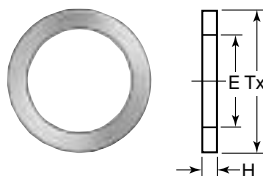
## Male SAE/MS Straight Thread to Male NPT Threads



SAE/MS 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	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)

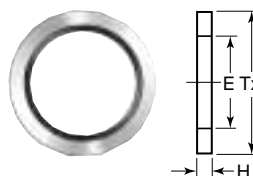
① O-ring material is 90 durometer fluorocarbon FKM.

## 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.

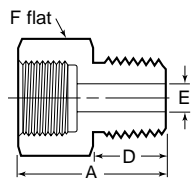
Example: S-8-RS-2V

## Steel Gasket for Male RS Fittings

Basic Ordering Number	Dimensions, in. (mm)		
	E	H	Tx
S-2-RS-2	0.41 (10.4)	0.08 (2.0)	0.63 (16.0)
S-4-RS-2 <sup>①</sup>	0.54 (13.7)		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

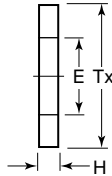


### Female ISO Parallel (Gauge) to Male NPT Pipe Threads

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)

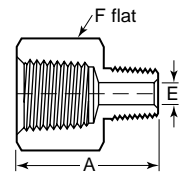
## Gauge Adapter Gaskets

### 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)	0.08 (2.0)	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

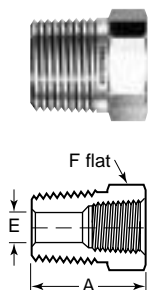
Female Pipe Size in.	Male Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)		F in.	Pressure Ratings psig (bar)	
			A	E		316 SS, Steel	Brass
1/8	1/16	-2-RA-1	1.09 (27.7)	0.12 (3.0)	9/16	6 500 (447)	3200 (220)
1/4	1/8	-4-RA-2	1.26 (32.0)	0.19 (4.8)	3/4	6 600 (454)	3300 (227)
3/8		-6-RA-2	1.33 (33.8)		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 7/8	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 Pipe Size in.	Male Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)		F in.	Pressure Ratings 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



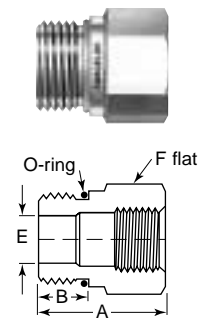
### Male to Female NPT Threads

Male Pipe Size in.	Female Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)		F in.	Pressure Ratings 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 Pipe Size in.	Female Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)		F in.	Pressure Ratings 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

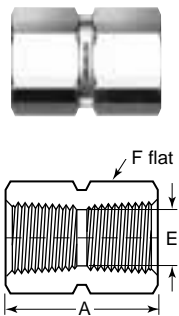


### Male to Female SAE/MS Straight Threads

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			
1/16-18	7/16-20	-6-RBST-4	1.22 (31.0)	0.39 (9.9)	0.28 (7.1)	15/16	-906	4500 (310)
		-8-RBST-4	0.98 (24.9)		0.39 (9.9)	7/8	-908	
3/4-16	9/16-18	-8-RBST-6	1.41 (35.8)	0.44 (11.2)	0.42 (10.6)	1	-910	3600 (248)
		-10-RBST-6	1.29 (32.8)		0.50 (12.7)			
7/8-14	3/4-16	-10-RBST-8	1.56 (39.6)	0.50 (12.7)	0.50 (12.7)	1 1/16	-912	2900 (199)
		-12-RBST-8	1.52 (38.6)		0.66 (16.7)	1 1/4		
1 1/16-12	1 1/16-12	-16-RBST-12	1.94 (49.3)	0.59 (15.0)	0.88 (22.3)	1 5/8	-916	2300 (158)
1 5/16-12	1 5/16-12	-20-RBST-16	1.98 (50.3)		1.09 (27.7)	2 1/8	-920	
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



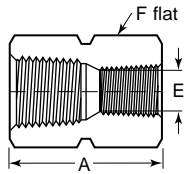
### Female NPT Threads

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



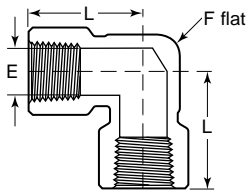
## Female NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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)	1½ <sub>16</sub>	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)	1½ <sub>16</sub>	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)		1½ <sub>8</sub>	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)	1½	10 000 (689)	—

## 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
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



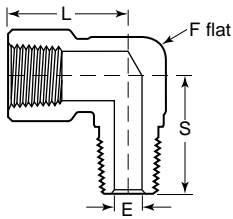
## Female NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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 1/16	6 400 (440)	3200 (220)
<b>Heavy-Wall Female NPT Threads</b>						
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 1/16		

## Female ISO Tapered Pipe Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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		

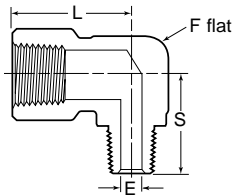
## Street Elbows



### Female to Male NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)			F 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 1/2	5300 (365)	2600 (179)

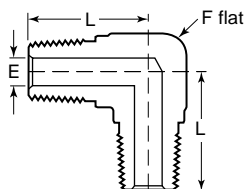
## Reducing Street Elbows



### Female to Male NPT Threads

Female Pipe Size in.	Male Pipe Size in.	Basic Ordering Number	Dimensions in. (mm)			F in.	Pressure Ratings 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)					

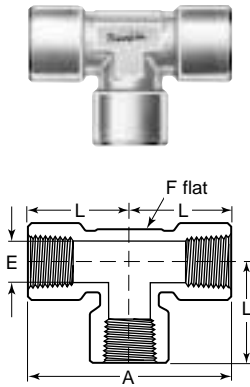
## Male Elbows



### Male NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)		F 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



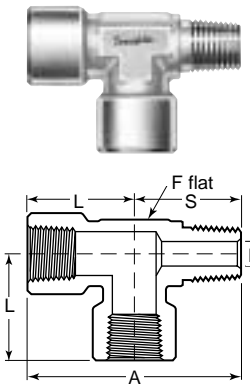
## Female NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)			F 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 1/16	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 1/16		

## Female ISO Tapered Pipe Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)			F 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		

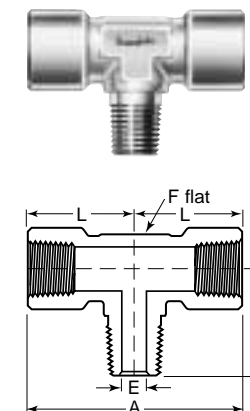
## Street Tees



## Male and Female NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)				F 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		

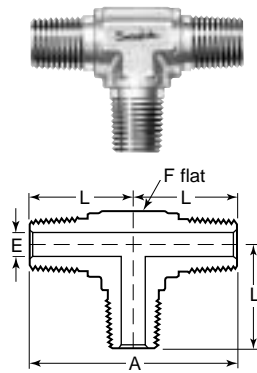
## Branch Tees



## Male and Female NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)				F 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		

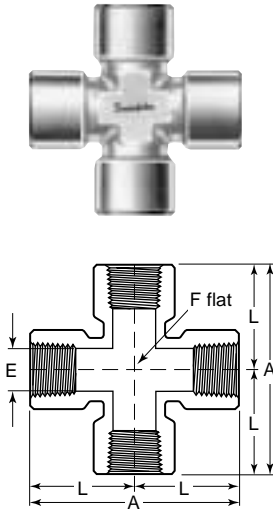
## Male Tees



## Male NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)			F 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)

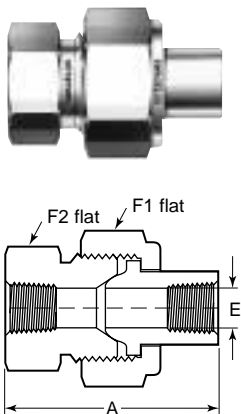
## Crosses



## Female NPT Threads

Pipe Size in.	Basic Ordering Number	Dimensions, in. (mm)			F 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 1/16	6400 (440)	3200 (220)

## Union Ball Joints

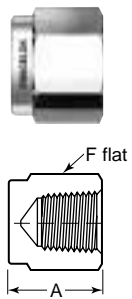


## Female NPT Threads

Pipe Size in.	Ordering Number	Dimensions, in. (mm)		F1 in.	F2 in.	Pressure Ratings 316 SS 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.

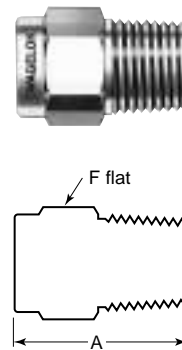
## Pipe Caps



## 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

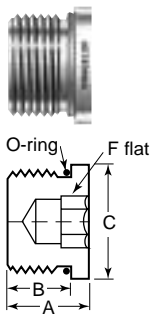
## Pipe Plugs



## 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

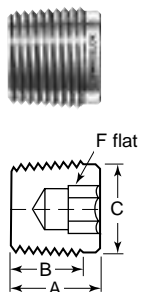


## Male SAE/MS Straight Threads

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

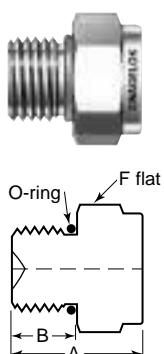
① O-ring material is 90 durometer fluorocarbon FKM.

## 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.**