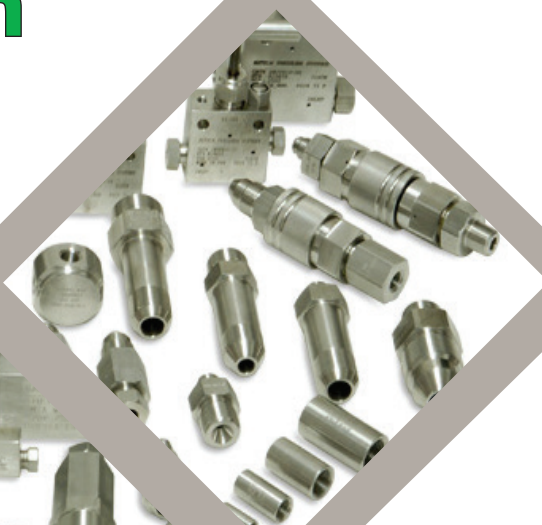


***SPIR STAR***<sup>®</sup>

HIGH PRESSURE PERFORMANCE

# Fitting and Adapter Identification Guide

(shown in 1:1 scale)



**2022**

# Table of Contents

The SPIR STAR Fitting and Adapter Identification Guide is intended as a reference for easy and proper identification of SPIR STAR fittings and adapters. The stated dimensions and related drawings are to scale, however, care should be taken as many of these types of fittings and adapters have certain similarities and the same dimensions. Please contact your SPIR STAR sales representative with any questions.

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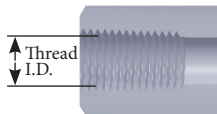
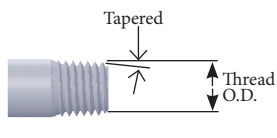
**ISO 45001:2018 Certified | ISO 9001:2015 Certified**

# NPT

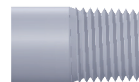
SPIR STAR NPT (National Pipe Taper) fittings and adapters have working pressures up to 15,000 psi. Working pressures may be decreased depending upon thread size.

Common Description	Nominal Thread (inch)	Male Thread O.D. (inch)	Female Thread I.D. (inch)
1/16	1/16-27 NPT	.312	.246
1/8	1/8-27 NPT	.405	.339
1/4	1/4-18 NPT	.540	.437
3/8	3/8-18 NPT	.675	.578
1/2	1/2-14 NPT	.840	.718
3/4	3/4-14 NPT	1.05	.922
1	1-11.5 NPT	1.315	1.156

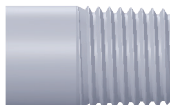
## NPT 1/16" - 27



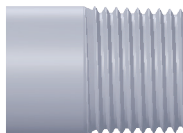
## NPT 1/8" - 27



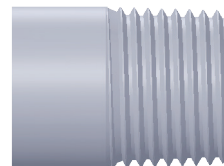
## NPT 1/4" - 18



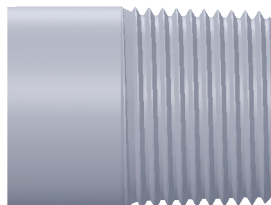
## NPT 3/8" - 18



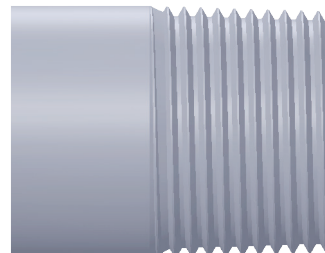
## NPT 1/2" - 14



## NPT 3/4" - 14



## NPT 1" - 11.5

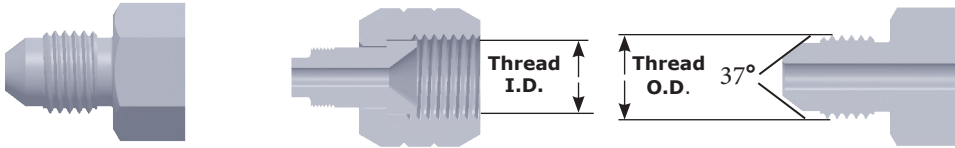


# JIC

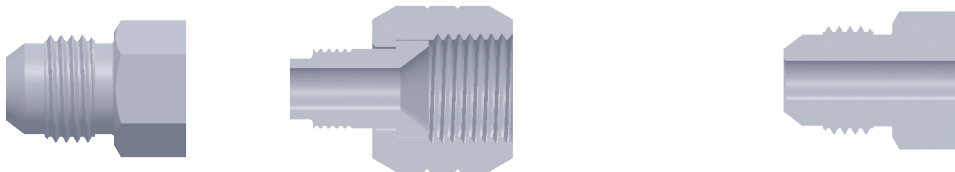
SPIR STAR JIC fittings and adapters seal with a 37 degree cone and are rated for working pressures up to 15,000 psi.

Common Description	Nominal Thread (inch)	Male Thread O.D. (inch)	Female Thread I.D. (inch)
#4	7/16-20 UNF	.430	.385
#6	9/16-18 UNF	.558	.510
#8	3/4-16 UNF	.745	.690
#12	1-1/16-12 UNF	1.055	.980
#16	1-5/16-12 UNF	1.300	1.23

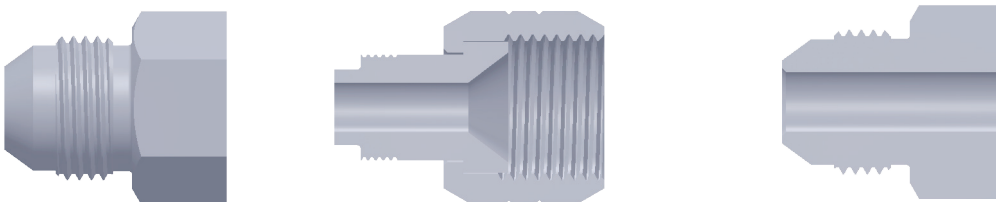
## JIC #4



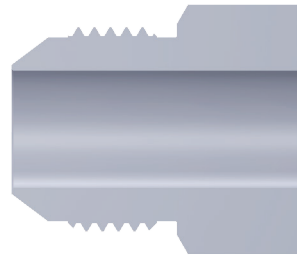
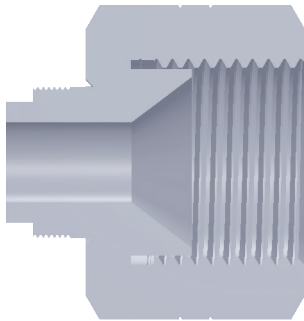
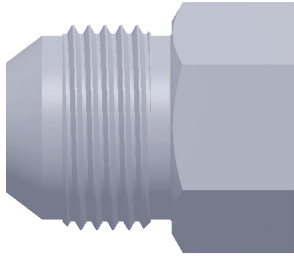
## JIC #6



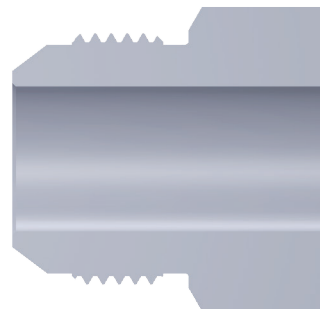
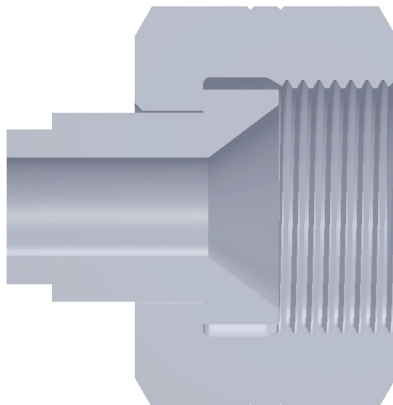
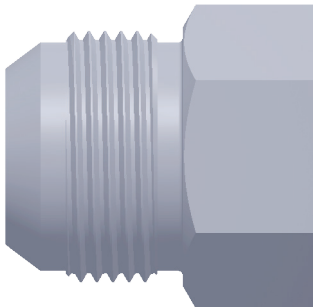
## JIC #8



JIC #12



JIC #16

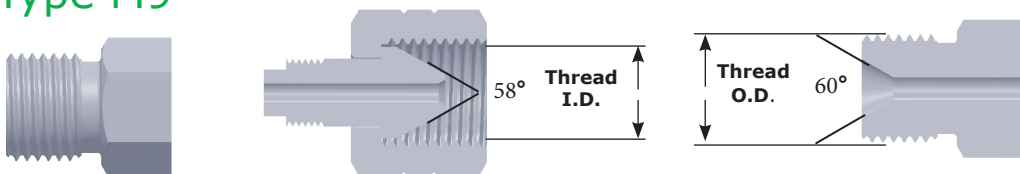


# Type M

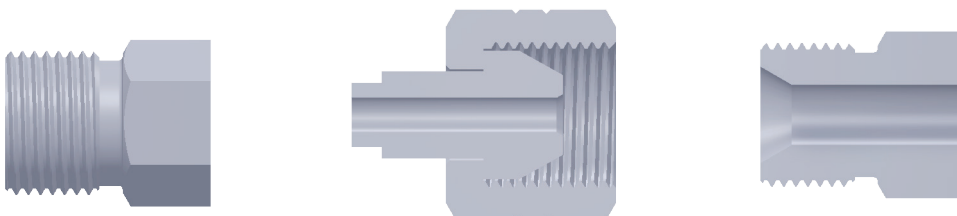
SPIR STAR Type M fittings and adapters are for use with Type M swivel hose end fittings. These fittings seal with a 58/60 degree cone and are rated for working pressures up to 50,000 psi.

Common Description	Nominal Thread (inch)	Male Thread O.D. (inch)	Female Thread I.D. (inch)
M9	9/16-18 UNF	.558	.510
M12	3/4-16 UNF	.745	.690
M14	7/8-14 UNF	.865	.810
M16	1-12 UNF	.990	.935
M18	1-1/8-12 UNF	1.120	1.045
M21	1-5/16-12 UNF	1.30	1.230

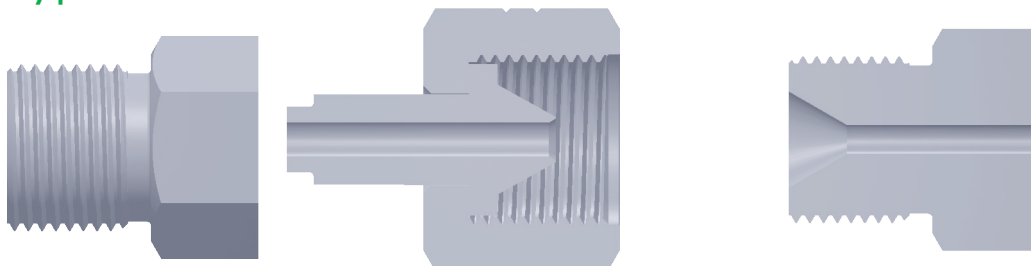
## Type M9



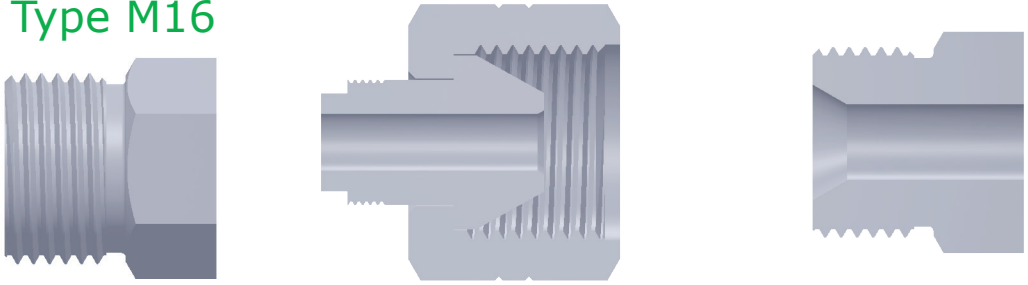
## Type M12



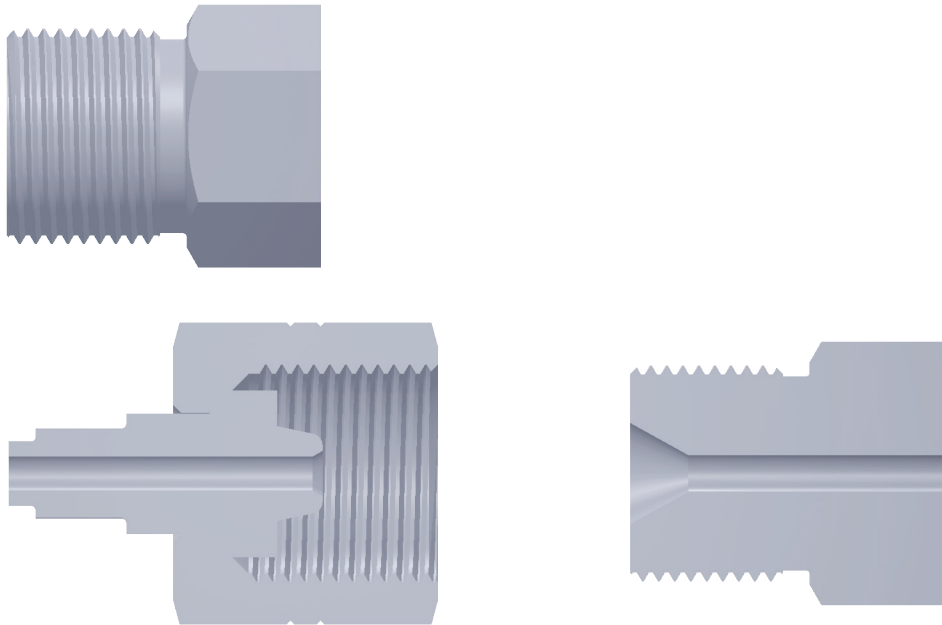
## Type M14



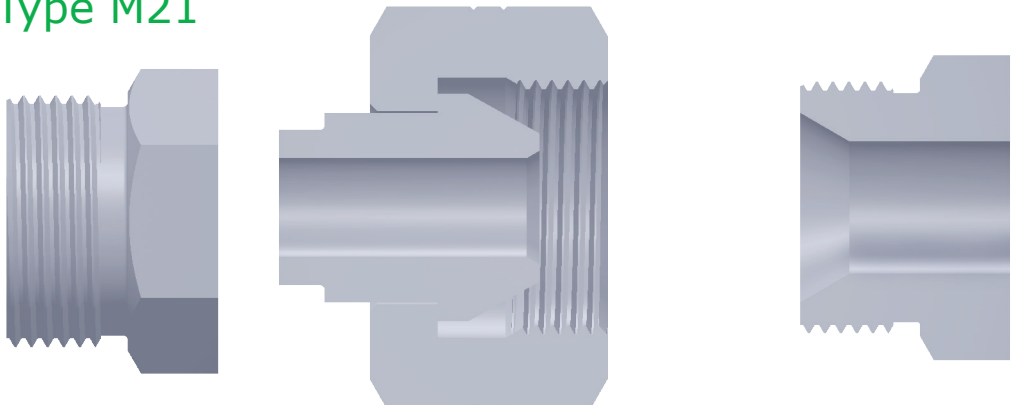
Type M16



Type M18



Type M21



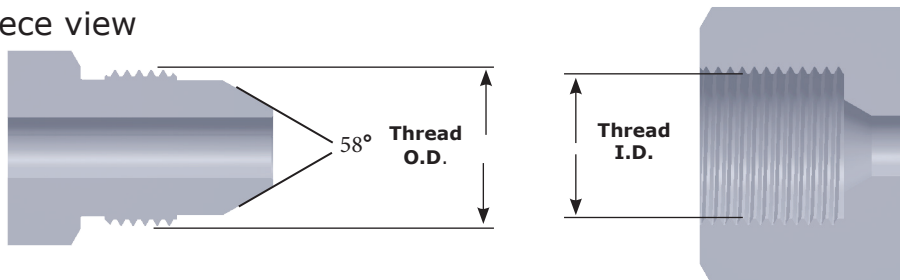
# Medium Pressure

SPIR STAR Medium Pressure fittings and adapters seal with a 58/60 degree cone and are rated for working pressures up to 20,000 psi.

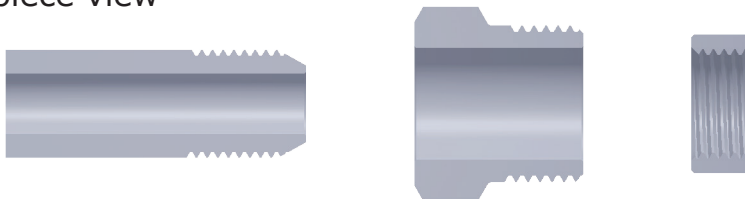
Common Description	Nominal Thread (inch)	Male Thread O.D. (inch)	Female Thread I.D. (inch)
1/4 MP	7/16-20 UNF	.430	.385
3/8 MP	9/16-18 UNF	.558	.510
9/16 MP	13/16-16 UNF	.805	.750
3/4 MP	3/4-14 NPSM	1.030	.965
1 MP	1-3/8-12 UNF	1.370	1.290

The images below are the same MP fitting. The one piece view is a single machined fitting, next is three separate components that when combined create the same fitting. MP fittings are available for purchase in either configuration. (9/16 MP shown)

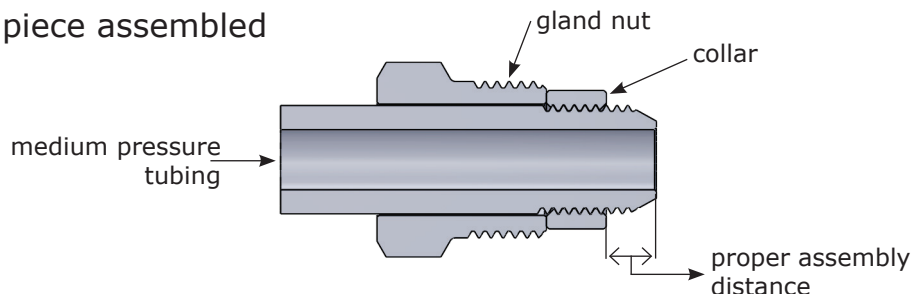
One piece view



Three piece view



Three piece assembled

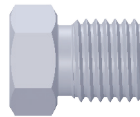




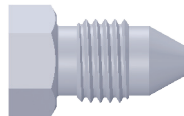
1/4" MP Collar



1/4" MP Gland Nut



1/4" MP Male  
(one piece version)



1/4" MP Plug



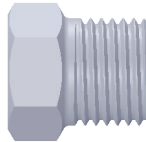
1/4" Tube Nipple



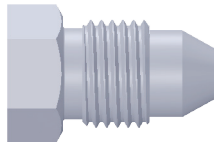
### 3/8" MP Collar



### 3/8" MP Gland Nut



### 3/8" MP Male (one piece version)



### 3/8" MP Plug



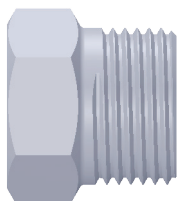
### 3/8" Tube Nipple



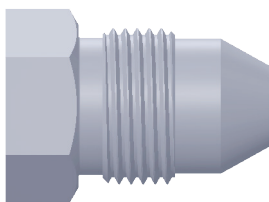
9/16" MP Collar



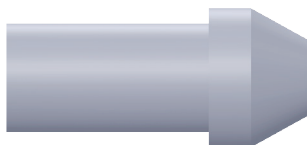
9/16" MP Gland Nut



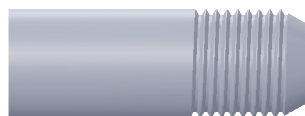
9/16" MP Male  
(one piece version)



9/16" MP Plug



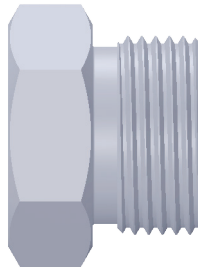
9/16" Tube Nipple



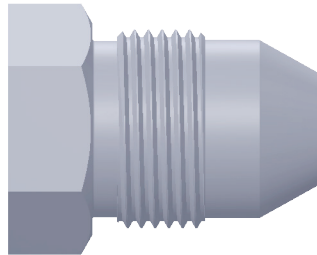
3/4" MP Collar



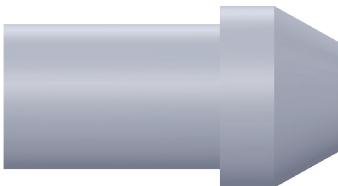
3/4" MP Gland Nut



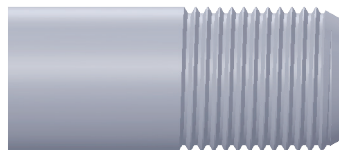
3/4" MP Male  
(one piece version)



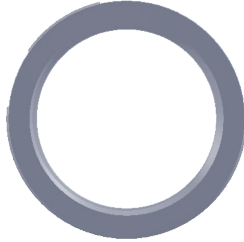
3/4" MP Plug



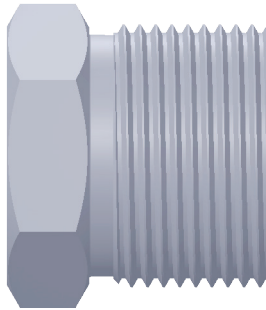
3/4" Tube Nipple



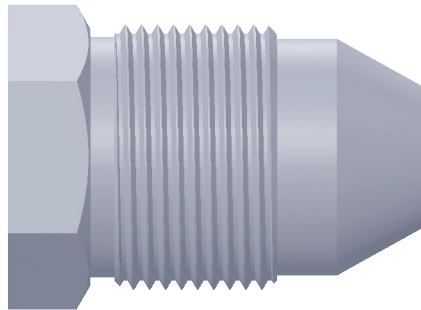
1" MP Collar



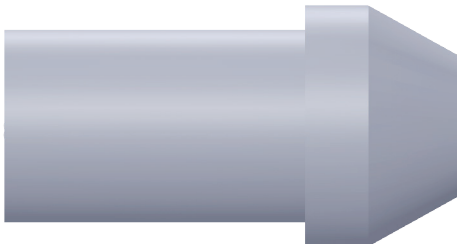
1" MP Gland Nut



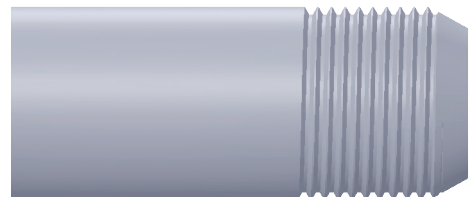
1" MP Male  
(one piece version)



1" MP Plug



1" Tube Nipple



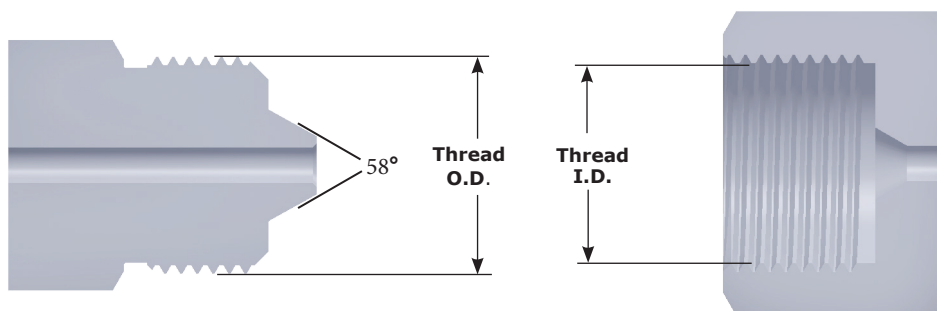
# High Pressure

SPIR STAR high pressure fittings and adapters seal with a 58/60 degree cone and are rated for working pressures up to 60,000 psi.

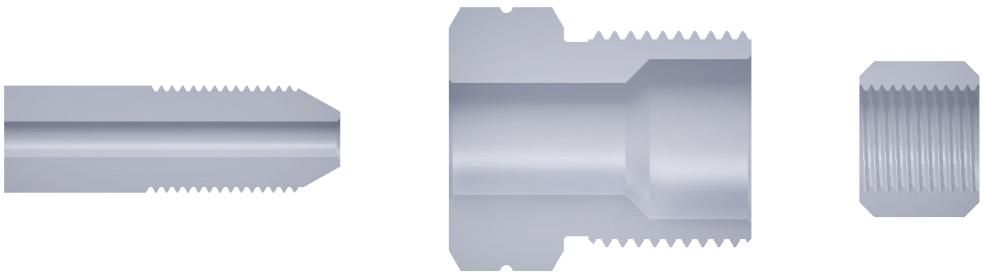
Common Description	Nominal Thread (inch)	Male Thread O.D. (inch)	Female Thread I.D. (inch)
1/4 HP	9/16-18 UNF	.558	.510
3/8 HP	3/4-16 UNF	.745	.690
9/16 HP	1-1/8-12 UNF	1.120	1.045
1 HP	1-3/8-12 UNF	1.370	1.290

The images below and on the facing page are the same HP fitting. The one piece view is a single machined fitting, next is three separate components that when combined create the same fitting. HP fittings are available for purchase in either configuration. (9/16 HP shown)

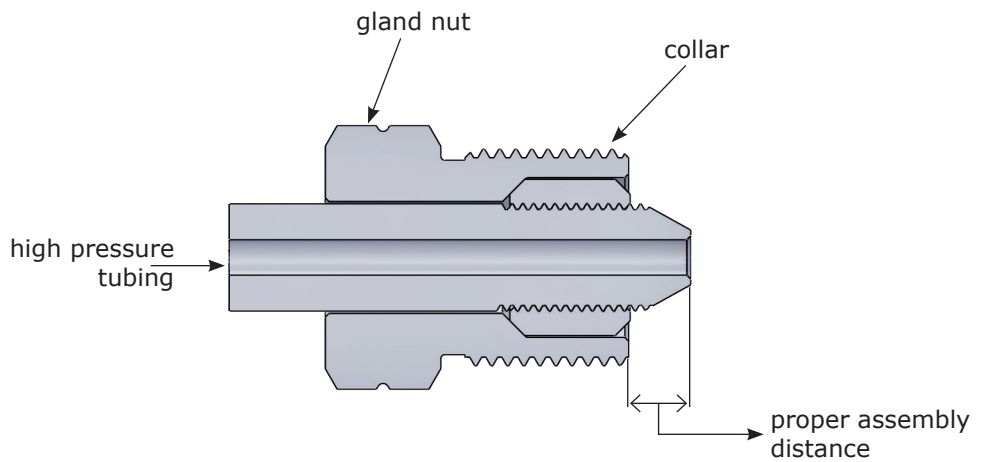
One piece view



### Three piece view



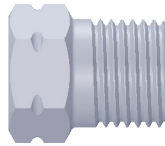
### Three piece assembled



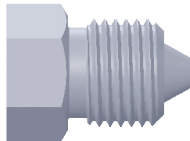
## 1/4" HP Collar



## 1/4" HP Gland Nut



## 1/4" HP Male (one piece version)



## 1/4" HP Plug



## 1/4" Tube Nipple

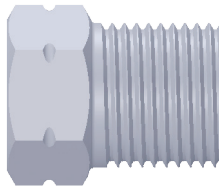




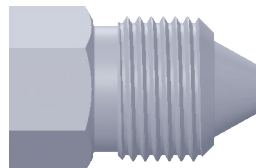
3/8" HP Collar



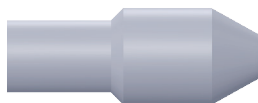
3/8" HP Gland Nut



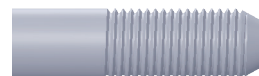
3/8" HP Male  
(one piece version)



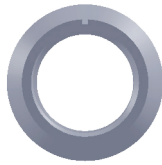
3/8" HP Plug



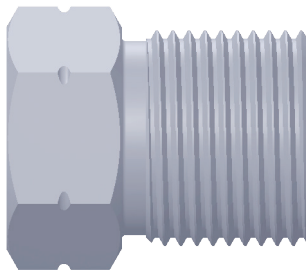
3/8" Tube Nipple



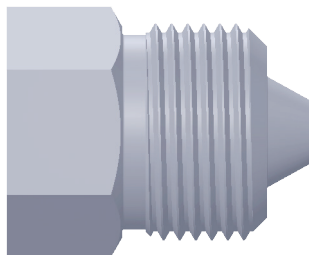
## 9/16" HP Collar



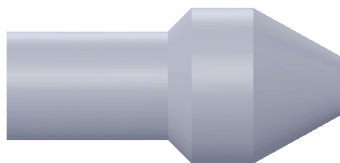
## 9/16" HP Gland Nut



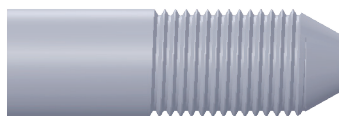
## 9/16" HP Male (one piece version)



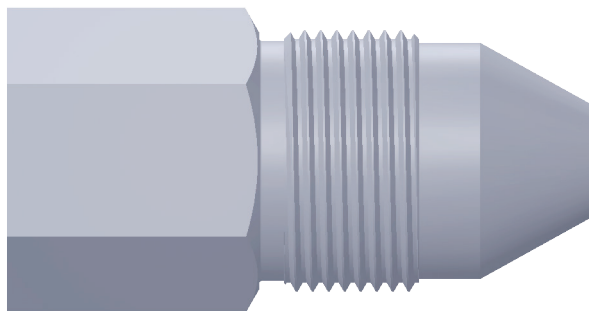
9/16" HP Plug



9/16" HP Tube Nipple



1" HP Male

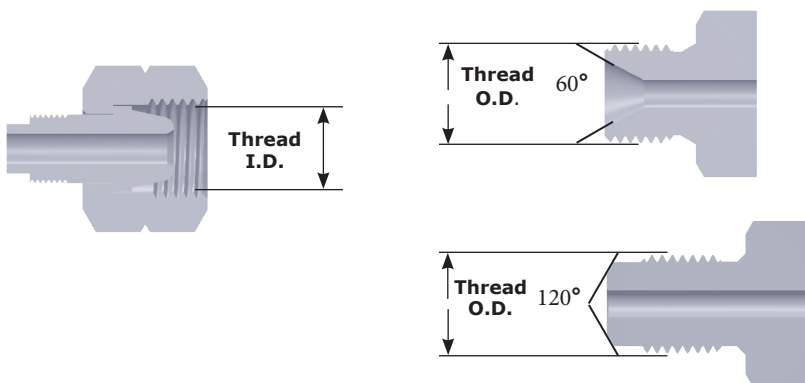


# BSPP

SPIR STAR BSPP fittings and adapters are available with both internal connection and external sealing cones.

Please note that when sealing BSPP adapters with bonded seals rather than on the cone, the working pressure of the fitting may be lower than the working pressure stated on the fitting.

Common Description	Nominal Thread (inch)	Male Thread O.D. (inch)	Female Thread I.D. (inch)
1/4 BSPP 60° Internal	1/4-19	.510	.460
1/4 BSPP 120° External	1/4-19	.510	.460



Internal - BSPP internal connection can be used as a cone to cone connection or with a dowty seal.



External - BSPP external connection for use only with 120° ported female.



# Torque Values

Connection	Tightening Torque (ft. lb.)
<i>High Pressure</i>	
1/4"	25
3/8"	50
9/16"	75
1"	125
<i>Medium Pressure</i>	
1/4"	20
3/8"	30
9/16"	85
3/4"	90
1"	125
<i>Type M Swivel</i>	
M9	25 - 30
M12	40 - 50
M14	50 - 60
M16	75 - 85
M21	100 - 120
<i>JIC</i>	
-4	11 - 12
-6	18 - 21
-8	36 - 39
-12	80 - 88
-16	100 - 108
<i>BSPP (cone to cone seat)</i>	
1/4"	25-30

# Torque Value

Connection	Turns to finger tight (with use of sealing tape)	Tightening Torque (ft. lb.)
<i>NPT</i>		
<i>1/16"</i>	<i>3/4 - 1-1/2</i>	<i>4-5</i>
<i>1/8"</i>	<i>3/4 - 1-3/4</i>	<i>10-15</i>
<i>1/4"</i>	<i>3/4 - 1-3/4</i>	<i>20-25</i>
<i>3/8"</i>	<i>3/4 - 1-3/4</i>	<i>20-25</i>
<i>1/2"</i>	<i>3/4 - 1-1/2</i>	<i>40-50</i>
<i>3/4"</i>	<i>3/4 - 1-1/2</i>	<i>75-80</i>
<i>1"</i>	<i>3/4 - 1-1/2</i>	<i>100-115</i>

Note: Torque values are approximate and are based on new and properly installed fittings.

# Care and Use

## Fitting and Adapter Care and Use

- Know the working pressure and proper assembly requirements of any fitting or adapter prior to use.
- Make sure that all threads and sealing cones are clean and free of any debris prior to use.
- Threads and sealing cones should be thoroughly inspected for any damage or deformation prior to use.
- The cone sealing surface of fittings and adapters using a cone to cone seal should be free of any lubricants, anti-seize compounds, etc.
- Do not excessively tighten fittings and adapters. If excessive tightening is required then there is likely another issue that needs to be addressed such as damaged sealing cone, improper installation, etc.
- Never attempt to tighten or loosen a fitting or adapter while under pressure.

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