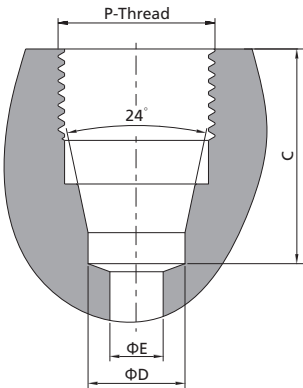


# Connection Information

## 20D Series Tube Fitting Connections

### Dimensions of Female 20D Series Connections (DFF)

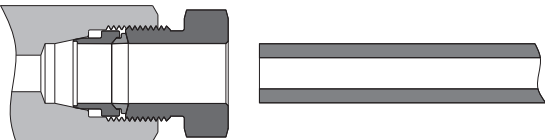
Tube O.D. in.(mm)	Connection	Dimensions, in. (mm)			
		P	C	D	E
1/8 (3.18)	DFF2	3/8-24	0.63 (15.9)	0.13 (3.2)	0.09 (2.4)
1/4 (6.35)	DFF4	1/2-20	0.85 (21.7)	0.25 (6.4)	0.19 (4.8)
3/8 (9.53)	DFF6	5/8-18	0.89 (22.5)	0.38 (9.5)	0.25 (6.4)
1/2 (12.7)	DFF8	13/16-16	0.96 (24.4)	0.50 (12.7)	0.37 (9.5)
9/16 (14.3)	DFF9	15/16-14	1.20 (30.6)	0.56 (14.3)	0.41 (10.4)
3/4 (19.1)	DFF12	1 1/4-12	1.54 (39.2)	0.75 (19.1)	0.56 (14.2)
1 (25.4)	DFF16	1 5/8-16	2.03 (51.6)	1.00 (25.4)	0.69 (17.5)



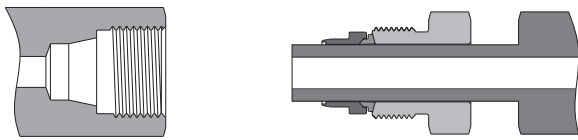
Notes: 1. All dimensions are shown for reference only and should not be considered as actual machining dimensions.  
 2. All threads are manufactured to class 2A or 2B fit.

### Types of 20D Series Connections

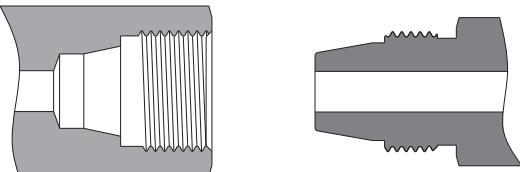
a. Female 20D Series (DFF)      T15A, T15D or T20D Series Tubing



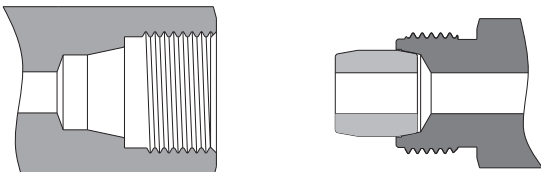
b. Female 20D Series (Without Double Ferrules and Nut)      20D Series Tube Stub with Double Ferrules and Nut (DFT)



c. Female 20D Series (DFF) (Without Double Ferrules and Nut)      Male 20D Series (One-Piece) (DFM)



d. Female 20D Series (DFF) (Without and Nut)      Male 20D Series (Two-Piece) (DCP)



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# 20M Series Medium Pressure Coned and Threaded Connections

## Dimensions of Female Medium Pressure Connections (MF)

Tube O.D. in. (mm)	Connection	Dimensions, in. (mm)				
		P	B	C	D	E
1/4 (6.35)	MF4	7/16-20	0.29 (7.3)	0.50 (12.7)	0.19 (4.8)	0.11 (2.8)
3/8 (9.53)	MF6	9/16-18	0.39 (10.0)	0.63 (16.0)	0.31 (7.9)	0.20 (5.2)
9/16 (14.3)	MF9	13/16-16	0.44 (11.2)	0.75 (19.1)	0.50 (12.7)	0.31 (7.9)
3/4 (19.1)	MF12	3/4-14 NPSM	0.51 (13.0)	0.94 (23.9)	0.63 (15.9)	0.44 (11.1)
1 (25.4)	MF16	1 3/8-12	0.83 (21.0)	1.31 (33.3)	0.88 (22.4)	0.56 (14.3)

## Dimensions of Medium Pressure Coned and Threaded Tubing Connections

Tube O.D. x I.D. in.	Connection	Dimensions, in. (mm)		
		T (Left Hand)	D	L
1/4 x 0.109	MF4	1/4-28	0.14 (3.6)	0.34 (8.7)
3/8 x 0.203	MF6	3/8-24	0.25 (6.4)	0.44 (11.1)
9/16 x 0.312	MF9	9/16-18	0.41 (10.3)	0.50 (12.7)
3/4 x 0.438	MF12	3/4-16	0.56 (14.3)	0.63 (15.9)
1 x 0.562	MF16	1-14	0.72 (18.3)	0.78 (19.8)

Notes: 1. All dimensions are shown for reference only and should not be considered as actual machining dimensions.  
 2. All threads are manufactured to class 2A or 2B fit.

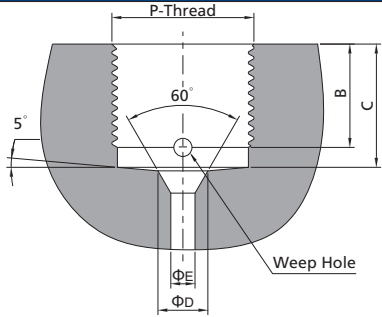
## Types of Medium Pressure Connections

a. Female Medium Pressure (MF)	T20M Series Coned and Threaded Tubing	b. Female Medium Pressure (MF)	Medium Pressure Coned and Threaded Nipples (MCT)
c. Female Medium Pressure (Without Collar and Gland) (MF)	Male Medium Pressure (One-Piece) (MM)	d. Female Medium Pressure (Without Collar and Gland) (MF)	Male Medium Pressure (Two-Piece) (MCP)

# 60 Series High Pressure Coned and Threaded Connections

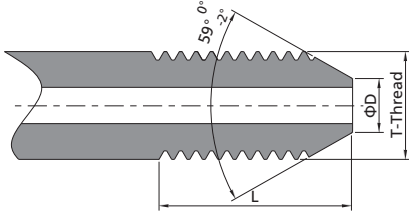
## Dimensions of Female High Pressure Connections (HF)

Tube O.D. in.(mm)	Connection	Dimensions, in. (mm)				
		P	B	C	D	E
1/4 (6.35)	HF4	9/16-18	0.39 (9.8)	0.45 (11.4)	0.17 (4.3)	0.09 (2.4)
3/8 (9.53)	HF6	3/4-16	0.54 (13.6)	0.64 (16.3)	0.26 (6.6)	0.13 (3.2)
9/16 (14.3)	HF9	1 1/8-12	0.63 (16.0)	0.75 (19.1)	0.38 (9.7)	0.19 (4.8)



## Dimensions of High Pressure Coned and Threaded Tubing Connections

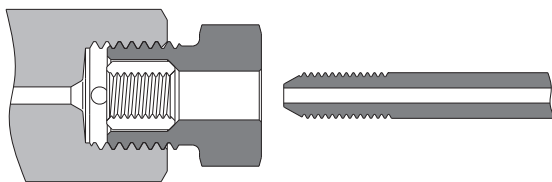
Tube O.D. x I.D. in.	Connection	Dimensions, in. (mm)		
		T (Left Hand)	D	L
1/4 x 0.083	HF4	1/4-28	0.13 (3.2)	0.56 (14.3)
3/8 x 0.125	HF6	3/8-24	0.22 (5.6)	0.75 (19.1)
9/16 x 0.188	HF9	9/16-18	0.28 (7.1)	0.94 (23.8)



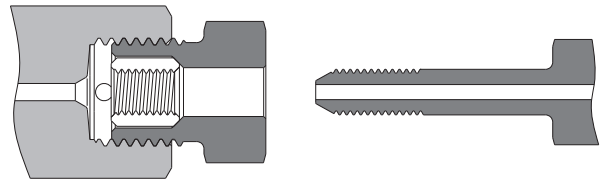
Notes: 1. All dimensions are shown for reference only and should not be considered as actual machining dimensions.  
 2. All threads are manufactured to class 2A or 2B fit.  
 3. API 6A, Specification for Wellhead and Christmas Tree Equipment, references high pressure coned and threaded fittings, and specifically outlines the dimensions for 9/16 inch fittings. FITOK 9/16 inch high pressure coned and threaded connections comply with the mechanical sealing dimensions called out in this specification. No other sizes or styles of cone and thread fittings or tubing are referenced in API 6A.

## Types of High Pressure Connections

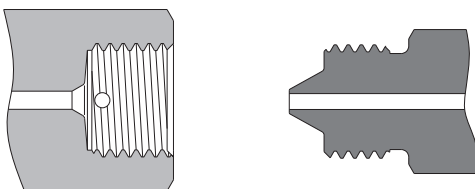
a. Female High Pressure (HF) T60H Series Coned and Threaded Tubing



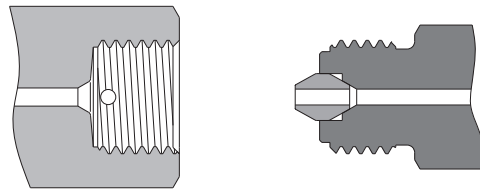
b. Female High Pressure (HF) High Pressure Coned and Threaded Nipples (HCT)



c. Female High Pressure (Without Collar and Gland) (HF) Male High Pressure (One-Piece) (HM)



d. Female High Pressure (Without Collar and Gland) (HF) Male High Pressure (Two-Piece) (HCP)



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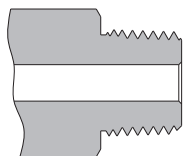
# Thread Ends

## Thread Specifications

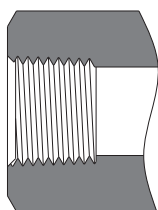
Connection Type	Designator	Thread Type	Thread Specification
Male NPT	NS	NPT	ASME B1.20.1, SAE AS71051
Female NPT	FNS		
Male ISO Tapered Thread	RT	ISO Tapered	ISO 7-1, BS EN 10226-1, DIN EN 10226-1, JIS B0203
Female ISO Tapered Thread	FRT		
Male SAE O-Ring	SH	SAE/MS	ASME B1.1
Female SAE O-Ring	US		
Male JIC	JM		
Female JIC	JF		

## Types of Thread Ends

Male NPT (NS)

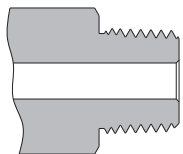


Female NPT (FNS)

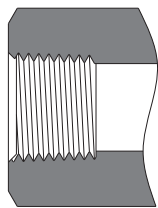


- 60° thread angle
- Pitch measured in inch
- Truncation of roots and crests are flat
- Taper 1:16
- Type of sealing: thread sealant

Male ISO Tapered Thread (RT)

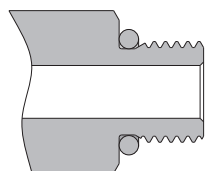


Female ISO Tapered Thread (FRT)

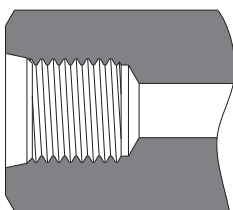


- 55° thread angle
- Pitch measured in inch
- Truncation of roots and crests are rounded
- Taper 1:16
- Type of sealing: thread sealant

Male SAE O-Ring (SH)

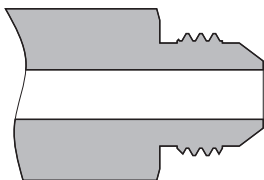


Female SAE O-Ring (US)

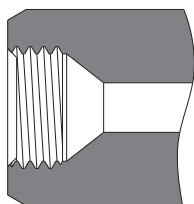


- 60° thread angle
- Pitch measured in inch
- Truncation of roots and crests are flat
- SH complies with SAE J1926-2, ISO 11926-2
- US complies with SAE J1926-1/ISO 11926-1

Male JIC (JM)



Female JIC (JF)

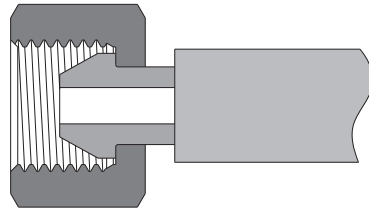
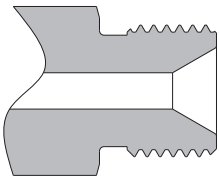


- 60° thread angle
- Pitch measured in inch
- Truncation of roots and crests are flat
- 74° coned connections

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Male Type "M" (TM)

Type "M" Swivel Hose Fitting



- 60° thread angle
- Pitch measured in inch
- Truncation of root and crest are flat
- 60° coned connections

Dimensions of Thread Ends

Male JIC (JM)						
Description	Connection	Dimensions, in. (mm)				
		P	B	C	D	E
1/4" JIC	JM4	7/16-20	0.20 (5.1)	0.55 (14.0)	0.36 (9.2)	0.19 (4.9)
3/8" JIC	JM6	9/16-18	0.20 (5.2)	0.56 (14.1)	0.48 (12.1)	0.32 (8.1)
1/2" JIC	JM8	3/4-16	0.26 (6.6)	0.66 (16.7)	0.65 (16.6)	0.43 (10.8)
5/8" JIC	JM10	7/8-14	0.28 (7.0)	0.76 (19.3)	0.77 (19.5)	0.54 (13.7)
3/4" JIC	JM12	1 1/16-12	0.32 (8.2)	0.86 (21.9)	0.94 (23.9)	0.67 (16.9)
1" JIC	JM16	1 5/16-12	0.32 (8.2)	0.91 (23.1)	0.19 (30.2)	0.91 (23.2)

Female JIC (JF)				
Description	Connection	Dimensions, in. (mm)		
		P	B	C
1/4" JIC	JF4	7/16-20	0.28 (7.1)	0.33 (8.3)
3/8" JIC	JF6	9/16-18	0.29 (7.4)	0.34 (8.7)
1/2" JIC	JF8	3/4-16	0.31 (7.9)	0.37 (9.5)
5/8" JIC	JF10	7/8-14	0.40 (10.2)	0.47 (11.9)
3/4" JIC	JF12	1 1/16-12	0.42 (10.7)	0.50 (12.7)
1" JIC	JF16	1 5/16-12	0.48 (12.3)	0.56 (14.3)

Male Type "M" (TM)			
Connection	Dimensions, in. (mm)		
	P	B	E
TM9	9/16-18	0.50 (12.7)	0.09 (2.4)
TM12	3/4-16	0.63 (16.0)	0.29 (7.4)
TM14	7/8-14	0.76 (19.2)	0.15 (3.8)
TM16	1-12	0.64 (16.3)	0.39 (10.0)
TM21	1 5/16-12	0.62 (15.7)	0.69 (17.5)

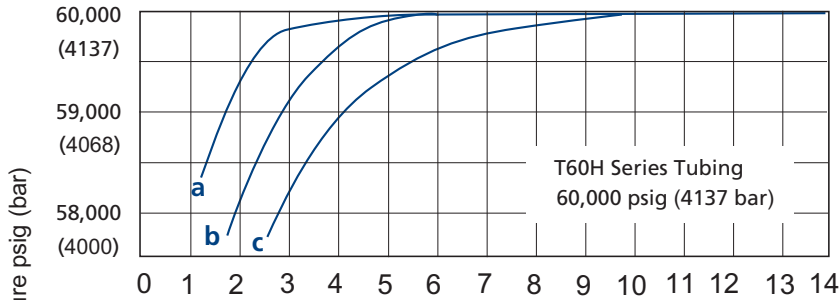
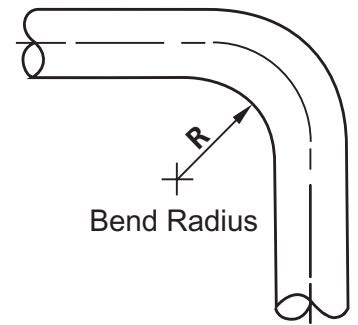
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# Working Pressure vs. Bend Radius Curve

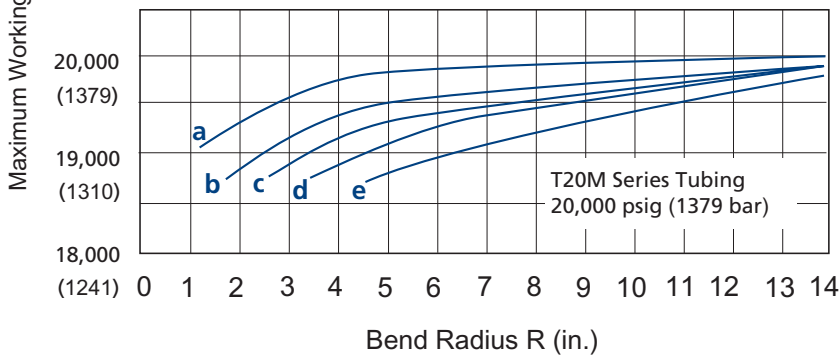
## T20M and T60H Series Tubing

### (316/316L SS)



**T60H Series Tubing**  
60,000 psig (4137 bar)

	Tube O.D. x I.D. in.	R (min.) in. (mm)
a	1/4 x 0.083	1.25 (31.8)
b	3/8 x 0.125	1.75 (44.5)
c	9/16 x 0.188	2.63 (66.7)



**T20M Series Tubing**  
20,000 psig (1379 bar)

	Tube O.D. x I.D. in.	R (min.) in. (mm)
a	1/4 x 0.109	1.25 (31.8)
b	3/8 x 0.203	1.75 (44.5)
c	9/16 x 0.312	2.63 (66.7)
d	3/4 x 0.438	3.50 (88.9)
e	1 x 0.562	4.63 (117.5)

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