

Tools & Installation

MAXIMATOR offers manual Coning and Threading tools that are designed to prepare accurate tubing ends to accept the medium, high and ultra high pressure connections.

Tools & Installation feature:

- ▶ Manual Coning and Threading Coning tools are designed to thread up to 9/16" OD tubing.
- ▶ One size Coning and Threading tool with interchangeable bushings and thread dies eliminates multiple tool inventories.
- ▶ Internal needle bearings and high strength materials offers ease of operation and extended tool life.
- ▶ Coning blades are designed to cut both the angle and straight areas to insure good concentricity between the sealing surfaces.
- ▶ Precision Reseating Tools to repair damaged female high pressure connections without full disassembly of components.

MAXPRO offers a complete line of manual tools for the proper preparation of medium, high and ultra high pressure connections to 9/16" OD tubing. For complete coning and threading instructions see Maxpro's website at www.maxprotech.com.

Note: When selecting multiple items, the pressure rating would be that of the lowest rated component.

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MAXIMATOR offers tools for coning and threading tubing up to 9/16" O.D. These are precise tools that allow manual coning and threading of medium, high, and ultra high pressure tubing. Please refer to the Maxpro Technologies website, www.maxprotech.com, and click on the VFT button to find detailed instructions for the coning and threading process.

Coning Tools

The coning tool comes complete with blades, collet and tools. The blades and tool feed nut allow the user to control the cutting feed rate and face the end of the tube when complete. The blades and collet can be changed for other sizes, while using the same base tool.

Tubing Size O.D. x I.D. (in.)	Tubing Pressure (psi @ R.T.)	Connection Type	Coning Tool Complete Catalog Number	Replacement Part Information	
				Collet Part Number	Coning Blades Part Number
1/4 x .109	21,000	4MM	CT4M	3781.1009	3781.1014
3/8 x .203	21,000	6MM	CT6M	3781.1010	3781.1013
9/16 x .312	21,000	9MM	CT9M	3781.1011	3781.1012
9/16 x .359	15,200	9MM	CT9M.359	3781.1011	3781.1179
1/4 x .083	65,000	4HM	CT4H	3781.1009	3781.0843
3/8 x .125	65,000	6HM	CT6H	3781.1010	3781.1017
9/16 x .188	65,000	9HM	CT9H	3781.1011	3781.1016
5/16 x .062	152,000	5UM	CT5U	3781.0846	3781.0843



Threading Tools

The threading tool comes complete with the threading die and bushing. The thread is a left hand type. The thread die and bushing can be changed for other sizes, while using the same base tool.

Tubing Size O.D. x I.D. (in.)	Tubing Pressure (psi @ R.T.)	Connection Type	Left Hand Thread Size (UNF class 2)	Threading Tool Complete Catalog Number	Replacement Part Information	
					Die Part Number	Bushing Part Number
1/4 x .109	21,000	4MM	1/4-28	TT4	3781.1061	3781.1055
3/8 x .203	21,000	6MM	3/8-24	TT6	3781.1059	3781.1053
9/16 x .312	21,000	9MM	9/16-18	TT9	3781.1060	3781.1054
9/16 x .359	15,200	9MM	9/16-18	TT9	3781.1060	3781.1054
1/4 x .083	65,000	4HM	1/4-28	TT4	3781.1061	3781.1055
3/8 x .125	65,000	6HM	3/8-24	TT6	3781.1059	3781.1053
9/16 x .188	65,000	9HM	9/16-18	TT9	3781.1060	3781.1054
5/16 x .062	152,000	5UM	5/16-24	TT5	3781.1058	3781.0152



Reseating Tools

The reseating tool is designed to rework an existing damaged coned and threaded connection without full disassembly of the component. The reseating tool will resurface the sealing surfaces of the medium, high, and ultra high pressure connections up to 9/16" tubing.

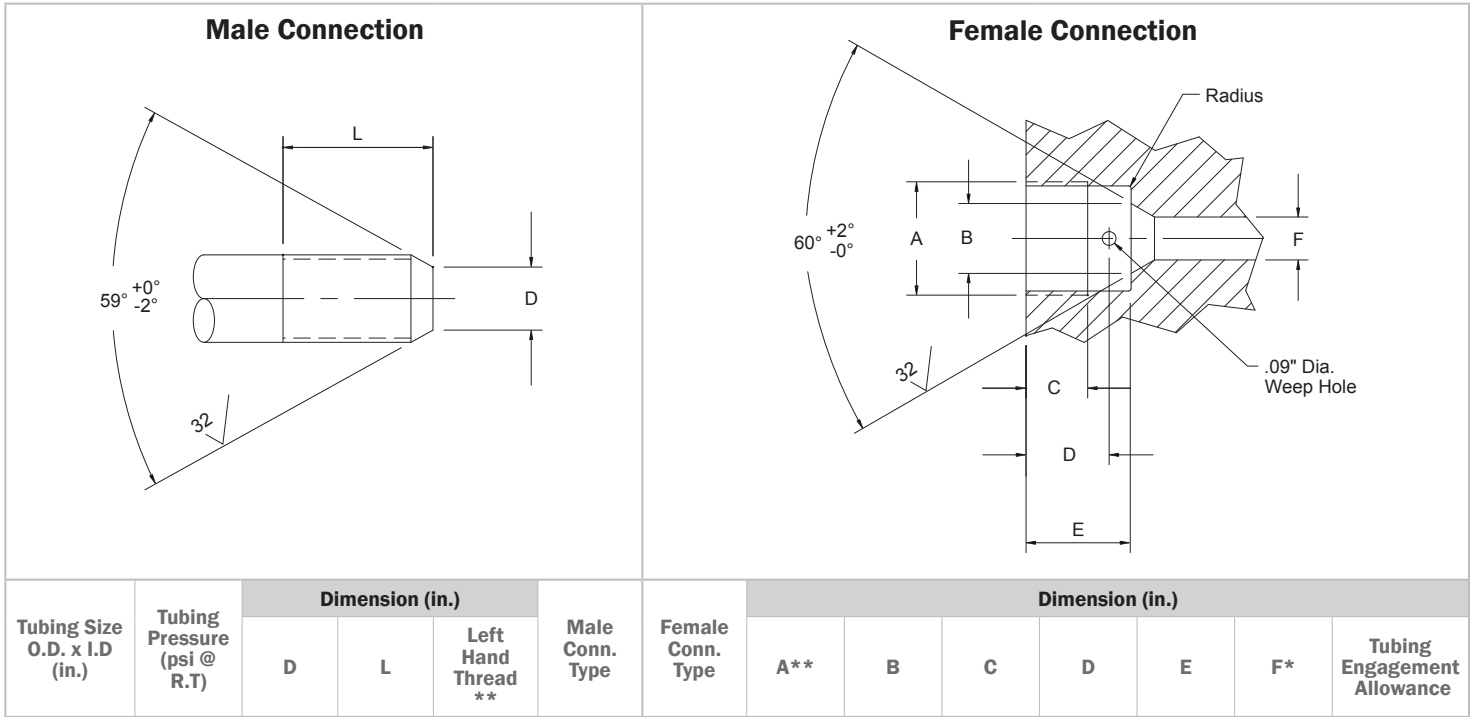
Tubing Size O.D. x I.D. (in.)	Tubing Pressure (psi @ R.T.)	Connection Type	Reseating Tool Complete Catalog Number	Replacement Part Information		
				Cutter Part Number	Bushing Part Number	Gland Part Number
1/4 x .109	21,000	4MF	RT4M	3781.0647	n/a	3781.0649
3/8 x .203	21,000	6MF	RT6M	3781.0650	n/a	3781.0651
9/16 x .312	21,000	9MF	RT9M	3781.0656	n/a	3781.0655
9/16 x .359	15,200	9MF	RT9M	3781.0656	n/a	3781.0655
1/4 x .083	65,000	4HF	RT4H	3781.0647	1700.0719	3781.0648
3/8 x .125	65,000	6HF	RT6H	3781.0645	1700.0718	3781.0646
9/16 x .188	65,000	9HF	RT9H	3781.0532	1700.0613	3781.0533
5/16 x .062	152,000	5UF	RT5U	3781.0532	n/a	3781.0652



Deburring Tools

The deburring tool is designed to remove the metal burr on the inside diameter of the tubing after the cutting process. The reseating tool will work on all medium, high, and ultra high pressure connections up to 9/16" tubing.

Tubing Size O.D. x I.D. (in.)	Tubing Pressure (psi @ R.T.)	Connection Type	Deburring Tool Complete Catalog Number	Replacement Part Information
				Bushing Part Number
1/4 x .109	21,000	4MM	DT4	1452.0821
3/8 x .203	21,000	6MM	DT4	1452.0821
9/16 x .312	21,000	9MM	DT4	1452.0821
9/16 x .359	15,200	9MM	DT5	1452.4605
1/4 x .083	65,000	4HM	DT4	1452.0821
3/8 x .125	65,000	6HM	DT4	1452.0821
9/16 x .188	65,000	9HM	DT4	1452.0821
5/16 x .062	152,000	5UM	DT4	1452.0821



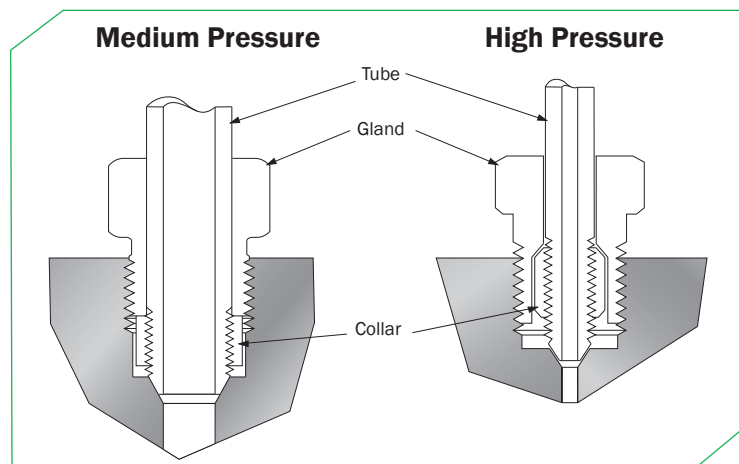
Medium Pressure													
1/4 x .109	21,000	0.141	0.344	1/4-28	4MM	4MF	7/16-20	0.19	0.28	0.37	0.50	0.109	0.55
3/8 x .203	21,000	0.250	0.438	3/8-24	6MM	6MF	9/16-18	0.31	0.38	0.50	0.62	0.203	0.69
9/16 x .312	21,000	0.406	.500	9/16-18	9MM	9MF	13/16-16	0.50	0.44	0.59	0.75	0.312	0.84
9/16 x .359	15,200	0.438	.500	9/16-18								0.359	0.83
3/4 x .438	21,000	0.562	0.625	3/4-16	12MM	12MF	3/4-14 NPS	0.62	0.50	0.72	0.94	0.438	1.00
3/4 x .516	15,200	0.578	0.625	3/4-16								0.516	0.99
1 x .562	21,000	0.719	0.781	1-14	16MM	16MF	1-3/8-12	0.88	0.81	1.06	1.31	0.562	1.44
1 x .688	15,200	0.812	0.781	1-14								0.688	1.38
High Pressure													
1/4 x .083	65,000	0.125	0.562	1/4-28	4HM	4HF	9/16-18	0.17	0.38	0.39	0.44	0.094	0.50
3/8 x .125	65,000	0.219	0.750	3/8-24	6HM	6HF	3/4-16	0.26	0.53	0.53	0.62	0.125	0.69
9/16 x .188	65,000	0.281	0.938	9/16-18	9HM	9HF	1-1/8-12	0.38	0.62	0.62	0.75	0.188	0.84
Ultra High Pressure													
5/16 x 0.62	152,000	0.125	0.687	5/16-24	5UM	5UF	5/8-18	0.25	0.62	0.93	1.06	0.094	1.25

* Port diameters may vary depending on specific valve or fitting component type.
See actual component catalog page for orifice sizes and pressure ratings.

** Unified National Fine thread, Class 2.

All dimensions are for references only and are subject to change.

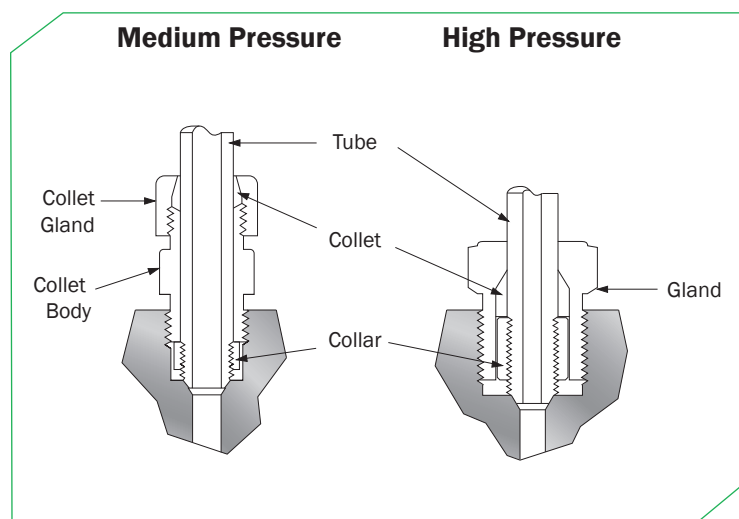
Assembly of Standard Coned & Threaded Connections



Assembly Instructions:

1. Insert the gland onto the tubing. Thread the left handed collar onto the tube until at least one or two threads are exposed from the tapered coned end.
2. Apply a compatible lubricant to the gland threads and the back side of the collar where it comes in contact with the gland. Also lubricate the tapered cone portion of the tube. This will help protect the sealing surfaces from galling during the assembly process.
3. Insert the tubing into the connection and tighten the assembly hand tight. Then use a torque wrench to tighten the connection to the appropriate value in the table below. It is good practice to use an additional wrench to prevent the opposite connection from turning.

Assembly of Anti-Vibration Collet Gland Connections



Assembly Instructions

1. The High Pressure Anti-Vibration Collet Gland Assembly can be installed using the same procedure as the standard coned and threaded connection. (see above steps 1 through 3) The high pressure collet grips the tube when the connection gland is tightened.
2. When using the Medium Pressure Anti-Vibration Collet Assembly, the procedure is the same as that of the standard coned and threaded connection (see above steps 1 through 3) with the additional step below.
3. Once the Collet Body has been tightened to the appropriate torque value in the table below, the Collet Gland can be turned 1 - 1/4 turns past hand tight. This will compress the collet against the tube. After the initial compression of the collet, any additional retightening would only require 3/4 of a turn past hand tight.

Torque Values

Tubing Size O.D. x I.D. (in.)	Tubing Pressure (psi @ R.T.)	Connection Type	Tube Gland Hex Size (in.)	Required Torque (ft-lbs.)
1/4 x .109	21,000	4M	1/2	20
3/8 x .203	21,000	6M	5/8	30
9/16 x .312	21,000	9M	15/16	55
9/16 x .359	15,200	9M	15/16	55
3/4 x .438	21,000	12M	1-3/16	90
3/4 x .516	15,200	12M	1-3/16	90
1 x .562	21,000	16M	1-3/8	150
1 x .688	15,200	16M	1-3/8	150
1/4 x .083	65,000	4H	5/8	25
3/8 x .125	65,000	6H	13/16	50
9/16 x .188	65,000	9H	1-3/16	110
5/16 x .062	152,000	5U	3/4	70

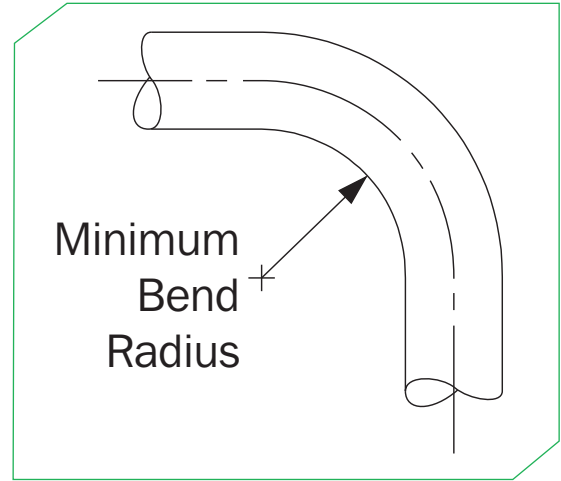
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Tubing Minimum Bend Radius & Valve Torque Values

Minimum Bend Radius for 316SS & 304SS Tubing

Tubing Size O.D. x I.D. (in.)	Tubing Pressure (psi @ R.T.)	Minimum Bend Radius (in.)
1/4 x .109	21,000	1.25
3/8 x .203	21,000	1.75
9/16 x .312	21,000	2.63
9/16 x .359	15,200	2.63
3/4 x .438	21,000	3.50
3/4 x .516	15,200	3.50
1 x .562	21,000	4.63
1 x .688	15,200	4.63
1/4 x .083	65,000	1.25
3/8 x .125	65,000	1.75
9/16 x .188	65,000	2.63
5/16 x .062	152,000	6.00



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Needle Valve Torque Values

Valve Series	Tubing Size (in.)	Packing Gland Hex (in.) Size	Packing Gland Torque (ft.-lbs.)	Running Torque (in.-lbs.)	Seating Torque (in.-lbs.)
Medium Pressure 21,000 psig @ RT 21V	1/4	5/8	30	40	55
	3/8	5/8	30	40	55
	9/16	13/16	60	60	90
	3/4	15/16	¾ turn	300	360
	1	1 3/8	¾ turn	360	600
High Pressure 36,000 psig @ RT 36V	1/4	13/16	45	50	60
	3/8				
	9/16				
High Pressure 65,000 psig @ RT 65V	1/4	13/16	40	65	75
	3/8				
	9/16				
Ultra High Pressure 101,000 psig @ RT 101V	5/16	15/16	60	100	120

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