

# Screwed Bonnet Needle Valves



Screwed Bonnet  
Needle Valve

## Design Features

- Hard (Vee) or Delrin® Soft Seat/Tip
- Straight or angle flow patterns
- Optional panel mount
- Handle options available
- Non-wetted stem threads
- Valves are 100% Helium leak tested to  $1 \times 10^{-6}$  ml/s ensuring performance and reliability.

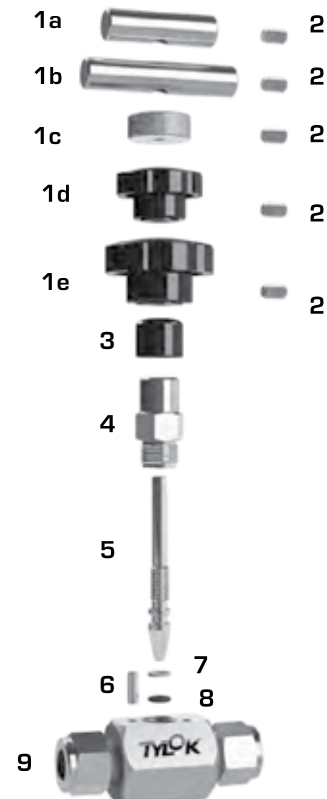
Material	Maximum Pressure Rating, psig		
	316 Stainless	Carbon Steel	Brass
O-Ring Stem Seal, Hard Seat, 1/2" and Smaller	10,000	10,000	6,000
O-Ring Stem Seal, Hard Seat, 3/4" to 1-1/2" NPT	8,000	8,000	
Delrin Soft Seat / Tip	6,000	6,000	
Graphite Packing, Hard Seat			
PTFE Packing, Hard Seat			

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## Materials of Construction

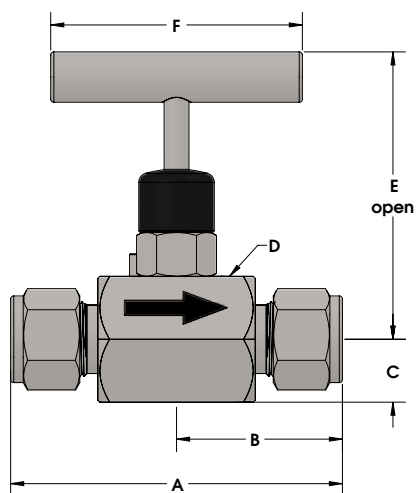
#	Component	316 SS	Brass	Steel
1a	Mini "T" Handle	316 SS	N/A	Steel
1b	"T" Handle	316 SS	N/A	Steel
1c	Round Knurled Handle	316 SS	Brass	Steel
1d	1-3/8" Plastic Handle	Phenolic		
1e	1-3/4" Plastic Handle	Phenolic		
2	Set Screw	316 SS	Steel	
3	Dust Cap*	Vinyl		
4	Valve Bonnet	316 SS	Brass	Steel
5	Valve Stem	Chrome-plated 316 SS	316 SS	
6	Bonnet Lock Pin*	316 SS	N/A	Steel
7	Stem Back-up Ring	PTFE		
8	Stem O-ring	Fluorocarbon FKM		
9	Valve Body	316 SS	Brass	Steel

\* Not applicable to all configurations



# Screwed Bonnet Needle Valves

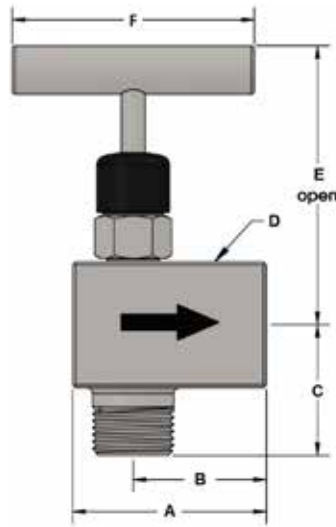
Straight Pattern



End Connections		Dimensions							Hard Seat		Soft Seat/Tip	
Inlet/Outlet	Size	Part Number	Orifice	A	B	C	D	E	F*	Cv	F*	Cv
CBC-Lok® Tube Fittings	1/4	4-6DD-4	0.172	2.46	1.23	0.33	3/4" SQ	2.17	1-13/16	0.37	1-3/8	0.37
	3/8	6-6DD-6		3.08	1.54	0.37		2.13				
	1/2	8-6DD-8	0.187	3.30	1.65	0.63	1-1/4" HEX	3.16	2-1/2	0.44	2-1/2	0.44
CS-Lok® Tube Fittings	1/4	4-6SS-4	0.172	2.46	1.23	0.33	3/4" SQ	2.17	1-13/16	0.37	1-3/8	0.37
	3/8	6-6SS-6		3.08	1.54	0.37		2.13				
	1/2	8-6SS-8	0.187	3.30	1.65	0.63	1-1/4" HEX	3.16	2-1/2	0.44	2-1/2	0.44
Female NPT	1/8	2-6FF-2	0.172	1.81	0.91	0.38	3/4" SQ	2.09	1-13/16	0.42	1-3/8	0.42
	1/4	4-6FF-4										
	3/8	6-6FF-6	0.187	2.50	1.25	0.63	1-1/4" HEX	3.16	2-1/2	0.44	2-1/2	0.76
	1/2	8-6FF-8										
	3/4	12-6FF-12	0.438	4.25	2.13	1.25	2-1/4" HEX	4.25	4-1/4	2.70	4-1/4	4.00
	1	16-6FF-16										
	1-1/4	20-6FF-20										
1-1/2	24-6FF-24											
Male NPT	1/8	2-6MM-2	0.172	1.81	0.91	0.38	3/4" SQ	2.09	1-13/16	0.42	1-3/8	0.42
	1/4	4-6MM-4										
Male/Female NPT	1/8	2-6MF-2	0.172	1.81	0.91	0.38	3/4" SQ	2.09	1-13/16	0.42	1-3/8	0.42
	1/4	4-6MF-4										
	1/2	8-6MF-8	0.44	3.50	1.25	0.63	1-1/4" HEX	3.16	2-1/2	0.44	2-1/2	0.76
	3/4	12-6MF-12	0.438	5.25	2.13	1.25	2-1/4" HEX	5.25	4-1/4	2.70	4-1/4	4.00
	1	16-6MF-16										
	1-1/4	20-6MF-20										
	1-1/2	24-6MF-24										

\* Brass Default is 1" Round Knurled Nut

### Angle Pattern



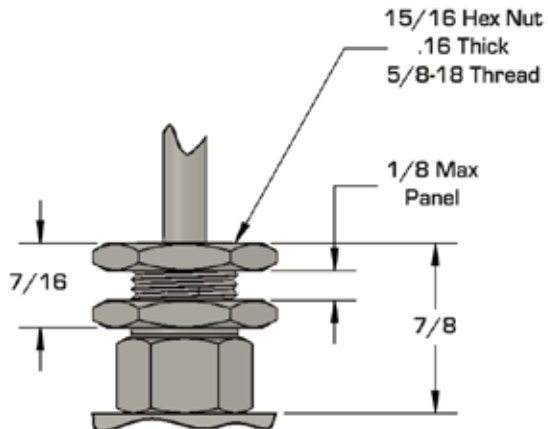
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End Connections		Dimensions							Hard Seat	
Inlet/ Outlet	Size	Part Number	Orifice	A	B	C	D	E	F*	Cv
Female NPT	1/8	2-6FF-2-A	0.172	1.25	0.88	0.88	3/4	2.09	1-13/16	0.42
	1/4	4-6FF-4-A		1.50	1.13	1.13	3/4			
	1/2	8-6FF-8-A	0.187	2.00	1.38	1.38	1-1/4	3.66	2-1/2	0.44
Male NPT	1/8	2-6MM-2-A	0.172	1.25	0.88	0.72	3/4	2.09	1-13/16	0.42
	1/4	4-6MM-4-A		1.50	1.13	0.88	3/4			
Male/Female NPT	1/8	2-6MF-2-A		1.25	0.88	0.72	3/4		2.09	1-13/16
	1/4	4-6MF-4-A	1.75	1.13	0.88	3/4				
	1/2	8-6MF-8-A	0.187	2.00	1.38	1.38	1-1/4	3.66		

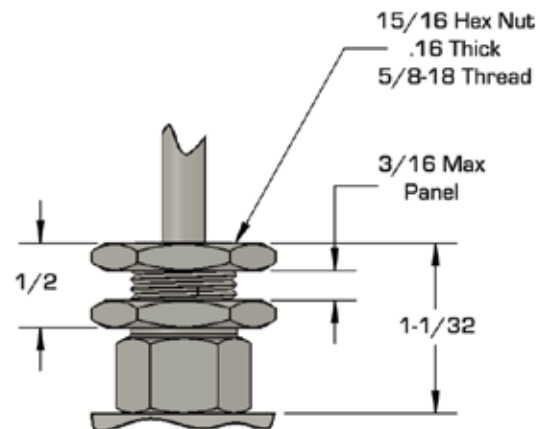
\* Brass Default is 1" Round Knurled Nut

# Screwed Bonnet Needle Valves

## Panel Mount Details



Dimensions for:  
 • Square Bar Stock  
 • 1/4" and Smaller Angle Valves

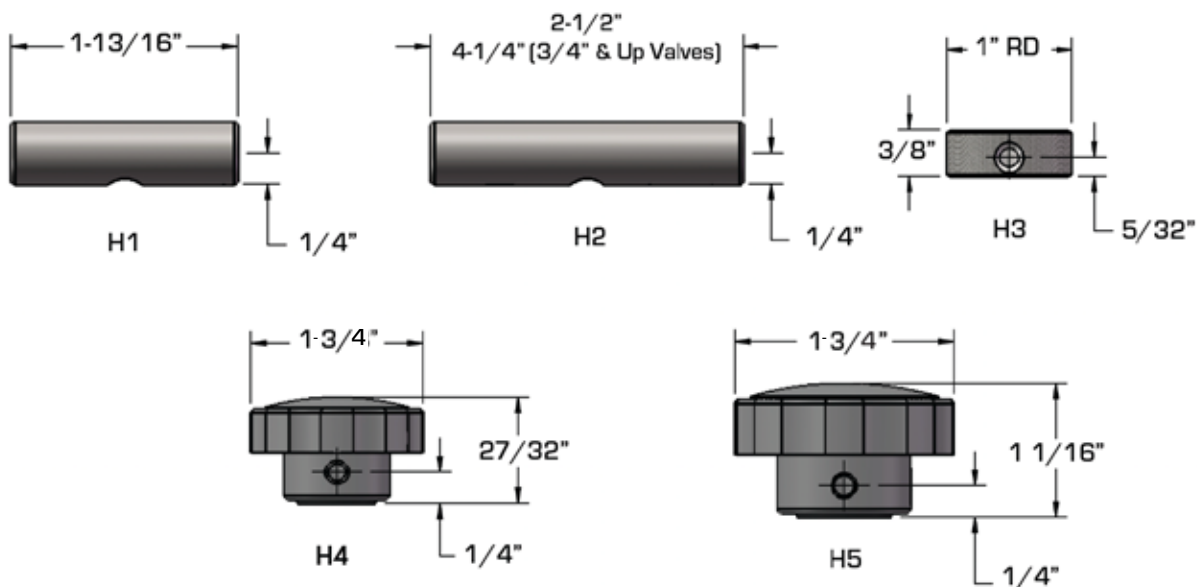


Dimensions for:  
 • Hex Bar Stock  
 • 1/2" Angle Valves

Screwed Bonnet Needle Valve

## Handle Options

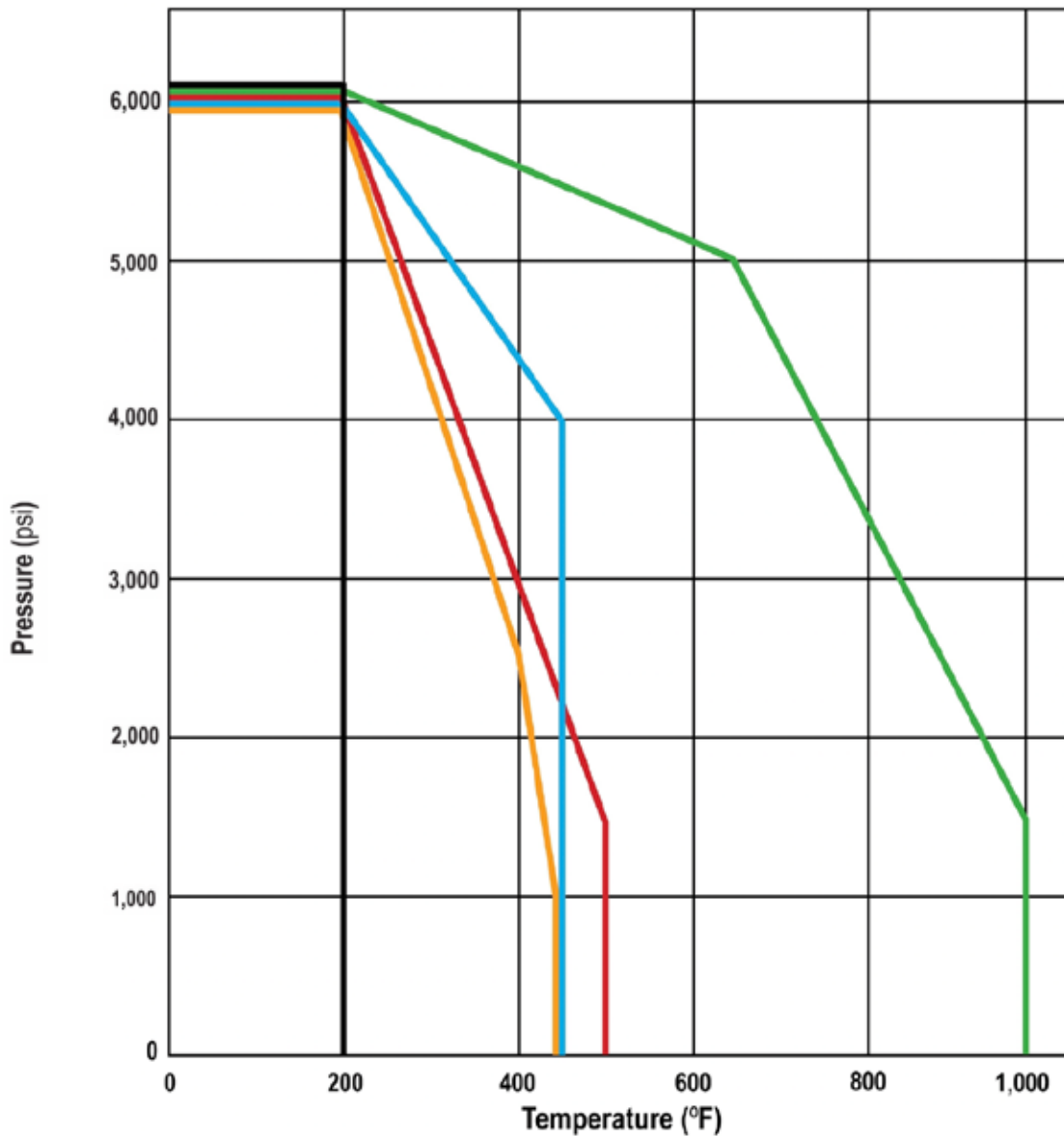
- 1 - 13/16" (Hard Seat)
- 1 - 3/8" (Delrin® Soft Seat/Tip)



Standard Handles	316 SS	Brass	Steel
Square Bar Stock and 1/4" Small Angle Valves	H1	H3	H1
Hex Bar Stock and 1/2" Angle Valves	H2	N/A	H2

The handle material will always match the valve body, unless otherwise specified.

## Screwed Bonnet Needle Valve with Packing Option Pressure vs Temperature

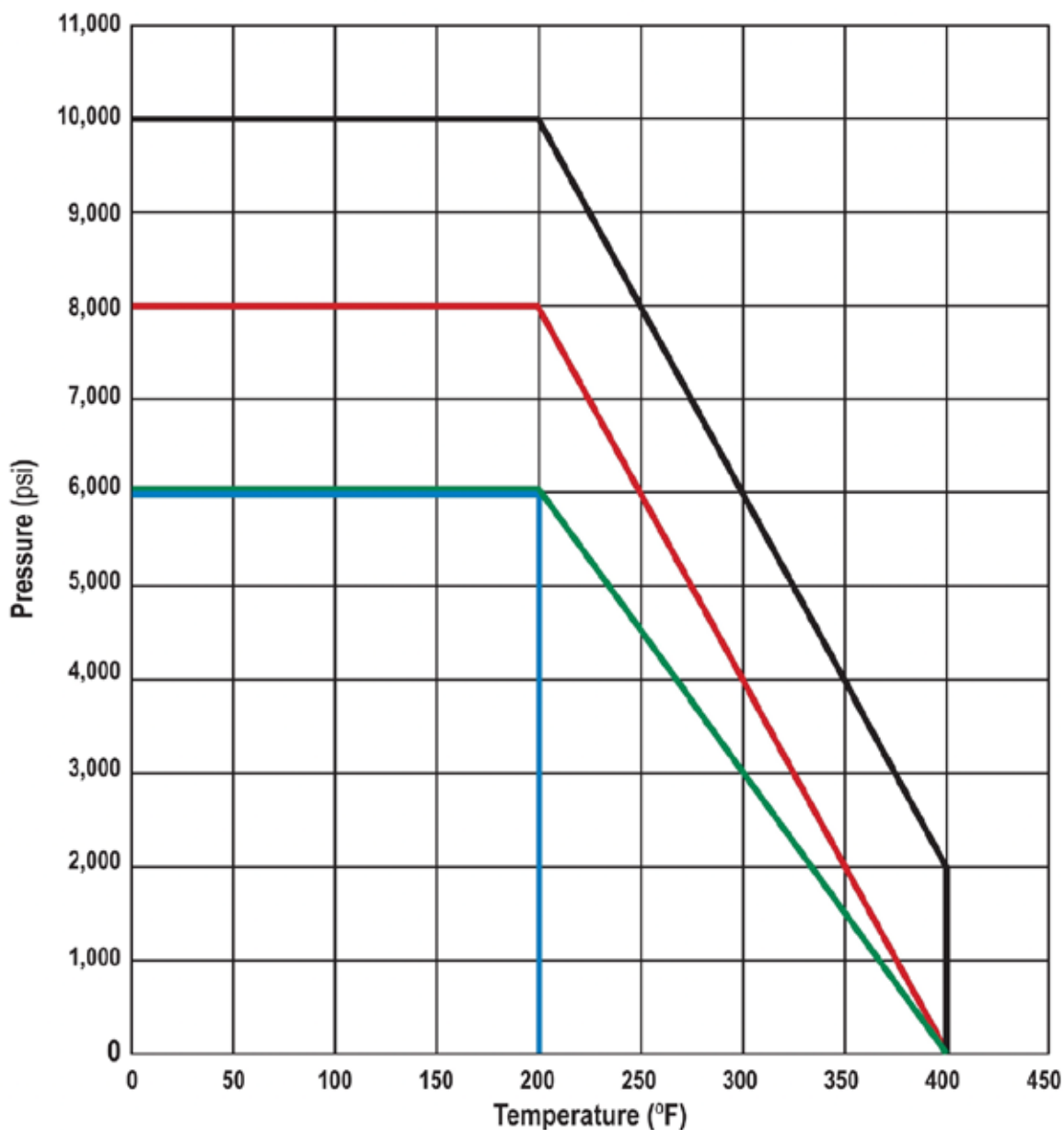


- Brass, Steel, or Stainless Steel Body; PTFE Packing; Delrin® Soft Seat / Tip; All Ends
- Brass Body; Graphite or PTFE Packing; Hard Seat; 3/8" and Smaller Tube Ends or 1/4" and Smaller Female and Male NPT Ends
- Steel Body; Graphite Packing; Hard Seat; All Ends
- Steel or Stainless Steel Body; PTFE Packing; Hard Seat; All Ends
- Stainless Steel Body; Graphite Packing, Hard Seat; All Ends

\* For tubing and pipe working pressures, CBC-Lok® / CS-Lok® Section.

# Screwed Bonnet Needle Valves

## Screwed Bonnet Needle Valves with O-Ring Stem Seals Pressure vs Temperature



- Brass, Steel, or Stainless Steel Body; Delrin® Soft Seat / Tip; All Ends
- Brass Body; Hard Seat; 3/8\" and Smaller Tube Ends or 1/4\" and Smaller Female and Male NPT Ends
- Steel or Stainless Steel Body; Hard Seat; 1/2\" and Smaller Ends
- Steel or Stainless Steel Body; Hard Seat; 3/4\" to 1-1/2\" Female and Male NPT Ends

\* For tubing and pipe working pressures, CBC-Lok® / CS-Lok® Section.

Screwed Bonnet Needle Valves are ordered as listed in this catalog by inserting the material code before the part number.

Special configurations available upon request.

**Example:** A Stainless Steel Needle Valve with 1/2" CBC-Lok® Tube Fitting inlet to 1/2" CBC-Lok® Tube Fitting outlet with 2 nut panel mount option, Graphite Packing and 1-3/4" phenolic handle is designed as follows:

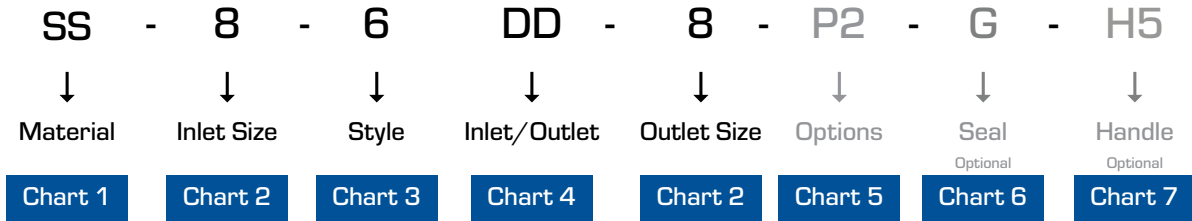


Chart 1- Material	
SS	Stainless Steel
S	Steel*
B	Brass**

\* Zinc-Nickel plated  
\*\* Available for 1/4" ends and smaller

Chart 2- Valve Series	
Designator	Valve Size
2	1/8"
4	1/4"
6	3/8"
8	1/2"
12	3/4"
16	1"
20	1-1/4"
24	1-1/2"

Chart 3- Style	
6	Needle Valve

Chart 4- Inlet/Outlet Port		
Designator	Inlet	Outlet
DD	CBC-Lok® Tube Fitting	CBC-Lok® Tube Fitting
SS	CS-Lok® Tube Fitting	CS-Lok® Tube Fitting
FF	Female NPT	Female NPT
MF	Male NPT	Female NPT
MM	Male NPT	Male NPT

Chart 5- Options	
A	Angle Pattern
L	Delrin® Soft Stem/Seat
P1	Panel Mount (1 Nut)
P2	Panel Mount (2 Nut)

Chart 6- Stem Seal/Packing Options	
EM1	EPDM 80 O-Ring
KZ1	FFKM (Kalrez® or Equivalent)
G	Graphite Packing
T	PTFE Packing

Chart 7- Handle Options	
H1	Mini "T" Handle
H2	2-1/2" "T" Handle
H3	Round Knurled Handle
H4	1-3/8" Phenolic Handle
H5	1-3/4" Phenolic Handle
H9	2-3/8" Phenolic Handle

Special configuration options are shown as general guidelines, not all options are available with every configuration. Consult factory for details.

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