

Screwed Bonnet Needle Valves

NB Series: Working pressure up to 6000 psig

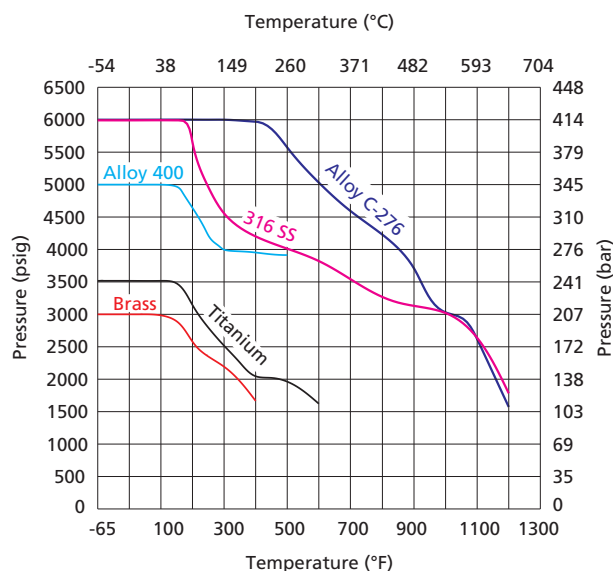


Features

- ⦿ Cold drawn bar as body
- ⦿ Two-piece stem design: Upper stem threads cold rolled and lower stem hardened for high strength and smooth operation
- ⦿ Upper stem thread lubricant isolated from system media
- ⦿ Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⦿ Safety back seating seal in fully open position
- ⦿ Panel mounting available
- ⦿ Steady and durable fastening of the handle by double lock-pins
- ⦿ Handles of different colors available
- ⦿ Every valve leak tested with nitrogen or compressed air at the maximum allowable working pressure
- ⦿ Working pressure up to:
 - Stainless steel: 6000 psig (414 bar)
 - Alloy C-276: 6000 psig (414 bar)
 - Alloy 400: 5000 psig (345 bar)
 - Titanium: 3500 psig (241 bar)
 - Brass: 3000 psig (207 bar)
- ⦿ Working temperature:
 - PTFE: -65°F to 450°F (-54°C to 232°C)
 - PEEK: -65°F to 500°F (-54°C to 260°C)
 - Graphite: -65°F to 1200°F (-54°C to 649°C)

Pressure vs. Temperature

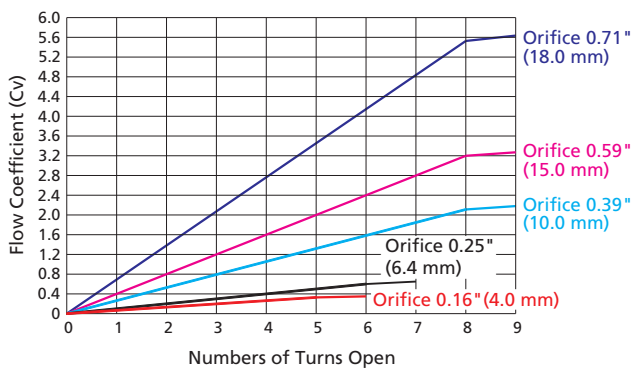
NB Series



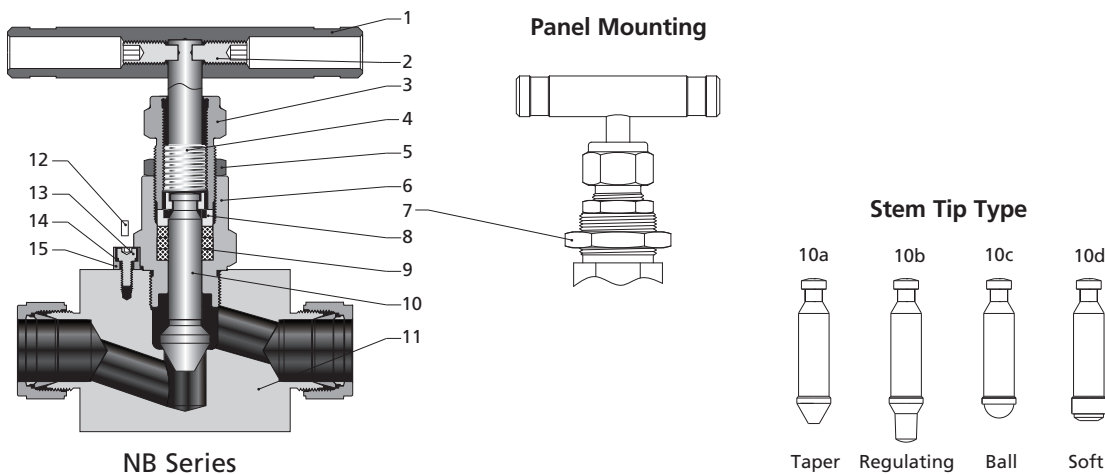
1. Graphs are based on graphite packing.
2. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem Tip



Standard Materials of Construction

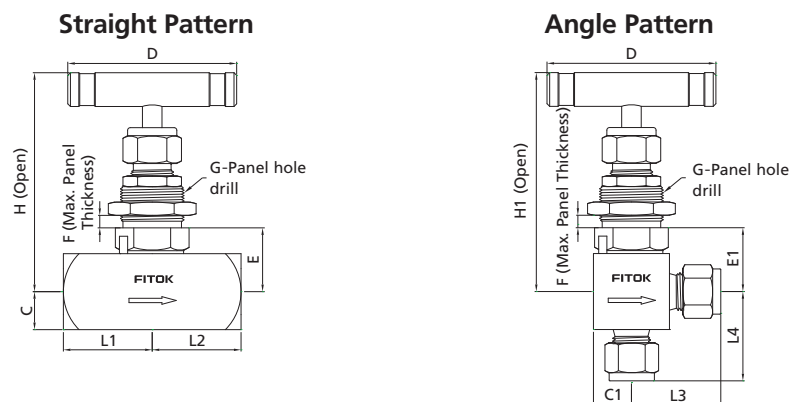


Item	Component	Valve Body Material				
		316 SS	Alloy 400	Titanium	Alloy C-276	Brass
		Material Grade/ASTM Specification				
1	Handle	Anodized aluminum or stainless steel or black knob				
2	Set Screw	Zinc-plated carbon steel				
3	Packing Bolt	304 SS/A479				Brass C36000/B16
4	Upper Stem	316 SS/A479				
5	Lock Nut	Stainless steel				Brass C36000/B16
6	Bonnet	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	

Item	Component	Valve Body Material				
		316 SS	Alloy 400	Titanium	Alloy C-276	Brass
		Material Grade/ASTM Specification				
7	Panel Nut	Stainless steel				Brass C36000/B16
8	Gland	316 SS/A479				
9	Packing	PTFE or PEEK or graphite				
10a 10b 10c	Lower Stem	Hardened 316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	Hardened 316 SS/A479
10d	Stem	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	316 SS/A479
	Stem Tip	PTFE or PCTFE				
11	Body	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	Brass C36000/B16
	Seat	Same as body				
12	Lock Pin	Stainless steel				
13	Screw	Stainless steel				
14	Spring Washer	Stainless steel				
15	Bush	Stainless steel				
	Lubricant	Molybdenum disulfide-based				

- Item 12 is applied in valves with orifice of 4.0 and 6.0mm. For valves with orifice of 10.0, 15.0 and 18.0mm, item 13, 14 and 15 are used instead of item 12.
- Contact FITOK Group or our authorized distributors for other materials.

Dimensions



- ⊙ NB Series Needle Valves are standard without panel mounting. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NBSS-FNS2-7-Y

Dimensions of NB Series

Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)													
					L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1	
NB□□-FNS2-7	1/8 Female NPT	6000 (414)	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	0.56 (14.3)	0.50 (12.7)	0.50 (12.7)	2.17 (55)	0.84 (21.4)	0.82 (20.9)	0.25 (6.4)	0.77 (19.6)	2.86 (72.7)	2.86 (72.7)	
NB□□-FNS4-7	1/4 Female NPT				1.06 (26.9)	1.06 (26.9)												
NB□□-NS4-7	1/4 Male NPT				1.03 (26.2)	1.03 (26.2)	1.06 (26.9)	1.06 (26.9)										
NB□□-NS6-7	3/8 Male NPT				1.19 (30.2)	1.19 (30.2)												
NB□□-FL4-7	1/4" FITOK				1.20 (30.5)	1.20 (30.5)	1.20 (30.5)	1.20 (30.5)										
NB□□-ML6-7	6 mm FITOK																	
NB□□-ML8-7	8 mm FITOK																	
NB□□-FNS4-8	1/4 Female NPT		0.25 (6.4)	0.85		1.12 (28.6)	1.12 (28.6)	1.12 (28.6)	0.63 (15.9)	0.56 (14.3)	0.56 (14.3)	2.50 (63.5)	0.89 (22.5)	0.89 (22.5)	0.38 (9.7)	0.96 (24.4)	3.50 (88.9)	3.50 (88.9)
NB□□-FNS6-8	3/8 Female NPT								1.12 (28.6)									
NB□□-NS6-8	3/8 Male NPT					1.41 (35.8)	1.41 (35.8)	1.32 (33.6)	1.32 (33.6)									
NB□□-FL6-8	3/8" FITOK																	
NB□□-FL8-8	1/2" FITOK					1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)									

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Dimensions of NB Series

Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)														
					L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1		
NB□□-ML10-8	10 mm FITOK	6000 (414)	0.25 (6.4)	0.85	1.42 (36.1)	1.42 (36.1)	1.33 (33.8)	1.33 (33.8)	0.56 (14.3)	0.56 (14.3)	2.50 (63.5)	0.89 (22.5)	0.89 (22.5)	0.38 (9.7)	0.96 (24.4)	3.50 (88.9)	3.50 (88.9)		
NB□□-ML12-8	12 mm FITOK				1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)											
NB□□-ML14-8	14 mm FITOK				1.56 (39.7)	1.56 (39.7)													
NB□□-TS6-8-G	3/8" Tube Socket Weld																		
NB□□-TS8-8-G	1/2" Tube Socket Weld																		
NB□□-MTS12-8-G	12 mm Tube Socket Weld				1.13 (28.6)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)											
NB□□-MTS14-8-G	14 mm Tube Socket Weld																		
NB□□-MTS16-8-G	16 mm Tube Socket Weld																		
NB□□-MTB14-8-G	14x2.5 mm Tube Butt Weld				1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)											
NB□□-MTB16-8-G	16x2.8 mm Tube Butt Weld																		
NB□□-UMB14-8	14x2.5 mm Rotatable Tube Butt Weld				2.92 (74.1)	2.92 (74.1)													
NB□□-UMB16-8	16x2.8 mm Rotatable Tube Butt Weld																		
NB□□-MS20-8	M20 x 1.5 Male Metric				1.50 (38.1)	1.50 (38.1)													
NB□□-MS22-8	M22 x 1.5 Male Metric																		
NB□□-FNS8-9	1/2 Female NPT	5800 (400)	0.39 (10.0)	2.18	1.75 (44.5)	1.75 (44.5)	1.63 (41.3)	1.50 (38.1)	0.88 (22.2)	0.77 (19.5)	3.50 (88.9)	1.38 (34.9)	1.25 (31.75)	0.38 (9.7)	1.08 (27.5)	4.11 (104.5)	4.11 (104.5)		
NB□□-FNS12-9	3/4 Female NPT						1.50 (38.1)												
NB□□-NS12-9	3/4 Male NPT																		
NB□□-FL12-9	3/4" FITOK																		
NB□□-ML14-9	14 mm FITOK				1.97 (50.0)	1.97 (50.0)	1.61 (41.0)	1.61 (41.0)											
NB□□-ML16-9	16 mm FITOK																		
NB□□-ML18-9	18 mm FITOK	5370 (370)																	
NB□□-MTS14-9-G	14 mm Tube Socket Weld	6000 (414)	0.59 (15.0)	3.27	1.75 (44.5)	1.75 (44.5)			1.14 (29.0)	0.88 (22.2)	5.00 (127)	1.70 (43.2)	1.43 (36.4)	0.38 (9.7)	1.28 (32.5)	5.00 (127)	4.72 (120)		
NB□□-MTS16-9-G	16 mm Tube Socket Weld																		
NB□□-TS12-9-G	3/4" Tube Socket Weld																		
NB□□-UMB14-9	14x2.5 mm Rotatable Tube Butt Weld				2.98 (75.7)	2.98 (75.7)													
NB□□-MS27-9	M27 x 2 Male Metric				1.56 (39.7)	1.56 (39.7)													
NB□□-FNS12-6	3/4 Female NPT						1.75 (44.5)	1.14 (29.0)											
NB□□-TS16-6-G	1" Tube Socket Weld	5000 (345)	0.71 (18.0)	5.65	1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	1.24 (31.5)	5.00 (127)						5.25 (133.3)			
NB□□-MTS25-6-G	25 mm Tube Socket Weld																		
NB□□-MTS28-6-G	28 mm Tube Socket Weld																		
NB□□-PS12-6-G	3/4 Pipe Socket Weld	5770 (398)																	
NB□□-FNS16-0	1 Female NPT	4350 (300)																	
NB□□-MTS25-0-G	25 mm Tube Socket Weld	6000 (414)			1.97 (50.0)	1.97 (50.0)													
NB□□-TS16-0-G	1" Tube Socket Weld																		
NB□□-MTS28-0-G	28 mm Tube Socket Weld																		
NB□□-PS12-0-G	3/4 Pipe Socket Weld																		
NB□□-PS16-0-G	1 Pipe Socket Weld	3700 (255)																	

1. Connection type of "FITOK" means FITOK double ferrule tube fittings. When the connection type of valves is FITOK double ferrule tube fitting, the working pressures of the valves are related to the wall thickness of tubing applied. For specific working pressure of the valves, please refer to the allowable working pressures in FITOK Catalog Tubing.
2. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
3. Dimensions are shown with FITOK tube fitting nuts finger-tight. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Ordering Number Description

NBSS - FL8 - ML12 - 8WB - GYM - ASF2

Series	Body Material		Inlet Type		Inlet Size		Outlet Type	Outlet Size	Orifice Size		Stem Tip Material	Stem Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Special Application	Cleaning and Packaging	
NB	SS	316 SS	FNS	Female NPT	2	1/8"		Same as Inlet	7	0.16" (4.0 mm)		Same as Body		PTFE	No		Straight		FC-01
	6L	316L SS	NS	Male NPT	4	1/4"	Specified in the same way as Inlet Type and Inlet Size		8	0.25" (6.4 mm)	W	Stellite	P	PEEK	Y Yes	A	Angle	F2	FC-02
	S4	304 SS	FRT	Female BSPT	6	3/8" or 6 mm			9	0.39" (10 mm)	D5	Duplex 2205	G	Graphite					
	4L	304L SS	RT	Male BSPT	8	1/2" or 8 mm			6	0.59" (15 mm)	TI	Titanium							
	S1	321 SS	FMS	Female Metric Thread (for RG-M)	10	10 mm			0	0.71" (18 mm)	A20	Alloy 20							
	91	F91	MS	Male Metric Thread (for RG-M)	12	3/4" or 12 mm			Soft stem tip only for NB Series Needle Valves with the orifice 0.16"/4.0mm, 0.25"/6.4mm and 0.39"/10mm		M	Alloy 400							
	92	F92	FRP	Female BSPP (for RP)	14	14 mm or 14x2.5 mm or M14x1.5					INC	Alloy 600							
	D5	Duplex 2205	BP	Male BSPP (for RG)	16	1" or 16 mm or 16x2.8 mm					HC	Alloy C-276							
	TI	Titanium	TS	Fractional Tube Socket Weld	18	18 mm													
	A20	Alloy 20	MTS	Metric Tube Socket Weld	20	20 mm or M20x1.5													
	M	Alloy 400	TB	Fractional Tube Butt Weld	22	22 mm or M22x1.5													
	INC	Alloy 600	MTB	Metric Tube Butt Weld	24	M24x1.5													
	HC	Alloy C-276	PS	Pipe Socket Weld	25	25 mm													
	B	Brass	PB	Pipe Butt Weld	27	M27x2													
	CS	Carbon Steel	FL	Fractional Tube Fitting	28	28 mm													
	904L	904L SS	ML	Metric Tube Fitting															
			UFB	Rotatable Fractional Tube Butt Weld															
			UMB	Rotatable Metric Tube Butt Weld															

Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M24: 1.5 mm
M27 and above: 2 mm
- Cleaning and Packaging:
FC-01: Standard cleaning and packaging for general industrial procedures.
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement of ASTM G93 Level C.