

Union Bonnet Needle Valves

NU Series: Working pressure up to 6000 psig

NUH Series: Working pressure up to 10000 psig

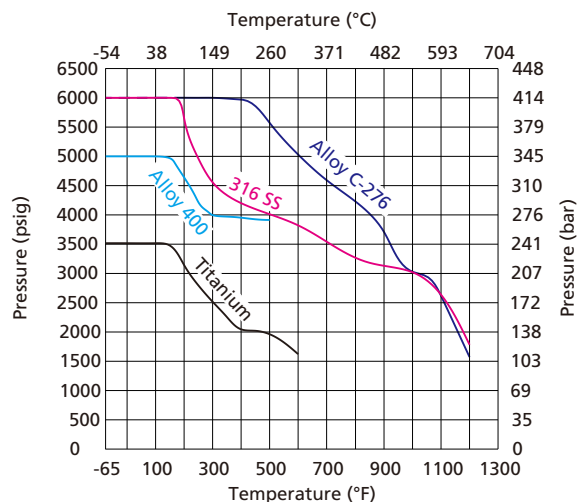
Features

- ⊙ One-piece forged body
- ⊙ Two-piece stem design: Upperstem threads cold rolled and lower stem hardened for high strength and smooth operation
- ⊙ Accidental valve disassembly disabled by union bonnet construction
- ⊙ Upper stem thread lubricant isolated from system media
- ⊙ Linear instead of rotary movement of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⊙ Safety back seating seals 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 (NU Series) at the maximum allowable working pressure or with water (NUH Series) at 1.1 times the maximum allowable pressure
- ⊙ Working pressure up to:
 - NU Series—Stainless steel: 6000 psig (414 bar)
 - Alloy C-276: 6000 psig (414 bar)
 - Alloy 400: 5000 psig (345 bar)
 - Titanium: 3500 psig (241 bar)
 - NUH Series—Stainless steel: 10000 psig (690 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)

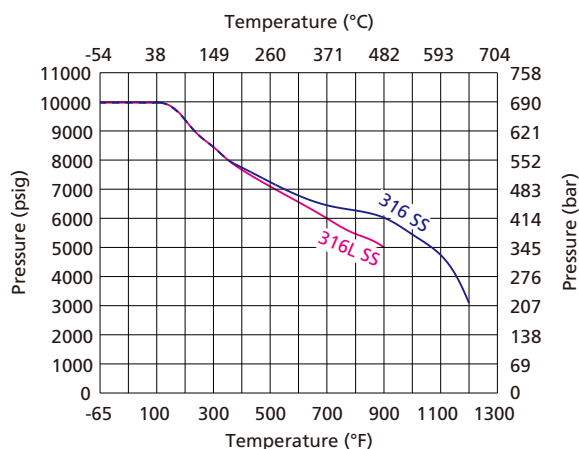


Pressure vs. Temperature

NU Series



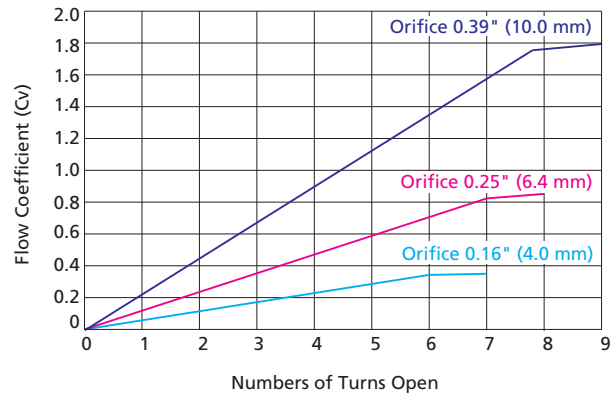
NUH Series



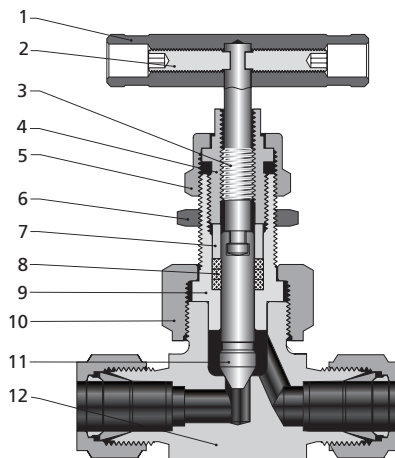
1. Graphs are based on graphite packing.
2. Soft tips are for NU Series only. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (37°C)

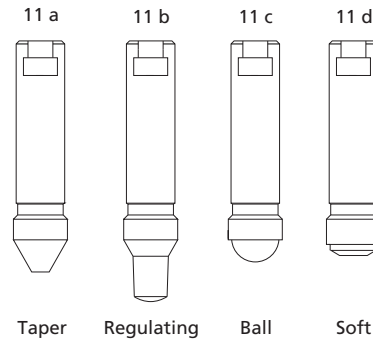
Regulating Stem



Standard Materials of Construction



Stem Type

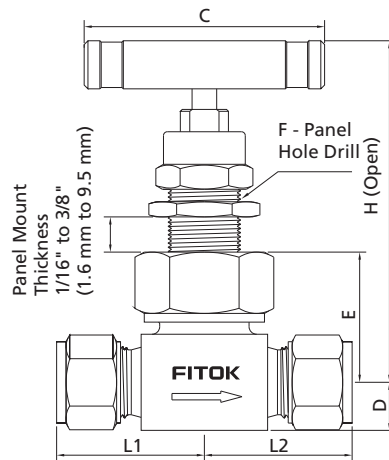


Valve Body Material					
Item	Component	316 SS	Alloy 400	Titanium	Alloy C-276
		Material Grade/ASTM Specification			
1	Handle	Anodized aluminium or stainless steel or black knob			
2	Set Screw	Zinc-plated carbon steel			
3	Upper Stem	316 SS/A479			
4	Packing Bolt	304 SS/A479			
5	Lock Nut	316 SS/A479			
6	Panel Nut	Stainless steel			
7	Gland	316 SS/A479			
8	Packing	PTFE or PEEK or graphite			
9	Bonnet	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574
10	Union Nut	316 SS/A479			
11a 11b 11c	Lower Stem	Hardened 316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574
11d	Stem	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574
	Stem Tip	PTFE or PCTFE or PEEK			
11e	Stem	316 SS/A479	Not Applicable		Alloy C-276/B574
	Stem Tip	Stellite			
12	Body	316 SS/A182	Alloy 400/B164, B127, B564	Titanium Gr 4/B348 or titanium Gr 4/B381	Alloy C-276/B564
	Seat	Same as Body			
Lubricant		Molybdenum disulfide-based			

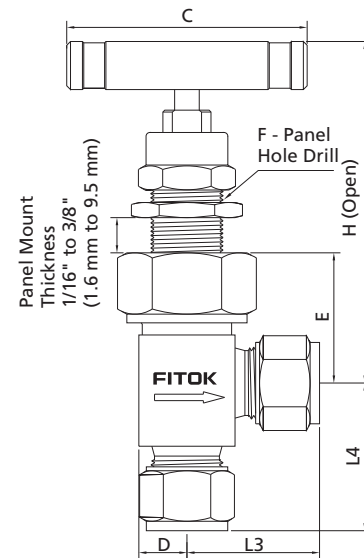
Note: Contact FITOK Group or our authorized distributors for other materials.

Dimensions

Straight Pattern



Angle Pattern



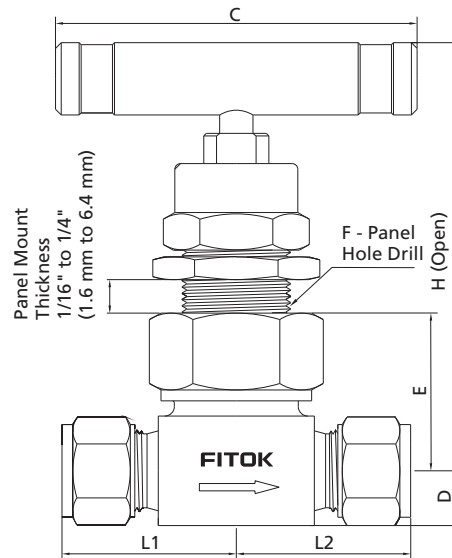
Dimensions of NU Series

Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)									
	Inlet/Outlet	316 SS			L1	L2	L3	L4	C	D	E	F	H	
NU□□-FNS2-7	1/8 Female NPT	6000 (414)	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	0.89 (22.6)	1.00 (25.4)	1.75 (44.5)	0.39 (9.9)	1.09 (27.7)	0.59 (15.0)	3.06 (77.7)	
NU□□-FNS4-7	1/4 Female NPT				1.03 (26.2)	1.03 (26.2)								
NU□□-NS4-FNS4-7	1/4 Male NPT/ 1/4 Female NPT				1.00 (25.4)	1.03 (26.2)								
NU□□-NS4-7	1/4 Male NPT				1.00 (25.4)	1.00 (25.4)	1.00 (25.4)							
NU□□-NS6-7	3/8 Male NPT				1.03 (26.2)	1.03 (26.2)	0.89 (22.6)							
NU□□-FRP4-7	1/4 Female BSPP				1.00 (25.4)	1.22 (30.9)	1.14 (29.0)							
NU□□-NS4-FL4-7	1/4 Male NPT/ 1/4" FITOK				1.03 (26.2)	1.22 (30.9)								
NU□□-FNS4-FL4-7	1/4 Female NPT/ 1/4" FITOK				1.03 (26.2)	1.22 (30.9)	1.14 (29.0)							
NU□□-FL4-7	1/4" FITOK				1.22 (30.9)	1.22 (30.9)	1.15 (29.2)	1.22 (30.9)						
NU□□-ML6-7	6 mm FITOK				1.00 (25.4)	1.00 (25.4)	0.85 (21.6)	1.00 (25.4)						
NU□□-ML8-7	8 mm FITOK				1.03 (26.2)	1.03 (26.2)	1.10 (28.0)	1.10 (28.0)						
NU□□-TS4-7-G	1/4" Tube Socket Weld				1.03 (26.2)	1.03 (26.2)	1.10 (28.0)	1.10 (28.0)						
NU□□-FO4-7	1/4" Male FO				1.03 (26.2)	1.03 (26.2)	1.10 (28.0)	1.10 (28.0)						
NU□□-FR4-7	1/4" Male FR				1.03 (26.2)	1.03 (26.2)	1.10 (28.0)	1.10 (28.0)						
NU□□-FNS4-8	1/4 Female NPT	6000 (414)	0.25 (6.4)	0.86	1.13 (28.6)	1.13 (28.6)	1.00 (25.4)	1.13 (28.6)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.78 (96.0)	
NU□□-FNS6-8	3/8 Female NPT						1.06 (26.9)							
NU□□-NS6-8	3/8 Male NPT				1.41 (35.9)	1.41 (35.9)	1.28 (32.5)	1.47 (37.3)						
NU□□-FL6-8	3/8" FITOK				1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.58 (40.1)						
NU□□-FL8-8	1/2" FITOK				1.42 (36.1)	1.42 (36.1)	1.30 (33.0)	1.48 (37.6)						
NU□□-ML10-8	10 mm FITOK				1.42 (36.1)	1.42 (36.1)	1.30 (33.0)	1.48 (37.6)						

Dimensions of NU Series

Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)														
	Inlet/Outlet	316 SS			L1	L2	L3	L4	C	D	E	F	H						
NU□□-ML12-8	12 mm FITOK	6000 (414)	0.25 (6.4)	0.86	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.58 (40.1)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.78 (96.0)						
NU□□-ML14-8	14 mm FITOK																		
NU□□-ML16-8	16 mm FITOK																		
NU□□-TS6-8-G	3/8" Tube Socket Weld	6000 (414)			1.13 (28.6)	1.13 (28.6)	1.00 (25.4)	1.13 (28.6)											
NU□□-TS8-8-G	1/2" Tube Socket Weld																		
NU□□-PS4-8-G	1/4 Pipe Socket Weld																		
NU□□-MTS12-8-G	12 mm Tube Socket Weld																		
NU□□-MTS14-8-G	14 mm Tube Socket Weld																		
NU□□-MTS16-8-G	16 mm Tube Socket Weld																		
NU□□-MTB14-8-G	14x2.5 mm Tube Butt Weld																		
NU□□-MTB16-8-G	16x2.8 mm Tube Butt Weld																		
NU□□-UMB14-8	14x2.5 mm Rotatable Tube Butt Weld																		
NU□□-FO8-8	1/2" Male FO				2.92 (74.1)	2.92 (74.1)	2.55 (64.7)	2.92 (74.1)											
NU□□-FR8-8	1/2" Male FR				1.13 (28.6)	1.13 (28.6)	—	—											
NU□□-MS20-8	M20 x 1.5 Male Metric				1.56 (39.6)	1.56 (39.6)	—	—						0.63 (16.0)	1.46 (37.1)	—	3.90 (99.0)		
NU□□-MS22-8	M22 x 1.5 Male Metric				1.50 (38.1)	1.50 (38.1)	1.13 (28.6)	1.50 (38.1)						0.50 (12.7)	1.34 (34.0)	—	3.78 (96.0)		
NU□□-NS8-9	1/2 Male NPT				0.39 (10.0)	1.8	1.56 (39.6)	1.56 (39.6)	1.56 (39.6)	1.56 (39.6)	3.50 (88.9)	0.63 (16.0)	1.82 (46.2)	1.03 (26.2)	4.76 (121)				
NU□□-FNS8-9	1/2 Female NPT						1.63 (41.3)	1.63 (41.3)	—	—		0.87 (22.2)	2.07 (52.6)		5.00 (127)				
NU□□-FNS12-9	3/4 Female NPT																		
NU□□-NS12-9	3/4 Male NPT																		
NU□□-FL8-9	1/2" FITOK																		
NU□□-FL12-9	3/4" FITOK	5800 (400)																	
NU□□-ML14-9	14 mm FITOK	6000 (414)																	
NU□□-ML16-9	16 mm FITOK	5800 (400)																	
NU□□-ML18-9	18 mm FITOK	5370 (370)																	
NU□□-ML20-9	20 mm FITOK	5510 (380)																	
NU□□-MTS14-9-G	14 mm Tube Socket Weld	6000 (414)	1.56 (39.7)	1.56 (39.7)	1.31 (33.3)	1.69 (42.9)													
NU□□-MTS16-9-G	16 mm Tube Socket Weld																		
NU□□-TS8-9-G	1/2" Tube Socket Weld																		
NU□□-TS12-9-G	3/4" Tube Socket Weld																		
NU□□-MTB16-9-G	16x2.25 mm Tube Butt Weld																		
NU□□-UMB14-9	14x2.5 mm Rotatable Tube Butt Weld						2.98 (75.7)	2.98 (75.7)	—	—									
NU□□-FR8-9	1/2" Male FR																		
NU□□-MS27-9	M27 x 2 Male Metric						1.56 (39.7)	1.56 (39.7)	—	—									

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. Connection type of FO means O-ring face seal fittings. "FR" means metal gasket face seal fittings.
3. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
4. 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.



Dimensions of NUH Series

Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet/Outlet	316 SS			L1	L2	C	D	E	F	H	
NUH□□-FL4-7	1/4" FITOK	10000 (690)	0.16 (4.0)	0.35	1.41 (35.8)	1.41 (35.8)	2.50 (63.5)	0.50 (12.7)	1.35 (34.3)	0.78 (19.8)	3.74 (95.0)	
NUH□□-FNS2-7	1/8 Female NPT											
NUH□□-FNS4-7	1/4 Female NPT											
NUH□□-NS4-FNS4-7	1/4 Male NPT/ 1/4 Female NPT											
NUH□□-NS4-7	1/4 Male NPT											
NUH□□-TS4-7-G	1/4" Tube Socket Weld											
NUH□□-FNS4-8	1/4 Female NPT			0.25 (6.4)	0.86	1.56 (39.7)	1.56 (39.7)	3.50 (88.9)	0.63 (16.0)	1.77 (45.0)	1.03 (26.2)	4.90 (124.5)
NUH□□-NS8-8	1/2 Male NPT											
NUH□□-TS8-8-G	1/2" Tube Socket Weld											
NUH□□-MTS12-8-G	12 mm Tube Socket Weld			0.39 (10.0)	1.8	1.75 (44.5)	1.75 (44.5)	3.50 (88.9)	0.91 (23.0)	2.29 (58.2)	1.14 (28.9)	5.28 (134.1)
NUH□□-MTS16-9-G	16 mm Tube Socket Weld											
NUH□□-MTB22-9-G	22×5 mm Tube Butt Weld											
NUH□□-FNS8-9	1/2 Female NPT		1.56 (39.7)			1.56 (39.7)						

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 Tubing catalog.
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

NUSS - FNS6 - FL6 - 8WB - GM - ASF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Material	Stem Tip Type	Packing Material	Handle	Flow Pattern	Special Application	Cleaning and Packaging
NU	SS	FNS	2 1/8"	Same as Inlet	7	0.16" (4.0 mm)	Same as Body	Taper	PTFE		Straight		FC-01
NUH	6L	NS	4 1/4"	Specified in the same way as inlet type and inlet size	8	0.25" (6.4 mm)	W	R Regulating	P PEEK		A Angle		F2 FC-02
	S4	FRT	3/8" or 6 mm		9	0.39" (10 mm)	D5	B Ball	G Graphite				
	4L	RT	1/2" or 8 mm				TI	Soft Tip-PTFE (only for NU Series Needle Valves)					
	S1	FMS	10 10 mm				A20	Soft Tip-PCTFE (only for NU Series Needle Valves)					
	91	MS	3/4" or 12 mm				M	Soft Tip-PCTFE (only for NU Series Needle Valves)					
	92	FRP	14 14x2.5 mm or M14x1.5				INC	Soft Tip-PEEK (only for NU Series Needle Valves)					
	D5	BP	1" or 16 mm or 16x2.25 mm or 16x2.8 mm				HC						
	TI	TS	18 18 mm										
	A20	MTS	20 20 mm or M20x1.5										
	M	TB	22 22x5 mm or M22x1.5										
	INC	MTB	24 M24x1.5										
	HC	PS	25 25 mm										
	B	PB	27 M27x2										
	CS	FL											
	904L SS	ML											
		UFB											
		UMB											
		FO											
		FR											

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
Standard thread pitch should be omitted in the ordering number, others should be specified.
- FO means FITOK O-ring face seal fittings.
- FR means FITOK metal gasket face seal fittings.
- 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.
- Special Application:
Plural special application designators available in one ordering number, example: NUSS-NS4-7-SSI.
SilcoNert® 2000 (Sulfinert®) coating: Wetted metal components SilcoNert® 2000 (Sulfinert®) coated.