

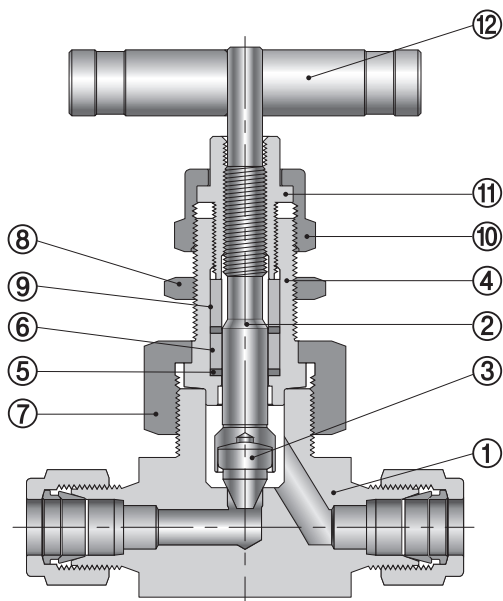
# SUNV60 Series Union Bonnet Needle Valves

## Features

- Pressure rating up to 6000psig (413bar) at 21°C (70°F).
- Temperature rating from -54°C (-65°F) to 232°C (450°F) with standard PTFE packing and up to 648°C (1200°F) with optional Graphite packing.
- Standard 316 Stainless Steel, optional Alloy 20 and Alloy C276 construction.
- Valve stem back seating against the bevelled edge of bonnet in fully open position prevents maximum leakage through bonnet when packing fails.
- Standard non-rotating stem tip and stem packing below the threads design.
- Available Sour Gas service per NACE MR0175.
- **Handle** standard 316 Stainless Steel bar handle.
- **External Packing Bolt** allow packing adjustment without disassembling the valve.
- **Roll threaded and hard chrome plated stem** is for extended valve's lifespan.
- **Panel Mounting Nut** is standard and permits the access of the valve panel or actuator.
- **Union Nut** prevents accidental disassembly of the valve in its service.
- **Stem packing below the threads** prevents media contamination and thread lubricant washout.
- **Non rotating stem tip at closure** is to maximize the lifespan of the metal seat and complete sealing.



## Material of Construction



No	Component	Material	
		Stainless Steel	Alloy C-276
1	Body	SS316 / A479 or A276	Alloy C-276
2	Stem	SS316 / A479 or A276	Alloy C-276
3	*Stem Tip	SS630 / A564 (17-4PH)	Alloy C-276
4	Bonnet	SS316 / A479 or A276	Alloy C-276
5	Packing Ring	SS316 / A479 or A276	Alloy C-276
6	Packing	PTFE (Optional PEEK, Graphite)	
7	Union Nut	SS316 / A276	
8	Panel Nut	SS316 / A276	
9	Gland	SS316 / A276	Alloy C-276
10	Cap Nut	SS316 / A276	
11	Packing Bolt	SS316 / A276	
12	Set Screw	Stainless Steel	
	Bar Handle	SS316 / A276 (Optional anodized Aluminum)	

\* Standard Vee tip, optional Ball and Regulating tip.

## Technical Data

### Pressure-Temperature Rating with Packing and Body Material

Valve Material	Packing Material	Temperature Range °C (°F)	Pressure Rating @38°C(100°F)	Pressure Rating @Max. Temp.
Stainless Steel 316	PTFE	-54°C to 232°C (-65°F to 450°F)	6000psig (413 bar)	4130psig (284 bar)
	PEEK	-54°C to 315°C (-65°F to 600°F)		3760psig (259 bar)
	Graphite	-54°C to 648°C (-65°F to 1200°F)		1715psig (118 bar)
Alloy C-276	PTFE	-54°C to 232°C (-65°F to 450°F)	6000psig (413 bar)	5710psig (393 bar)
	PEEK	-54°C to 260°C (-65°F to 500°F)		5540psig (381 bar)
	Graphite	-54°C to 648°C (-65°F to 1200°F)		1545psig (106 bar)

\* Not applicable over 260°C(500°F) PEEK is not recommended for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

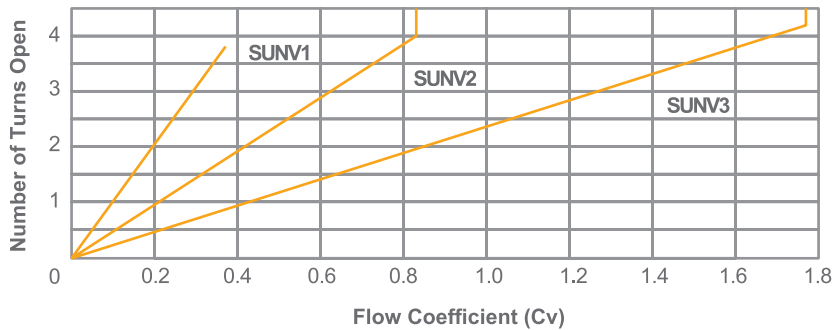
### Temperature-Working Pressure

ASME Material Group	Table 2-2.2	N/A
ASME Class Rating	2500	N/A
Material Name	Stainless Steel 316	Alloy C-276
Temperature, °C (°F)	Working Pressure, psig (bar)	
-54°C (-65°F) to 38°C (100°F)	6000 (413)	6000 (413)
93°C (200°F)	5160 (355)	6000 (413)
148°C (300°F)	4660 (321)	6000 (413)
204°C (400°F)	4280 (295)	5820 (401)
232°C (450°F)	4130 (284)	5710 (393)
260°C (500°F)	3980 (274)	5540 (381)
315°C (600°F)	3760 (259)	5040 (347)
426°C (800°F)	3460 (238)	4230 (291)
537°C (1000°F)	3030 (208)	3030 (208)
648°C (1200°F)	1715 (118)	1545 (106)

- Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.

- Pressure rating of valve is sometimes limited to the working pressure of pipe ends and the tubing connected.

### Flow Data @ 100 F (38°C) for Valves with Regulating Stem tip



- Valve with standard Vee & Ball tip is designed to be used in a fully open or fully closed position.

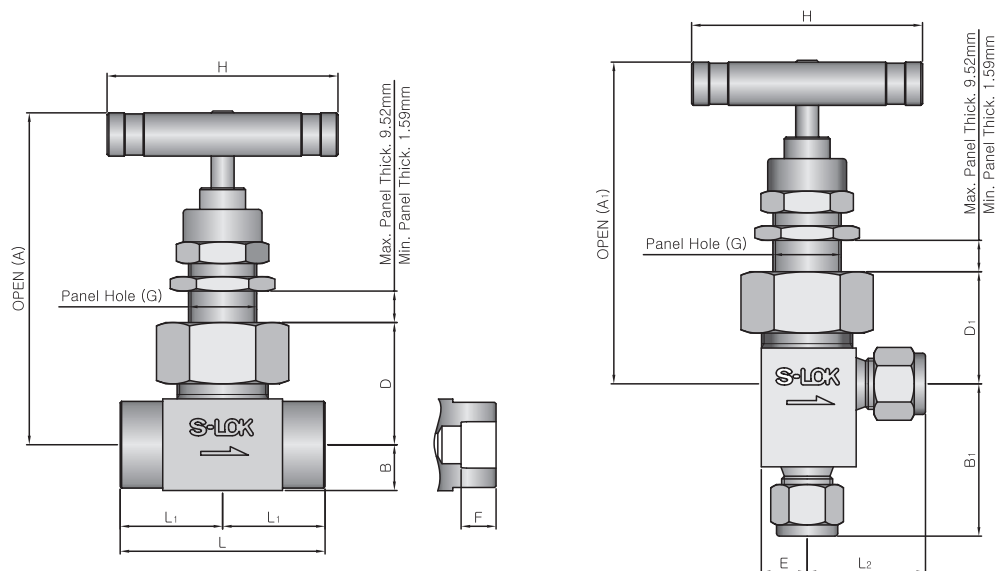
### Handle

- Stainless steel bar handle is standard all valves. Optionally, anodized black aluminum bar handle is available.
- To order handle for field assembly select desired handle ordering number from the table.

### Testing

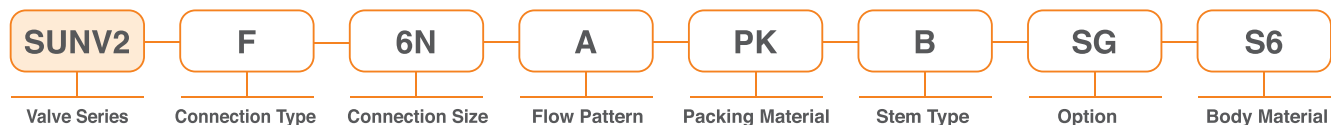
- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).

## Ordering Information & Dimensions



Ordering Number	Orifice (mm)	Cv	End Connections		Dimensions (mm)														
			Inlet	Outlet	A	A <sub>1</sub>	B	B <sub>1</sub>	D	D <sub>1</sub>	E	L	L <sub>1</sub>	L <sub>2</sub>	H	G	F		
SUNV1	F-2N	4.0	0.35	1/8" Female NPT		77.3	82.0	9.7	25.4	27.7	32.5	9.7	50.8	25.4	45.0	15.1	-		
	F-4N			1/4" Female NPT			9.9	52.4					26.2	22.6					
	M-4N			1/4" Male NPT			77.5	9.7					27.7	50.8				25.4	25.4
	MF-4N			1/4" Male NPT	1/4" Female NPT		82.0	9.9					32.5	52.4				26.2	22.6
	S-6M			6mm S-LOK			77.5	9.7	37.6				27.7	61.0				30.5	29.5
	S-4T			1/4" S-LOK															
	S-8M			8mm S-LOK			-	-	-				-	-					
	SW-4T			1/4" Tube Socket Weld			77.5	-	30.2				27.7	46.2				23.1	22.4
SUNV2	F-4N	6.4	0.86	1/4" Female NPT		92.5	97.0	-	28.4	34.0	37.3	12.7	57.2	28.6	64.0	19.8	-		
	F-6N			3/8" Female NPT			90.7	42.2					31.0	71.9				35.8	32.8
	S-6T			3/8" S-LOK			97.0	28.4	37.3				77.2	38.6				35.6	
	S-10M			10mm S-LOK															39.4
	S-12M			12mm S-LOK			94.0	12.7	41.9				34.0	77.2				38.6	35.6
	S-8T			1/2" S-LOK			97.0	28.4	37.3				57.2	28.6				25.4	
	SW-4P			1/4" Pipe Socket Weld															94.0
	SW-6T			3/8" Tube Socket Weld			94.0	-	31.8				34.0	57.2				28.6	25.4
SW-8T	1/2" Tube Socket Weld		95.5	-	25.4	35.6	57.2	28.6	25.4	9.7									
SUNV3	F-8N	2.4	-	1/2" Female NPT		121.0	126.0	15.7	39.6	46.2	50.8	17.5	79.2	39.6	33.3	88.9	26.2	-	
	F-12N			3/4" Female NPT		124.0	-	19.8	-	49.5	-	-	82.2	41.1	-				
	F-16N			1" Female NPT		129.0	-	25.4	-	54.1	-	-	92.0	46.0	-				
	MF-8N	1.9	1/2" Male NPT 1/2" Female NPT		121.0	126.0	15.7	39.6	46.2	50.8	17.5	79.2	39.6	33.3					
	MF-12N		3/4" Male NPT 3/4" Female NPT		124.0	-	19.8	-	49.5	-	-	82.2	41.1	-					
	MF-16N		1" Male NPT 1" Female NPT		129.0	-	25.4	-	54.1	-	-	92.0	46.0	-					
	S-12M	12mm S-LOK		121.0	123.0	15.7	52.8	46.2	47.8	17.5	99.6	49.8	42.7						
	S-8T	1/2" S-LOK																	
	S-12T	3/4" S-LOK																	
	S-16T	1" S-LOK		-	-	-	-	47.8	-	-	104.0	52.0	-						
	SW-8P	1/2" Pipe Socket Weld		123.0	126.0	17.5	39.6	47.8	50.8	79.2	39.6	33.3							
	SW-8T	1/2" Tube Socket Weld		121.0	123.0	15.7	42.9	46.2	47.8	-	-	-	9.7						
SW-12T	3/4" Tube Socket Weld		121.0	-	-	-	46.2	-	-	-	-	9.7							
																		11.2	

\* Dimensions are for reference only and are subject to change.



- Nil : Straight
- A : Angle Pattern
- Nil : PTFE
- PK : PEEK
- GF : Graphite
- Nil : Vee
- R : Regulating
- B : Ball
- Nil : Standard
- SG : Sour Gas Service
- S6 : 316 Stainless Steel
- C276 : Alloy C-276