

# Integral Bonnet Bar Stock Needle Valves

## SBNV Series

### Features

- Integral bonnet design
- Bar stock body
- Compact design
- Low operating torques
- Variety of End Connections
- Straight and Angle flow patterns
- Each and every valve is tested at the factory



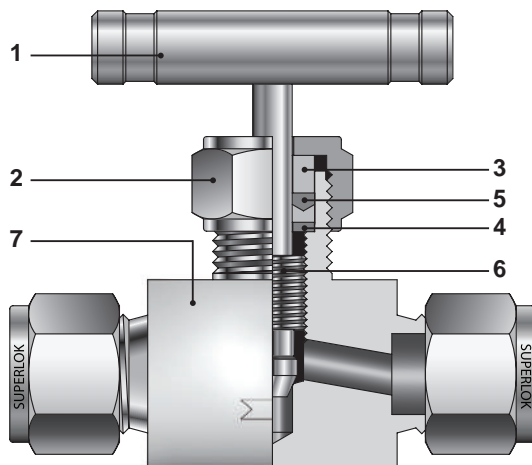
### Specifications

Pressure rating	6000psig (413bar)@100°F (38°C)
Temperature rating	-65 to 450°F (-54 to 232°C) with PTFE packing and up to 600°F (315°C) with PEEK packing
Body material	316 stainless steel and Alloy400
Orifice	0.17" and 0.25" (4.3mm and 6.4mm)

### Testing

- Each Valve is tested with nitrogen at 1000psig (69bar) to maximum allowable leak rate of 0.1 SCCM.
- Hydrostatic shell test is performed at 1.5 times of the working pressure. (OPTION)

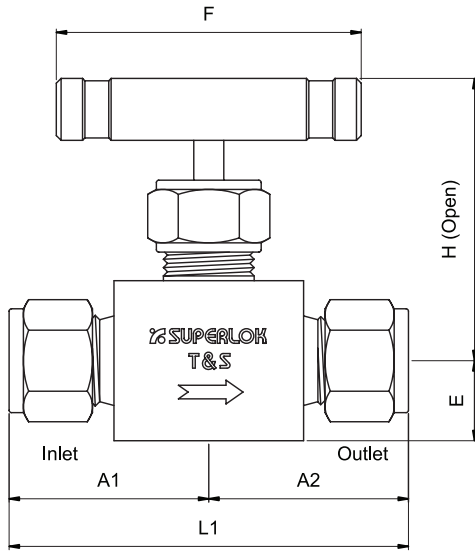
### Materials of Construction



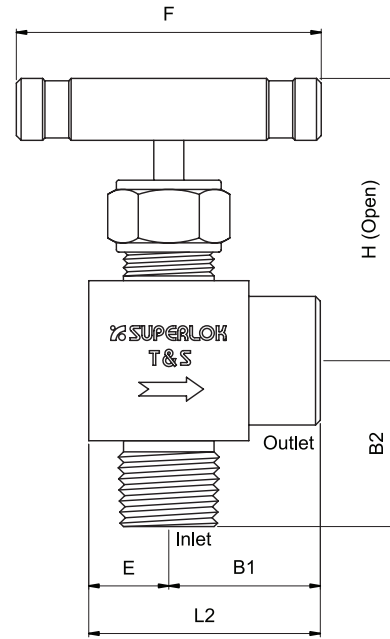
No.	Component	Material Grade / ASTM Specification	
		Stainless Steel	Alloy 400
1	Bar Handle	Stainless Steel	
	Knob Handle	Phenolic with brass insert	
	Set Screw	Stainless Steel	
2	Packing Nut	SS316 / A276	Alloy R-405/B164
3	Packing Gland		
*4	Packing Support		
*5	Packing	PTFE (Standard), PEEK (Optional)	
*6	Vee Stem	SS316 / A276	Alloy R-405/B164
	Soft Seat Stem	SS316 / A276 with PCTFE	ALLOY R-405/B164 with PCTFE
*7	Body	SS316 / A276	ALLOY R-405/B164

\* Wetted components are marked "\*\*"

SBNV Series



Straight Flow Pattern



Angle Flow Pattern

Table of dimensions

Part Number	Orifice	Cv	End Connections		Dimensions											
			Inlet	Outlet	L1	A1	A2	L2	B1	B2	E	F	H			
SBNV1	F4N	4.3	0.37	1/4" FEMALE NPT		47.6	23.8	23.8	36.5	25.4	25.4	11.1	45.0	51.0		
	M4N			1/4" MALE NPT		49.2		24.6	-	-	-	-				
	M4N-F4N			1/4" MALE NPT	1/4" FEMALE NPT	48.4	24.6	23.8	36.5	25.4	26.2	11.1				
	M4N-S4			1/4" MALE NPT	1/4" SUPERLOK	53.3		28.7	39.8	28.7	29.7					
	S4			1/4" SUPERLOK		62.4	31.2	31.2								
SBNV2	F6N	6.4	0.73	3/8" FEMALE NPT		64.0	32.0	32.0	48.6	31.8	31.8	64.0	63.0			
	F8N			1/2" FEMALE NPT												35.8
	M6N-F6N			3/8" MALE NPT	3/8" FEMALE NPT										31.0	
	M8N-F8N			1/2" MALE NPT	1/2" FEMALE NPT	64.5	32.5		35.8							
	M12N-F8N			3/4" MALE NPT	1/2" FEMALE NPT	63.8	31.8									
	M6N-S8			3/8" MALE NPT	1/2" SUPERLOK	73.7		41.9								
	S6			3/8" SUPERLOK		78.2	39.1	39.1								
	S8			1/2" SUPERLOK		83.8	41.9	41.9								

- All dimensions in millimeters unless specified as "inch". Dimension are for reference only, subject to change.
- Dimension shown with SUPERLOK nuts measure in the finger-tight, where applicable.
- ISO Tapered Threads are available upon request.

## Technical Data

### Pressure - Temperature Rating

Body Material	Stem	Temperature Rating	Pressure Rating @ -65°F~-100°F (-54°C~-38°C)
SS316	Vee	-65°F~450°F (-54°C~232°C)	6000psig (413 bar)
	Soft Seat	-65°F~200°F (-54°C~93°C)	
Alloy 400	Vee	-65°F~450°F (-54°C~232°C)	5000psig (345 bar)
	Soft Seat	-65°F~200°F (-54°C~93°C)	

\*The above ratings are for a standard valve with PTFE packing.

\*Extreme temperature fluctuations may require packing adjustment.

### Working Pressure - Temperature

Temperature Rating	Pressure psig(bar) @ Temperature Rating		
	SS316	Alloy 400	
-65°F (-54°C) to	100°F (38°C)	6000psig (413bar)	5000psig (435 bar)
	200°F (93°C)	5160psig (355bar)	4400psig (303 bar)
	300°F (148°C)	4660psig (321bar)	4120psig (284 bar)
	350°F (176°C)	4470psig (308bar)	4050psig (279 bar)
	400°F (204°C)	4280psig (295bar)	3980psig (274bar)
	450°F (232°C)	4130psig (284bar)	3970psig (273 bar)

### Packing and Body material - Temperature and Pressure Rating

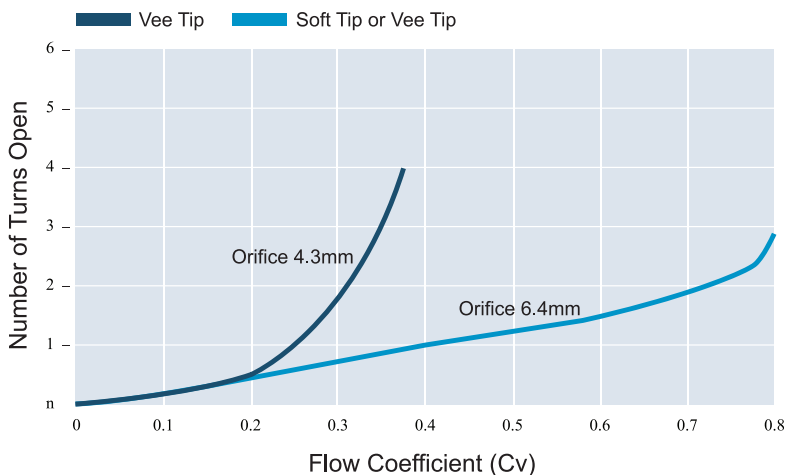
Packing Material	Body Material	Temperature Rating	Pressure Rating @ Max. Temperature
PTFE (Standard)	SS316	-65°F~450°F (-54°C~232°C)	4130psig (284 bar)
	Alloy 400		3970psig (273 bar)
PEEK	SS316	-65°F~600°F (-54°C~315°C)	3760psig (259bar)
	Alloy 400	-65°F~500°F (-54°C~260°C)	3960psig (272bar)

\* Alloy 400 not applicable over 500 °F(260 °C)

\* PEEK is not recommended for service with aromatic heat transfer or concentrated sulfuric and nitric acids. Other limitations may apply.

## Flow Data at 100°F (37°C)

### Flow Coefficient at Turns Open



## Handle

- 316 Stainless steel bar handles are standard.
- Black phenolic knob is standard for soft seat stem Valves.
- Anodized black aluminum bar handles

## Available Stem Type

### Two stem types

- Vee stem : All metal, Vee stem tip (Standard)
- Soft Seat Stem: PCTFE stem tip (Optional)

## Ordering Information

Example : **SBNV2 - M6N - S8 - SS - PE - KH - M40**

1
2
3
2
3
4
5
6
7

### 1. Valve Series

**Straight Flow Pattern**      **Angle Flow Pattern**  
 SBNV1 : 4.3mm Orifice      SBNV1A : 4.3mm Orifice  
 SBNV2 : 6.4mm Orifice      SBNV2A : 6.4mm Orifice

### 2. Port Type

S : SUPERLOK Tube Fitting  
 M : Male Pipe Thread  
 F : Female Pipe Thread

### 3. Port Size

#### Pipe Thread Designation

Size (inch)	1/8	1/4	3/8	1/2	3/4	1
Screwed BSPT	2R	4R	6R	8R	12R	16R
Screwed NPT	2N	4N	6N	8N	12N	16N

#### Tube O.D Designation

Tube O.D (inch)	1/4	3/8	1/2	3/4	1
Designation	4	6	8	12	16
Tube O.D (mm)	6	10	12	20	25
Designation	6M	10M	12M	20M	25M

### 4. Stem Type

Nil : Vee Stem (Standard)  
 SS : Soft Seat Stem

### 5. Packing Material

Nil : PTFE (Standard)  
 PE : PEEK

### 6. Handle

- Nil : Stainless Steel Bar Handle (Standard)
- KH : Black Phenolic Knob Handle
- AH : Anodized black aluminum bar handle

### 7. Body Material

SS : 316 Stainless Steel  
 M40 : Alloy 400 (Monel)

## Examples

ex1) SBNV1 - S4 - SS

SBNV1 Series / [Inlet]SUPERLOK x [Outlet]SUPERLOK / Port Size: 1/4" x 1/4" / SS316 Bar Handle  
 Straight Pattern / PTFE packing / Vee Stem / 316 Stainless Steel Body

ex2) SBNV2 - F8N - SS - KH - M40

SBNV2 Series / [Inlet]Female Pipe Thread x [Outlet]Female Pipe Thread / Port Size: 1/2"NPT x 1/2"NPT / Black phenolic knob handle  
 Straight Pattern / PTFE packing / Soft Seat Stem / Alloy 400 Body

ex3) SBNVA2 - M8N - F8N - PE

SBNV2 Series / [Inlet]Male Pipe Thread x [Outlet]Female Pipe Thread / Port Size: 1/2"NPT x 1/2"NPT / SS316 Bar Handle  
 Angle Pattern / PEEK packing / Vee Stem / 316 Stainless Steel Body