

# Integral Bonnet Needle Valves

## SINV Series

### Features

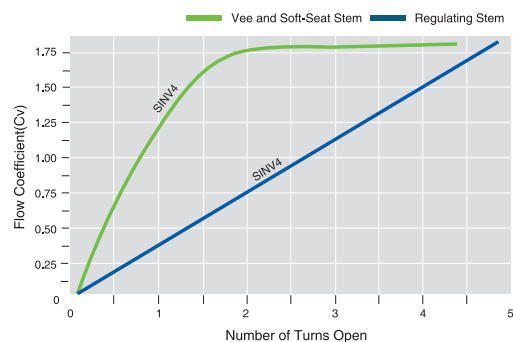
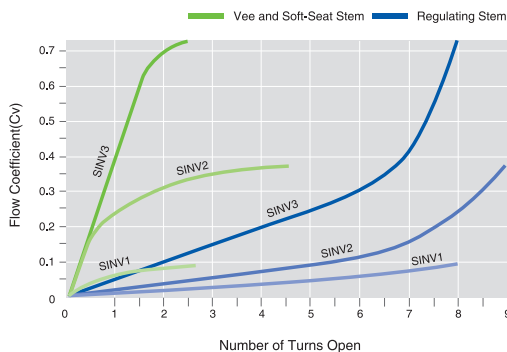
- Compact design
- Low operating torques
- Panel mountable
- Straight and angle flow patterns
- Bar and round knob handle are available
- Three stem type are available



### Specifications

Temperature Ratings	316 Stainless Steel with PTFE packing	: -65°F to 450°F (-53°C to 232°C)		
	316 Stainless Steel with PEEK packing	: -65°F to 600°F (-53°C to 315°C)		
	Brass	: -65°F to 400°F (-53°C to 204°C)		
	Alloy400 with PTFE packing	: -65°F to 450°F (-53°C to 232°C)		
	Alloy400 with PEEK packing	: -65°F to 500°F (-53°C to 260°C)		
	PCTFE Stem Tip	: -65°F to 200°F (-53°C to 93°C)		
	PTFE Packing	: -65°F to 450°F (-53°C to 232°C)		
	PEEK Packing	: -65°F to 600°F (-53°C to 315°C)		
Orifice Size	From 0.08" to 0.375" (2mm to 9.5mm)			
Flow Coefficients (Cv)	From 0.09 to 1.80			
End Connection Size	From 1/8" to 3/4", 3mm to 18mm			
<b>Pressure - Temperature Ratings</b>				
Material Group	2.2	N/A	3.4	
Material	316 SS	Brass	Alloy 400	
Temperature, °F(°C)	Working Pressure, psig (bar)			
-65 (-53) to 100 (37)	5000 (344)	3000 (206)	3000 (206)	
200 (93)	4295 (295)	2350 (161)	2640 (181)	
250 (121)	4085 (281)	2200 (151)	2555 (176)	
300 (143)	3875 (266)	2050 (141)	2470 (170)	
350 (176)	3715 (255)	1470 (101)	2430 (167)	
400 (204)	3560 (245)	390 (26)	2390 (164)	
450 (232)	3435 (236)	-	2380 (163)	
500 (260)	3310 (228)	-	2375 (163)	
600 (315)	3130 (215)	-	-	

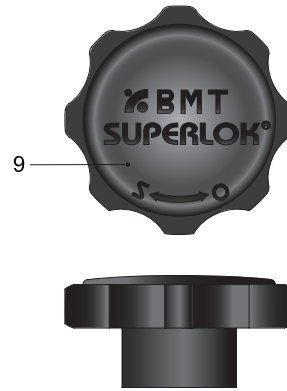
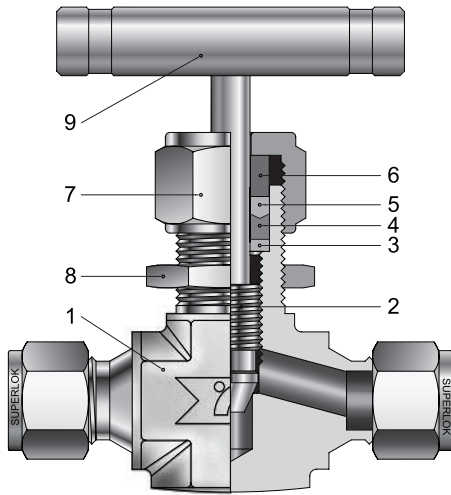
### Flow Data at 100°F (37°C)



## Testing

- Each and every valve is tested with nitrogen at 1000psig (69bar).
- Valve have max allowable leak rate of 0.1cm<sup>3</sup>/min.
- Shell testing is performed on demand.

## Materials of Construction



Round knob handle

No.	Component	Material		
		Stainless Steel	Brass	Alloy 400
*1	Body	ASTM A182 F316	ASTM B283	ASTM B564
*2	Vee stem	ASTM A276 Type316	ASTM A276 Type316	ASTM B164
	Regulating stem	ASTM A276 Type316	ASTM A276 Type316	ASTM B164
	Soft seat stem	ASTM A276 Type316 + PCTFE	ASTM A276 Type316 + PCTFE	ASTM A276 Type316 + PCTFE
*3	Packing support	ASTM A276 Type316	ASTM B16	ASTM B164
*4	Lower packing	PTFE	PTFE	PTFE
*5	Upper packing	PTFE	PTFE	PTFE
6	Packing gland	ASTM A276 Type316	ASTM B16	ASTM B164
7	Packing nut	ASTM A276 Type316	ASTM B16	ASTM B164
8	Panel nut	ASTM A276 Type316	ASTM B16	ASTM B164
9	Bar handle	ASTM A276 Type304		
	Round knob handle	Phenolic with brass insert		
	Set screw	Stainless Steel		

Wetted components are marked "\*"

## Stem Type

Vee Stem(Standard)		Regulating Stem		Soft Seat Stem	
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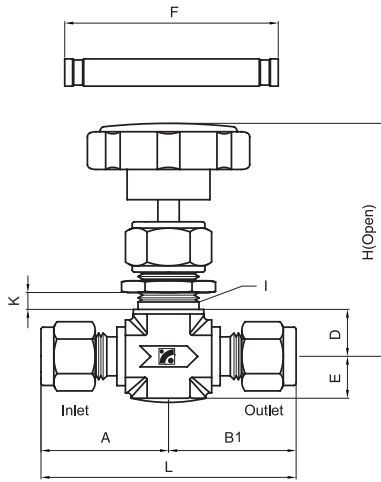
## Packing

PTFE packing is standard. PEEK packing is optional.

## Handle

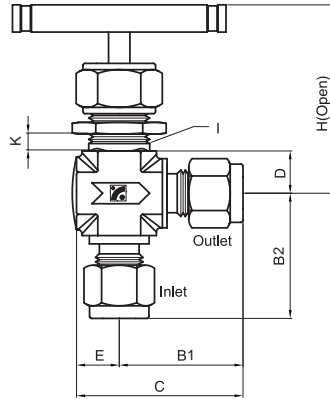
- 316 stainless steel and alloy 400 body valve - Stainless steel bar handles are standard.
- Brass body and Soft seat stem valve - Black round knob handles are standard.
- Anodized black aluminum bar handles are optional.

## SINV Series



Straight Flow Pattern

## SINV A Series



Angle Flow Pattern

I : Panel Hole Drill

K : Panel Mount Thickness  
Min 3.17, Max 6.35

## Table of dimensions

Part Number	Orifice	Cv	End Connections		Dimensions										
			Inlet	Outlet	L	A	B1	B2	C	D	E	F	I	H	
SINV1	S2	2.0	0.09	1/8" SUPERLOK		49.4	24.7	24.7	24.7	32.6	11.2	7.9	32.0	11.9	55
	S3M			3mm SUPERLOK		49.4	24.7	24.7	24.7	32.6					
	M2N			1/8" Male NPT		38.1	19.1	19.1	19.1	27.0					
	F2N			1/8" Female NPT		47.8	23.9	23.9	23.9	31.8					
	M2N-S2			1/8" Male NPT	1/8" SUPERLOK	43.8	19.1	24.7	19.1	32.6					
SINV2	S4	4.4	0.37	1/4" SUPERLOK		57.4	28.7	28.7	28.7	38.4	11.2	9.7	45.0	13.5	51.5
	S6M			6mm SUPERLOK		57.4	28.7	28.7	28.7	38.4					
	S8M			8mm SUPERLOK		59.4	29.7	29.7	29.7	39.4					
	M2N			1/8" Male NPT		41.2	20.6	20.6	20.6	30.3					
	M4N			1/4" Male NPT		49.8	24.9	24.9	24.9	34.6					
	M4N-S4			1/4" Male NPT	1/4" SUPERLOK	53.6	24.9	28.7	24.9	38.4					
SINV3	S6	6.3	0.73	3/8" SUPERLOK		65.6	32.8	32.8	32.8	45.5	12.7	12.7	64.0	20.0	63.5
	S8			1/2" SUPERLOK		71.2	35.6	35.6	35.6	48.3	14.0				
	S10M			10mm SUPERLOK		66.0	33.0	33.0	33.0	45.7	12.7				
	S12M			12mm SUPERLOK		71.2	35.6	35.6	35.6	48.3	14.0				
	M6N			3/8" Male NPT		57.4	28.7	28.7	28.7	41.4	12.7				
	F4N			1/4" Female NPT		53.8	26.9	26.9	26.9	39.6	12.7				
	M4N-S6			1/4" Male NPT	3/8" SUPERLOK	61.5	28.7	32.8	28.7	45.5	12.7				
	M6N-S6			3/8" Male NPT	3/8" SUPERLOK	61.5	28.7	32.8	28.7	45.5	12.7				
	M6N-S8			3/8" Male NPT	1/2" SUPERLOK	64.3	28.7	35.6	28.7	48.3	14.0				
	M4N-F4N			1/4" Male NPT	1/4" Female NPT	55.6	28.7	26.9	28.7	39.6	12.7				
SINV4	S8	9.5	1.80	1/2" SUPERLOK		96.6	48.3	48.3	48.3	67.4	19.1	19.1	76.0	26.2	99.5
	S12			3/4" SUPERLOK											
	M8N			1/2" Male NPT		76.2	38.1	38.1	38.1	57.2					
	F6N			3/8" Female NPT											
	F8N			1/2" Female NPT											
	M8N-F8N			1/2" Male NPT	1/2" Female NPT										

• All dimensions in millimeters unless specified as "inch". Dimension are for reference only, subject to change.  
• Dimensions based on SUPERLOK nuts finger-tight.

## Ordering Information

Example : **SINV3 - M6N - S8 - RS - PE - KH - SS**

1
2
3
2 3
4
5
6
7

### 1. Valve Series

<p>Straight Flow Pattern</p> <p>SINV1 : Orifice 2.0mm</p> <p>SINV2 : Orifice 4.4mm</p> <p>SINV3 : Orifice 6.3mm</p> <p>SINV4 : Orifice 9.5mm</p>	<p>Angle Flow Pattern</p> <p>SINV1A : Orifice 2.0mm</p> <p>SINV2A : Orifice 4.4mm</p> <p>SINV3A : Orifice 6.3mm</p> <p>SINV4A : Orifice 9.5mm</p>
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### 2. End Connection Type

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

### 3. End Connection Size

#### Pipe Thread Designation

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

#### Tube O.D Designation

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

### 4. Stem

Blank : Vee Stem (Standard)  
RS : Regulating Stem  
SS : Soft Seat Stem

### 5. Packing

Blank : PTFE Packing (Standard)  
PE : PEEK Packing

### 6. Handle

Blank : Stainless Steel Bar Handle (Standard)  
KH : Black Round Knob Handle  
AH : Anodized Black Aluminum Bar Handle

### 7. Body Material

SS (Blank) : 316 Stainless Steel  
B : Brass  
M40 : Alloy 400 (Monel)

## Examples

ex1) SINV2 - S4 - SS

Straight flow pattern, Orifice 4.4mm/ Inlet: SUPERLOK 1/4" / Outlet: SUPERLOK 1/4" / Vee stem / PTFE Packing  
Stainless steel bar handle / 316 Stainless steel body

ex2) SINV3A - M4N - S6 - RS - PE - KH - SS

Angle flow pattern, Orifice 6.3mm/ Inlet: 1/4"NPT Male / Outlet: SUPERLOK 3/8" / Regulating stem / PEEK Packing  
Black round knob handle / 316 Stainless steel body

ex3) SINV4 - M8N - F8N - KH - B

Straight flow pattern, Orifice 9.5mm/ Inlet: 1/2"NPT Male / Outlet: 1/2"NPT Female / Vee stem  
PTFE Packing / Black round knob handle / brass body