

Integral Bonnet Needle Valves

SINV Series

Features

- Compact design
- Low operating torques
- Panel mountable
- Variety of stem tips
- Variety of End Connections
- Straight and Angle flow patterns
- Each and every valve is tested at the factory



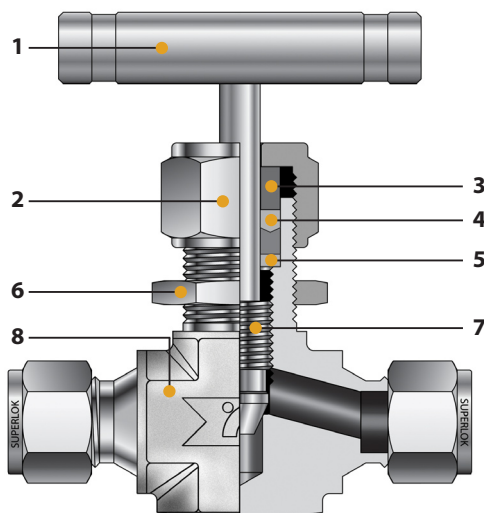
Specifications

Pressure rating	5000psig (345bar) @100°F(38°C)
Temperature rating	-65 to 450°F (-54 to 232 °C) with PTFE packing and 600°F(315°C) with PEEK packing
Body material	316 stainless steel, alloy400 and brass
Port connections	1/8" to 3/4" and 3mm to 12mm Variety of end connection
Orifice	0.08" to 0.375" (2.0mm to 9.5mm)

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	Brass	Alloy 400
1	Bar Handle	Stainless Steel		
	Knob Handle	Phenolic with brass insert		
	Set Screw	Stainless Steel		
2	Packing Nut	SS316 / A276	BRASS 360 / B16	Alloy R-405 / B164
3	Packing Gland	SS316 / A276	BRASS 360 / B16	Alloy R-405 / B164
*4	Packing	PTFE (Standard) , PEEK (Optional)		
5	Packing Support	SS316 / A276	BRASS 360 / B16	Alloy R-405 / B164
6	Panel Nut	SS316 / A276	BRASS 360 / B16	Alloy R-405 / B164
*7	Vee Stem	Chrome-plated SS316 / A276	SS316 / A276	Alloy R-405 / B164
	Regulating Stem			
	Soft Seat Stem with PCTFE			
*8	Body	SS 316 / A182	BRASS 377 / B283	Alloy R-400 / B564

•Wetted components are marked "*"

SINV Series

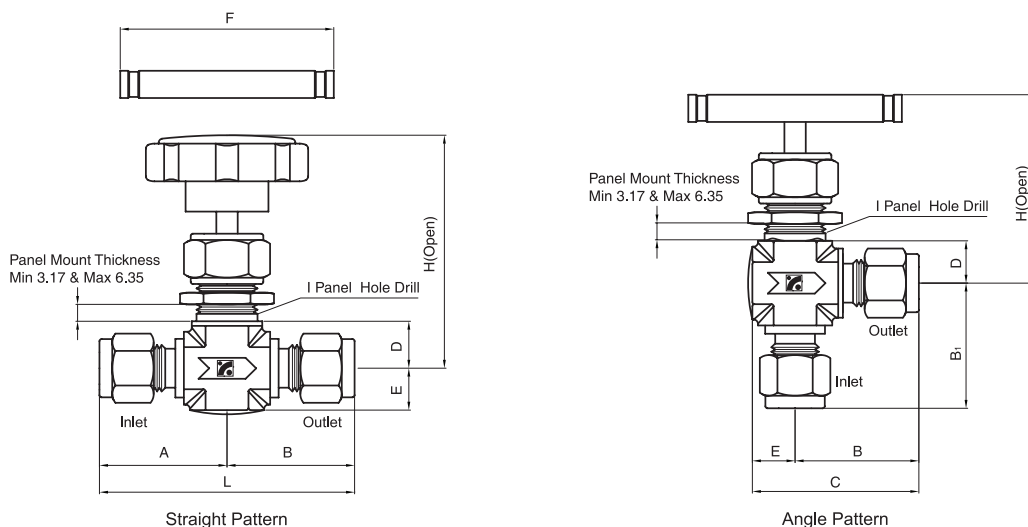


Table of Dimensions

Order Number			Orifice (mm)	Cv	End Connections		Dimensions (mm)															
Series	Part No.				Inlet	Outlet	L	A	B	B1	C	D	E	F	I	H						
SINV1	F	2N	2.0	0.09	1/8" Female NPT		47.8	23.9	23.9	23.9	31.8	11.2	7.9	32.0	11.9	55.0						
	M	2N			1/8" Male NPT		38.1	19.1	19.1	19.1	27.0											
	MS	2N-2			1/8" Male NPT	1/8" SUPERLOK	43.8															
	S	2			1/8" SUPERLOK		49.4										24.7	24.7	32.6			
	S	3M			3mm SUPERLOK																	
SINV2	F	2N	4.4	0.37	1/8" Female NPT		41.2	20.6	20.6	20.6	30.3	11.2	9.7	45.0	13.5	51.5						
	M	2N			1/8" Male NPT		49.8	24.9	24.9	24.9	34.6											
	M	4N			1/4" Male NPT																	
	MS	4N-4			1/4" Male NPT	1/4" SUPERLOK	53.6	28.7	28.7	28.7	38.4											
	S	6M			6mm SUPERLOK		57.4															
	S	4			1/4" SUPERLOK		59.4										29.7	29.7	29.7	39.4		
	S	8M			8mm SUPERLOK																	
SINV3	F	4N	6.3	0.73	1/4" Female NPT		53.8	26.9	26.9	26.9	39.6	12.7	12.7	64.0	20.0	63.5						
	F	4R			1/4" ISO Female		55.6	28.7									32.8	28.7	28.7	41.4		
	MF	4N			1/4" Male NPT	1/4" Female NPT			61.5													
	MS	4N-6			1/4" Male NPT	3/8" SUPERLOK				35.6	48.3										14.2	
	M	6N			3/8" Male NPT																	57.4
	MS	6N-6			3/8" Male NPT	3/8" SUPERLOK																61.5
	MS	6N-8			3/8" Male NPT	1/2" SUPERLOK	64.3	35.6	48.3	14.2												
	S	10M			10mm SUPERLOK		66.0	33.0	33.0	33.0	45.7	12.7										
	S	6			3/8" SUPERLOK		65.6	32.8	32.8	32.8	45.5											
	S	12M			12mm SUPERLOK		71.2	35.6	35.6	35.6	48.3	14.0										
	S	8			1/2" SUPERLOK																	
SINV4	F	6N	9.5	1.80	3/8" Female NPT		76.2	38.1	38.1	38.1	57.2	19.1	19.1	76.0	26.2	99.5						
	F	6R			3/8" ISO Female																	
	F	8N			1/2" Female NPT																	
	F	8R			1/2" ISO Female																	
	M	8N			1/2" Male NPT																	
	MF	8N			1/2" Male NPT	1/2" Female NPT																
	S	8			1/2" SUPERLOK		96.6	48.3	48.3	48.3	67.4											
	S	12			3/4" SUPERLOK																	

* Dimensions shown with **SUPERLOK** nuts measure in the finger - tight, where applicable.
All dimensions are for reference only, subject to change.

Technical Data

Temperature and Pressure Rating

Body Material	Stem	Pressure Rating	Pressure Rating @ -65°F ~ 100°F (-54°C ~ 38°C)
SS316	Vee & Regulating	-65°F ~ 450°F (-54 °C ~ 232 °C)	5000 psig (345 bar)
	Soft Seat	-65°F ~ 200°F (-54 °C ~ 93 °C)	
Brass	Vee & Regulating	-65°F ~ 400°F (-54 °C ~ 204 °C)	3000 psig (207 bar)
	Soft Seat	-65°F ~ 200°F (-54 °C ~ 93 °C)	
Alloy 400 (Monel)	Vee & Regulating	-65°F ~ 450°F (-54 °C ~ 232 °C)	3000 psig (207 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.

Temperature vs Working Pressure

Temperature Rating		Pressure psig(bar) @ Temperature Rating		
		SS316	Brass	Alloy 400 (Monel)
-65°F (-54 °C) to	100°F (38 °C)	5000psig (345bar)	3000psig (207bar)	3000psig (207bar)
	200°F (93 °C)	4290psig (296bar)	2600psig (179bar)	2640psig (182bar)
	300°F (148 °C)	3870psig (267bar)	2210psig (152bar)	2470psig (170bar)
	350°F (176 °C)	3710psig (256bar)	1470psig (101bar)	2430psig (167bar)
	400°F (204 °C)	3560psig (245bar)	740psig (51bar)	2390psig (165bar)
	450°F (232 °C)	3430psig (236bar)	-	2380psig (163bar)

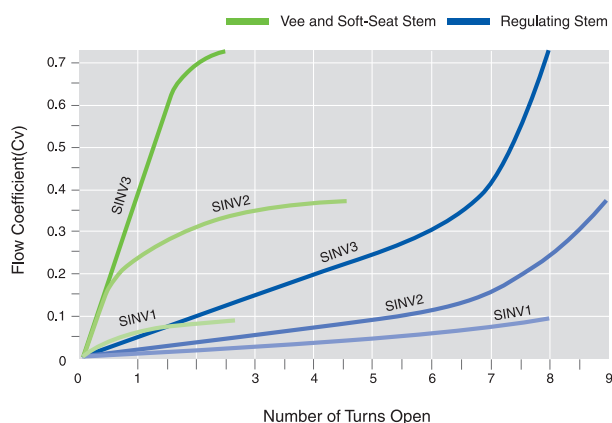
Packing and Body materials vs Temperature and Pressure Rating

Packing Material	Body Material	Temperature Rating	Pressure Rating @ Max. Temperature
PTFE (Standard)	SS316	-65°F ~ 450°F (-54 °C ~ 232 °C)	3430 psig (236 bar)
PEEK (Optional)	SS316	-65°F ~ 600°F (-54 °C ~ 315 °C)	3130 psig (216 bar)
	Alloy 400	-65°F ~ 500°F (-54 °C ~ 260 °C)	2370 psig (163 bar)

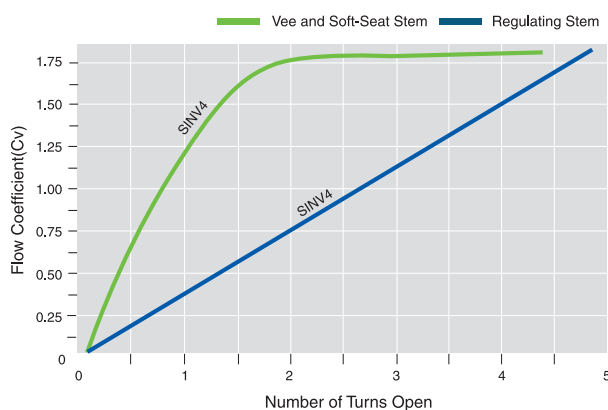
* PEEK is not recommended for service with aromatic heat transfer or concentrated sulfuric and nitric acids. Other limitations may apply.

Flow Data at 100°F(37°C)

Flow Coefficient at Turns Open



[SINV1, SINV2, SINV3 Series]



[SINV4 Series]

Handle

- Stainless steel bar is standard on all SS316 and alloy 400 body valves.
- Phenolic knob is standard for brass body and soft seat stem valves.

Available Stem Type

Vee Stem(Standard)		Regulating Stem		Soft Seat Stem	
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Ordering Information

SINV3 - MS - 6N - 8 - KH - A - PERT - SS

1 2 3 4 5 6 7 8

1. Valve Series

- SINV1 : 2.0mm Orifice
- SINV2 : 4.4mm Orifice
- SINV3 : 6.3mm Orifice
- SINV4 : 9.5mm Orifice

2. Port Type

- S : SUPERLOK Tube Fitting
- M : Male Pipe Thread
- F : Female Pipe Thread
- MS : Male Pipe Thread x SUPERLOK Tube Fitting
- MF : Male Pipe Thread x Female Pipe Thread

3. Port Size

■ Pipe Thread Designation

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

■ Tube O.D Designation

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

4. Handle

- Nil : Stainless Steel Bar Handle (Standard)
- KH : Phenolic Knob Handle

5. Flow Pattern

- Nil : Straight Pattern (Standard)
- A : Angle Pattern

6. Packing Material

- Nil : PTFE (Standard)
- PE : PEEK

7. Stem Type

- Nil : Vee Stem (Standard)
- RT : Regulating Stem
- ST : Soft Seat Stem

8. Body Material

- SS : 316 Stainless Steel
- B : Brass
- M : Alloy 400 (Monel)

■ Examples

ex1) SINV1 - S - 2 - SS

- SINV1 Series / [Inlet]SUPERLOK x [Outlet]SUPERLOK / Port Size: 1/8" x 1/8" / Stainless Steel Bar Handle / Straight Pattern / PTFE packing / Vee Stem / 316 Stainless Steel Body

ex2) SINV2 - MS - 4N - 4 - KH - A - RT - SS

- SINV2 Series / [Inlet]Male Pipe Thread x [Outlet]SUPERLOK / Port Size: 1/4"NPT x 1/4" / Phenolic Knob Handle / Angle Pattern / PTFE packing / Regulating Stem / 316 Stainless Steel Body

ex3) SINV4 - MF - 8N - KH - B

- SINV4 Series / [Inlet]Male Pipe Thread x [Outlet]Female Pipe Thread / Port Size: 1/2"NPT / Phenolic Knob Handle / Straight Pattern / PTFE packing / Vee Stem / Brass Body