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S-LOK® Valves

Needle Valves



SNV50



SNV60

SNV50 Series Integral Bonnet Needle Valves

Features

- Pressure rating up to 5000psi(344bar)@100°F(38°C).
- Temperature rating from -65°F(38°C) to 450°F(232°C). with standard PTFE packing, and up to 600°F (315°C). with optional PEEK packing.
- Choice of materials : Standard S316 and available in alloy 400 and Brass.
- Available sour Gas service per NACE MR0175.
- Every valve is 100% factory tested with the Nitrogen @1000psi.

Design

- Applications : General purpose gas, water and oil.
- Variety stem tips include Vee, Regulating and Soft-seat with Kel-F.
- Orifice sizes : from 0.08in(2.0mm) to 0.375in(9.5mm).
- Flow Coefficients(Cv) : from 0.09 to 1.8.
- Forged body with straight and angle patterns.
- Panel mounting : from 3.17mm to 6.35mm.
- Stem threads are rolled and hard chrome-plated for maximum service life.
- Packing materials : Standard PTFE and optional PEEK packing for high temperature.
- Packing nut enables easy external adjustments to ensure leak-free stem seal.
- Variety of End connections include S-LOK, NPT & ISO threads Male/Female.
- Standard Round handle is Black Phenolic Knop and optional Bar Handle with S316.

Technical Data

Temperature - Working Pressure

The class rating and rated working pressure are the way that ASME standards simplify the design process.

The pressure rating is governed by the allowable stress for each different material group, class rating and service temperature.

ASME Material Group	TABLE 2-2.2	N/A	TABLE 2-3.4
ASME CLASS Rating	2080	N/A	1500
Material Name	S316	Brass	Alloy 400
Temperature @pressure, °F (°C)	psig (bar)	psig (bar)	psig (bar)
-65°F (-54°C) up to	100°F (38°C)	5000 (344)	3000 (206)
	200°F (93°C)	4295 (295)	2350 (161)
	300°F (148°C)	3875 (266)	2050 (141)
	350°F (176°C)	3710 (255)	1470 (101)
	400°F (204°C)	3560 (245)	390 (26)
	450°F (232°C)	3435 (236)	-
			2380 (163)

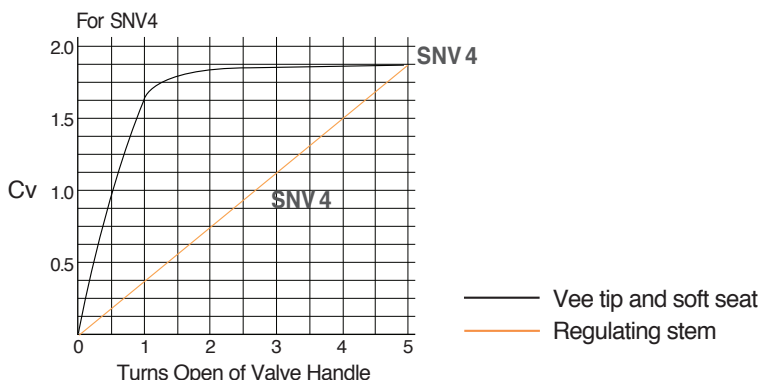
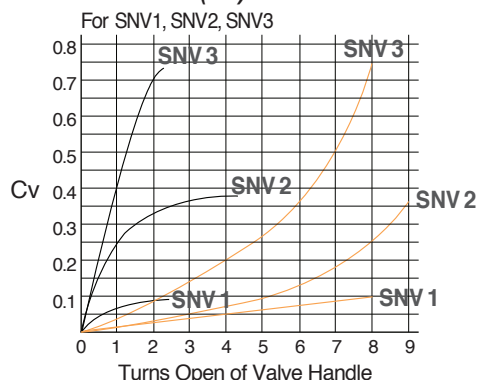
Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.

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

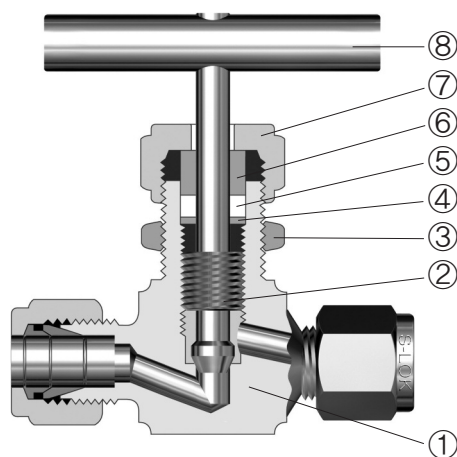
Temperature & Pressure Rating with Packing and Body Material

Valve Material	Stem	with PTFE packing (Standard)		with PEEK packing (Optional)	
		Temperature °F (°C)	Pressure Rating @100°F (37°C)	Temperature °F (°C)	Pressure @Temp. Rating psig (bar)
Stainless Steel S316	Metal to metal (Vee & Regulating)	-65°F to 450°F (-54°C to 232°C)	5000psig (344bar)	-65°F to 600°F (-54°C to 315°C)	3130psig (215bar)
	Soft Seat (Kel-F)	-65°F to 200°F (-54°C to 93°C)		-65°F to 200°F (-54°C to 93°C)	
Brass	Metal to metal (Vee & Regulating)	-65°F to 400°F (-54°C to 204°C)	3000psig (206bar)	-65°F to 400°F (-54°C to 204°C)	3000psig (206bar)
	Soft Seat (Kel-F)	-65°F to 200°F (-54°C to 93°C)		-65°F to 200°F (-54°C to 93°C)	
Alloy 400 (Monel)	Metal to metal (Vee & Regulating)	-65°F to 450°F (-54°C to 232°C)	3000psig (206bar)	-65°F to 500°F (-54°C to 260°C)	2370psig (162bar)
	Soft Seat (Kel-F)	-65°F to 200°F (-54°C to 93°C)		-65°F to 200°F (-54°C to 93°C)	

Flow Coefficient (Cv) with Number of Handle Turns



— Vee tip and soft seat
— Regulating stem



Materials of Construction

Item	Description	Material / ASTM Specification		
		S316	BRASS	Alloy 400
1	Body	S316	Brass	Alloy 400/B 564
2	Stem	Chrome plated S316	S316	Alloy R-405/B 164
	Vee Stem			
	Soft Seat Stem			
2a	Regulating Stem			
2a	Stem Tip (Soft Seat)	Kel-F (PCTFE)		
3	Panel Nut	S316	Brass	Alloy R-405/B 164
4	Packing Ring	S316	Brass	Alloy R-405/B 164
5	Packing	Standard PTFE, Optional PEEK		
6	Grand	S316	Brass	Alloy R-405/B 164
7	Packing Nut	S316	Brass	S316
8	Knop Handle	Black phenolic knop		
	Bar Handle	S 316		
9	Set screw	Nickel cadmium plated steel		

Wetted parts are listed in orange color.

Standard Lubrication : Fluorocarbon based.

Mounting as standard

Body Size	SNV 1	SNV 2	SNV 3	SNV 4
Panel Hole	13.5mm		19.8mm	26.0mm
Panel Mount Thickness	Min	3.17mm		
	Max	6.35mm		

Caution : Packing adjustments may be required during the valve is mounted.




• Sour Gas Service

-Sour Gas Service is provided to meet NACE Standard MR 0175.

• Handle

-Black phenolic knop is standard all body valves.
-Stainless Steel bar is available as an option.

Choice of Stem Tip's available

Vee Stem	Regulating Stem	Soft Seat
For pressure tightness even at elevated temperatures	For flow rate control	For repetitive shut-off
		

• Testing

-Every valve is factory tested for bubble-tight leakage at both seat and stem packing with nitrogen at 1000psi(69bar).
-Seats have a maximum allowable leak rate of 0.1scm **Hydrostatic Shell tests** is performed optional with water at 1.5 times the working pressure.

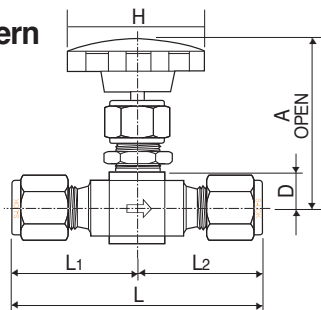
• Safety in Valve Selection

-When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, materials compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and user.

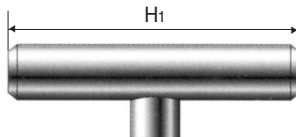
Caution : Packing adjustments may be required during the valve's service life.
Extreme Temperature fluctuations may require packing nut adjustment.

Ordering Information and Table of Dimensions

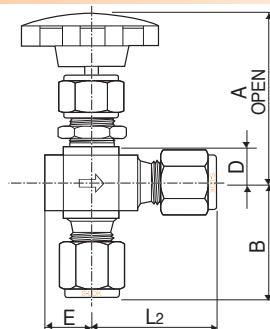
Inline Pattern



Bar Handle



Angle Pattern



Valve Ordering Number		Orifice (mm)	Cv	End Connection		Dimensions (mm)										
				Inlet	Outlet	A	B	L	L ₁	L ₂	E	D	H	H ₁		
SNV 1	F-2N	2.0	0.09	1/8" Female NPT		61	21	42	21	21	9.5	11	35	32		
	1/8" Male NPT			42	20											
	1/8" Male NPT 1/8" S-LOK			47	26											
	1/8" S-LOK			26	52		26	26								
	3mm S-LOK															
SNV 2	F-2N	4.4	0.37	1/8" Female NPT		61	21	42	21	21	9.5	11	35	45		
	1/8" Male NPT			25	50			25	25							
	1/4" Male NPT				54			28.8								
	MS-4N4T			29	57.6		28.8	28.8								
	S-6M-				30		59.2	29.6	29.6							
	S-4T-															
	S-8M															
SNV 3	F-4N	6.4	0.73	1/4" Female NPT		77	28	56	28	28	13	13.5	47	64		
	1/4" Female ISO Tapered			61.2	33.2											
	1/4" Male NPT 1/4" Female NPT							29	62.2	29					33.2	
	1/4" Male NPT 3/8" S-LOK								65	36						
	M-6N			33	66.4		33.2	33.2								
	MS-6N6T				36		72	36	36							
	MS-6N8T															
	M-10M															
	S-6T															
	S-12M															
	S-8T															
SNV 4	F-6N	9.5	1.80	3/8" Female NPT		99	38	76	38	38	19	19	63	76		
	3/8" Female ISO Tapered															
	1/2" Female NPT															
	1/2" Female ISO Tapered															
	M-8N			49	97		48.5	48.5								
	MF-8N															
	S-8T															
	S-12T															

All dimensions shown are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position.

Patterns : To order angle pattern, use-A as a suffix to the valve ordering number. *Example : SNV1-F-2N-A*

• Ordering Information

SNV1	S	8T	A	R	BH	SG	S6
Series Designator by Orifice Size	End Connection Designator	Inlet-Outlet Size Designator	Flow Designator	Stem Designator	Handle Designator	Sour Gas Designator	Body Material Designator
			<ul style="list-style-type: none"> • Nil : Straight • A : Angle Pattern 	<ul style="list-style-type: none"> • Nil : Vee Stem • R : Regulating • K : Soft Tip with Kel-F 	<ul style="list-style-type: none"> • Nil : Standard black phenolic Knob • BH: Stainless Round Bar Handle 	<ul style="list-style-type: none"> • Nil : Standard • SG: Sour Gas Service 	<ul style="list-style-type: none"> • S6 : 316 Stainless Steel • BS : Brass • MO: Alloy 400

SNV60 Series Integral Bonnet Needle Valves

Features

- Pressure rating up to 6000psi(413bar)@100°F(38°C).
- Temperature rating from -65°F(38°C) to 450°F(232°C) with standard PTFE packing, and up to 600°F(315°C) with optional PEEK packing.
- Choice of materials : Standard S316 and available in alloy 400.
- Available Sour Gas service per NACE MR 0175.
- Every valve is 100% factory tested with the Nitrogen @1000psi (69bar).

Design

- Applications : General purpose gas, water and oil.
- Two-piece chevron-style PTFE stem packing design with compensating disc springs.
- Compact and rugged design.
- Variety stem tips include Vee, and Soft-seat with Kel-F.
- Orifice sizes : from 0.17in(4.3mm) to 0.25in(6.3mm).
- Flow Coefficients (Cv) : from 0.37 to 0.73.
- Bar stock body with straight and angle patterns.
- Stem threads are hard chrome-plated for maximum service life.
- Packing materials : Standard PTFE and optional PEEK packing for high temperature.
- Packing nut enables easy external adjustments to ensure leak-free stem seal.
- Variety of End connections include S-LOK, NPT & ISO threads Male/Female.
- Standard Bar Handle with S316.

Technical Data

• Temperature- Working Pressure

Description	Pressure (psig) @ Temperature Rating		
	ANSI Group	2.2	3.4
	ANSI Class	2500	2500
	Materials	S316	Alloy 400
-65°F (-54°C)	100°F (38°C)	6000	5000
200°F (93°C)		5160	4400
300°F (148°C)		4660	4120
350°F (176°C)		4470	4060
400°F (204°C)		4280	3980
450°F (232°C)		4130	3970

► Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness. For more information about pressure ratings of valves with tube fitting end connections.

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

• Temperature and Pressure Ratings

Body Material	Stem Tip	Temperature Rating	Pressure Rating @ -65°F to 100°F (-54°C to 38°C)
316 Stainless Steel	Vee	-65°F to 450°F (-54°C to 232°C)	6000psig
	Soft Seat (Kel-F)	-65°F to 200°F (-54°C to 93°C)	
Alloy 400 (Monel)	Vee	-65°F to 450°F (-54°C to 232°C)	5000psig
	Soft Seat (Kel-F)	-65°F to 200°F (-54°C to 93°C)	

► The above ratings are for standard valve with PTFE packing. For optional packing materials, refer to the table shown below.

► Extreme temperature fluctuations may require packing adjustment.

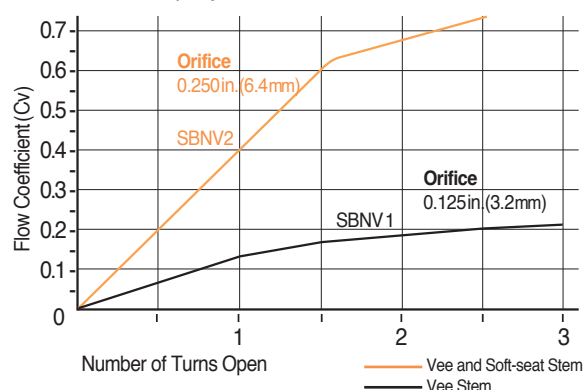
• Temperature-Pressure Rating with Packing and Body Materials

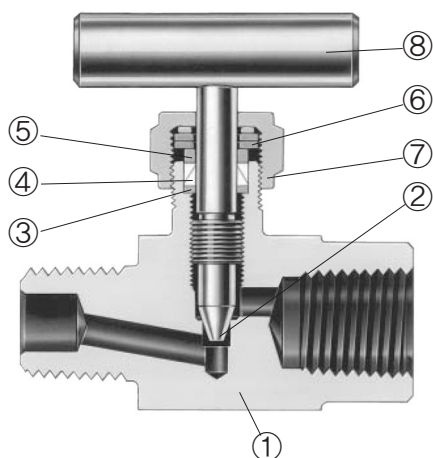
Packing Material	Body Material	Temperature Rating	Pressure Rating @ -65°F to 100°F (-54°C to 38°C)
PTFE (Standard)	316 Stainless Steel	-65°F to 450°F (-54°C to 232°C)	4130psig
	Alloy 400*		3970psig
PEEK	316 Stainless Steel	-65°F to 600°F (-54°C to 315°C)	3760psig
	Alloy 400*	-65°F to 500°F (-54°C to 260°C)	3960psig

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

► Other limitations may apply.

• Flow Coefficient (Cv)-Number of Handle Turns

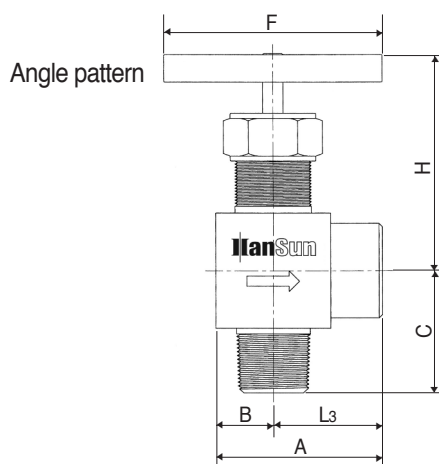
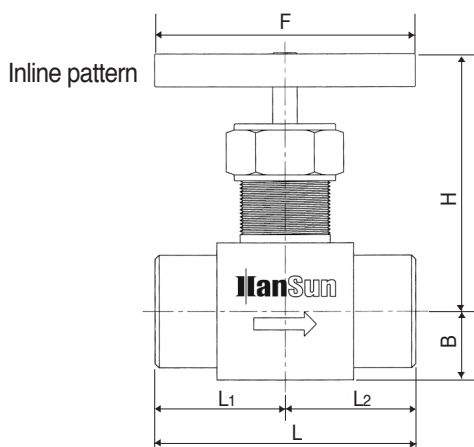




Materials of Construction

Item	Description		Material / ASTM Specification	
			S316	Alloy 400
1	Body		S316	Alloy 400/B 564
2	Stem	Vee Stem	Chrome plated S316	Alloy R-405/B 164
		Soft Seat Stem		
2a	Stem Tip (Soft Set)		Kel-F (PCTFE)	
3	Packing Ring		S316	Alloy R-405/B 164
4	Packing		Standard PTFE, Optional PEEK	
5	Grand		S316	Alloy R-405/B 164
6	Packing Spring		17-7PH	
7	Packing Nut		S316	
8	Bar Handle		S316	Alloy R-405/B 164

Wetted parts are listed in orange color.
Standard Lubrication : Fluorocarbon based.



Ordering Information and Table of Dimensions

Valve Ordering Number		Orifice (mm)	Cv	End Connection		Dimensions (mm)								
				Inlet	Outlet	L	L ₁	L ₂	L ₃	A	B	C	H	F
SBNV1	F-4N	3.2	0.21	1/4" Female NPT		47.8	23.9	23.9	25.4	36.6	11.2	25.4	42.2	44.5
	1/4" Male NPT			49.3	24.6	24.6	-	-	-					
	1/4" Male NPT			48.5	24.6	23.9	25.4	36.6	26.2					
	1/4" Male NPT			55.8	24.6	31.2	28.7	39.9	26.2					
	1/4" S-LOK			62.5	31.2	31.2	28.7	39.9	29.5					
SBNV2	F-6N	6.4	0.73	3/8" Female NPT		63.5	31.8	31.8	31.8	48.6	16.8	31.8	58.7	64
	1/2" Female NPT													
	1/2" Female ISO													
	3/8" Male NPT			3/8" Female NPT	64.8	33.0			31.0					
	1/2" Male NPT			1/2" Female NPT					35.8					
	MF-6N			3/4" Male NPT	1/2" Female NPT	63.5	31.8		-	-		-		
	MF-8N			3/8" S-LOK		78.2	39.1	39.1	-	-		-		
	MF-12N8N			1/2" S-LOK		83.8	41.9	41.9	-	-		-		
S-6T														
S-8T														

Dimension shown are for reference only, subject to change.

• Sour Gas Service

-Sour Gas Service is provided to meet NACE Standard MR 0175.

• Handle

-Stainless Steel bar handle is standard all body valves.
-Black phenolic knob is standard for soft seat stem valves.

• Testing

-Every valve is factory tested for bubble-tight leakage at both seat and stem packing with nitrogen at 1000psi(69bar).
-Seats have a maximum allowable leak rate of 0.1 sccm **Hydrostatic Shell tests** is performed optional with water at 1.5 times the working Pressure.

• Safety in Valve Selection

-When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, materials compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and user.

• Ordering Information

SBNV1	S	8T	A	R	BH	SG	S6
Series Designator by Orifice Size	End Connection Designator	Inlet-Outlet Size Designator	Flow Designator	Stem Designator	Handle Designator	Sour Gas Designator	Body Material Designator
			• Nil : Standard Pattern • A : Angle Pattern	• Nil : Vee Stem • K : Soft Tip with Kel-F	• Nil : Stainless Round Bar Handle	• Nil : Standard • SG : Sour Gas Service	• S6 : 316 Stainless Steel • MO : Alloy 400

