



Forged Integral Bonnet

# Needle Valves



유니온금속공업(주)  
UNION METAL INDUSTRIAL CO.,LTD.

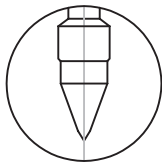


## Features

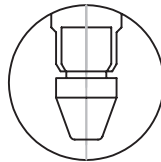
- Pressure rating up to 5000psi(340bar) at 38°C(100°F)
- Temperature rating from -53°C(-65°F) to 232°C(450°F) with standard PTFE packing, up to 315°C(600°F) with Grafoil packing
- Materials : Standard 316SS and Brass
- Forged body with straight and angle pattern
- Panel mounting without packing disruption
- Wide choices of end connections : Uni-Lok Tube Fittings, Male & Female NPT or PT(ISO 7/1) thread, Socket Weld ANSI/ASME B16.11
- Standard lubrication : Nickel anti-seize lubricant (Hydrocarbon carrier)
- Standard seat : Metal to metal/body material  
Optional seat : Metal to metal/stellite, hard coating, soft seat(CTFE, Kel-F\*)  
*Kel-F\* is the trademark of 3M Co.*

## Choice of Stem

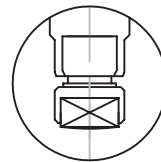
- Vee Stem is standard for pressure tightness even at elevated temperatures. Regulating Stem & Soft-seat Stem are optional.



Vee Stem  
(Standard)



Regulating Stem



Soft-seat Stem

## Sour Gas Service

- Materials for wetted valve component are selected in accordance with NACE standard MR 0175-2000 for sulfide stress cracking resistant.

## Testing

- Standard Factory Test : Every valve is 100% factory tested with air and nitrogen at 1000psi(69bar) for leakage at the seat and packing. Each test is performed to a maximum allowable leak rate of 0.1scc/min.
- Optional Hydrostatic Test : This hydrostatic shell test is performed with pure water at 1-1/2 times of the working pressure. Other optional tests are available upon request.

## Safe 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 or user.



## Working Pressure in psi

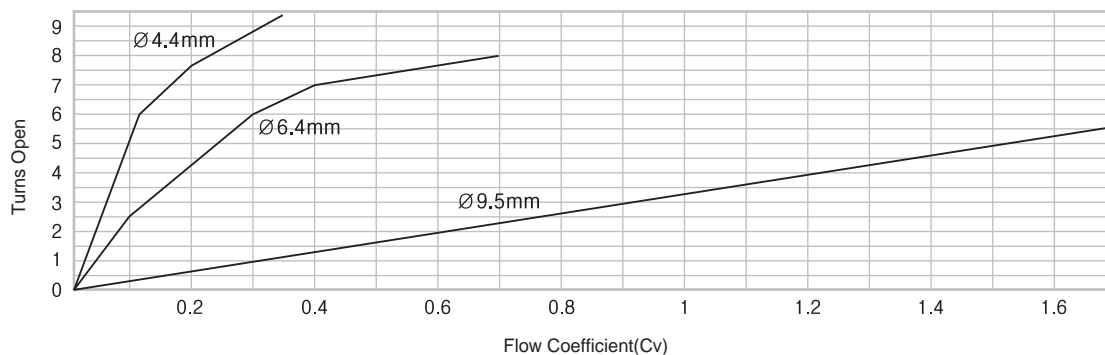
ANSI Group	2.2	N/A
ANSI Group	316SS	Brass
Material Name Class(ANSI)	2080	N/A
Temperature@Pressure(PSI)		
30°C(86°F)	5000	3000
90°C(194°F)	4331	2624
120°C(248°F)	4087	2413
-65°F(-54°C) tp	150°C(302°F)	3871
	180°C(356°F)	3698
	210°C(410°F)	3530
	230°C(446°F)	3435
		-

## Temperature & Pressure Rating

Valve Material	Temperature Rating	Pressure Rating 38°C(100°F)
316SS	-50°C to 230°C (-58°C to 446°F)	5000psi(340bar)
Brass	-50°C to 230°C (-58°C to 446°F)	3000psi(206bar)

These ratings are for a standard valve with PTFE packing. Optional seal material will affect the temperature rating.

## Flow Coefficient(Cv)@ Turns Open



## How to Order



Tube O.D.

Valve Type

End Connection Type

Pipe Size

Thread Type

Material

SNV Needle Valve (Straight Pattern)  
SAV Angle Valve (Straight Pattern)

U : Uni-Lok Tube Fitting  
F : Female Thread  
M : Male Thread  
W : Socket Weld

N : NPT  
R : PT(ISO 7/1)

SS - 316 Stainless Steel  
BS - Brass

### Tube O.D. Designations

Tube O.D.	inch	1/4	3/8	1/2	3/4
	mm	6.35	15.87	12.70	19.05
Designation		04	06	08	12

### Pipe Size Designations

Nom. Size	1/8	1/4	3/8	1/2	3/4	1
Designation	02	04	06	08	12	16

Tube O.D	6	8	10	12	20
Designation	M06	M08	M10	M12	M20

### Example;

08-SNVU-SS : Needle Valve, 1/2"OD, 316SS

SAVF-04R-SS : Angle Valve, 1/4" Female PT, 316SS

SNVM-04N-SB-SS : Needle Valve, 1/4" Male NPT, Soft-Seat, Bar Handle, 316SS



## Forged Integral Bonnet Needle Valves

### SNVU Series (Uni-Lok Tube Fitting)

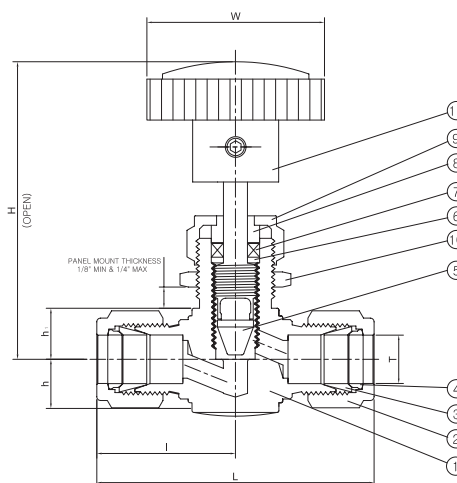
### Specification

End Connection : Uni-Lok Tube Fitting  
 Max. Operating Temperature : -53℃ (-65°F) ~ +232℃ (+450°F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi



### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Nut	316SS	Brass
3	Front Ferrule	316SS	Brass
4	Back Ferrule	316SS	Brass
5	Stem	316SS	Brass
6	Packing Ring	316SS	Brass
7	Packing	PTFE	PTFE
8	Packing Gland	316SS	Brass
9	Packing Nut	316SS	Brass
10	Panel Nut	316SS	Brass
11	Handle	Standard	Round(PC)
		Alternative	Bar(316SS)



### Table of Dimension

Unit : mm

Part No.	Applicable Tube T		Orifice	Cv	L	l	h	h1	H (Open)	W	Panel Hole Drill Size
	Nom. Size	O.D									
04-SNVU	1/4	6.35	4.4	0.37	57.6	28.8	9.5	11.0	59.0	35.0	13.5
06-SNVU	3/8	9.52	6.4	0.73	66.4	33.2	12.7	12.7	71.0	47.0	20.0
08-SNVU	1/2	12.70	6.4	0.73	72.0	36.0	12.7	12.7	71.0	47.0	20.0
12-SNVU	3/4	19.05	9.5	1.80	96.5	48.3	19.0	19.0	99.0	56.0	23.0
M06-SNVU	6	6	4.4	0.37	57.6	28.8	9.5	11.0	59.0	35.0	13.5
M08-SNVU	8	8	4.4	0.37	59.2	29.6	9.5	11.0	59.0	35.0	13.5
M10-SNVU	10	10	6.4	0.73	66.4	33.2	12.7	12.7	71.0	47.0	20.0
M12-SNVU	12	12	6.4	0.73	72.0	36.0	12.7	12.7	71.0	47.0	20.0
M20-SNVU	20	20	9.5	1.80	96.5	48.3	19.0	19.0	99.0	56.0	23.0

Note : Dimensions are reference only, subject to change without prior notice.



## Forged Integral Bonnet Needle Valves

### SNVF Series (Female Thread)

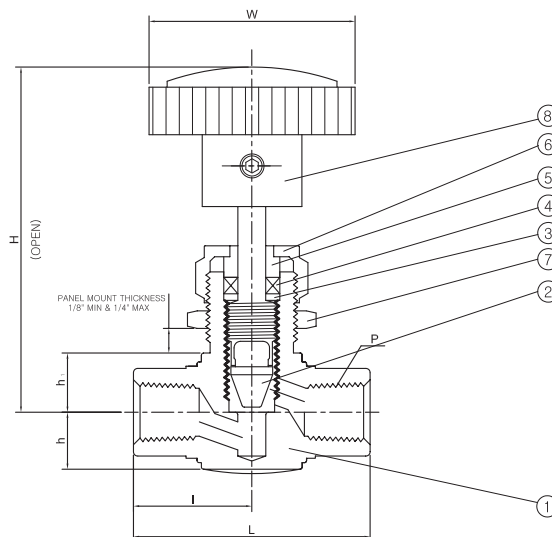


### Specification

End Connection : Female NPT or PT(ISO 7/1)  
 Max. Operating Temperature : -53 °C (-65 °F) ~ +232 °C (+450 °F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi

### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Stem	316SS	Brass
3	Packing Ring	316SS	Brass
4	Packing	PTFE	PTFE
5	Packing Gland	316SS	Brass
6	Packing Nut	316SS	Brass
7	Panel Nut	316SS	Brass
8	Handle	Standard Round(PC) Alternative Bar(316SS)	Round(PC) Bar(Brass)



### Table of Dimension

Part No.	P (NPT)	Orifice	Cv	L	l	h	h1	H (Open)	W	Panel Hole Drill Size
SNVF-02N	1/8	4.4	0.37	42.0	21.0	9.5	11.0	59.0	35.0	13.5
SNVF-04N	1/4	6.4	0.73	56.0	28.0	12.7	12.7	71.0	47.0	20.0
SNVF-06N	3/8	7.2	1.15	60.0	30.0	16.0	13.0	99.0	56.0	23.0
		9.5	1.80	76.0	38.0	19.0	19.0	99.0	56.0	23.0
SNVF-08N	1/2	9.5	1.80	76.0	38.0	19.0	19.0	99.0	56.0	23.0

Male ISO Tapered Threads are available for all SNVF Series. Add "R" as a suffix instead of "N"

Note : Dimensions are reference only, subject to change without prior notice.



## Forged Integral Bonnet Needle Valves

### SNVM Series (Male Thread)

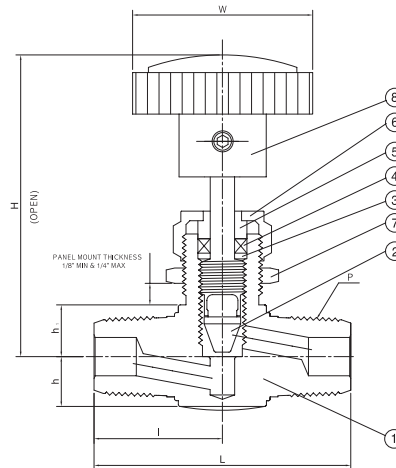
### Specification

End Connection : Male NPT or PT(ISO 7/1)  
 Max. Operating Temperature : -53℃ (-65°F) ~ +232℃ (+450°F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi



### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Stem	316SS	Brass
3	Packing Ring	316SS	Brass
4	Packing	PIFE	PIFE
5	Packing Gland	316SS	Brass
6	Packing Nut	316SS	Brass
7	Panel Nut	316SS	Brass
8	Handle	Standard	Round(PC)
		Alternative	Bar(316SS)



### Table of Dimension

Unit : mm

Part No.	P (NPT)	Orifice	Cv	L	I	h	h1	H (Open)	W	Panel Hole Drill Size
SNVM-02N	1/8	4.4	0.37	42.0	21.0	9.5	11.0	59.0	35.0	13.5
SNVM-04N	1/4	4.4	0.37	50.0	25.0	9.5	11.0	59.0	35.0	13.5
SNVM-06N	3/8	6.4	0.73	58.0	29.0	12.7	12.7	71.0	47.0	20.0
SNVM-08N	1/2	9.5	1.80	76.0	38.0	19.0	19.0	99.0	56.0	23.0

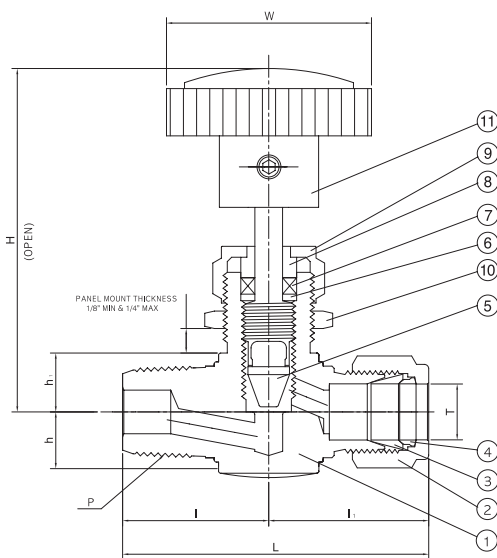
Male ISO Tapered Threads are available for all SNVM Series. Add "R" as a suffix instead of "N"

Note : Dimensions are reference only, subject to change without prior notice.



## Forged Integral Bonnet Needle Valves

**SNVMU Series** (Male Thread to Uni-Lok Tube Fitting)



### Specification

End Connection : Male NPT or PT(ISO 7/1) to Uni-Lok Tube Fitting  
 Max. Operating Temperature : -53°C (-65°F) ~ +232°C (+450°F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi

### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Nut	316SS	Brass
3	Front Ferrule	316SS	Brass
4	Back Ferrule	316SS	Brass
5	Stem	316SS	Brass
6	Packing Ring	316SS	Brass
7	Packing	PTFE	PTFE
8	Packing Gland	316SS	Brass
9	Packing Nut	316SS	Brass
10	Panel Nut	316SS	Brass
11	Handle	Standard	Round(PC)
		Alternative	Bar(316SS)

### Table of Dimension

Unit : mm

Part No.	P (NPT)	Applicable Tube T		Orifice	Cv	L	I	I1	h	h1	H (Open)	W	Panel Hole Drill Size
		Nom. Size	O.D										
SNVMU-04N-04	1/4	1/4	6.35	4.4	0.37	53.8	25.0	28.8	9.5	11.0	59.0	35.0	13.5
SNVMU-06N-06	3/8	3/8	9.52	6.4	0.73	62.2	29.0	33.2	12.7	12.7	71.0	47.0	20.0
SNVMU-06N-08	3/8	1/2	12.70	6.4	0.73	65.0	29.0	36.0	12.7	12.7	71.0	47.0	20.0

Male ISO Tapered Threads are available for all SNVMU Series. Add "R" as a suffix instead of "N"

Note : Dimensions are reference only, subject to change without prior notice.



## Forged Integral Bonnet Needle Valves

### SNVW Series (Socket Weld)

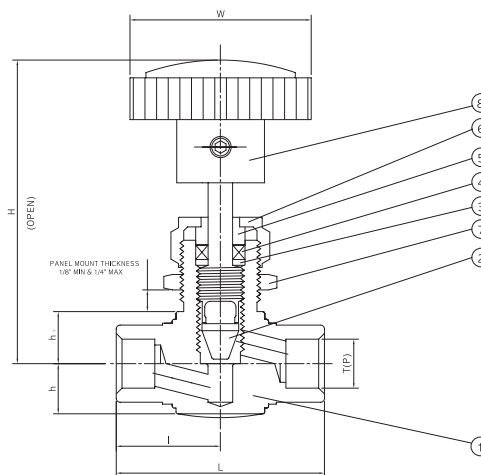


### Specification

End Connection : Socket Weld  
 Max. Operating Temperature : -53℃ (-65°F) ~ +232℃ (+450°F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi

### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Stem	316SS	Brass
3	Packing Ring	316SS	Brass
4	Packing	PTFE	PTFE
5	Packing Gland	316SS	Brass
6	Packing Nut	316SS	Brass
7	Panel Nut	316SS	Brass
8	Handle	Standard	Round(PC)
		Alternative	Bar(316SS)



### Table of Dimension

Unit : mm

Part No.	Applicable Tube		Orifice	Cv	L	l	h	h1	H (Open)	W	Panel Hole Drill Size
	Nom. Size	O.D.									
SNVW-04T	1/4	6.35	4.4	0.37	42.0	21.0	9.5	11.0	59.0	35.0	13.5
SNVW-06T	3/8	9.52	6.4	0.73	56.0	28.7	12.7	12.7	71.0	47.0	20.0
SNVW-08T	1/2	12.7	6.4	0.73	56.0	28.7	12.7	12.7	71.0	47.0	20.0
SNVW-04P	1/4	13.8	6.4	0.73	56.0	28.7	12.7	12.0	71.0	47.0	20.0
SNVW-06P	3/8	17.3	9.5	1.80	76.0	38.0	19.0	19.0	99.0	56.0	23.0
SNVW-08P	1/2	21.7	9.5	1.80	76.0	38.0	19.0	19.0	99.0	56.0	23.0

T : Tube Size, P : Pipe Size

Note : Dimensions are reference only, subject to change without prior notice.



## Forged Integral Bonnet Angle Valves

### SAVU Series (Uni-Lok Tube Fitting)

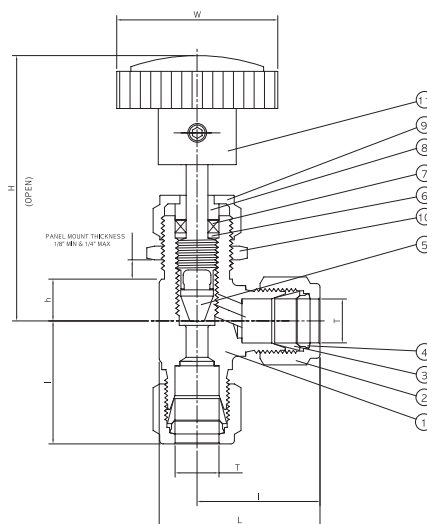


### Specification

End Connection : Uni-Lok Tube Fitting  
 Max. Operating Temperature : -53 °C (-65 °F) ~ +232 °C (+450 °F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi

### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Nut	316SS	Brass
3	Front Ferrule	316SS	Brass
4	Back Ferrule	316SS	Brass
5	Stem	316SS	Brass
6	Packing Ring	316SS	Brass
7	Packing	PTFE	PTFE
8	Packing Gland	316SS	Brass
9	Packing Nut	316SS	Brass
10	Panel Nut	316SS	Brass
11	Handle	Standard Round(PC) Alternative Bar(316SS)	Round(PC) Bar(Brass)



### Table of Dimension

Unit : mm

Part No.	Applicable Tube		Orifice	Cv	L	I	h	H (Open)	W	Panel Hole Drill Size
	Nom. Size	O.D								
04-SAVU	1/4	6.35	4.4	0.37	38.3	9.5	11.0	59.0	35.0	13.5
06-SAVU	3/8	9.52	6.4	0.73	46.2	12.7	12.7	71.0	47.0	20.0
08-SAVU	1/2	12.70	6.4	0.73	49.0	12.7	12.7	71.0	47.0	20.0
M06-SAVU	6	6	4.4	0.37	38.3	9.5	11.0	59.0	35.0	13.5
M08-SAVU	8	8	4.4	0.37	39.1	9.5	11.0	59.0	35.0	13.5
M10-SAVU	10	10	6.4	0.73	46.2	12.7	12.7	71.0	47.0	20.0
M12-SAVU	12	12	6.4	0.73	49.0	12.7	12.7	71.0	47.0	20.0

Note : Dimensions are reference only, subject to change without prior notice.



## Forged Integral Bonnet Angle Valves

### SAVF Series (Female Thread)

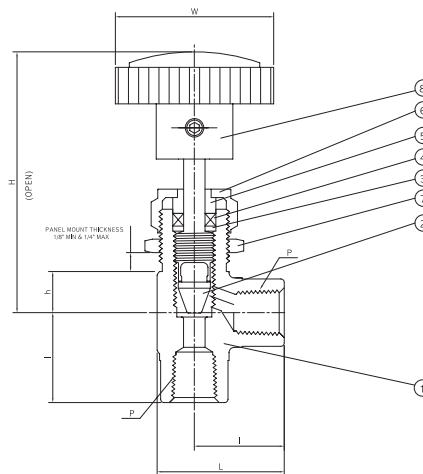


### Specification

End Connection : Female NPT or PT(ISO 7/1)  
 Max. Operating Temperature : -53℃ (-65°F) ~ +232℃ (+450°F)  
 Max. Operating Pressure : ASTM A182 F316 - 5000psi  
 Brass - 3000psi

### Materials of Construction

No.	Description	316SS Valve	Brass Valve
1	Body	316SS	Brass
2	Stem	316SS	Brass
3	Packing Ring	316SS	Brass
4	Packing	PTFE	PTFE
5	Packing Gland	316SS	Brass
6	Packing Nut	316SS	Brass
7	Panel Nut	316SS	Brass
8	Handle	Standard	Round(PC)
		Alternative	Bar(316SS)



### Table of Dimension

Unit : mm

Part No.	P (NPT)	Orifice	Cv	L	l	h	H (Open)	W	Panel Hole Drill Size
SAVF-02N	1/8	4.4	0.37	30.5	21.0	9.5	59.0	35.0	13.5
SAVF-04N	1/4	6.4	0.73	41.0	28.0	12.7	71.0	47.0	20.0
SAVF-06N	3/8	9.5	1.80	57.0	38.0	19.0	99.0	56.0	23.0
SAVF-08N	1/2	9.5	1.80	57.0	38.0	19.0	99.0	56.0	23.0

Male ISO Tapered Threads are available for all SAVF Series. Add "R" as a suffix instead of "N"

Note : Dimensions are reference only, subject to change without prior notice.

**Ball Valves**



**Hex Ball Valves**



**Check Valves**



**Manifold Valves**



**Filters**



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**Back Pressure Regulator**



**Pressure Reducing Valves**



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