



# Union-Bonnet Needle Valves

TUNV / THUNV SERIES



## TUNV / THUNV SERIES

- Maximum Working Pressure  
TUNV SERIES : 6000 psig (413 bar) @ 100°F (37°C)  
THUNV SERIES : 10000psig (689bar) @ 100°F (37°C)
- Working Temperature Range : -65°F(-54°C) to 1200°F(648°C)



## Features

- Panel mountable
- Non-rotating stem tip
- Variety of stem tips
- Variety of end connection
- Straight or Angle pattern

## Technical Data

### Temperature - Working Pressure

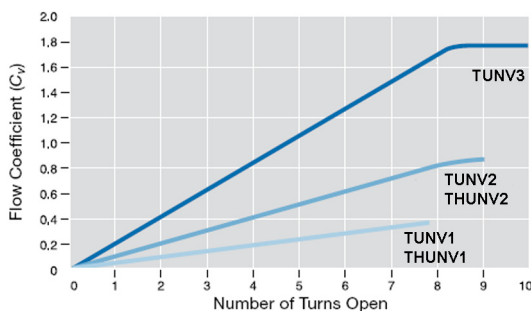
Material	TUNV Series	THUNV Series
	316 SS	316 SS
Temperature Rating, °F (°C)	Working Pressure, psig (bar)	
-65 (-53) to 100 (37)	6000 (413)	10000 (689)
200 (93)	5160 (355)	9290 (640)
250 (121)	4910 (338)	8840 (609)
300 (148)	4660 (321)	8390 (578)
350 (176)	4470 (307)	8045 (554)
400 (204)	4280 (294)	7705 (530)
450 (232)	4130 (284)	7435 (512)
500 (260)	3980 (274)	7165 (493)
600 (315)	3960 (259)	6770 (466)
650 (343)	3700 (254)	6660 (458)
700 (371)	3600 (248)	6480 (446)
750 (398)	3520 (242)	6335 (436)
800 (426)	3460 (238)	6230 (429)
850 (454)	3380 (232)	6085 (419)
900 (482)	3280 (225)	5905 (406)
950 (510)	3220 (221)	5795 (399)
1000 (537)	3030 (208)	5450 (375)
1050 (565)	3000 (206)	5400 (372)
1100 (593)	2685 (184)	4835 (333)
1150 (621)	2285 (157)	4115 (283)
1200 (648)	1715 (118)	3085 (212)

### Temperature - Pressure Rating according to Packing Materials

Packing Material	Temperature Rating, °F (°C)	Pressure Rating@Max. Temperature	
		TUNV Series	THUNV Series
PTFE	-65 ~ 450 (-53 ~ 232)	5710psig (393bar)	7435psig (512bar)
PEEK	-65 ~ 600 (-53 ~ 315)	5040psig (347bar)	6770psig (466bar)
Grafoil	-65 ~ 1200 (-53 ~ 648)	1715psig (118bar)	3085psig (212bar)

### Flow Data at 70°F (20°C)

Flow Coefficient at Turns Open



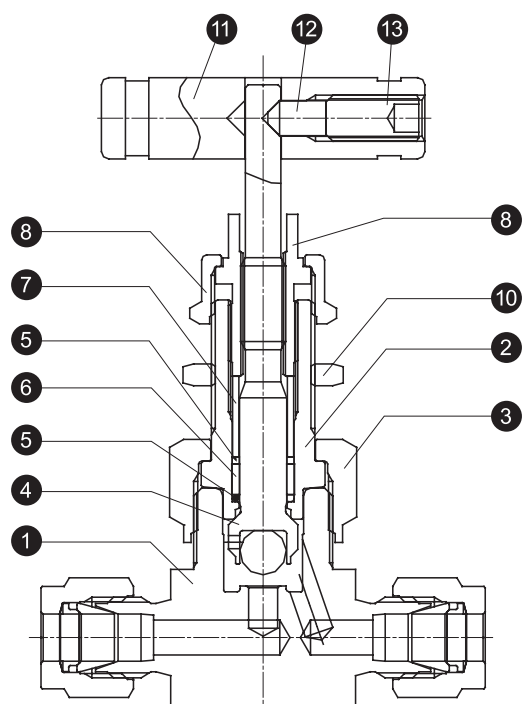
### Testing

- For leakage, Each valve is tested with nitrogen at 1000psig (69bar)  
The leakage shall not exceed 0.1 std cc/min (Max. 0.1 std cc/min)

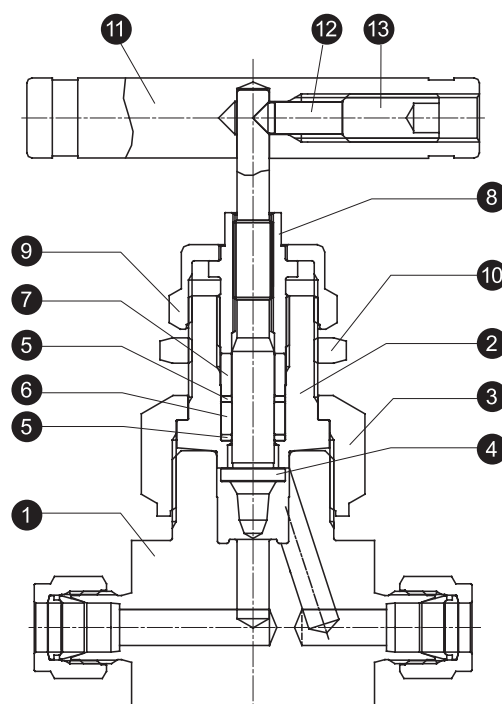
### Cleaning and Packaging

- Every valve is cleaned and packaged in accordance with the standard specification of cleaning and packaging.

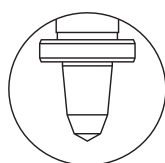
## Material of Construction



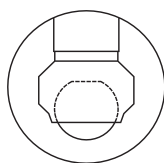
**TUNV Series**



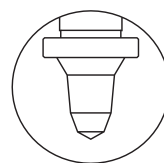
**THUNV Series**



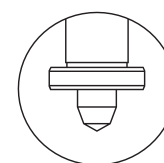
Vee Stem



Non-Rotating  
Ball Stem



Regulating  
Stem

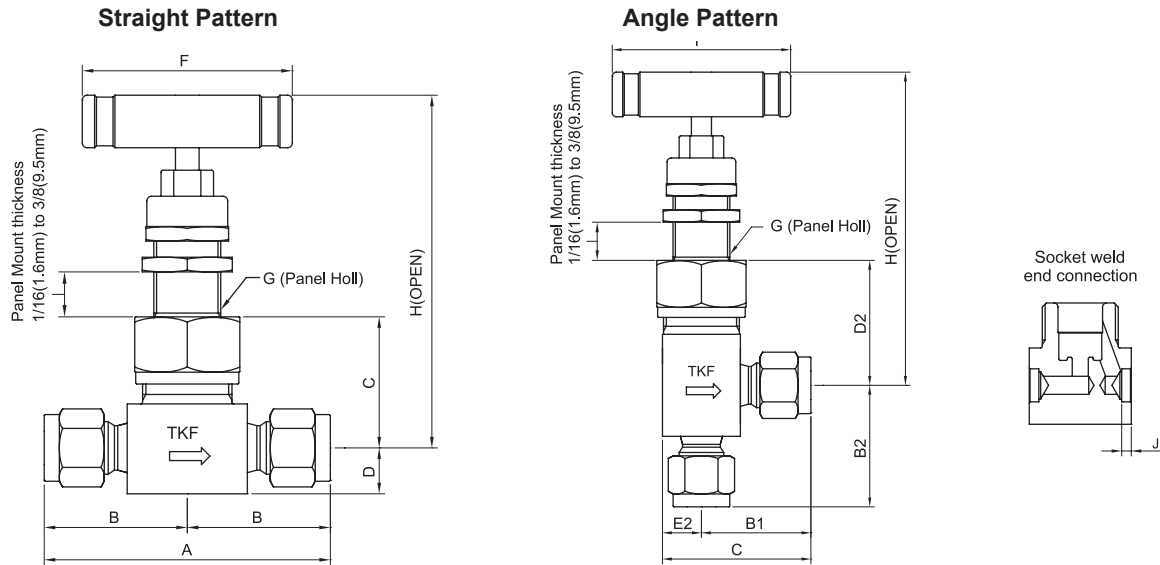


Soft-seat Stem

No.	Description	Material
		Material Grade / ASTM Specification
1	Body	316 SS / A479
2	Bonnet	316 SS / A479
	Bonnet Nut	316 SS / A276
3	Stem	Vee Tip
4		Non-Rotating Ball Tip
5		Soft TIP
6		Regulating
5	Packing Support	PTFE (C:15%)
6	Packing	PTFE
7	Gland	316 SS / A276
8	Packing Bolt	316 SS / A276
9	Lok Nut	316 SS / A276
10	Panel Nut	304 SS
11	Handle	A6061B
12	Pin	316 SS / A276
13	Set Screw	304 SS

## Dimensions

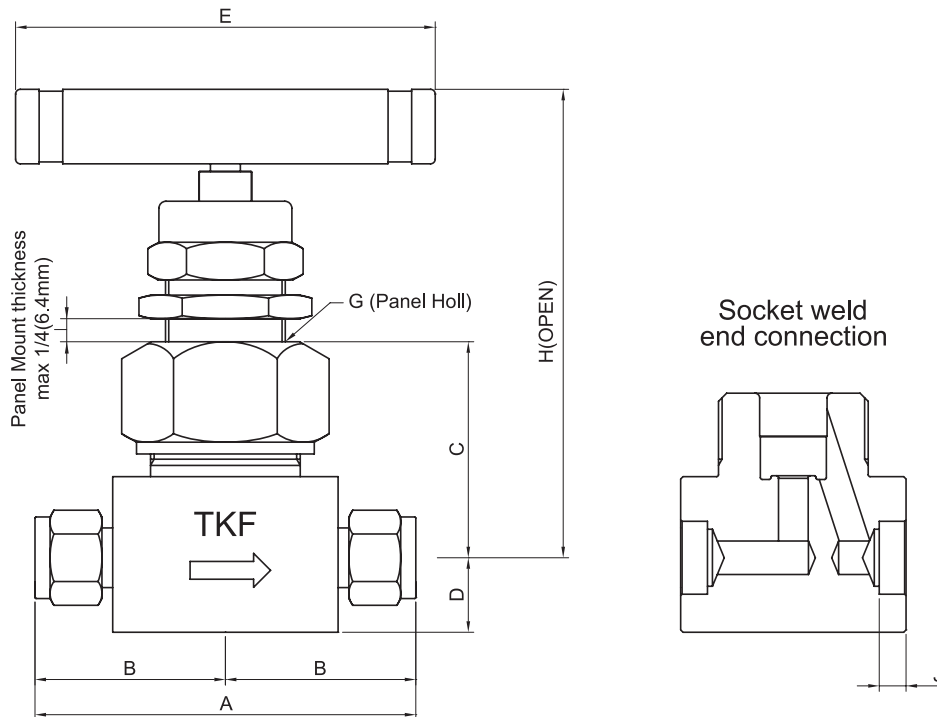
### TUNV Series



Order Number		Orifice in. (mm)	Cv	End Connections		Dimensions in. (mm)																							
Series	Part No.			Inlet	Outlet	A	B	B1	B2	C	D1	D2	E1	E2	F	G	H (Straight)	H (Angle)	J										
TUNV1	2NF	0.157 (4.0)	0.4	1/8" Female NPT		2.0 (50.8)	1.0 (25.4)	0.89 (22.6)	1.0 (25.4)	1.27 (32.3)	1.09 (27.7)	1.28 (32.5)	0.38 (9.7)	0.38 (9.7)	1.75 (44.4)	0.59 (15.1)	3.04 (77.2)	3.23 (82.0)	-										
	4NF			1/4" Female NPT		2.06 (52.3)	1.03 (26.2)	1.0 (25.4)		1.38 (35.1)		1.09 (27.7)	0.38 (9.7)					3.04 (77.2)											
	4NM			1/4" Male NPT		2.0 (50.8)	1.00 (25.4)			1.27 (32.3)		1.09 (27.7)	0.38 (9.7)					3.23 (82.0)											
	4NF			1/4" Male NPT / 1/4" Female NPT		2.03 (51.6)	1.03 (26.2)	0.89 (22.6)	1.27 (32.3)	1.09 (27.7)		0.38 (9.7)	3.23 (82.0)																
	4SW			1/4" Lok		2.40 (61.0)	1.20 (30.5)	1.16 (29.5)	1.48 (37.6)	1.54 (39.1)		1.09 (27.7)	0.38 (9.7)					-		-	-	-	-	-	-	3.04 (77.2)	-		
	6MSW			6mm Lok																									
	8MSW			8mm Lok																									
	4BW			1/4" Tube Socket Butt Weld		1.82 (46.2)	0.91 (23.1)	0.88 (22.4)	1.19 (30.2)	1.25 (31.8)		1.09 (27.7)	0.38 (9.7)					0.38 (9.7)		3.04 (77.2)	0.28 (7.1)								
	4VM			1/4" MFS Male		2.06 (52.3)	1.03 (26.2)	-	-	-		-	-					-		-	-	-	-	-	-	-	-		
TUNV2	4NF	0.252 (6.4)	0.86	1/4" Female NPT		2.25 (57.2)	1.12 (28.4)	1.0 (25.4)	1.12 (28.4)	1.50 (38.1)	1.34 (34.0)	1.47 (37.3)	0.50 (12.7)	0.50 (12.7)	2.50 (63.5)	0.78 (19.8)	3.70 (94.0)	3.82 (97.0)	-										
	6NF			3/8" Female NPT		2.83 (71.9)	1.41 (35.8)	1.29 (32.8)	1.66 (42.2)	1.79 (45.5)		1.22 (31.0)						3.57 (90.7)											
	6SW			3/8" Lok								1.34 (34.0)						3.70 (94.0)											
	8SW			1/2" Lok		3.04 (77.2)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)	1.90 (48.3)		1.34 (34.0)						3.70 (94.0)											
	10MSW			10mm Lok		2.85 (72.4)	1.42 (36.1)	1.30 (33.0)	1.55 (39.4)	1.80 (45.7)		1.35 (34.3)						3.71 (94.2)											
	12MSW			12mm Lok		3.04 (77.2)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)	1.90 (48.3)		1.34 (34.0)						3.70 (94.0)											
	6BW			3/8" Tube Socket Butt Weld		2.25 (57.2)	1.12 (28.4)	1.0 (25.4)	1.00 (25.4)	1.50 (38.1)		1.40 (35.6)						1.47 (37.3)		3.70 (94.0)	3.76 (95.5)	0.38 (9.7)							
	8BW			1/2" Tube Socket Butt Weld																									
	4BW			1/4" Pipe Socket Butt Weld																									
	8VM			1/2" MFS Male		3.12 (79.2)	1.56 (39.6)	-	-	-		1.53 (38.9)						-		3.88 (98.6)	-	-							
	TUNV3			8NF	0.433 (11.0)	2.4	1/2" Female NPT		3.12 (79.2)	1.56 (39.6)		1.31 (33.3)						1.56 (39.6)		2.00 (50.8)	1.82 (46.2)	2.00 (50.8)	0.62 (15.7)	0.69 (17.5)	3.50 (88.9)	1.03 (26.2)	4.78 (121)	4.97 (126)	-
				12NF			3/4" Female NPT		3.25 (82.6)	1.62 (41.1)		-						-		-	1.91 (48.5)	0.78 (19.8)	4.88 (124)						
16NF		1" Female NPT		3.62 (91.9)			1.81 (46.0)	-	-	-	2.13 (54.1)	1.00 (25.4)	5.10 (129)																
8NM		8NF	1/2" Male NPT / 1/2" Female NPT				3.12 (79.2)	1.56 (39.6)	1.31 (33.3)	1.56 (39.6)	2.37 (60.2)	1.82 (46.2)	2.0 (50.8)	0.62 (15.7)	0.69 (17.5)	4.78 (121)	4.97 (126)												
12NM		12NF	3/4" Male NPT / 3/4" Female NPT				3.25 (82.6)	1.62 (41.1)	-	-	-	1.91 (48.5)	0.78 (19.8)	4.88 (124)	-	-													
16NM		16NF	1" Male NPT / 1" Female NPT				3.62 (91.9)	1.81 (46.0)	-	-	-	2.13 (54.1)	1.00 (25.4)	5.10 (129)	-	-													
8SW		1/2" Lok		3.92 (99.6)		1.96 (49.8)	1.68 (42.7)	2.08 (52.8)	2.37 (60.2)	1.82 (46.2)	1.88 (47.8)	0.62 (15.7)	0.69 (17.5)	-	-	-	-	4.78 (121)	4.85 (123)	-									
12SW		3/4" Lok																											
16SW		1" Lok																											
12MSW		12mm Lok		3.92 (99.6)		1.96 (49.8)	1.68 (42.7)	2.08 (52.8)	2.37 (60.2)	1.82 (46.2)	1.88 (47.8)	0.62 (15.7)	0.69 (17.5)	0.38 (9.7)															
8BW		1/2" Tube Socket Butt Weld		3.12 (79.2)		1.56 (39.6)	-	-	-	-	1.82 (46.2)	-	0.62 (15.7)	-	-	-	-	4.85 (123)	4.97 (126)	0.38 (9.7)									
12BW		3/4" Tube Socket Butt Weld																											
8PBW		1/2" Pipe Socket Butt Weld																											
8VM		1/2" MFS Male		3.12 (79.2)		1.56 (39.6)	-	-	-	1.82 (46.2)	-	4.78 (121)	-	-															

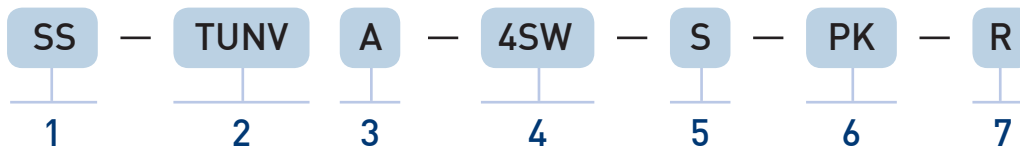
## 2. THUNV Series

### Straight Pattern



Order Number		Orifice in. (mm)	Cv	End Connection		Dimensions in. (mm)							
Series	Part No.			Inlet	Outlet	A	B	C	D	E	F	H	J
THUNV1	2NF	0.157 (4.0)	0.4	1/8" Female NPT		2.25 (57.2)	1.13 (28.7)	1.38 (35.1)	0.50 (12.7)	2.50 (63.5)	0.81 (20.6)	3.31 (84.1)	-
	4NF			1/4" Female NPT									
	4NM			1/4" Male NPT									
	4NM			4NF	1/4" Male NPT	1/4" Female NPT							
	4SW			1/4" Lok		2.82 (71.6)	1.41 (35.8)						
	4BW			1/4" Tube socket Butt weld		2.25 (57.2)	1.13 (28.7)						
THUNV2	4NF	0.252 (6.4)	0.9	1/4" Female NPT		3.13 (79.5)	1.56 (39.6)	1.81 (46.0)	0.63 (16.0)	3.50 (88.9)	1.06 (26.9)	4.13 (105)	-
	8NF			1/2" Female NPT		3.25 (82.6)	1.63 (41.4)	1.94 (49.3)	0.78 (19.8)			4.25 (108)	
	8NM			1/2" Male NPT		3.13 (79.5)	1.56 (39.6)	1.81 (46.0)	0.63 (16.0)			4.13 (105)	
	8NM			8NF	1/2" Male NPT	1/2" Female NPT	3.25 (82.6)	1.63 (41.4)	1.94 (49.3)			0.78 (19.8)	

## Ordering Information



### 1. Body Material

Material	Designator
316SS	SS

### 2. Valve Series

Orifice Size	Designator
4.0mm	TUNV1
	THUNV1
6.4mm	TUNV2
	THUNV2
11.0mm	TUNV3

\* The Orifice Size is determined using valves with TKSCCT tube fitting end connections.

\* For more details, See the Dimensions Table.

### 3. Body Pattern

Body Pattern	Designator
2-Way Straight (Standard)	Blank
2-Way Angle	A

### 4. Inlet/Outlet Connection Size & Type

Inlet/Outlet Connection Size	Designator
1/8"	2
1/4"	4
3/8"	6
1/2"	8
3/4"	12
1"	16
6mm	6M
8mm	8M
10mm	10M
12mm	12M

Inlet/Outlet Connection Type	Designator
Lok	SW
Male NPT	NM
Female NPT	NF
Male ISO <sup>①</sup> Tapered	PTM
Female ISO <sup>①</sup> Tapered	PTF
Tube Socket Butt Weld	BW
Pipe Socket Butt Weld	PBW
MFS Male	VM

① Refer to specifications ISO 7/1, BS EN 1022 6-1, DIN-2999, and JIS B0203.

### 5. Handle Type

Handle Type	Designator
Anodized Black Aluminum Bar Handle (Standard)	Blank
316 Stainless Steel Bar Handle	S

### 6. Packing Material

Packing Material	Designator
PTFE (Standard)	Blank
PEEK	PK
Grafoil	G

### 7. Stem Type

Stem Type	Designator
Vee Stem (Standard)	Blank
Regulating Stem	R
Non-Rotating Ball Stem	B
Soft-Seat Stem + PCTFE	SPC
Soft-Seat Stem + PTFE	SPT