

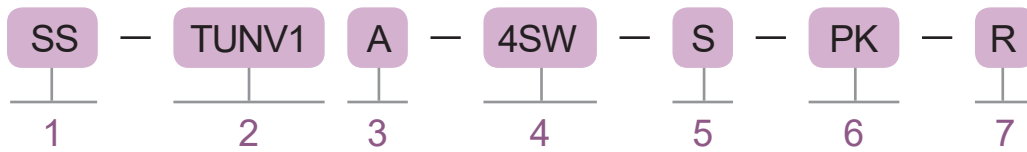
Union Bonnet Needle Valves



TUNV / THUNV SERIES

- Maximum Working Pressure
TUNV SERIES : 6,000 psig (413 bar) @ 100°F (37°C)
THUNV SERIES : 10,000psig (689bar) @ 100°F (37°C)
- Working Temperature Range : -65°F(-54°C) to 1,200°F(648°C)

ORDERING INFORMATION



1. BODY MATERIAL

Material	Designator
316 SS	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 TKF 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

5. HANDLE TYPE

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

Inlet/Outlet Connection Type	Designator
Lok	SW
Male NPT	NM
Female NPT	NF
Male ISO® Tapered	PTM
Female ISO® 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.

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-Seal Stem + PCTFE	SPC
Soft-Seal Stem + PTFE	SPT

FEATURES

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

TECHNICAL DATA

TEMPERATURE - WORKING PRESSURE

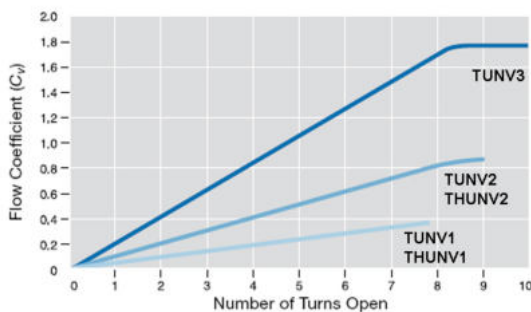
Material	TUNV Series	THUNV Series
	316 SS	316 SS
Temperature Rating, °F (°C)	Working Pressure, psig (bar)	
-65 (-53) to 100 (37)	6,000 (413)	10,000 (689)
200 (93)	5,160 (355)	9,290 (640)
250 (121)	4,910 (338)	8,840 (609)
300 (148)	4,660 (321)	8,390 (578)
350 (176)	4,470 (307)	8,045 (554)
400 (204)	4,280 (294)	7,705 (530)
450 (232)	4,130 (284)	7,435 (512)
500 (260)	3,980 (274)	7,165 (493)
600 (315)	3,960 (259)	6,770 (466)
650 (343)	3,700 (254)	6,660 (458)
700 (371)	3,600 (248)	6,480 (446)
750 (398)	3,520 (242)	6,335 (436)
800 (426)	3,460 (238)	6,230 (429)
850 (454)	3,380 (232)	6,085 (419)
900 (482)	3,280 (225)	5,905 (406)
950 (510)	3,220 (221)	5,795 (399)
1,000 (537)	3,030 (208)	5,450 (375)
1,050 (565)	3,000 (206)	5,400 (372)
1,100 (593)	2,685 (184)	4,835 (333)
1,150 (621)	2,285 (157)	4,115 (283)
1,200 (648)	1,715 (118)	3,085 (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)	5,710psig (393bar)	7,435psig (512bar)
PEEK	-65 ~ 600 (-53 ~ 315)	5,040psig (347bar)	6,770psig (466bar)
Grafoil	-65 ~ 1,200 (-53 ~ 648)	1,715psig (118bar)	3,085psig (212bar)

FLOW DATA AT 70°F (20°C)

FLOW COEFFICIENT AT TURNS OPEN



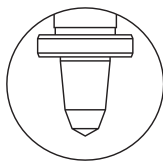
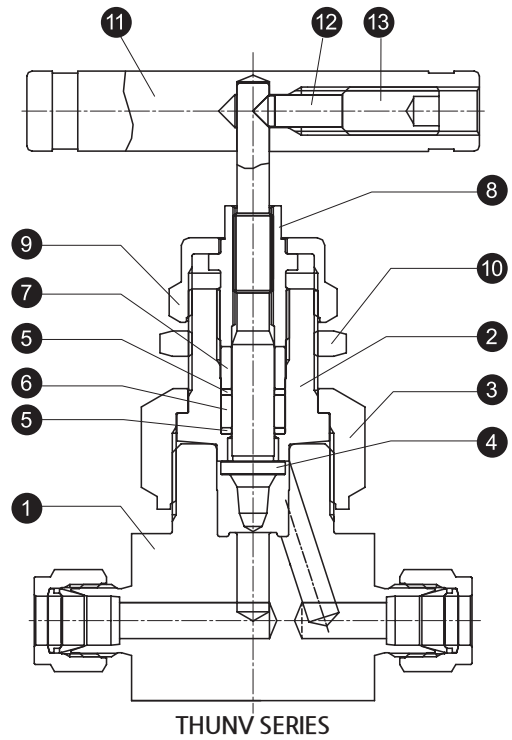
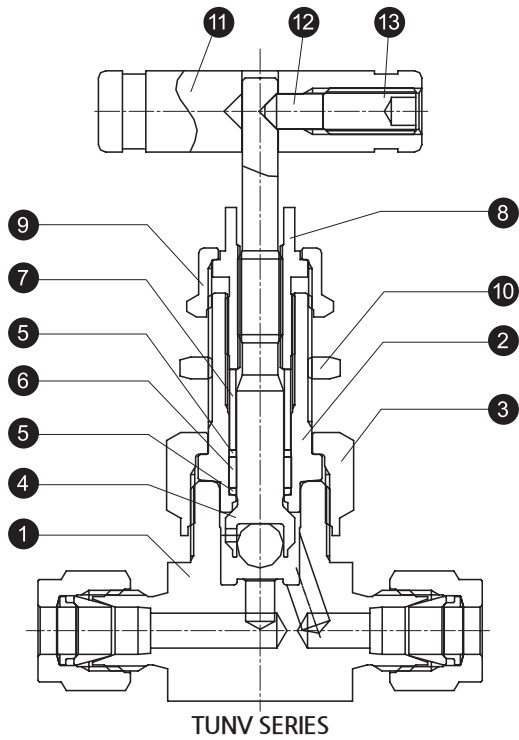
TESTING

- For leakage, Each valve is tested with nitrogen at 1,000psig (69bar)
The leakage shall not exceed 0.1 std cc/min (Max. 0.1 std cc/min)

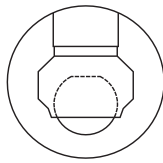
CLEANING AND PACKAGING

- Every valve is cleaned and packaged in accordance with the standard specification of cleaning and packaging.
- Non-Rotating Ball Stem Tip
- The Non-Rotating Ball Stem is designed to be used in a fully closed position.

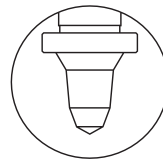
MATERIAL OF CONSTRUCTION



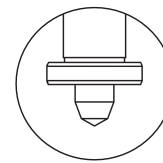
Vee Stem



Non-Rotating
Ball Stem



Regulating
Stem

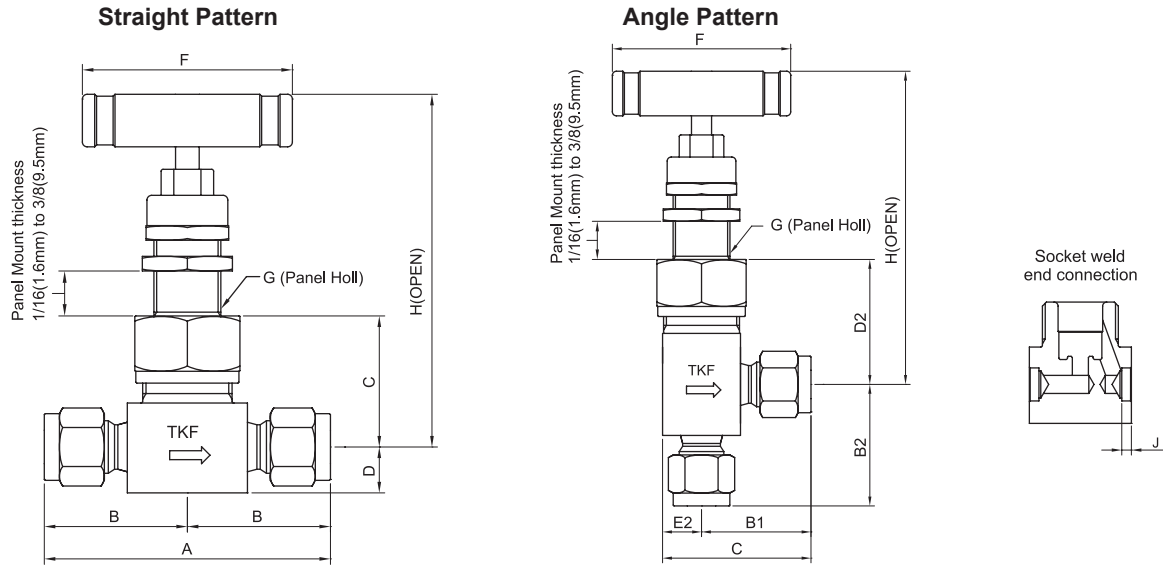


Soft-Seat Stem

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	316 SS / A276
4		Non-Rotating Ball Tip	
5		Soft Tip	
6		Regulating Tip	
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



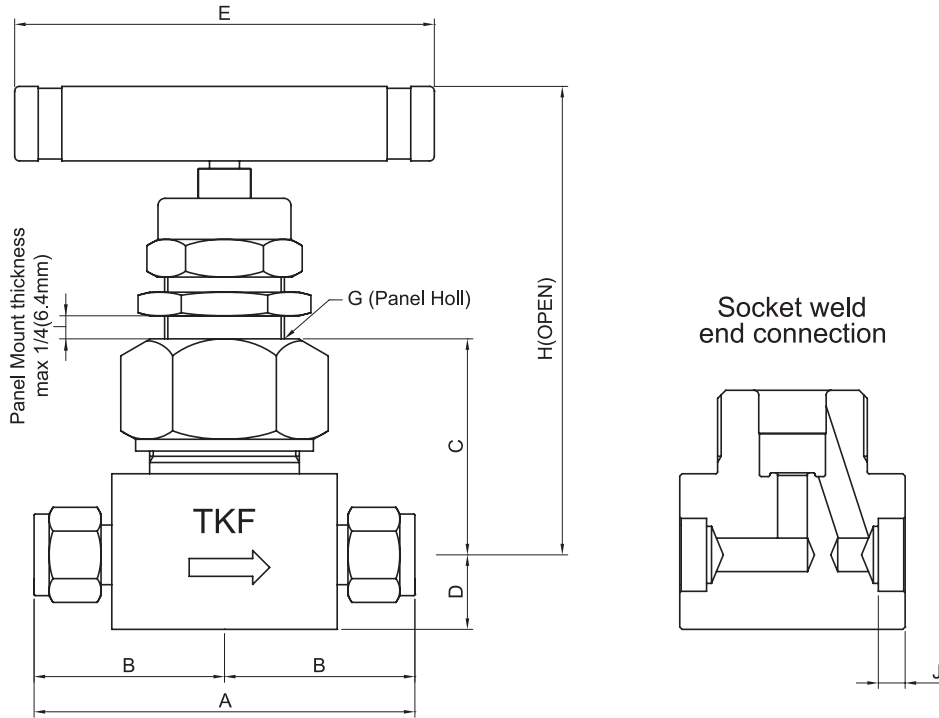
Order Number		Orifice in. (mm)	Cv	End Connections		Dimensions in. (mm)															
Series	Part No.			Inlet	Outlet	A	B	B1	B2	C	D1	D2	E1	E2	F	G	H (Straight)	H (Angle)	J		
TUNV1	2NF	0.157 (4.0)	0.4	1/8" Female NPT	2.0 (50.8)	1.0 (25.4)			1.27 (32.3)		1.28 (32.5)	0.38 (9.7)									
	4NF			1/4" Female 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)					3.23 (82.0)		
	4NM			1/4" Male NPT	2.0 (50.8)	1.00 (25.4)					1.38 (35.1)		1.09 (27.7)	0.38 (9.7)						3.04 (77.2)	
	4NM 4NF			1/4" Male NPT 1/4" Female NPT	2.03 (51.6)	1.03 (26.2)					1.27 (32.3)		1.28 (32.5)	0.39 (9.9)	0.38 (9.7)					3.23 (82.0)	
	4SW			1/4" Lok							1.54 (39.1)	1.09 (27.7)	1.09 (27.7)							3.04 (77.2)	
	6MSW			6mm Lok	2.40 (61.0)	1.20 (30.5)			1.16 (29.5)	1.48 (37.6)											
	8MSW			8mm Lok											0.38 (9.7)						
	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)		1.75 (44.4)	0.59 (15.1)	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)		1.47 (37.3)							3.82 (97.0)			
	6NF			3/8" Female NPT														3.70 (94.0)	3.57 (90.7)		
	6SW			3/8" Lok	2.83 (71.9)	1.41 (35.8)	1.29 (32.8)	1.66 (42.2)	1.79 (45.5)			1.22 (31.0)							3.70 (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)							3.71 (94.2)		
	10MSW			10mm Lok	2.85 (72.4)	1.42 (36.1)	1.30 (33.0)	1.55 (39.4)	1.80 (45.7)		1.34 (34.0)	1.35 (34.3)	0.50 (12.7)	0.50 (12.7)	2.50 (63.5)	0.78 (19.8)		3.69 (93.7)	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)										3.70 (94.0)	0.31 (7.9)	
	6BW			3/8" Tube Socket Butt Weld					1.25 (31.8)			1.40 (35.6)							3.70 (94.0)	3.76 (95.5)	0.38 (9.7)
	8BW			1/2" Tube Socket Butt Weld	2.25 (57.2)	1.12 (28.4)	1.0 (25.4)	1.00 (25.4)	1.50 (38.1)			1.47 (37.3)								3.82 (97.0)	
	4BW			1/4" Pipe Socket Butt Weld						1.12 (28.4)											
	8VM			1/2" MFS Male	3.12 (79.2)	1.56 (39.6)						1.53 (38.9)		0.62 (15.7)						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)				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)	3.50 (88.9)	1.03 (26.2)			4.78 (121)	4.85 (123)	
	12SW			3/4" Lok																	
	16SW			1" Lok	4.09 (104)	2.04 (51.8)						1.88 (47.8)		0.69 (17.5)							
	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)							
8BW	1/2" Tube Socket Butt Weld								1.82 (46.2)	1.88 (47.8)	0.62 (15.7)	0.69 (17.5)						0.38 (9.7)			
12BW	3/4" Tube Socket Butt Weld																	0.44 (11.2)			
8PBW	1/2" Pipe Socket Butt Weld	3.12 (79.2)	1.56 (39.6)						1.82 (46.2)	2.00 (50.8)	0.69 (17.5)	0.69 (17.5)					4.85 (123)	4.97 (126)	0.38 (9.7)		
8VM	1/2" MFS Male								1.82 (46.2)		0.62 (15.7)						4.78 (121)				

UNION BONNET NEEDLE VALVES

GI PRODUCTS / NEEDLE VALVE SERIES

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)			4.25 (108)			