

SM Series Needle Valve: Pressures to 20,000 psi (1379 bar)

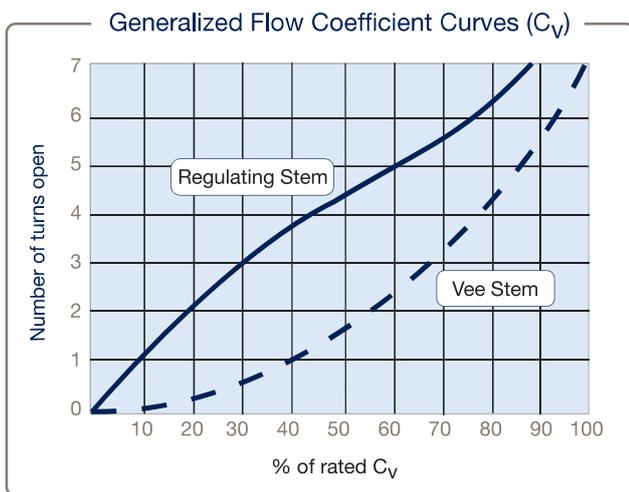


Tube Outside Diameter Size (inches)	Connection Type	Orifice Size Inches (mm)	Rated C_v^*	Pressure Rating psi (bar) @Room Temperature**
1/4 (20SM4)	SF250CX20	0.125 (3.18)	0.31	20,000 (1379)
3/8 (20SM6)	SF375CX20	0.219 (5.56)	0.75	20,000 (1379)
9/16 (20SM9)	SF562CX20	0.312 (7.92)	1.30	20,000 (1379)
3/4 (20SM12)	SF750CX20	0.438 (11.13)	2.50	20,000 (1379)
1 (20SM16)	SF1000CX20	0.562 (14.27)	4.40	20,000 (1379)
9/16 (15SM9)	SF562CX10	0.359 (9.12)	1.75	15,000 (1034)
3/4 (15SM12)	SF750CX10	0.516 (13.10)	2.80	15,000 (1034)
1 (15SM16)	SF1000CX10	0.688 (17.48)	5.20	15,000 (1034)
1 1/2 (15SM24)	SF1500CX	0.937 (23.80)	14	15,000 (1034)

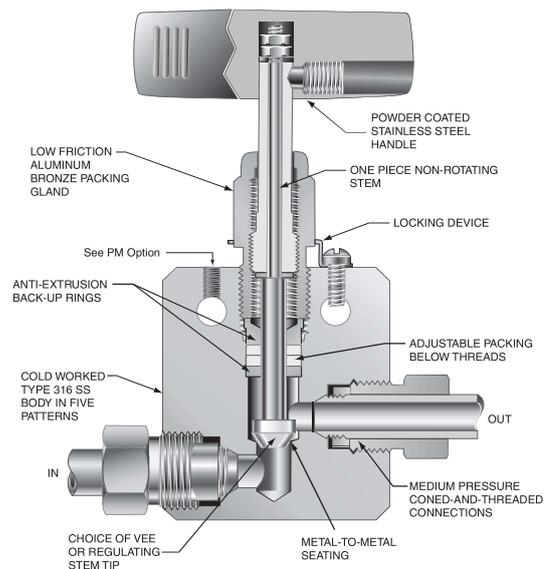
Notes

* C_v values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_v value 50%. (Based on water). Formula for converting C_v to volumetric flow can be found in Technical Information section.

** Maximum Allowable Working Pressures decrease as temperatures increase - see pressure/temperature rating guide in Technical Information section.



SM Series Flow Curve for Vee and Regulating Stem Valves



To ensure proper fit use Parker Autoclave tubing

Valve Packing Options:

Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-18°C) to 450°F (232°C). High and Cryogenic temperature packing and/or extended stuffing box are available for service from -423°F (-252°C) to 1200°F (650°C) by adding the following suffixes to catalog order number:

- B Cryogenic trim materials and PTFE packing required when below 0°F (-18°C) to -100°F (-73°C)
- LT Extended packing option with PTFE packing and Cryogenic trim materials to -423°F (-252°C)
- TG Standard valve with PTFE-Glass packing -100°F (-73°C) to 600°F (316°C) (See also -B option above when below 0°F (-18°C))
- GY Standard valve with Graphite Yarn packing 32°F (0°C) to 800°F (427°C). Used when selecting HT option. **(Note: 3/4" valve rated 8000 psi (552 bar) and 1" rated 6000 psi (412 bar) max with Graphite Yarn packing.)**
- HT Extended stuffing box valve with Graphite Braided Yarn packing to 1200°F (650°C)

For the effect on max pressure due to High Temperatures, please see "Technical Brochure" in main catalog.

Note: Refer to Tools, Installation & Operation catalog for proper connection, packing, seating & running torques.

Ordering Guide:

For complete information on available stem types, optional connections and additional valve options, see pages 8-9 or contact your Sales Representative. SM Series valves are furnished complete with connection components, unless otherwise specified.

Building a Part Number: Example: 20SM4071

Example Part Number:	20SM	4	07	1	XX
Ordering Parameters/Options:	Valve Series	Outside Diameter Tube Size	Stem/Seat Type	Body Pattern	Options
Table Reference: (see below)	A	B	C	D	E

A - Valve Series	
15SM	15,000 psi Medium Pressure Needle Valve (9/16" thru 1 1/2" sizes)
20SM	20,000 psi Medium Pressure Needle Valve (1/4 thru 1" sizes)

B - Outside Diameter Tube Size	
4	1/4" (20SM only)
6	3/8" (20SM only)
9	9/16"
12	3/4"
16	1"
24	1-1/2" (15SM only)

C - Stem/Seal Type (see page 8 for optional stem types)	
07	Non-Rotating Vee Stem (on-off service)
08	Non-Rotating Regulating Stem (tapered tip for regulating and shutoff)
87	Vee Stem with Replaceable Seat (angle valve only)
88	Regulating Stem with Replaceable Seat (angle valve only)

Notes:

Valve Manuals can be found on our website at www.Autoclave.com. Connection, Running and Seating Torques can be found in the product manual or in our Tools and Installation Catalog Section. Valves that have not been cycled for a substantial period of time may require higher initial actuation torque.

*Replaceable seat option is sold with two (2) seat surfaces 180° apart.

D - Body Pattern	
1	Two-Way Straight
2	Two-Way Angle
3	Three-Way, Two on Pressure
4	Three-Way, One on Pressure
5	Three-Way, Two Stem Manifold Valve

E - Options (choose as many as necessary)	
For additional valve options see pages 8 & 9 or contact factory.	
B	Low temperature service below 0°F (-18°C) (included in LT code)
LT	Low Temperature Extension (to -423°F) (includes PTFE packing)
TG	PTFE Glass (25%) Packing (to 600°F)
GY4	Graphite Yarn Packing (to 800°F)
HT4	High Temperature Extension (to 1200°F) (includes GY packing)
K	Antivibration Gland replaces standard gland
*SOG	NACE Material, Hardness Verification/Certificate
HYG	Hydrogen/Helium upgrade/Seat Testing
... 2507	UNS 32750, 2507 Super Duplex Wetted Materials
... IN625	UNS N06625 Inconel 625 Wetted Materials
... HC	UNS N10276 Hastelloy C276 Wetted Materials
Pneumatic and Electric Actuator Options - see individual brochures for Suffix Codes Other materials available upon request. See Technical Brochure for list of common material options.	

Notes:

316 SS valve bodies are cold worked and not suitable for use in NACE (ISO 15156) applications. If required, contact factory for options.

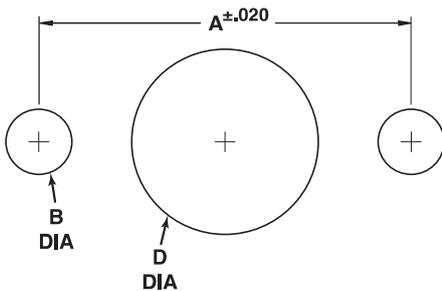
* SOG suffix also changes CW 316 SS Body material to Annealed 316 SS suitable for NACE service, Pressure reduction of 60% possible

*** Special Materials often have reduced MAWP ratings, see Technical brochure for assistance and for additional material options.

4 - GY packing increases friction on stem which can limit max pressure in larger valves (3/4" is limited to 8,000 psi and 1" is limited to 6000 psi)

Note: use of optional material only changes "wetted parts" to selected material. Items like collars and glands remain CW 316/316L SS. Use -SOG (includes hardness check for NACE) or -AP suffix

Panel Hole Size:



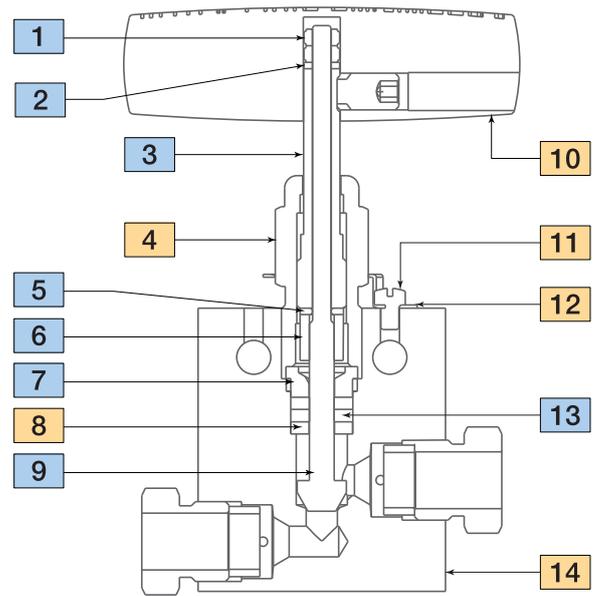
Needle Valve Panel Mount

Valve Size	Inches			
	A	B	Screw Size/Thread	D
4 & 6	1.25	.22	10 - 24	.75
9	1.375	.22	10 - 24	1.00
12	1.75	.22	10 - 24	1.12
16	2.50	.22	10 - 24	1.62
24	N/A	N/A	N/A	N/A
Panel Mount Screw Length -1/4" min. (2 each required) (PM option no longer available)				

Material of Construction:

Item #	Description	Material
1	Hex Nut	300 Series SS
2	Thrust Washer	17-4 PH
3	Stem Sleeve	316 SS
4	Packing Gland	AMPCO 45
5	Thrust Washer	17-4 PH
6	Stem Collar	316 SS
7	Packing Washer	AMPCO 45
8	Bottom Washer	316 SS
9	Vee Stem, 9/16" Shown	316 SS
10	Handle	316 SS
11	HD Screw #10-24	18-8 SS
12	Locking Device	302 SS
13	Packing	PTFE
14	Body, 20SM 9/16" Shown	316 SS
•	Seat Retainer	316 SS
•	Replaceable Seat	17-4 PH

Typical spare parts found in Repair Kits (• indicates not shown)

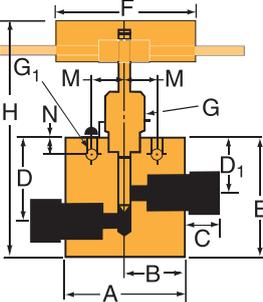


Basic Repair Kits for 316 SS Material:

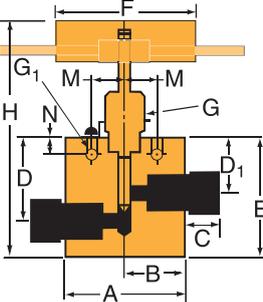
Stem Type		Basic Repair Kit for 316 SS Material					
		Outside Diameter Tube:					
		1/4"	3/8"	9/16"	3/4"	1"	1-1/2"
15SM/20SM Vee Stem <small>(includes body option codes 1, 2, 3, & 4)</small>	VEE	RSM407	RSM607	RSM907	RSM1207	RSM1607	R15SM2407
15SM Regulating Stem <small>(includes body option codes 1, 2, 3, & 4)</small>	REG	RSM408	RSM608	R15SM908	R15SM1208	R15SM1608	R15SM2408
20SM Regulating Stem <small>(includes body option codes 1, 2, 3, & 4)</small>	REG	RSM408	RSM608	R20SM908	R20SM1208	R20SM1608	-
15SM 2 Way, Replaceable Seat and Stem	VEE	RSM4872	RSM6872	R15SM9872	R15SM12872	R15SM16872	R15SM24872
	REG	RSM4882	RSM6882	R15SM9882	R15SM12882	R15SM16882	R15SM24882
20SM 2 Way, Replaceable Seat and Stem	VEE	RSM4872	RSM6872	R20SM9872	R20SM12872	R20SM16872	-
	REG	RSM4882	RSM6882	R20SM9882	R20SM12882	R20SM16882	-
15SM 3 Way, 2 Stem Manifold	VEE	RSM4075	RSM6075	RSM9075	RSM12075	RSM16075	RSM24075
	REG	RSM4085	RSM6085	R15SM9085	R15SM12085	R15SM16085	R15SM24085
20SM 3 Way, 2 Stem Manifold	VEE	RSM4075	RSM6075	RSM9075	RSM12075	RSM16075	-
	REG	RSM4085	RSM6085	R20SM9085	R20SM12085	R20SM16085	-

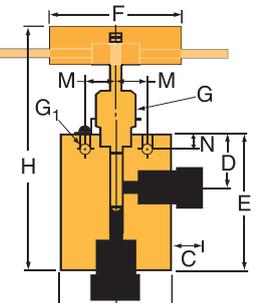
When ordering for valves bought with additional suffix options, please include those exact suffix codes when ordering repair kit. (Example: the stem for a manual valve is manufactured differently for a pneumatically actuated valve and the repair kit must include the exact actuator suffix codes)
Valve Manuals can be found on our website at www.Autoclave.com.
Connection, Running and Seating Torques can be found in the product manual or in our Tools and Installation Catalog Section

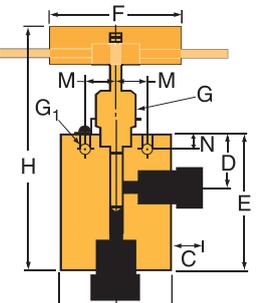
SM Series Needle Valve Dimensions:

2 Way Straight - 15SM					
		Catalog Number			
Stem Type	VEE REG	15SM9071 15SM9081	15SM12071 15SM12081	15SM16071 15SM16081	15SM24071 15SM24081
Outside Diameter Tube		9/16 (14.29)	3/4 (19.05)	1 (25.40)	1.50 (38.10)
Orifice Diameter		0.359 (9.12)	0.516 (13.11)	0.688 (17.48)	0.937 (23.80)
Dimensions: inches (mm)					
	A	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)	5.75 (146.05)
	B	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)	2.88 (73.03)
	C	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)	1.00 (25.40)
	D	2.38 (60.45)	3.00 (76.20)	3.75 (95.25)	5.25 (133.35)
	D1	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)	3.75 (95.25)
	E	2.88 (73.15)	3.75 (95.25)	4.63 (117.60)	6.44 (163.53)
	F	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)	23.75 (603.25)
	G	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)	N/A (N/A)
	G1	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)	0.75 (19.05)
	H*	5.93 (150.86)	7.00 (177.80)	9.00 (228.84)	11.04 (280.42)
	M	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)	1.88 (47.63)
	N	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)	1.50 (38.10)
	Block Thickness		1.00 (25.40)	1.38 (35.05)	1.75 (44.45)

Bar handle replaces Blue "T" handle on sizes 3/4" and up

2 Way Straight - 20SM						
		Catalog Number				
Stem Type	VEE REG	20SM4071 20SM4081	20SM6071 20SM6081	20SM9071 20SM9081	20SM12071 20SM12081	20SM16071 20SM16081
Outside Diameter Tube		1/4 (6.35)	3/8 (9.53)	9/16 (14.29)	3/4 (19.05)	1 (25.40)
Orifice Diameter		0.125 (3.18)	0.219 (5.56)	0.312 (7.92)	0.438 (11.13)	0.562 (14.27)
Dimensions: inches (mm)						
	A	2.00 (50.80)	2.00 (50.80)	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)
	B	1.00 (25.40)	1.00 (25.40)	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)
	C	0.38 (9.65)	0.47 (11.94)	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)
	D	1.62 (41.15)	1.62 (41.15)	2.38 (60.45)	3.00 (76.20)	3.75 (95.25)
	D1	1.19 (30.23)	1.19 (30.23)	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)
	E	2.00 (50.80)	2.00 (50.80)	2.88 (73.15)	3.75 (95.25)	4.63 (117.60)
	F	3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)
	G	0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)
	G1	0.22 (5.59)	0.22 (5.59)	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)
	H*	4.69 (119.13)	4.63 (117.48)	5.93 (150.86)	7.00 (177.80)	9.00 (228.84)
	M	0.62 (15.75)	0.62 (15.75)	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)
	N	0.38 (9.65)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)
	Block Thickness		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.38 (35.05)

2 Way Angle - 15SM					
		Catalog Number			
Stem Type	VEE REG	15SM9072 15SM9082	15SM12072 15SM12082	15SM16072 15SM16082	15SM24072 15SM24082
Outside Diameter Tube		9/16 (14.29)	3/4 (19.05)	1 (25.40)	1.50 (38.10)
Orifice Diameter		0.359 (9.12)	0.516 (13.11)	0.688 (17.48)	0.937 (23.80)
Dimensions: inches (mm)					
	A	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)	5.75 (146.05)
	B	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)	2.88 (73.03)
	C	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)	1.00 (25.40)
	D	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)	3.75 (95.25)
	D1	-	-	-	-
	E	3.38 (85.85)	4.25 (107.95)	5.12 (130.05)	6.75 (171.45)
	F	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)	23.75 (603.25)
	G	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)	N/A (N/A)
	G1	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)	0.75 (19.05)
	H*	6.43 (163.56)	7.50 (190.50)	9.00 (228.84)	11.35 (288.32)
	M	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)	1.88 (47.63)
	N	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)	1.50 (38.10)
	Block Thickness		1.00 (25.40)	1.38 (35.05)	1.75 (44.45)

2 Way Angle - 20SM						
		Catalog Number				
Stem Type	VEE REG	20SM4072 20SM4082	20SM6072 20SM6082	20SM9072 20SM9082	20SM12072 20SM12082	20SM16072 20SM16082
Outside Diameter Tube		1/4 (6.35)	3/8 (9.53)	9/16 (14.29)	3/4 (19.05)	1 (25.40)
Orifice Diameter		0.125 (3.18)	0.219 (5.56)	0.312 (7.92)	0.438 (11.13)	0.562 (14.27)
Dimensions: inches (mm)						
	A	2.00 (50.80)	2.00 (50.80)	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)
	B	1.00 (25.40)	1.00 (25.40)	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)
	C	0.38 (9.65)	0.47 (11.94)	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)
	D	1.19 (30.23)	1.19 (30.23)	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)
	D1	-	-	-	-	-
	E	2.44 (61.90)	2.44 (61.90)	3.38 (85.85)	4.25 (107.95)	5.12 (130.05)
	F	3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)
	G	0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)
	G1	0.22 (5.59)	0.22 (5.59)	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)
	H*	4.81 (122.25)	4.81 (122.25)	6.43 (163.56)	7.50 (190.50)	9.00 (228.84)
	M	0.62 (15.75)	0.62 (15.75)	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)
	N	0.38 (9.65)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)
	Block Thickness		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.38 (35.05)

H* - Dimension is with stem in closed position

All dimensions for reference only and subject to change • For prompt service, Parker Autoclave stocks select products. Consult factory.

SM Series Needle Valve Dimensions:

3 Way, 2 On Pressure - 15SM					
		Catalog Number			
Stem Type	VEE REG	15SM9073 15SM9083	15SM12073 15SM12083	15SM16073 15SM16083	15SM24073 15SM24083
Outside Diameter Tube		9/16 (14.29)	3/4 (19.05)	1 (25.40)	1.50 (38.10)
Orifice Diameter		0.359 (9.12)	0.516 (13.11)	0.688 (17.48)	0.937 (23.80)
Dimensions: inches (mm)					
	A	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)	5.75 (146.05)
	B	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)	2.88 (73.03)
	C	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)	1.00 (25.40)
	D	2.38 (60.45)	3.00 (76.20)	3.75 (95.25)	5.25 (133.35)
	D1	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)	3.75 (95.25)
	E	3.63 (92.08)	4.63 (117.48)	5.88 (149.50)	8.13 (206.38)
	F	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)	23.75 (603.25)
	G	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)	N/A (N/A)
	G1	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)	0.75 (19.05)
	H*	6.52 (165.59)	7.88 (200.03)	9.75 (247.89)	12.73 (323.22)
	M	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)	1.88 (47.63)
	N	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)	1.50 (38.10)
	Block Thickness		1.00 (25.40)	1.38 (35.05)	1.75 (44.45)

3 Way, 2 On Pressure - 20SM						
		Catalog Number				
Stem Type	VEE REG	20SM4073 20SM4083	20SM6073 20SM6083	20SM9073 20SM9083	20SM12073 20SM12083	20SM16073 20SM16083
Outside Diameter Tube		1/4 (6.35)	3/8 (9.53)	9/16 (14.29)	3/4 (19.05)	1 (25.40)
Orifice Diameter		0.125 (3.18)	0.219 (5.56)	0.312 (7.92)	0.438 (11.13)	0.562 (14.27)
Dimensions: inches (mm)						
	A	2.00 (50.80)	2.00 (50.80)	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)
	B	1.00 (25.40)	1.00 (25.40)	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)
	C	0.38 (9.65)	0.47 (11.94)	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)
	D	1.63 (41.28)	1.63 (41.28)	2.38 (60.45)	3.00 (76.20)	3.75 (95.25)
	D1	1.19 (30.23)	1.19 (30.23)	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)
	E	2.63 (66.68)	2.63 (66.68)	3.63 (92.08)	4.63 (117.48)	5.88 (149.35)
	F	3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)
	G	0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)
	G1	0.22 (5.59)	0.22 (5.59)	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)
	H*	5.00 (127.00)	5.00 (127.00)	6.51 (165.59)	7.88 (200.03)	9.75 (247.89)
	M	0.62 (15.75)	0.62 (15.75)	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)
	N	0.38 (9.65)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)
	Block Thickness		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.38 (35.05)

3 Way, 1 On Pressure - 15SM					
		Catalog Number			
Stem Type	VEE REG	15SM9074 15SM9084	15SM12074 15SM12084	15SM16074 15SM16084	15SM24074 15SM24084
Outside Diameter Tube		9/16 (14.29)	3/4 (19.05)	1 (25.40)	1.50 (38.10)
Orifice Diameter		0.359 (9.12)	0.516 (13.11)	0.688 (17.48)	0.937 (23.80)
Dimensions: inches (mm)					
	A	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)	5.75 (146.05)
	B	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)	2.88 (73.03)
	C	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)	1.00 (25.40)
	D	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)	3.75 (95.25)
	D1	-	-	-	-
	E	3.38 (85.85)	4.25 (107.95)	5.12 (130.05)	6.63 (168.28)
	F	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)	23.75 (603.25)
	G	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)	N/A (N/A)
	G1	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)	0.75 (19.05)
	H*	6.31 (160.56)	7.50 (190.50)	9.09 (231.13)	11.23 (285.06)
	M	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)	1.88 (47.63)
	N	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)	1.50 (38.10)
	Block Thickness		1.00 (25.40)	1.38 (35.05)	1.75 (44.45)

3 Way, 1 On Pressure - 20SM						
		Catalog Number				
Stem Type	VEE REG	20SM4074 20SM4084	20SM6074 20SM6084	20SM9074 20SM9084	20SM12074 20SM12084	20SM16074 20SM16084
Outside Diameter Tube		1/4 (6.35)	3/8 (9.53)	9/16 (14.29)	3/4 (19.05)	1 (25.40)
Orifice Diameter		0.125 (3.18)	0.219 (5.56)	0.312 (7.92)	0.438 (11.13)	0.562 (14.27)
Dimensions: inches (mm)						
	A	2.00 (50.80)	2.00 (50.80)	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)
	B	1.00 (25.40)	1.00 (25.40)	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)
	C	0.38 (9.65)	0.47 (11.94)	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)
	D	1.63 (41.28)	1.63 (41.28)	2.38 (60.45)	3.00 (76.20)	3.75 (95.25)
	D1	-	-	-	-	-
	E	2.44 (61.90)	2.44 (61.90)	3.38 (85.85)	4.25 (107.95)	5.12 (130.05)
	F	3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)
	G	0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)
	G1	0.22 (5.59)	0.22 (5.59)	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)
	H*	4.81 (122.25)	4.81 (122.25)	6.31 (160.65)	7.50 (190.50)	9.00 (228.84)
	M	0.62 (15.75)	0.62 (15.75)	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)
	N	0.38 (9.65)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)
	Block Thickness		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.38 (35.05)

H* - Dimension is with stem in closed position

All dimensions for reference only and subject to change • For prompt service, Parker Autoclave stocks select products. Consult factory.

SM Series Needle Valve Dimensions:

2 Way Angle Replaceable Seat - 15SM					
		Catalog Number			
Stem Type	VEE REG	15SM9872 15SM9882	15SM12872 15SM12882	15SM16872 15SM16882	15SM24872 15SM24882
Outside Diameter Tube		9/16 (14.29)	3/4 (19.05)	1 (25.40)	1.50 (38.10)
Orifice Diameter		0.359 (9.12)	0.516 (13.11)	0.688 (17.48)	0.937 (23.80)
Dimensions: inches (mm)		A	B	C	D
		2.50 (63.50)	3.00 (76.20)	4.12 (104.65)	5.75 (146.05)
		1.25 (31.75)	1.50 (38.10)	2.06 (53.32)	2.88 (73.03)
		0.53 (13.46)	0.62 (15.75)	0.63 (16.00)	1.00 (25.40)
		1.75 (44.45)	2.25 (57.15)	2.69 (68.33)	3.75 (95.25)
		2.50 (63.50)	3.44 (87.38)	4.38 (111.13)	5.22 (132.59)
		3.38 (85.85)	4.25 (107.95)	5.25 (133.35)	6.75 (171.45)
		4.00 (101.60)	10.25 (260.35)	10.25 (260.35)	23.75 (603.25)
		1.00 (25.40)	1.12 (28.45)	1.62 (41.15)	N/A (N/A)
		0.34 (8.64)	0.44 (11.18)	0.56 (14.22)	0.75 (19.05)
		7.34 (186.68)	9.00 (228.60)	11.00 (279.64)	13.57 (344.68)
		0.69 (17.53)	0.88 (22.35)	1.25 (31.75)	1.88 (47.63)
		0.50 (12.70)	0.63 (16.00)	1.13 (28.70)	1.50 (38.10)
		Block Thickness		1.00 (25.40)	1.38 (35.05)

2 Way Angle Replaceable Seat - 20SM						
		Catalog Number				
Stem Type	VEE REG	20SM4872 20SM4882	20SM6872 20SM6882	20SM9872 20SM9882	20SM12872 20SM12882	20SM16872 20SM16882
Outside Diameter Tube		1/4 (6.35)	3/8 (9.53)	9/16 (14.29)	3/4 (19.05)	1 (25.40)
Orifice Diameter		0.125 (3.18)	0.219 (5.56)	0.312 (7.92)	0.438 (11.13)	0.562 (14.27)
Dimensions: inches (mm)		A	B	C	D	D1
		2.00 (50.80)	2.00 (50.80)	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)
		1.00 (25.40)	1.00 (25.40)	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)
		0.38 (9.65)	0.47 (11.94)	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)
		1.19 (30.23)	1.19 (30.23)	1.75 (44.45)	2.25 (57.15)	2.69 (68.33)
		2.13 (53.98)	2.13 (53.98)	2.50 (63.50)	3.44 (87.38)	4.38 (111.13)
		2.25 (57.15)	2.25 (57.15)	3.13 (79.38)	4.25 (107.95)	5.25 (133.35)
		3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)
		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)
		0.22 (5.59)	0.22 (5.59)	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)
		5.75 (146.05)	5.75 (146.05)	7.34 (186.68)	9.00 (228.60)	11.00 (279.64)
		0.62 (15.75)	0.62 (15.75)	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)
		0.38 (9.65)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)
		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.38 (35.05)	1.75 (44.45)

3 Way, 2 On Pressure - 15SM					
		Catalog Number			
Stem Type	VEE REG	15SM9075 15SM9085	15SM12075 15SM12085	15SM16075 15SM16085	15SM24075 15SM24085
Outside Diameter Tube		9/16 (14.29)	3/4 (19.05)	1 (25.40)	1.50 (38.10)
Orifice Diameter		0.359 (9.12)	0.516 (13.11)	0.688 (17.48)	0.937 (23.80)
Dimensions: inches (mm)		A	B	C	D
		2.50 (63.50)	3.00 (76.20)	4.12 (104.65)	5.75 (146.05)
		1.25 (31.75)	1.50 (38.10)	2.06 (53.32)	2.88 (73.03)
		0.53 (13.46)	0.62 (15.75)	0.63 (16.00)	1.00 (25.40)
		2.56 (65.07)	3.25 (85.55)	3.75 (95.25)	5.25 (133.35)
		1.75 (44.45)	2.25 (57.15)	2.81 (71.37)	3.75 (95.25)
		5.13 (130.18)	6.50 (165.10)	7.50 (190.50)	10.50 (266.70)
		4.00 (101.60)	10.25 (260.35)	10.25 (260.35)	23.75 (603.25)
		1.00 (25.40)	1.12 (28.45)	1.62 (41.15)	N/A (N/A)
		0.34 (8.64)	0.44 (11.18)	0.56 (14.22)	0.75 (19.05)
		8.13 (206.50)	9.75 (247.65)	12.18 (309.40)	15.10 (383.54)
		0.69 (17.53)	0.88 (22.35)	1.25 (31.75)	1.88 (47.63)
		0.50 (12.70)	0.63 (16.00)	1.13 (28.70)	1.50 (38.10)
		Block Thickness		1.00 (25.40)	1.38 (35.05)

3 Way, 2 On Pressure - 20SM						
		Catalog Number				
Stem Type	VEE REG	20SM4075 20SM4085	20SM6075 20SM6085	20SM9075 20SM9085	20SM12075 20SM12085	20SM16075 20SM16085
Outside Diameter Tube		1/4 (6.35)	3/8 (9.53)	9/16 (14.29)	3/4 (19.05)	1 (25.40)
Orifice Diameter		0.125 (3.18)	0.219 (5.56)	0.312 (7.92)	0.438 (11.13)	0.562 (14.27)
Dimensions: inches (mm)		A	B	C	D	D1
		2.00 (50.80)	2.00 (50.80)	2.50 (63.50)	3.00 (76.20)	4.12 (104.65)
		1.00 (25.40)	1.00 (25.40)	1.25 (31.75)	1.50 (38.10)	2.06 (53.32)
		0.38 (9.65)	0.47 (11.94)	0.53 (13.46)	0.62 (15.75)	0.63 (16.00)
		1.69 (42.85)	1.69 (42.85)	2.56 (65.07)	3.25 (82.55)	3.75 (95.25)
		1.19 (30.15)	1.19 (30.15)	1.75 (44.45)	2.25 (57.15)	2.81 (71.37)
		3.38 (85.73)	3.38 (85.73)	5.13 (130.18)	6.50 (165.10)	7.50 (190.50)
		3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	10.25 (260.35)	10.25 (260.35)
		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.12 (28.45)	1.62 (41.15)
		0.22 (5.59)	0.22 (5.59)	0.34 (8.64)	0.44 (11.18)	0.56 (14.22)
		5.69 (144.50)	5.69 (144.50)	8.13 (206.50)	9.75 (247.65)	12.18 (309.40)
		0.62 (15.75)	0.62 (15.75)	0.69 (17.53)	0.88 (22.35)	1.25 (31.75)
		0.38 (9.65)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	1.13 (28.70)
		0.75 (19.05)	0.75 (19.05)	1.00 (25.40)	1.38 (35.05)	1.75 (44.45)

H* - Dimension is with stem in closed position
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