Parker Autoclave Engineers: Fluid Components Product Catalog

February 2013

Valves, Fittings and Tubing

Pressures to 150,000 psi (10,000 bar)

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker

Autoclave Engineers

ENGINEERING YOUR SUCCESS.

Needle Valves

Low Pressure

10V & SW Series

Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave a reputation for reliable efficient product performance. Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, research, and oil and gas industries.

Low Pressure Valve Features:

- 10V Series valve design provides in-line tube connections for 1/4" to 1/2" tube sizes.
- SW Series valve design provides increased flow capabilities.
- Tubing sizes from 1/8" to 1/2".
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tips.
- Available in five body patterns.

Parker Autoclave Engineers valves are complemented by a complete line of low pressure fittings, tubing, check valves and line filters. The 10V and SW series use Parker Autoclave Engineers' SpeedBite connection. This single-ferrule compression sleeve connection delivers fast, easy make-up and reliable bubble-tight performance in liquid or gas service.

Parker

Autoclave Engineers

www.autoclave.com

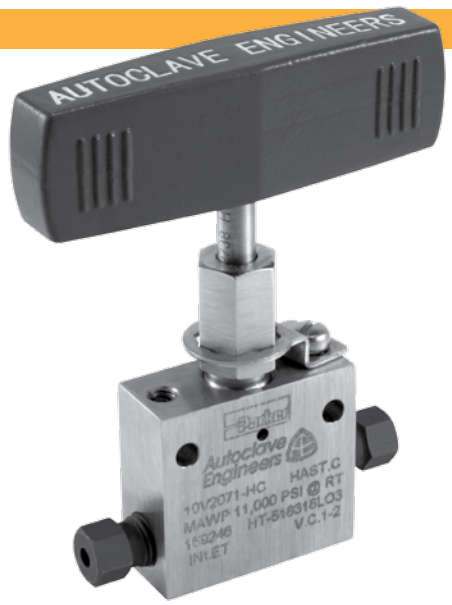
Valve Series - 10V Series

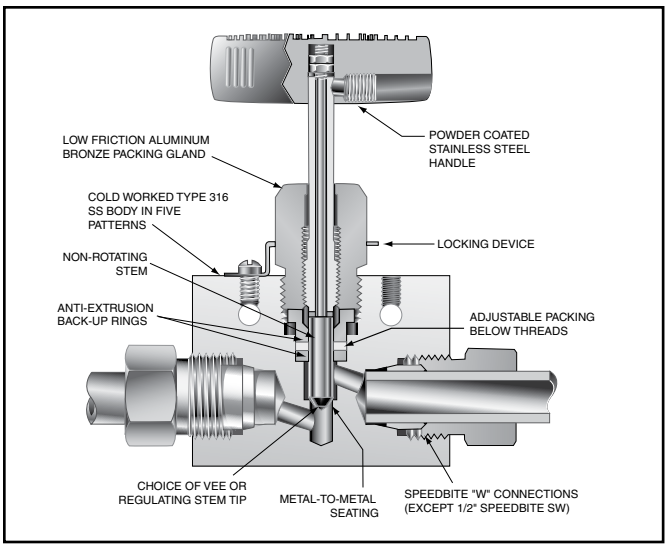
Pressures to 15,000 psi (1034 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/8	W125	0.094 (2.39)	0.12	15,000 (1034)
1/4	W250	0.125 (3.18)	0.20	15,000 (1034)
3/8	W375	0.125 (3.18)	0.20	15,000 (1034)
1/2	SW500	0.250 (6.35)	0.86	10,000 (690)

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)*

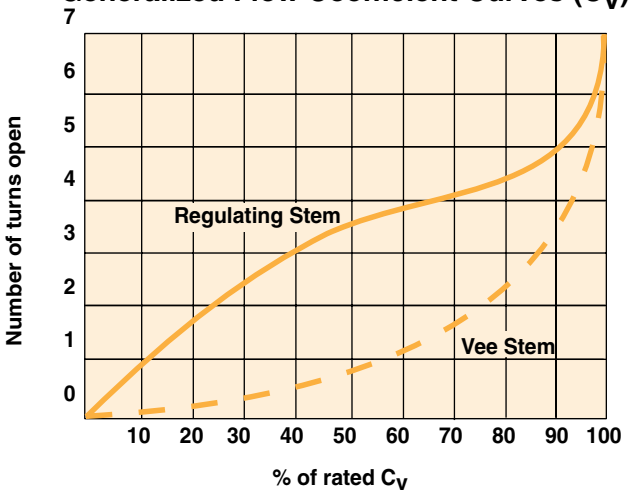
*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*





To ensure proper fit use Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. 10V Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **10V4071**

10V — **Valve Series**

4 — **Outside Diameter Tube Size**

2-1/8”
4-1/4”
6-3/8”
8-1/2”

Note: Contact Sales for 1/16”tube size or see MVE Series.

07 — **Stem/Seat Type**

- **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
- **88** - Regulating stem with replaceable seat

1 — **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

XX — **Options**

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures
Standard Parker Autoclave valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box is available for service from -100°F (-73°C) to 650°F (343°C) by adding the following suffixes to catalog order number.†
TG standard valve with PTFE glass packing to 600°F (316°C).
GY standard valve with graphite braided yarn packing to 650°F (343°C).
B standard valve with cryogenic trim materials and Telfon packing to -100°F (-73°C).

†*Parker Autoclave Engineers does not recommend compression sleeve connections below -100°F (-73°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.*

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R10V4071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
2-Way Straight																	
10V2071	**VEE**	1/8**	0.094	1.50	0.75	0.31	1.06	0.81	1.38	3.00	0.62	0.17	3.75	0.56	0.31	0.62	**See Figure 1**
10V2081	**REG**	(3.18)	(2.39)	(38.10)	(19.05)	(7.87)	(26.92)	(20.57)	(35.05)	(76.20)	(15.75)	(4.32)	(95.25)	(14.22)	(7.87)	(15.75)	
10V4071	**VEE**	1/4	0.125	2.00	1.00	0.56	1.19		1.69	3.00	0.97	0.22	4.44	0.69	0.38	1.00	
10V4081	**REG**	(6.35)	(3.18)	(50.80)	(25.40)	(14.22)	(30.23)		(42.93)	(76.20)	(24.64)	(5.59)	(112.78)	(17.53)	(9.65)	(25.40)	
10V6071	**VEE**	3/8	0.125	2.00	1.00	0.62	1.19		1.69	3.00	0.97	0.22	4.31	0.69	0.38	1.00	
10V6081	**REG**	(9.53)	(3.18)	(50.80)	(25.40)	(15.75)	(30.23)		(42.93)	(76.20)	(24.64)	(5.59)	(109.47)	(17.53)	(9.65)	(25.40)	
10V8071	**VEE**	1/2	0.250	2.50	1.25	0.53	1.25		1.81	3.00	0.97	0.22	4.44	0.69	0.38	1.00	
10V8081	**REG**	(12.70)	(6.35)	(63.50)	(31.75)	(13.46)	(31.75)		(45.97)	(76.20)	(24.64)	(5.59)	(112.78)	(17.53)	(9.65)	(25.40)	
2-Way Angle																	
10V2072	**VEE**	1/8	0.094	1.50	0.75	0.31	0.81		1.56	3.00	0.62	0.17	3.94	0.56	0.31	0.62	**See Figure 2**
10V2082	**REG**	(3.18)	(2.39)	(38.1)	(19.05)	(7.87)	(20.57)		(39.62)	(76.20)	(15.75)	(4.32)	(100.08)	(12.70)	(7.87)	(15.75)	
10V4072	**VEE**	1/4	0.125	2.00	1.00	0.56	1.19		2.19	3.00	0.97	0.22	4.81	0.69	0.31	1.00	
10V4082	**REG**	(6.35)	(3.18)	(50.80)	(25.40)	(14.2)	(30.23)		(55.63)	(76.20)	(24.64)	(5.59)	(122.17)	(17.53)	(7.87)	(25.40)	
10V6072	**VEE**	3/8	0.125	2.00	1.00	0.62	1.19		2.19	3.00	0.97	0.22	4.81	0.69	0.31	1.00	
10V6082	**REG**	(9.53)	(3.18)	(50.80)	(25.40)	(15.7)	(30.23)		(55.63)	(76.20)	(24.64)	(5.59)	(122.17)	(17.53)	(7.87)	(25.40)	
10V8072	**VEE**	1/2	0.250	2.50	1.25	0.53	1.25		2.50	3.00	0.97	0.22	5.06	0.69	0.38	1.00	
10V8082	**REG**	(12.70)	(6.35)	(63.50)	(31.75)	(13.5)	(31.75)		(63.50)	(76.20)	(24.64)	(5.59)	(128.52)	(17.53)	(9.65)	(25.40)	
3-Way / 2 on Pressure																	
10V2073	**VEE**	1/8**	0.094	1.50	0.75	0.31	1.06	0.81	1.69	3.00	0.62	0.17	4.06	0.56	0.31	0.62	**See Figure 3**
10V2083	**REG**	(3.18)	(2.39)	(38.10)	(19.05)	(7.87)	(26.92)	20.57	(42.93)	(76.20)	(15.75)	(4.32)	(103.12)	(12.70)	(7.87)	(15.75)	
10V4073	**VEE**	1/4	0.125	2.00	1.00	0.56	1.19		2.19	3.00	0.97	0.22	4.81	0.69	0.38	1.00	
10V4083	**REG**	(6.35)	(3.18)	(50.80)	(25.40)	(14.22)	(30.23)		(55.63)	(76.20)	(24.64)	(5.59)	(122.17)	(17.53)	(9.65)	(25.40)	
10V6073	**VEE**	3/8	0.125	2.00	1.00	0.62	1.19		2.19	3.00	0.97	0.22	4.81	0.69	0.38	1.00	
10V6083	**REG**	(9.53)	(3.18)	(50.80)	(25.40)	(15.75)	(30.23)		(55.63)	(76.20)	(24.64)	(5.59)	(122.17)	(17.53)	(9.65)	(25.40)	
10V8073	**VEE**	1/2	0.250	2.50	1.25	0.53	1.19		2.44	3.00	0.97	0.22	5.06	0.69	0.38	1.00	
10V8083	**REG**	(12.70)	(6.35)	(63.50)	(31.75)	(13.46)	(30.23)		(61.98)	(76.20)	(24.64)	(5.59)	(128.52)	(17.53)	(9.65)	(25.40)	

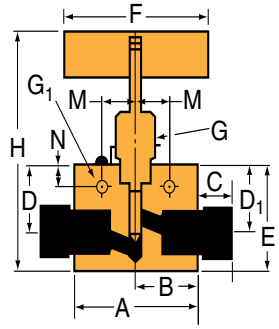
G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
*** 1/8" straight and 3-Way/2 on pressure valves have offset tube connections.*

For prompt service, Autoclave stocks select products. Consult factory.

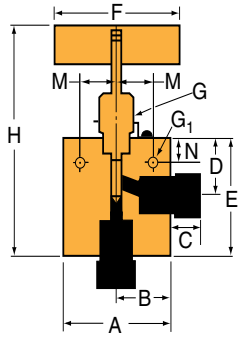
All dimensions for reference only and subject to change.

Figure 1



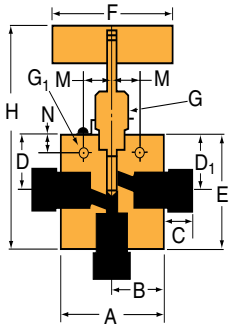
2-Way Straight

Figure 2



2-Way Angle

Figure 3



3-Way / 2 on Pressure

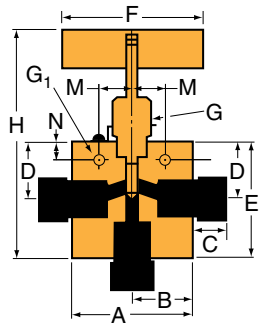
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
3-Way / 1 on Pressure																	
10V2074	VEE	1/8	0.094	1.50	0.75	0.31	0.81		1.56	3.00	0.62	0.17	3.94	0.56	0.31	0.62	See Figure 4
10V2084	REG	(3.18)	(2.39)	(38.1)	(19.05)	(7.87)	(20.57)		(39.62)	(76.20)	(15.75)	(4.32)	(100.08)	(12.70)	(7.87)	(15.7)	
10V4074	VEE	1/4	0.125	2.00	1.00	0.56	1.19		2.19	3.00	0.97	0.22	4.81	0.69	0.38	1.00	
10V4084	REG	(6.35)	(3.18)	(50.8)	(25.40)	(14.22)	(30.23)		(55.63)	(76.20)	(24.64)	(5.59)	(122.17)	(17.53)	(9.65)	(25.40)	
10V6074	VEE	3/8	0.125	2.00	1.00	0.62	1.19		2.19	3.00	0.97	0.22	4.81	0.69	0.38	1.00	
10V6084	REG	(9.53)	(3.18)	(50.8)	(25.40)	(15.75)	(30.23)		(55.63)	(76.20)	(24.64)	(5.59)	(122.17)	(17.53)	(9.65)	(25.40)	
10V8074	VEE	1/2	0.250	2.50	1.25	0.53	1.19		2.44	3.00	0.97	0.22	5.06	0.69	0.38	1.00	
10V8084	REG	(12.70)	(6.35)	(63.5)	(31.75)	(13.46)	(30.23)		(61.98)	(76.20)	(24.64)	(5.59)	(128.52)	(17.53)	(9.65)	(25.40)	
2-Way Angle / Replaceable Seat																	
10V2872	VEE	1/8	0.094	1.50	0.75	0.31	0.81	1.28	1.56	3.00	0.62	0.17	4.50	0.56	0.31	0.62	See Figure 5
10V2882	REG	(3.18)	(2.39)	(38.10)	(19.05)	(7.87)	(20.57)	(32.51)	(39.62)	(76.20)	(15.75)	(4.32)	(114.30)	(12.70)	(7.87)	(15.75)	
10V4872	VEE	1/4	0.125	2.00	1.00	0.56	1.12	2.13	2.25	3.00	0.97	0.22	6.00	0.69	0.38	1.00	
10V4882	REG	(6.35)	(3.18)	(50.80)	(25.40)	(14.22)	(28.45)	(54.10)	(57.15)	(76.20)	(24.64)	(5.59)	(152.40)	(17.53)	(9.65)	(25.40)	
10V6872	VEE	3/8	0.125	2.00	1.00	0.62	1.12	2.28	2.25	3.00	0.97	0.22	6.00	0.69	0.38	1.00	
10V6882	REG	(9.53)	(3.18)	(50.80)	(25.40)	(15.75)	(28.45)	(57.91)	(57.15)	(76.20)	(24.64)	(5.59)	(152.40)	(17.53)	(9.65)	(25.40)	
10V8872	VEE	1/2	0.250	2.50	1.25	0.53	1.00	2.50	2.38	3.00	0.97	0.28	6.06	0.69	0.38	1.00	
10V8882	REG	(12.70)	(6.35)	(63.50)	(31.75)	(13.46)	(25.45)	(63.50)	(60.45)	(76.20)	(24.64)	(7.11)	(153.92)	(17.53)	(9.65)	(25.40)	
3-Way / 2-Stem Manifold																	
10V2075	VEE	1/8	0.094	1.50	0.75	0.31	1.12	0.81	2.25	3.00	0.62	0.17	4.63	0.56	0.31	0.62	See Figure 6
10V2085	REG	(3.18)	(2.39)	(38.10)	(19.05)	(7.87)	(28.45)	(20.57)	(57.15)	(76.20)	(15.75)	(4.32)	(117.60)	(12.70)	(7.87)	(15.7)	
10V4075	VEE	1/4	0.125	2.00	1.00	0.56	1.69	1.09	3.38	3.00	0.97	0.22	5.82	0.69	0.38	1.00	
10V4085	REG	(6.35)	(3.18)	(50.80)	(25.40)	(14.22)	(42.93)	(27.69)	(85.85)	(76.20)	(24.64)	(5.59)	(147.83)	(17.53)	(9.65)	(25.40)	
10V6075	VEE	3/8	0.125	2.00	1.00	0.62	1.69	1.09	3.38	3.00	0.97	0.22	5.82	0.69	0.38	1.00	
10V6085	REG	(9.53)	(3.18)	(50.80)	(25.40)	(15.75)	(42.93)	(27.69)	(85.85)	(76.20)	(24.64)	(5.59)	(147.83)	(17.53)	(9.65)	(25.40)	
10V8075	VEE	1/2	0.250	2.50	1.25	0.53	1.69	1.03	3.38	3.00	0.97	0.22	5.82	0.69	0.38	1.00	
10V8085	REG	(12.70)	(6.35)	(63.50)	(31.75)	(13.46)	(42.93)	(26.16)	(85.85)	(76.20)	(24.64)	(5.59)	(147.83)	(17.53)	(9.65)	(25.40)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

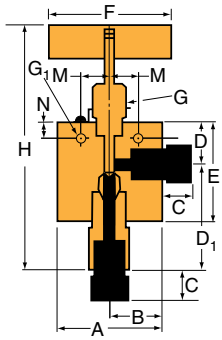
For prompt service, Autoclave stocks select products. Consult factory.

Figure 4



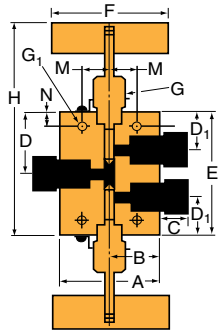
3-Way / 1 on Pressure

Figure 5



2-Way Angle / Replaceable Seat

Figure 6



3-Way / 2-Stem Manifold

Needle Valves - SW Series

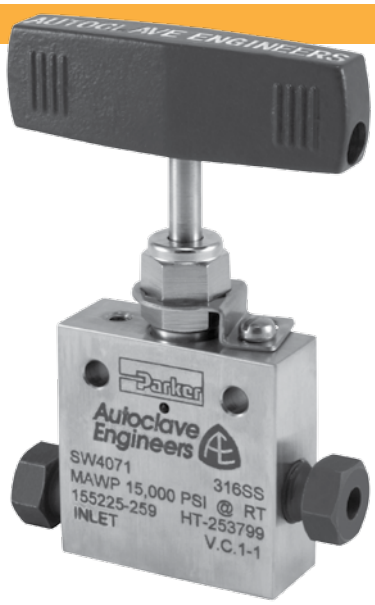
Pressures to 15,000 psi (1034 bar)

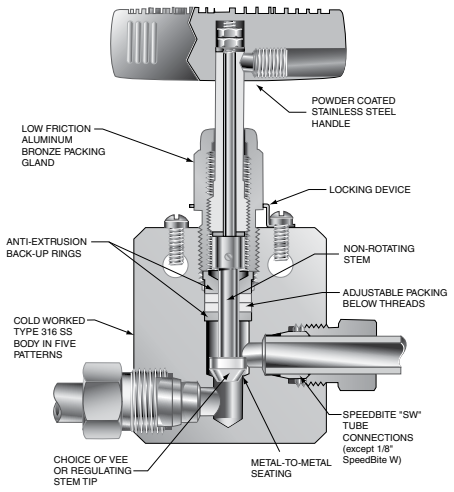
Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/8	W125— Refer to 10V Series Valves —			
1/4	SW250	0.188 (4.77)	0.65	15,000 (1034)
3/8	SW375	0.250 (6.35)	0.95	15,000 (1034)
1/2	SW500	0.375 (9.52)	1.90	10,000 (690)

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)*

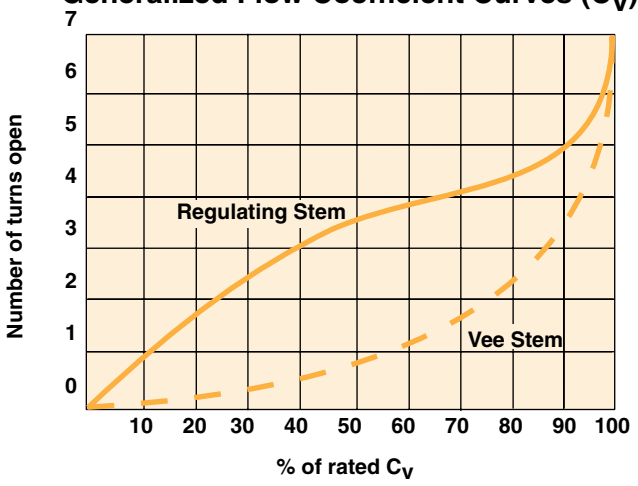
** *For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*





To ensure proper fit use Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. SW Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **SW4071**

SW — Valve Series

4 — Outside Diameter Tube Size
- **4**-1/4"
- **6**-3/8"
- **8**-1/2"

07 — Stem/Seat Type
- **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
- **88** - Regulating stem with replaceable seat

1 — 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

—

XX — Options

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures
Standard Parker Autoclave valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box are available for service from -100°F (-73°C) to 650°F (343°C) by adding the following suffixes to catalog order number.†
TG standard valve with PTFE glass packing to 600°F (316°C).
GY standard valve with graphite braided yarn packing to 650°F (343°C).
B standard valve with cryogenic trim materials and Telfon packing to -100°F (-73°C).

†*Parker Autoclave Engineers does not recommend compression sleeve connections below -100°F (-73°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.*

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **RSW4071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

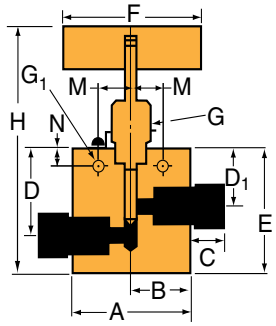
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
2-Way Straight																	
SW4071	VEE	1/4	0.187	2.00	1.00	0.38	1.62	1.19	2.00	3.00	0.75	0.22	4.50	0.62	0.38	0.75	See Figure 1
SW4081	REG	(6.35)	(4.75)	(50.80)	(25.40)	(9.65)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(114.30)	(15.75)	(9.65)	(19.05)	
SW6071	VEE	3/8	0.250	2.00	1.00	0.47	1.62	1.19	2.00	3.00	0.75	0.22	4.50	0.62	0.38	0.75	
SW6081	REG	(9.53)	(6.35)	(50.80)	(25.40)	(11.94)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(114.30)	(15.75)	(9.65)	(19.05)	
SW8071	VEE	1/2	0.375	2.50	1.25	0.53	2.38	1.75	2.88	4.00	1.00	0.34	5.95	0.69	0.50	1.00	
SW8081	REG	(12.70)	(9.53)	(63.50)	(31.75)	(13.46)	(60.45)	(44.45)	(73.15)	(101.60)	(25.40)	(8.64)	(151.37)	(17.53)	(12.70)	(25.40)	
2-Way Angle																	
SW4072	VEE	1/4	0.187	2.00	1.00	0.38	1.19		2.43	3.00	0.75	0.22	5.00	0.62	0.38	0.75	See Figure 2
SW4082	REG	(6.35)	(4.75)	(50.80)	(25.40)	(9.65)	(30.23)		(61.72)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
SW6072	VEE	3/8	0.250	2.00	1.00	0.47	1.19		2.19	3.00	0.75	0.22	5.00	0.62	0.38	0.75	
SW6082	REG	(9.53)	(6.35)	(50.80)	(25.40)	(11.94)	(30.23)		(55.63)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
SW8072	VEE	1/2	0.375	2.50	1.25	0.53	1.75		3.38	4.00	1.00	0.34	6.45	0.69	0.50	1.00	
SW8082	REG	(12.70)	(9.53)	(63.50)	(31.75)	(13.46)	(44.45)		(85.85)	(101.60)	(25.40)	(8.64)	(163.83)	(17.53)	(12.70)	(25.40)	
3-Way / 2 on Pressure																	
SW4073	VEE	1/4	0.187	2.00	1.00	0.38	1.62	1.19	2.62	3.00	0.75	0.22	5.18	0.62	0.38	0.75	See Figure 3
SW4083	REG	(6.35)	(4.75)	(50.80)	(25.40)	(9.65)	(41.15)	(30.23)	(66.55)	(76.20)	(19.05)	(5.59)	(131.57)	(15.75)	(9.65)	(19.05)	
SW6073	VEE	3/8	0.250	2.00	1.00	0.47	1.62	1.19	2.62	3.00	0.75	0.22	5.13	0.62	0.38	0.75	
SW6083	REG	(9.53)	(6.35)	(50.80)	(25.40)	(11.94)	(41.15)	(30.23)	(66.55)	(76.20)	(19.05)	(5.59)	(130.30)	(15.75)	(9.65)	(19.05)	
SW8073	VEE	1/2	0.375	2.50	1.25	0.53	2.38	1.75	3.62	4.00	1.00	0.34	6.70	0.69	0.50	1.00	
SW8083	REG	(12.70)	(9.53)	(63.50)	(31.75)	(13.46)	(60.45)	(44.45)	(91.95)	(101.60)	(25.40)	(8.64)	(170.18)	(17.53)	(12.70)	(25.40)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

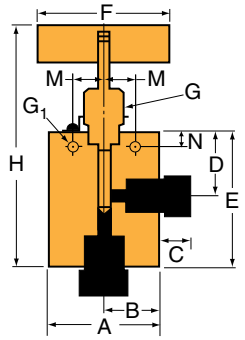
For prompt service, Autoclave stocks select products. Consult factory.

Figure 1



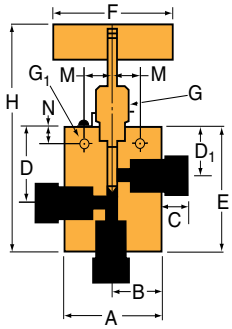
2-Way Straight

Figure 2



2-Way Angle

Figure 3



3-Way / 2 on Pressure

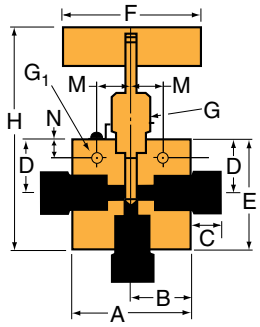
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions -inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thick-ness	Valve Pattern
3-Way / 1 on Pressure																	
SW4074	VEE	1/4	0.187	2.00	1.00	0.38	1.19		2.43	3.00	0.75	0.22	5.00	0.62	0.38	0.75	
SW4084	REG	(6.35)	(4.75)	(50.80)	(25.40)	(9.65)	(30.23)		(61.72)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
SW6074	VEE	3/8	0.250	2.00	1.00	0.47	1.19		2.43	3.00	0.75	0.22	5.00	0.62	0.38	0.75	**See Figure 4**
SW6084	REG	(9.53)	(6.35)	(50.80)	(25.40)	(11.94)	(30.23)		(61.72)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
SW8074	VEE	1/2	0.375	2.50	1.25	0.53	1.75		3.38	4.00	1.00	0.34	6.45	0.69	0.50	1.00	
SW8084	REG	(12.70)	(9.53)	(63.50)	(31.75)	(13.46)	(44.45)		(85.85)	(101.60)	(25.40)	(8.64)	(163.83)	(17.53)	(12.70)	(25.40)	
2-Way Angle / Replaceable Seat																	
SW4872	VEE	1/4	0.187	2.00	1.00	0.38	1.19	1.88	2.25	3.00	0.75	0.22	5.75	0.62	0.38	0.75	
SW4882	REG	(6.35)	(4.75)	(50.80)	(25.40)	(9.65)	(30.23)	(47.75)	(57.15)	(76.20)	(19.05)	(5.59)	(146.05)	(15.75)	(9.65)	(19.05)	
SW6872	VEE	3/8	0.250	2.00	1.00	0.47	1.19	2.19	2.25	3.00	0.75	0.22	5.75	0.62	0.38	0.75	**See Figure 5**
SW6882	REG	(9.53)	(6.35)	(50.80)	(25.40)	(11.94)	(30.23)	(55.62)	(57.15)	(76.20)	(19.05)	(5.59)	(146.05)	(15.75)	(9.65)	(19.05)	
SW8872	VEE	1/2	0.375	2.50	1.25	0.53	1.75	2.50	3.25	4.00	1.00	0.34	7.51	0.69	0.50	1.00	
SW8882	REG	(12.70)	(9.53)	(63.50)	(31.75)	(13.46)	(44.45)	(63.50)	(82.55)	(101.60)	(25.40)	(8.64)	(190.75)	(17.53)	(12.70)	(25.40)	
3-Way / 2-Stem Manifold																	
SW4075	VEE	1/4	0.187	2.00	1.00	0.38	1.68	1.19	3.38	3.00	0.75	0.22	5.94	0.62	0.38	0.75	
SW4085	REG	(6.35)	(4.75)	(50.80)	(25.40)	(9.65)	(42.67)	(30.23)	(85.85)	(76.20)	(19.05)	(5.59)	(150.88)	(15.75)	(9.65)	(19.05)	
SW6075	VEE	3/8	0.250	2.00	1.00	0.47	1.68	1.19	3.38	3.00	0.75	0.22	5.94	0.62	0.38	0.75	**See Figure 6**
SW6085	REG	(9.53)	(6.35)	(50.80)	(25.40)	(11.94)	(42.67)	(30.23)	(85.85)	(76.20)	(19.05)	(5.59)	(150.88)	(15.75)	(9.65)	(19.05)	
SW8075	VEE	1/2	0.375	2.50	1.25	0.53	2.56	1.75	5.12	4.00	1.00	0.34	8.20	0.69	0.50	1.00	
SW8085	REG	(12.70)	(9.53)	(63.50)	(31.75)	(13.46)	(65.02)	(44.45)	(130.05)	(101.60)	(25.40)	(8.64)	(208.28)	(17.53)	(12.70)	(25.40)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

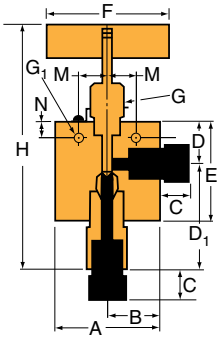
For prompt service, Autoclave stocks select products. Consult factory.

Figure 4



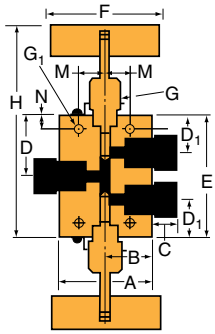
3-Way / 1 on Pressure

Figure 5



2-Way Angle / Replaceable Seat

Figure 6



3-Way / 2-Stem Manifold

Needle Valves

Medium Pressure

15SM Series

Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave Engineers a reputation for reliable efficient product performance. Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, waterblast, research, and oil and gas industries.

Medium Pressure Valve Features:

- Largest-port valve available for medium pressure applications.
- Tubing size 1-1/2".
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- New one piece stem design permits ease of assembly and packing replacement.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tip.
- Available in two body patterns.

Parker Autoclave Engineers valves are complemented by a complete line of fittings and tubing. The SM Series uses Parker Autoclave Engineers' Medium pressure coned and threaded connection.

Parker

Autoclave Engineers

www.autoclave.com

Needle Valves - 15SM Series

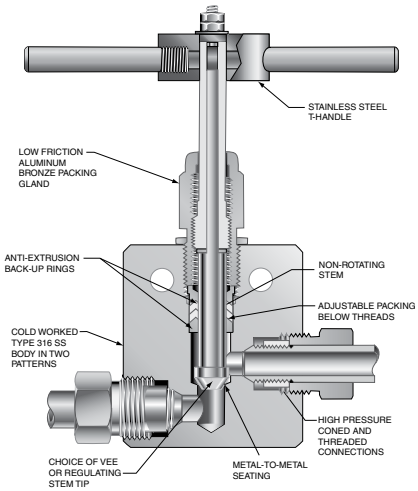
Pressures to 15,000 psi (1034 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1-1/2	SF1500CX	.937 (23.80)	14	15,000 (1034)

Notes:

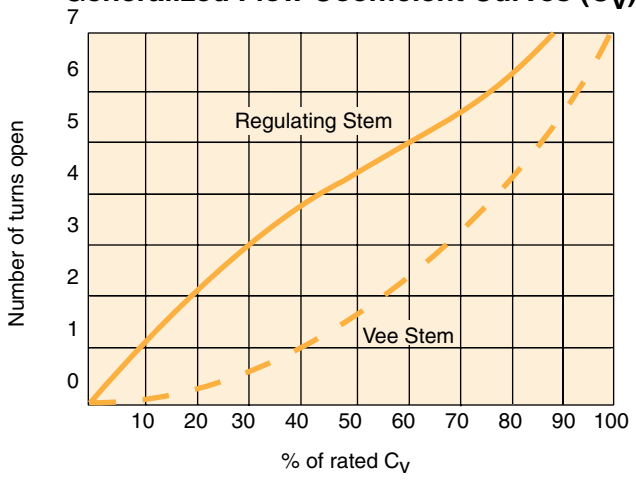
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%. (Based on water)*

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Parker Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. 15SM Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **15SM24071**

15SM — **Valve Series**

24 — **Outside Diameter Tube Size**

24-1-1/2"

07 — **Stem/Seat Type**

07 - non-rotating Vee stem (on-off service)

08 - non-rotating regulating stem (tapered tip for regulating and shutoff)

1 — **Body Pattern**

1 - two-way straight

2 - two-way angle

—

XX — **Options**

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-17.8°C) to 450°F (232°C). High temperature packing and/or extended stuffing box are available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number.
TG standard valve with PTFE glass packing to 600°F (316°C).
GY standard valve with graphite braided yarn packing to 800°F (427°C).
Note: Contact factory for pressure ratings using graphite yarn packing.
HT extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).
B standard valve with cryogenic trim materials and PTFE packing to -100°F (-73°C).
LT extended stuffing box valve with PTFE packing and cryogenic trim materials to -423°F (-252°C).
K anti-vibration collet and gland assembly

See needle valve options for stem and seat coating for erosive service.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R15SM24071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Note: Caution should be exercised in proper selection of medium pressure tubing based on actual operating conditions. Two tubing series available in some sizes: 15,000 psi (1034 bar) and 20,000 psi (1380 bar).

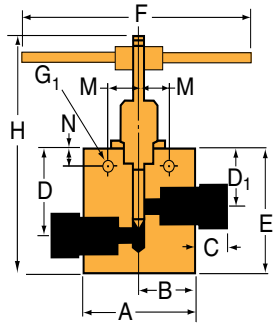
Catalog Number	Stem Type	Pipe Size	Orifice Dia.	Dimensions - inches (mm)												Block Thickness	Fitting Pattern
				A	B	C	D	D^1	E	F	G	G^1	H	M	N		
2-Way Straight																	
15SM24071	VEE	1-1/2	0.937	5.75	2.88	1.00	5.25	3.75	6.38	23.75		0.75	10.98	1.88	1.50	2.25	See Fig. 1
15SM24081	REG	(38.10)	(23.80)	(146.05)	(73.03)	(25.40)	(133.35)	(95.25)	(161.93)	(603.25)		(19.05)	(278.79)	(47.63)	(38.10)	(57.15)	
2-Way Angle																	
15SM24072	VEE	1-1/2	0.937	5.75	2.88	1.00	3.75		6.75	23.75		0.75	11.35	1.88	1.50	2.25	See Fig. 2
15SM24082	REG	(38.10)	(23.80)	(146.05)	(73.03)	(25.40)	(95.25)		(171.45)	(603.25)		(19.05)	(288.32)	(47.63)	(38.10)	(57.15)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.75" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

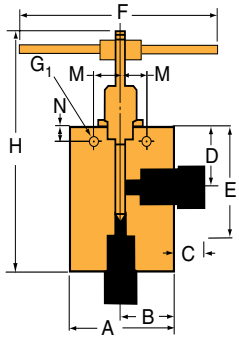
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 1



2-Way Straight

Figure 2



2-Way Angle

Needle Valves

Medium Pressure

SM Series

Pressures to 20,000 psi (1379 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave Engineers a reputation for reliable efficient product performance. Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, waterblast, research, and oil and gas industries.

Medium Pressure Valve Features:

- Largest-port valves available for medium pressure applications.
- Tubing sizes available from 1/4” to 1”.
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- New one piece stem design permits ease of assembly and packing replacement.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tip.
- Available in five body patterns.

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, check valves and line filters. The SM Series uses Parker Autoclave Engineers’ Medium pressure connection. The coned-and-threaded connection features orifice sizes to match the high flow characteristics of this series.

Note: SM Series replaces 20SC Series.

Parker

Autoclave Engineers

www.autoclave.com

Needle Valves - SM Series

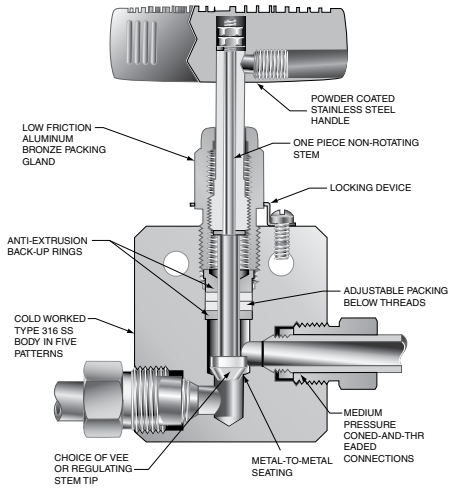
Pressures to 20,000 psi (1379 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/4	SF250CX20	0.125 (3.18)	0.31	20,000 (1379)
3/8	SF375CX20	0.219 (5.56)	0.75	20,000 (1379)
9/16	SF562CX20	0.312 (7.92)	1.30	20,000 (1379)
3/4	SF750CX20	0.438 (11.13)	2.50	20,000 (1379)
1	SF1000CX20	0.562 (14.27)	4.40	20,000 (1379)
9/16	SF562CX10	0.359 (9.12)	1.75	10,000 (690)
3/4	SF750CX10	0.516 (13.10)	2.80	10,000 (690)
1	SF1000CX10	0.688 (17.48)	5.20	10,000 (690)

Notes:

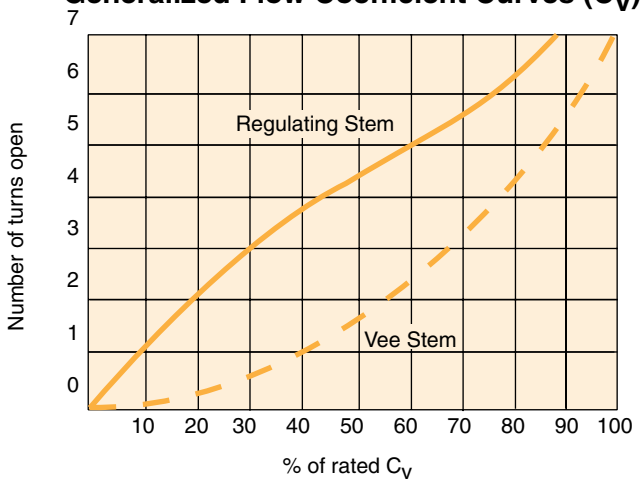
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%. (Based on water)*

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. 10SM and 20SM Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **20SM4071**

20SM — Valve Series
- **10SM**
- **20SM**

4 — Outside Diameter Tube Size
- **4**-1/4"
- **6**-3/8"
- **9**-9/16"
- **12**-3/4"
- **16**-1"

07 — Stem/Seat Type
- **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
- **88** - Regulating stem with replaceable seat

1 — 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

—

XX — Options

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-17.8°C) to 450°F (232°C). High temperature packing and/or extended stuffing box are available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number.
TG standard valve with PTFE glass packing to 600°F (316°C).
GY standard valve with graphite braided yarn packing to 800°F (427°C).
Note: 3/4" rated 8000 psi (552 bar) and 1" rated 6000 psi (412 bar) maximum with graphite yarn packing.
HT extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).
B standard valve with cryogenic trim materials and PTFE packing to -100°F (-73°C).
LT extended stuffing box valve with PTFE packing and cryogenic trim materials to -423°F (-252°C).
K anti-vibration collet and gland assembly

See needle valve options for stem and seat coating for erosive service.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R20SM4071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineersrepresentative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Note: Caution should be exercised in proper selection of medium pressure tubing based on actual operating conditions. Two tubing series available in some sizes: 15,000 psi (1034 bar) and 20,000 psi (1380 bar).

2-Way Straight

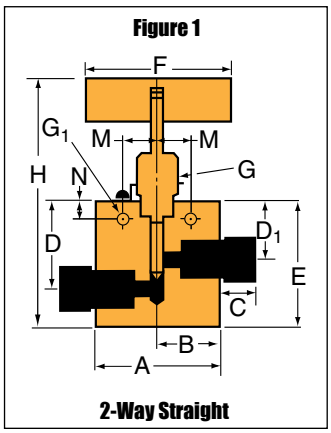
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
20SM4071	VEE	1/4	0.125	2.00	1.00	0.38	1.62	1.19	2.00	3.00	0.75	0.22	4.69	0.62	0.38	0.75	See Figure 1
20SM4081	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.65)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(119.13)	(15.75)	(9.65)	(19.05)	
20SM6071	VEE	3/8	0.219	2.00	1.00	0.47	1.62	1.19	2.00	3.00	0.75	0.22	4.63	0.62	0.38	0.75	
20SM6081	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(117.48)	(15.75)	(9.65)	(19.05)	
20SM9071	VEE	9/16	0.312	2.50	1.25	0.53	2.38	1.75	2.88	4.00	1.00	0.34	5.93	0.69	0.50	1.00	
20SM9081	REG	(14.29)	(7.92)	(63.50)	(31.75)	(13.46)	(60.45)	(44.45)	(73.15)	(101.60)	(25.40)	(8.64)	(150.86)	(17.53)	(12.70)	(25.40)	
20SM12071	VEE	3/4	0.438	3.00	1.50	0.62	3.00	2.25	3.75	10.25	1.12	0.44	7.00	0.88	0.63	1.38	
20SM12081	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.75)	(76.20)	(57.15)	(95.25)	(260.35)	(28.45)	(11.18)	(177.80)	(22.35)	(16.00)	(35.05)	
20SM16071	VEE	1	0.562	4.12	2.06	0.63	3.75	2.81	4.63	10.25	1.62	0.56	9.00	1.25	1.13	1.75	
20SM16081	REG	(25.40)	(14.27)	(104.65)	(52.32)	(16.00)	(95.25)	(71.37)	(117.60)	(260.35)	(41.15)	(14.22)	(228.84)	(31.75)	(28.70)	(44.4 5)	
10SM9071	VEE	9/16	0.359	2.50	1.25	0.53	2.38	1.75	2.88	4.00	1.00	0.34	5.93	0.69	0.50	1.00	
10SM9081	REG	(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(60.45)	(44.45)	(73.15)	(101.60)	(25.40)	(8.64)	(150.86)	(17.53)	(12.70)	(25.40)	
10SM12071	VEE	3/4	0.516	3.00	1.50	0.62	3.00	2.25	3.75	10.25	1.12	0.44	7.00	0.88	0.63	1.38	
10SM12081	REG	(19.05)	(13.11)	(76.20)	(38.10)	(15.75)	(76.20)	(57.15)	(95.25)	(260.35)	(28.45)	(11.18)	(177.80)	(22.35)	(16.00)	(35.05)	
10SM16071	VEE	1	0.688	4.12	2.06	0.63	3.75	2.81	4.63	10.25	1.62	0.56	9.00	1.25	1.13	1.75	
10SM16081	REG	(25.40)	(17.48)	(104.65)	(52.32)	(16.00)	(95.25)	(71.37)	(117.60)	(260.35)	(41.15)	(14.22)	(228.84)	(31.75)	(28.70)	(44.45)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 1



2-Way Straight

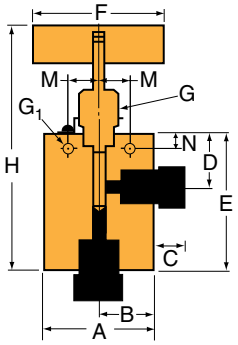
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
2-Way Angle																	
20SM4072	VEE	1/4	0.125	2.00	1.00	0.38	1.19		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	See Figure 2
20SM4082	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.65)	(30.23)		(61.90)	(76.20)	(19.05)	(5.59)	(122.25)	(15.75)	(9.65)	(19.05)	
20SM6072	VEE	3/8	0.219	2.00	1.00	0.47	1.19		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	
20SM6082	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(30.23)		(61.90)	(76.20)	(19.05)	(5.59)	(122.25)	(15.75)	(9.65)	(19.05)	
20SM9072	VEE	9/16	0.312	2.50	1.25	0.53	1.75		3.38	4.00	1.00	0.34	6.43	0.69	0.50	1.00	
20SM9082	REG	(14.29)	(7.92)	(63.50)	(31.75)	(13.46)	(44.45)		(85.85)	(101.60)	(25.40)	(8.64)	(163.56)	(17.53)	(12.70)	(25.40)	
20SM12072	VEE	3/4	0.438	3.00	1.50	0.62	2.25		4.25	10.25	1.12	0.44	7.50	0.88	0.63	1.38	
20SM12082	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.75)	(57.15)		(107.95)	(260.35)	(28.45)	(11.18)	(190.50)	(22.35)	(16.00)	(35.05)	
20SM16072	VEE	1	0.562	4.12	2.06	0.63	2.81		5.12	10.25	1.62	0.56	9.00	1.25	1.13	1.75	
20SM16082	REG	(25.40)	(14.27)	(104.65)	(52.32)	(16.00)	(71.37)		(130.05)	(260.35)	(41.15)	(14.22)	(228.84)	(31.75)	(28.70)	(44.4 5)	
10SM9072	VEE	9/16	0.359	2.50	1.25	0.53	1.75		3.38	4.00	1.00	0.34	6.43	0.69	0.50	1.00	
10SM9082	REG	(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(44.45)		(85.85)	(101.60)	(25.40)	(8.64)	(163.56)	(17.53)	(12.70)	(25.40)	
10SM12072	VEE	3/4	0.516	3.00	1.50	0.62	2.25		4.25	10.25	1.12	0.44	7.50	0.88	0.63	1.38	
10SM12082	REG	(19.03)	(13.11)	(76.20)	(38.10)	(15.75)	(57.15)		(107.95)	(260.35)	(28.45)	(11.18)	(190.50)	(22.35)	(16.00)	(35.05)	
10SM16072	VEE	1	0.688	4.12	2.06	0.63	2.81		5.12	10.25	1.62	0.56	9.00	1.25	1.13	1.75	
10SM16082	REG	(25.40)	(17.48)	(104.65)	(52.32)	(16.00)	(71.37)		(130.05)	(260.35)	(41.15)	(14.22)	(228.84)	(31.75)	(28.70)	(44.45)	
3-Way / 2 on Pressure																	
20SM4073	VEE	1/4	0.125	2.00	1.00	0.38	1.63	1.19	2.63	3.00	0.75	0.22	5.00	0.62	0.38	0.75	See Figure 3
20SM4083	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.65)	(41.28)	(30.23)	(66.68)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
20SM6073	VEE	3/8	0.219	2.00	1.00	0.47	1.63	1.19	2.63	3.00	0.75	0.22	5.00	0.62	0.38	0.75	
20SM6083	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(41.28)	(30.23)	(66.68)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
20SM9073	VEE	9/16	0.312	2.50	1.25	0.53	2.38	1.75	3.63	4.00	1.00	0.34	6.51	0.69	0.50	1.00	
20SM9083	REG	(14.29)	(7.92)	(63.50)	(31.75)	(13.46)	(60.45)	(44.45)	(92.08)	(101.60)	(25.40)	(8.64)	(165.59)	(17.53)	(12.70)	(25.40)	
20SM12073	VEE	3/4	0.438	3.00	1.50	0.62	3.00	2.25	4.63	10.25	1.12	0.44	7.88	0.88	0.63	1.38	
20SM12083	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.75)	(76.20)	(57.15)	(117.48)	(260.35)	(28.45)	(11.18)	(200.03)	(22.35)	(16.00)	(35.05)	
20SM16073	VEE	1	0.562	4.12	2.06	0.63	3.75	2.81	5.88	10.25	1.62	0.56	9.75	1.25	1.13	1.75	
20SM16083	REG	(25.40)	(14.27)	(104.65)	(52.32)	(16.00)	(95.25)	(71.37)	(149.35)	(260.35)	(41.15)	(14.22)	(247.89)	(31.75)	(28.70)	(44.4 5)	
10SM9073	VEE	9/16	0.359	2.50	1.25	0.53	2.38	1.75	3.63	4.00	1.00	0.34	6.52	0.69	0.50	1.00	
10SM9083	REG	(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(60.45)	(44.45)	(92.08)	(101.60)	(25.40)	(8.64)	(165.59)	(17.53)	(12.70)	(25.40)	
10SM12073	VEE	3/4	0.516	3.00	1.50	0.62	3.00	2.25	4.63	10.25	1.12	0.44	7.88	0.88	0.63	1.38	
10SM12083	REG	(19.03)	(13.11)	(76.20)	(38.10)	(15.75)	(76.20)	(57.15)	(117.48)	(260.35)	(28.45)	(11.18)	(200.03)	(22.35)	(16.00)	(35.05)	
10SM16073	VEE	1	0.688	4.12	2.06	0.63	3.75	2.81	5.88	10.25	1.62	0.56	9.75	1.25	1.13	1.75	
10SM16083	REG	(25.40)	(17.48)	(104.65)	(52.32)	(16.00)	(95.25)	(71.37)	(149.35)	(260.35)	(41.15)	(14.22)	(247.89)	(31.75)	(28.70)	(44.45)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

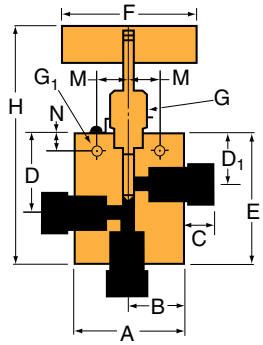
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 2



2-Way Angle

Figure 3



3-Way / 2 on Pressure

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		

3-Way / 1 on Pressure

20SM4074	VEE	1/4	0.125	2.00	1.00	0.38	1.19		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	
20SM4084	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.65)	(30.23)		(61.90)	(76.20)	(19.05)	(5.59)	(122.25)	(15.75)	(9.65)	(19.05)	
20SM6074	VEE	3/8	0.219	2.00	1.00	0.47	1.19		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	
20SM6084	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(30.23)		(61.90)	(76.20)	(19.05)	(5.59)	(122.25)	(15.75)	(9.65)	(19.05)	
20SM9074	VEE	9/16	0.312	2.50	1.25	0.53	1.75		3.38	4.00	1.00	0.34	6.31	0.69	0.50	1.00	
20SM9084	REG	(14.29)	(7.92)	(63.50)	(31.75)	(13.46)	(44.45)		(85.85)	(101.60)	(25.40)	(8.64)	(160.56)	(17.53)	(12.70)	(25.40)	
20SM12074	VEE	3/4	0.438	3.00	1.50	0.62	2.25		4.25	10.25	1.12	0.44	7.50	0.88	0.63	1.38	
20SM12084	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.75)	(57.15)		(107.95)	(260.35)	(28.45)	(11.18)	(190.50)	(22.35)	(16.00)	(35.05)	
20SM16074	VEE	1	0.562	4.12	2.06	0.63	2.81		5.12	10.25	1.62	0.56	9.09	1.25	1.13	1.75	
20SM16084	REG	(25.40)	(14.27)	(104.65)	(52.32)	(16.00)	(71.37)		(130.05)	(260.35)	(41.15)	(14.22)	(231.13)	(31.75)	(28.70)	(44.4 5)	
10SM9074	VEE	9/16	0.359	2.50	1.25	0.53	1.75		3.38	4.00	1.00	0.34	6.31	0.69	0.50	1.00	
10SM9084	REG	(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(44.45)		(85.85)	(101.60)	(25.40)	(8.64)	(160.56)	(17.53)	(12.70)	(25.40)	
10SM12074	VEE	3/4	0.516	3.00	1.50	0.62	2.25		4.25	10.25	1.12	0.44	7.50	0.88	0.63	1.38	
10SM12084	REG	(19.03)	(13.11)	(76.20)	(38.10)	(15.75)	(57.15)		(107.95)	(260.35)	(28.45)	(11.18)	(190.50)	(22.35)	(16.00)	(35.05)	
10SM16074	VEE	1	0.688	4.12	2.06	0.63	2.81		5.12	10.25	1.62	0.56	9.09	1.25	1.13	1.75	
10SM16084	REG	(25.40)	(17.48)	(104.65)	(52.32)	(16.00)	(71.37)		(130.05)	(260.35)	(41.15)	(14.22)	(231.13)	(31.75)	(28.70)	(44.45)	

See Figure 4

2-Way Angle / Replaceable Seat

20SM4872	VEE	1/4	0.125	2.00	1.00	0.38	1.19	2.13	2.25	3.00	0.75	0.22	5.75	0.62	0.38	0.75	
20SM4882	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.65)	(30.23)	(53.98)	(57.15)	(76.20)	(19.05)	(5.59)	(146.05)	(15.75)	(9.65)	(19.05)	
20SM6872	VEE	3/8	0.219	2.00	1.00	0.47	1.19	2.13	2.25	3.00	0.75	0.22	5.75	0.62	0.38	0.75	
20SM6882	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(30.23)	(53.98)	(57.15)	(76.20)	(19.05)	(5.59)	(146.05)	(15.75)	(9.65)	(19.05)	
20SM9872	VEE	9/16	0.312	2.50	1.25	0.53	1.75	2.50	3.13	4.00	1.00	0.34	7.34	0.69	0.50	1.00	
20SM9882	REG	(14.29)	(7.92)	(63.50)	(31.75)	(13.46)	(44.45)	(63.50)	(79.38)	(101.60)	(25.40)	(8.64)	(186.68)	(17.53)	(12.70)	(25.40)	
20SM12872	VEE	3/4	0.438	3.00	1.50	0.62	2.25	3.44	4.25	10.25	1.12	0.44	9.00	0.88	0.63	1.38	
20SM12882	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.75)	(57.15)	(87.38)	(107.95)	(260.35)	(28.45)	(11.18)	(228.60)	(22.35)	(16.00)	(35.05)	
20SM16872	VEE	1	0.562	4.12	2.06	0.63	2.69	4.38	5.25	10.25	1.62	0.56	11.00	1.25	1.13	1.75	
20SM16882	REG	(25.40)	(14.27)	(104.65)	(52.32)	(16.00)	(68.33)	(111.13)	(133.35)	(260.35)	(41.15)	(14.22)	(279.64)	(31.75)	(28.70)	(44.4 5)	
10SM9872	VEE	9/16	0.359	2.50	1.25	0.53	1.75	2.50	3.38	4.00	1.00	0.34	7.34	0.69	0.50	1.00	
10SM9882	REG	(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(44.45)	(63.50)	(85.85)	(101.60)	(25.40)	(8.64)	(186.68)	(17.53)	(12.70)	(25.40)	
10SM12872	VEE	3/4	0.516	3.00	1.50	0.62	2.25	3.44	4.25	10.25	1.12	0.44	9.00	0.88	0.63	1.38	
10SM12882	REG	(19.03)	(13.11)	(76.20)	(38.10)	(15.75)	(57.15)	(87.38)	(107.95)	(260.35)	(28.45)	(11.18)	(228.60)	(22.35)	(16.00)	(35.05)	
10SM16872	VEE	1	0.688	4.12	2.06	0.63	2.69	4.38	5.25	10.25	1.62	0.56	11.00	1.25	1.13	1.75	
10SM16882	REG	(25.40)	(17.48)	(104.65)	(52.32)	(16.00)	(68.33)	(111.13)	(133.35)	(260.35)	(41.15)	(14.22)	(279.64)	(31.75)	(28.70)	(44.45)	

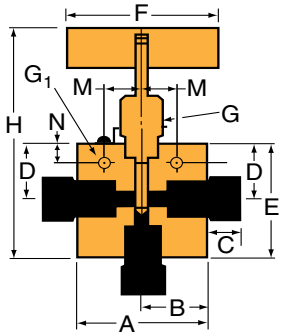
See Figure 5

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

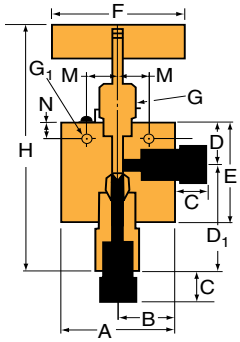
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 4



3-Way / 1 on Pressure

Figure 5



2-Way Angle / Replaceable Seat

3-Way / 2-Stem Manifold

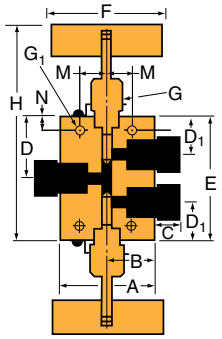
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thick-ness	Valve Pattern
20SM4075	VEE	1/4	0.125	2.00	1.00	0.38	1.69	1.19	3.38	3.00	0.75	0.22	5.69	0.62	0.38	0.75	See Figure 6
20SM4085	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.65)	(42.85)	(30.15)	(85.73)	(76.20)	(19.05)	(5.59)	(144.50)	(15.75)	(9.65)	(19.05)	
20SM6075	VEE	3/8	0.219	2.00	1.00	0.47	1.69	1.19	3.38	3.00	0.75	0.22	5.69	0.62	0.38	0.75	
20SM6085	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(42.85)	(30.15)	(85.73)	(76.20)	(19.05)	(5.59)	(144.50)	(15.75)	(9.65)	(19.05)	
20SM9075	VEE	9/16	0.312	2.50	1.25	0.53	2.56	1.75	5.13	4.00	1.00	0.34	8.13	0.69	0.50	1.00	
20SM9085	REG	(14.29)	(7.92)	(63.50)	(31.75)	(13.46)	(65.07)	(44.45)	(130.18)	(101.60)	(25.40)	(8.64)	(206.5)	(17.53)	(12.70)	(25.40)	
20SM12075	VEE	3/4	0.438	3.00	1.50	0.62	3.25	2.25	6.50	10.25	1.12	0.44	9.75	0.88	0.63	1.38	
20SM12085	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.75)	(82.55)	(57.15)	(165.10)	(260.35)	(28.45)	(11.18)	(247.65)	(22.35)	(16.00)	(35.05)	
20SM16075	VEE	1	0.562	4.12	2.06	0.63	3.75	2.81	7.50	10.25	1.62	0.56	12.18	1.25	1.13	1.75	
20SM16085	REG	(25.40)	(14.27)	(104.65)	(52.32)	(16.00)	(95.25)	(71.37)	(190.50)	(260.35)	(41.15)	(14.22)	(309.40)	(31.75)	(28.70)	(44.4 5)	
10SM9075	VEE	9/16	0.359	2.50	1.25	0.53	2.56	1.75	5.13	4.00	1.00	0.34	8.13	0.69	0.50	1.00	
10SM9085	REG	(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(65.07)	(44.45)	(130.18)	(101.60)	(25.40)	(8.64)	(206.5)	(17.53)	(12.70)	(25.40)	
10SM12075	VEE	3/4	0.516	3.00	1.50	0.62	3.25	2.25	6.50	10.25	1.12	0.44	9.75	0.88	0.63	1.38	
10SM12085	REG	(19.03)	(13.11)	(76.20)	(38.10)	(15.75)	(82.55)	(57.15)	(165.10)	(260.35)	(28.45)	(11.18)	(247.65)	(22.35)	(16.00)	(35.05)	
10SM16075	VEE	1	0.688	4.12	2.06	0.63	3.75	2.81	7.50	10.25	1.62	0.56	12.18	1.25	1.13	1.75	
10SM16085	REG	(25.40)	(17.48)	(104.65)	(52.32)	(16.00)	(95.25)	(71.37)	(190.50)	(260.35)	(41.15)	(14.22)	(309.40)	(31.75)	(28.70)	(44.45)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 6



3-Way / 2-Stem Manifold

Needle Valves

Medium Pressure

QS Series

Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave Engineers a reputation for reliable efficient product performance. Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, water-blast, research, and oil and gas industries.

Medium Pressure Valve Features:

- Compression Sleeve to 15,000 psi (1034 bar).
- Tubing sizes available from 1/4" to1".
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- Anti-galling molybdenum disulfide coated gland nuts.
- Gland nut positioning mark for assembly.
- Connection weep holes for safety and leak detection.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tip.
- Available in two body patterns.
- 1" valve bodies are 2507 Super Duplex standard

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, check valves and line filters. The QS Series uses Parker Autoclave Engineers' Quick Set compression sleeve design, providing fast easy make-up and reliable bubble-tight performance in liquid or gas service.

Parker

Autoclave Engineers®

www.autoclave.com

Needle Valves - QS Series

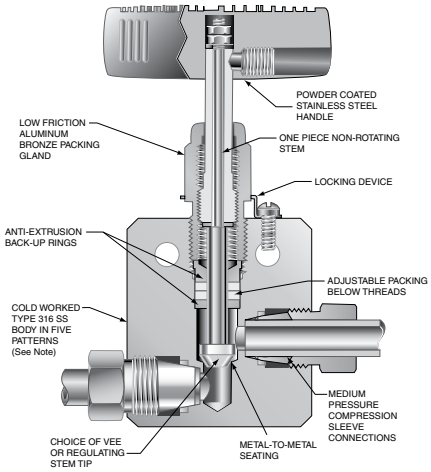
Pressures to 15,000 psi (1034 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/4	QS 250	0.125 (3.18)	0.31	15,000 (1034)
3/8	QS 375	0.219 (5.56)	0.75	15,000 (1034)
9/16	QS 562	0.359 (9.12)	2.80	15,000 (1034)
3/4	QS 750	0.516 (13.10)	5.20	15,000 (1034)
1	QS 1000	0.688 (17.48)	5.20	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)*

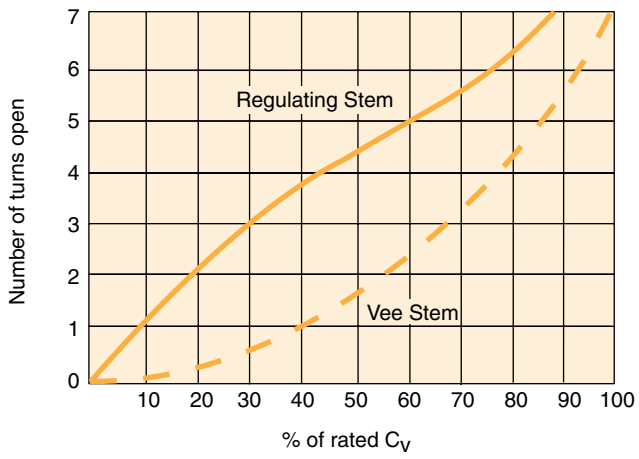
** *For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



(**Note:** 1" valves are 2507 Super Duplex)

To ensure proper fit use Parker Autoclave Engineers tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. QS Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **15QS4071**

15QS — Valve Series
- **15QS**

4 — Outside Diameter Tube Size
- **4**-1/4"
- **6**-3/8"
- **9**-9/16"
- **12**-3/4"
- **16**-1"

07 — Stem/Seat Type
- **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
- **88** - Regulating stem with replaceable seat

1 — 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

—

XX — Options
- **TG** - PTFE Glass Plating
- **GY** - Graphite Yarn Packing

See valve options for ratings

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box are available for service from -100°F (-73°C) to 650°F (343°C) by adding the following suffixes to catalog order number.†
TG standard valve with PTFE glass packing to 600°F (316°C).
GY standard valve with graphite braided yarn packing to 650°F (343°C).
B standard valve with cryogenic trim materials and PTFE packing to -100°F (-73°C).

†Parker Autoclave Engineers does not recommend compression sleeve connections below -100°F (-73°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R15QS4071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies.

2-Way Straight

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thick-ness	Valve Pattern
15QS4071	VEE	1/4	0.125	2.00	1.00	0.38	1.62	1.19	2.00	3.00	0.75	0.22	4.69	0.62	0.38	0.75	
15QS4081	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.53)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(119.13)	(15.75)	(9.65)	(19.05)	
15QS6071	VEE	3/8	0.219	2.00	1.00	0.47	1.62	1.19	2.00	3.00	0.75	0.22	4.63	0.62	0.38	0.81	
15QS6081	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(117.60)	(15.75)	(9.65)	(20.57)	
15QS9071	VEE	9/16	0.359	3.00	1.50	0.53	2.38	1.75	3.00	4.00	1.00	0.34	6.05	0.69	0.50	1.25	See Figure 1
15QS9081	REG	(14.29)	(9.12)	(76.20)	(38.10)	(13.46)	(60.45)	(44.45)	(76.20)	(101.60)	(25.40)	(8.64)	(153.67)	(17.53)	(12.70)	(31.75)	
15QS12071	VEE	3/4	0.516	4.12	2.06	0.62	3.00	2.25	3.88	10.25	1.12	0.44	7.13	0.88	0.63	1.50	
15QS12081	REG	(19.05)	(13.11)	(104.65)	(52.32)	(15.75)	(76.20)	(57.15)	(98.43)	(260.35)	(28.45)	(11.18)	(180.98)	(22.35)	(16.00)	(38.10)	
15QS16071	VEE	1	0.688	4.75	2.38	1.19	3.75	2.63	4.75	10.25	1.12	0.44	8.00	0.88	0.63	2.00	
15QS16081	REG	(25.40)	(17.48)	(120.65)	(60.33)	(30.18)	(95.25)	(66.68)	(120.65)	(260.35)	(28.45)	(11.18)	(203.20)	(22.35)	(16.00)	(50.80)	

Note: 1" valve bodies are 2507 Super Duplex

2-Way Angle

15QS4072	VEE	1/4	0.125	2.00	1.00	0.38	1.19		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	
15QS4082	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.53)	(30.23)		(61.98)	(76.20)	(19.05)	(5.59)	(122.17)	(15.75)	(9.65)	(19.05)	
15QS6072	VEE	3/8	0.219	2.00	1.00	0.47	1.20		2.56	3.00	0.75	0.22	4.93	0.62	0.38	0.81	
15QS6082	REG	(9.53)	(5.56)	(50.80)	(25.40)	(11.94)	(30.48)		(65.02)	(76.20)	(19.05)	(5.59)	(125.22)	(15.75)	(9.65)	(20.62)	
15QS9072	VEE	9/16	0.359	3.00	1.50	0.53	1.69		3.50	4.00	1.00	0.36	6.55	0.69	0.50	1.25	See Figure 2
15QS9082	REG	(14.29)	(9.12)	(76.20)	(38.10)	(13.46)	(42.88)		(88.90)	(101.60)	(25.40)	(9.14)	(166.37)	(17.53)	(12.70)	(31.75)	
15QS12072	VEE	3/4	0.516	4.12	2.06	0.62	2.19		4.63	10.25	1.12	0.44	7.88	0.88	0.63	1.50	
15QS12082	REG	(19.05)	(13.11)	(104.65)	(52.32)	(15.75)	(55.58)		(117.48)	(260.35)	(28.45)	(11.18)	(200.15)	(22.35)	(16.00)	(38.10)	
15QS16072	VEE	1	0.688	4.75	2.38	1.19	3.75		5.38	10.25	1.12	0.44	8.63	0.88	0.63	2.00	
15QS16082	REG	(25.40)	(17.48)	(120.65)	(60.33)	(30.18)	(95.25)		(136.53)	(260.35)	(28.45)	(11.18)	(219.25)	(22.35)	(16.00)	(50.80)	

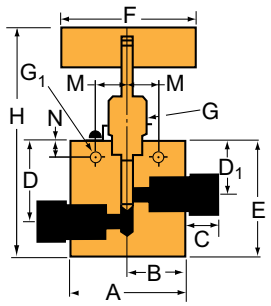
Note: 1" valve bodies are 2507 Super Duplex

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
***1/8" straight and 3-Way/2 on pressure valves have offset tube connections*

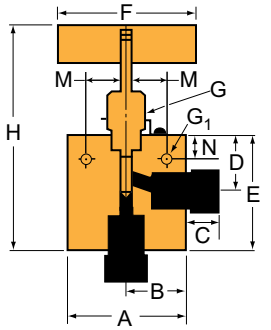
For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.
All dimensions for reference only and subject to change.

Figure 1



2-Way Straight

Figure 2



2-Way Angle

Needle Valves

High Pressure

30SC, 43SC, 30VM, 40VM, 60VM, 100VM & 150V Series

Pressures to 150,000 psi (10342 bar)

Since 1945, Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave a reputation for reliable and efficient product performance. Parker Autoclave Engineers has long been established as the worldwide leader in high pressure fluid handling components for the chemical/petrochemical, research, oil and gas, waterjet, and waterblast industries.

Parker

Autoclave Engineers

www.autoclave.com

Needle Valves - High Pressure

30SC, 43SC, 30VM, 40VM, 60VM, 100VM & 150V Series

Needle Valves - High Pressure

High Pressure Valve Features

- Tubing sizes from 1/4” to 1”.
- Non-rotating stem prevents stem/seat galling.
- Rising stem/barstock body design.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- For dependable stem and body sealing 30SC, 43SC and 30VM valves are furnished with PTFE encapsulated packing; the 40VM and 60VM valves feature nylon/leather packing below threads.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tips.

Series 100VM: Pressures to 100,000 psi (6895 bar) features:

- Cold-worked type 316 or 15-5PH stainless steel body with aluminum bronze packing gland and non-rotating stem.
- Nylon and leather packing below stem threads.

Series 150V: Pressures to 150,000 psi (10342 bar) features:

- Cylindrical body of high strength 15-5PH stainless steel with stainless steel packing gland. Tool steel non-rotating stem with replaceable seat of nickel maraging steel. Stem must be actuated with torque wrench (refer to Tools, Installation, Operation and Maintenance section).
- Wedge-type PTFE and leather packing below stem threads with beryllium-copper Autoclave Anti-Extrusion Back up Rings.
- Vee stem tip only

Parker Autoclave Engineers valves are complemented by a complete line of high pressure fittings and tubing. The high pressure series uses Parker Autoclave Engineers' coned-and-threaded connections for dependable performance in gas or liquid service.

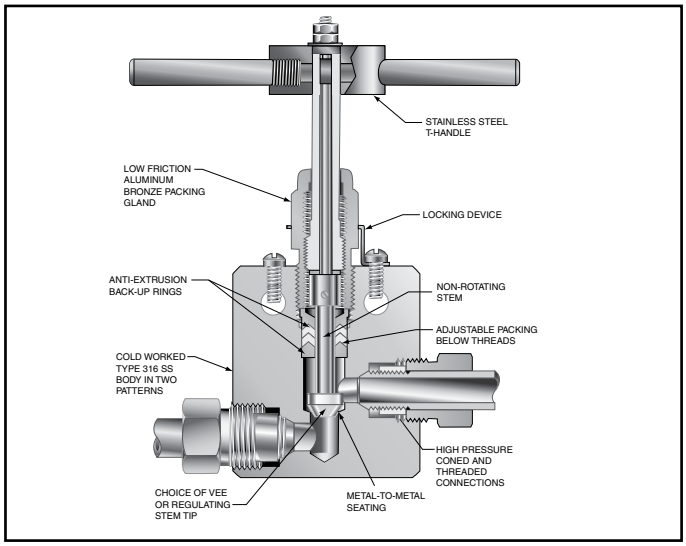
Needle Valves - SC Series

Pressures to 43,000 psi (2965 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
Series 30SC				
1	F1000C43	.438 (11.12)	2.6	30,000 (2068)
Series 43SC				
1	F1000C43	.438 (11.12)	2.6	43,000 (2965)

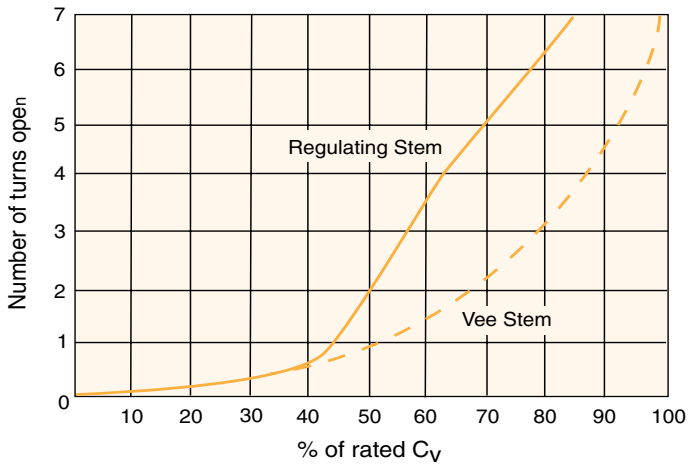
Notes:
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%.*

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. The 30SC Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **30SC16071**

30SC	16	07	1	—	XX
Valve Series	**Outside Diameter Tube Size**	**Stem/Seat Type**	**Body Pattern**		**Options**
30SC **43SC**	**16**-1”	**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 **88** - Regulating stem with replaceable seat	**1** - two-way straight **2** - two-way angle		For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-17.8°C) to 450°F (232°C). High temperature packing is available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number.

TG - standard valve with PTFE glass packing to 600°F (316°C).
GY - standard valve with graphite braided yarn packing to 800°F (427°C). 8,000 psi (569 bar) max.
HT - extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).
B - standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).
LT - extended stuffing box valve with PTFE packing & Cryogenic trim materials to -423°F (-252°C).
K - anti-vibration collet and gland assembly.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R30SC16071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found in the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

2-Way Straight

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
30SC16071	VEE	1"	0.438	4.13	2.06	0.72	3.50	2.75	4.44	10.25	1.62	0.56	8.42	1.25	1.12	1.75	
30SC16081	REG	(25.40)	(11.12)	(104.90)	(52.32)	(18.28)	(88.90)	(69.85)	(112.77)	(260.35)	(41.14)	(14.22)	(213.86)	(31.75)	(28.44)	(44.45)	See Figure 1
43SC16071	VEE	1"	0.438	4.88	2.44	0.72	3.50	2.75	4.44	10.25	1.62	0.56	8.42	1.25	1.12	2.25	
43SC16081	REG	(25.40)	(11.12)	(123.96)	(61.96)	(18.28)	(88.90)	(69.85)	(112.77)	(260.35)	(41.14)	(14.22)	(213.86)	(31.75)	(28.44)	(57.15)	

2-Way Angle

30SC16072	VEE	1"	0.438	4.13	2.06	0.72	2.75		5.12	10.25	1.62	0.56	9.35	1.25	1.12	1.75	
30SC16082	REG	(25.40)	(11.12)	(104.90)	(52.32)	(18.28)	(69.85)		(130.04)	(260.35)	(41.14)	(14.22)	(237.49)	(31.75)	(28.44)	(44.45)	See Figure 2
43SC16072	VEE	1"	0.438	4.88	2.44	0.72	2.75		5.12	10.25	1.62	0.56	9.35	1.25	1.12	2.25	
43SC16082	REG	(25.40)	(11.12)	(123.96)	(61.96)	(18.28)	(69.85)		(130.04)	(260.35)	(41.14)	(14.22)	(237.49)	(31.75)	(28.44)	(57.15)	

2-Way Angle/Replaceable Seat

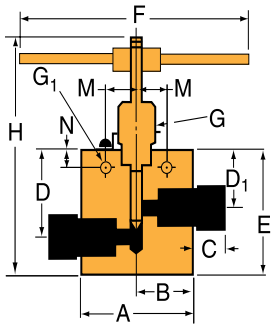
30SC16872	VEE	1"	0.438	4.13	2.06	0.72	2.75	4.31	5.24	10.25	1.62	0.56	10.56	1.25	1.12	1.75	
30SC16882	REG	(25.40)	(11.12)	(104.90)	(52.32)	(18.28)	(71.37)	(109.47)	(133.35)	(260.35)	(41.14)	(14.22)	(268.22)	(31.75)	(28.44)	(44.45)	See Figure 3
43SC16872	VEE	1"	0.438	4.88	2.44	0.72	2.75	4.31	5.24	10.25	1.62	0.56	10.56	1.25	1.12	2.25	
43SC16882	REG	(25.40)	(11.12)	(123.96)	(61.96)	(18.28)	(71.37)	(109.47)	(133.35)	(260.35)	(41.14)	(14.22)	(268.22)	(31.75)	(28.44)	(57.15)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

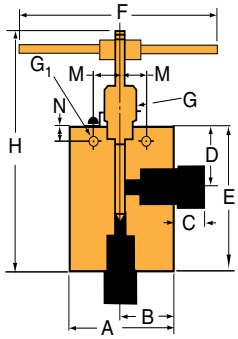
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 1



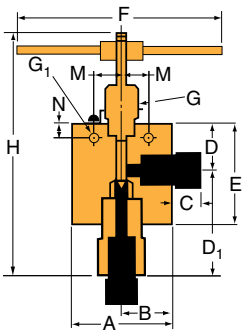
2-Way Straight

Figure 2



2-Way Angle

Figure 3



2-Way Angle / Replaceable Seat

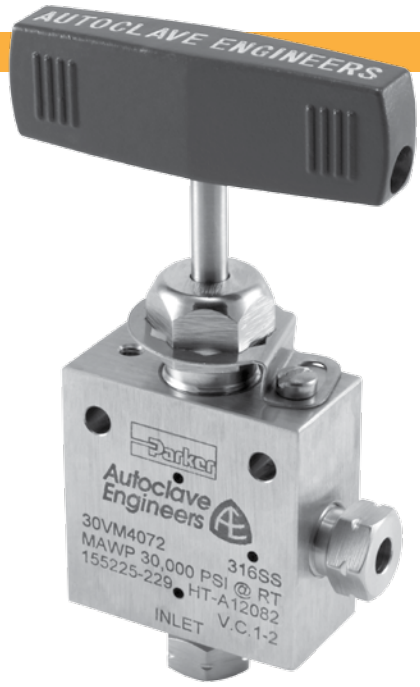
Needle Valves - 30VM Series

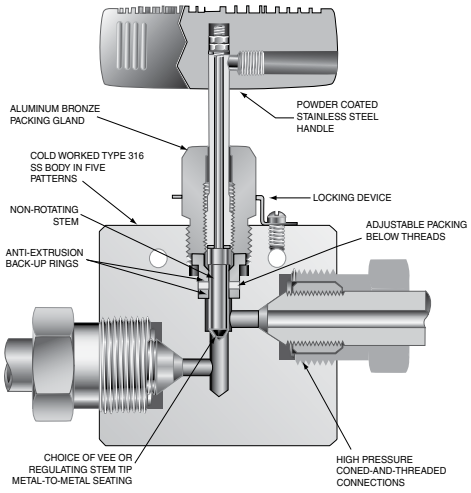
Pressures to 30,000 psi (2068 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/4	F250C	0.094 (2.39)	0.12	30,000 (2068)
3/8	F375C	0.125 (3.18)	0.23	30,000 (2068)
9/16	F562C	0.125 (3.18)	0.33	30,000 (2068)

Notes:
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%.*

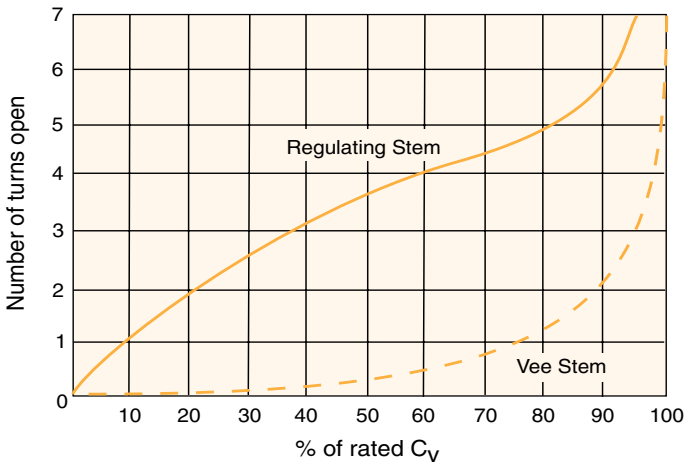
*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*





To ensure proper fit use Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. The 30VM Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **30VM4071**

30VM — **Valve Series**

4 — **Outside Diameter Tube Size**
- **4**-1/4”
- **6**-3/8”
- **9**-9/16”

07 — **Stem/Seat Type**
- **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
- **88** - Regulating stem with replaceable seat

1 — **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

—

XX — **Options**

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-17.8°C) to 450°F (232°C). High temperature packing is available for service from -423°F (-252°C) to 1200°F (644°C) by adding the following suffixes to catalog order number.

TG - standard valve with PTFE glass packing to 600°F (316°C).
GY - standard valve with graphite braided yarn packing to 800°F (427°C).
HT - extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).
B - standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).
LT - extended stuffing box valve with PTFE packing & Cryogenic trim materials to -423°F (-252°C).
K - anti-vibration collet and gland assembly.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R30VM4071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found in the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

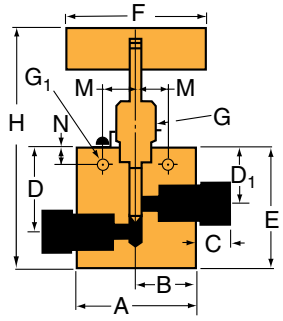
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thickness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
2-Way Straight																	
30VM4071	VEE	1/4	0.094	2.00	1.00	0.50	1.50	1.12	2.00	3.00	1.00	0.22	4.62	0.69	0.38	1.00	See Figure 1
30VM4081	REG	(6.35)	(2.39)	(50.80)	(25.40)	(12.70)	(38.10)	(28.45)	(50.80)	(76.20)	(25.40)	(5.59)	(117.35)	(17.53)	(9.65)	(25.40)	
30VM6071	VEE	3/8	0.125	2.00	1.00	0.53	1.50	1.12	2.00	3.00	1.00	0.22	4.68	0.69	0.38	1.00	
30VM6081	REG	(9.53)	(3.18)	(50.80)	(25.40)	(13.46)	(38.10)	(28.45)	(50.80)	(76.20)	(25.40)	(5.59)	(118.87)	(17.53)	(9.65)	(25.40)	
30VM9071	VEE	9/16	0.125	2.62	1.31	0.81	1.56	1.12	2.44	3.00	1.00	0.28	5.06	0.69	0.38	1.50	
30VM9081	REG	(14.29)	(3.18)	(66.55)	(33.27)	(20.57)	(39.62)	(28.45)	(61.98)	(76.20)	(25.40)	(7.11)	(128.52)	(17.53)	(9.65)	(38.10)	
2-Way Angle																	
30VM4072	VEE	1/4	0.094	2.00	1.00	0.50	1.12		2.00	3.00	1.00	0.22	4.62	0.69	0.38	1.00	See Figure 2
30VM4082	REG	(6.35)	(2.39)	(50.80)	(25.40)	(12.70)	(28.45)		(50.80)	(76.20)	(25.40)	(5.59)	(117.35)	(17.53)	(9.65)	(25.40)	
30VM6072	VEE	3/8	0.125	2.00	1.00	0.53	1.12		2.12	3.00	1.00	0.22	4.74	0.69	0.38	1.00	
30VM6082	REG	(9.53)	(3.18)	(50.80)	(25.40)	(13.46)	(28.45)		(53.85)	(76.20)	(25.40)	(5.59)	(120.40)	(17.53)	(9.65)	(25.40)	
30VM9072	VEE	9/16	0.125	2.62	1.31	0.81	1.12		2.44	3.00	1.00	0.28	5.06	0.69	0.38	1.50	
30VM9082	REG	(14.29)	(3.18)	(66.55)	(33.27)	(20.57)	(28.45)		(61.98)	(76.20)	(25.40)	(7.11)	(128.52)	(17.53)	(9.65)	(38.10)	
3-Way / 2 on Pressure																	
30VM4073	VEE	1/4	0.094	2.00	1.00	0.50	1.50	1.12	2.12	3.00	1.00	0.22	4.74	0.69	0.38	1.00	See Figure 3
30VM4083	REG	(6.35)	(2.39)	(50.80)	(25.40)	(12.70)	(38.10)	(28.45)	(53.85)	(76.20)	(25.40)	(5.59)	(120.40)	(17.53)	(9.65)	(25.40)	
30VM6073	VEE	3/8	0.125	2.00	1.00	0.53	1.50	1.12	2.50	3.00	1.00	0.22	5.12	0.69	0.38	1.00	
30VM6083	REG	(9.53)	(3.18)	(50.80)	(25.40)	(13.46)	(38.10)	(28.45)	(63.50)	(76.20)	(25.40)	(5.59)	(130.05)	(17.53)	(9.65)	(25.40)	
30VM9073	VEE	9/16	0.125	2.62	1.31	0.81	1.56	1.12	2.88	3.00	1.00	0.28	5.49	0.69	0.38	1.50	
30VM9083	REG	(14.29)	(3.18)	(66.55)	(33.27)	(20.57)	(39.62)	(28.45)	(73.15)	(76.20)	(25.40)	(7.11)	(139.45)	(17.53)	(9.65)	(38.10)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

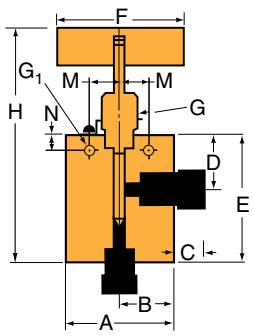
For prompt service, Parker Autoclave Engineers stock select products.Consult factory.

Figure 1



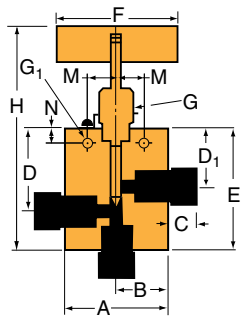
2-Way Straight

Figure 2



2-Way Angle

Figure 3



3-Way / 2 on Pressure

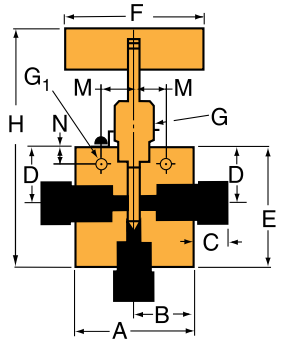
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
3-Way / 1 on Pressure																	
30VM4074	VEE	1/4	0.094	2.00	1.00	0.50	1.12		2.00	3.00	1.00	0.22	4.62	0.69	0.38	1.00	See Figure 4
30VM4084	REG	(6.35)	(2.39)	(50.80)	(25.40)	(12.70)	(28.45)		(50.80)	(76.20)	(25.40)	(5.59)	(117.35)	(17.53)	(9.65)	(25.40)	
30VM6074	VEE	3/8	0.125	2.00	1.00	0.53	1.12		2.12	3.00	1.00	0.22	4.74	0.69	0.38	1.00	
30VM6084	REG	(9.53)	(3.18)	(50.80)	(25.40)	(13.46)	(28.45)		(53.85)	(76.20)	(25.40)	(5.59)	(120.40)	(17.53)	(9.65)	(25.40)	
30VM9074	VEE	9/16	0.125	2.62	1.31	0.81	1.12		2.44	3.00	1.00	0.28	5.12	0.69	0.38	1.50	
30VM9084	REG	(14.29)	(3.18)	(66.55)	(33.27)	(20.57)	(28.45)		(61.98)	(76.20)	(25.40)	(7.11)	(130.05)	(17.53)	(9.65)	(38.10)	
2-Way Angle / Replaceable Seat																	
30VM4872	VEE	1/4	0.094	2.00	1.00	0.50	1.12	2.06	2.38	3.00	1.00	0.22	5.80	0.69	0.38	1.00	See Figure 5
30VM4882	REG	(6.35)	(2.39)	(50.80)	(25.40)	(12.70)	(28.45)	(52.32)	(60.45)	(76.20)	(25.40)	(5.59)	(147.32)	(17.53)	(9.65)	(25.40)	
30VM6872	VEE	3/8	0.125	2.00	1.00	0.53	1.12	2.31	2.38	3.00	1.00	0.22	6.05	0.69	0.38	1.00	
30VM6882	REG	(9.53)	(3.18)	(50.80)	(25.40)	(13.46)	(28.45)	(58.67)	(60.45)	(76.20)	(25.40)	(5.59)	(153.67)	(17.53)	(9.65)	(25.40)	
30VM9872	VEE	9/16	0.125	2.62	1.31	0.81	1.19	2.62	2.44	3.00	1.00	0.28	6.45	0.69	0.38	1.50	
30VM9882	REG	(14.29)	(3.18)	(66.55)	(33.27)	(20.57)	(30.23)	(66.55)	(61.98)	(76.20)	(25.40)	(7.11)	(163.83)	(17.53)	(9.65)	(38.10)	
3-Way / 2-Stem Manifold																	
30VM4075	VEE	1/4	0.094	2.00	1.00	0.50	1.53	1.12	3.06	3.00	1.00	0.22	5.68	0.69	0.38	1.00	See Figure 6
30VM4085	REG	(6.35)	(2.39)	(50.80)	(25.40)	(12.70)	(38.86)	(28.45)	(77.72)	(76.20)	(25.40)	(5.59)	(144.27)	(17.53)	(9.65)	(25.40)	
30VM6075	VEE	3/8	0.125	2.00	1.00	0.53	1.62	1.12	3.25	3.00	1.00	0.22	5.87	0.69	0.38	1.00	
30VM6085	REG	(9.53)	(3.18)	(50.80)	(25.40)	(13.46)	(41.15)	(28.45)	(82.55)	(76.20)	(25.40)	(5.59)	(149.10)	(17.53)	(9.65)	(25.40)	
30VM9075	VEE	9/16	0.125	2.62	1.31	0.81	1.88	1.12	3.75	3.00	1.00	0.28	6.37	0.69	0.38	1.50	
30VM9085	REG	(14.29)	(3.18)	(66.55)	(33.27)	(20.57)	(47.75)	(28.45)	(95.25)	(76.20)	(25.40)	(7.11)	(161.80)	(17.53)	(9.65)	(38.10)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

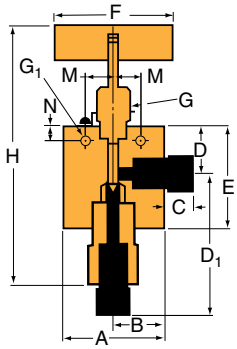
For prompt service, Parker Autoclave engineers stock select products. Consult factory.

Figure 4



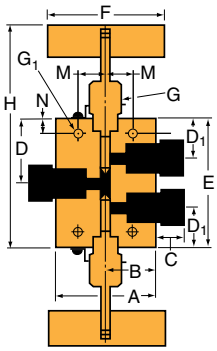
3-Way / 1 on Pressure

Figure 5



2-Way Angle / Replacable Seat

Figure 6



3-Way / 2-Stem Manifold

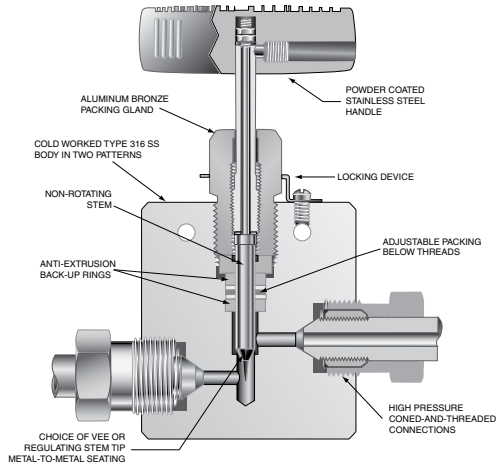
Needle Valves - 40VM Series

Pressures to 40,000 psi (2760 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
9/16	F562C40	0.109 (2.77)	0.28	40,000 (2760)

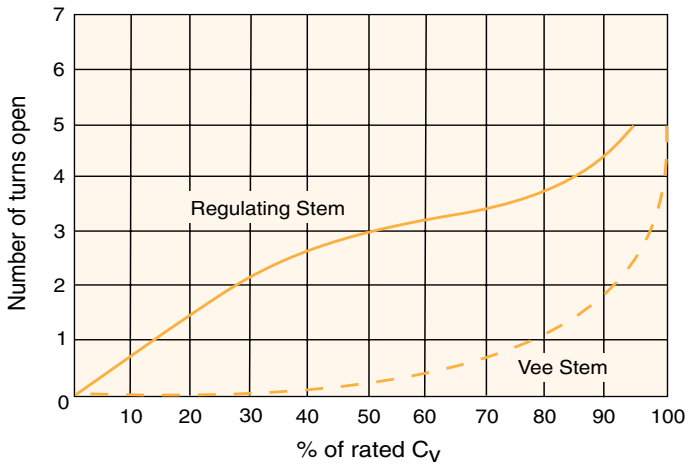
Notes:
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%.*

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Autoclave tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options Section or contact your Sales Representative. The 40VM Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **40VM9071**

40VM — **Valve Series**

9 — **Outside Diameter Tube Size**

9-9/16”

07 — **Stem/Seat Type**

- **07** - non-rotating Vee stem (on-off service)
- **08** - non-rotating regulating stem (tapered tip for regulating and shutoff)

1 — **Body Pattern**

- **1** - two-way straight
- **2** - two-way angle
- **5** - three-way, two-stem manifold valve

—

XX — **Options**

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-17.8°C) to 450°F (232°C). High temperature packing is available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number.

TG - standard valve with PTFE glass packing to 600°F (316°C). **See note below.**
GY - standard valve with graphite braided yarn packing to 800°F (427°C).
HT - extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).
B - standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).
LT - extended stuffing box valve with PTFE packing & Cryogenic trim materials to -423°F (-252°C).
K - anti-vibration collet and gland assembly.

Note: 40VM and 60VM valves supplied with Peak/PTFE Glass/Peek

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R40VM9071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found in the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

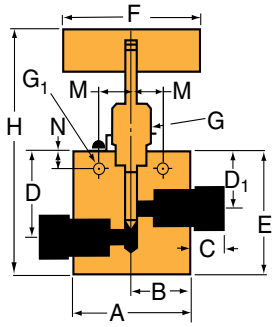
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
2-Way Straight																	
40VM9071	VEE	9/16	0.109	2.62	1.31	0.72	1.75	1.31	2.50	3.00	1.00	0.28	5.06	0.69	0.38	1.50	See Figure 1
40VM9081	REG	(14.3)	(2.77)	(66.55)	(33.27)	(18.29)	(44.45)	(33.27)	(63.50)	(76.20)	(25.40)	(7.11)	(128.52)	(17.53)	(9.65)	(38.10)	
2-Way Angle																	
40VM9072	VEE	9/16	0.109	2.62	1.31	0.72	1.31		2.81	3.00	1.00	0.28	5.37	0.69	0.38	1.50	See Figure 2
40VM9082	REG	(14.3)	(2.77)	(66.55)	(33.27)	(18.29)	(33.27)		(71.37)	(76.20)	(25.40)	(7.11)	(136.40)	(17.53)	(9.65)	(38.10)	
3-Way / 2 Stem Manifold																	
40VM9075	VEE	9/16	0.109	2.62	1.31	0.72	2.06	1.31	4.12	3.00	1.00	0.28	6.59	0.69	0.38	1.50	See Figure 3
40VM9085	REG	(14.3)	(2.77)	(66.55)	(33.27)	(18.29)	(52.32)	(33.27)	(104.65)	(76.20)	(25.40)	(7.11)	(167.39)	(17.53)	(9.65)	(38.10)	
2-Way Angle / Replaceable Seat																	
40VM9872	VEE	9/16	0.109	2.62	1.31	0.72	1.31	2.68	2.62	3.00	1.00	0.28	6.90	0.69	0.38	1.50	See Figure 4
40VM9882	REG	(14.29)	(2.77)	(66.55)	(33.27)	(18.29)	(33.27)	(68.07)	(66.55)	(76.20)	(25.40)	(7.11)	(175.26)	(17.53)	(9.65)	(38.10)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

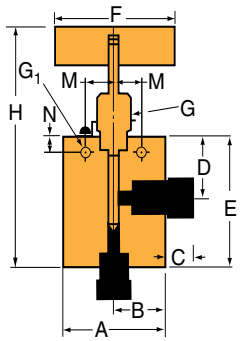
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 1



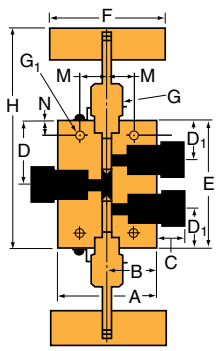
2-Way Straight

Figure 2



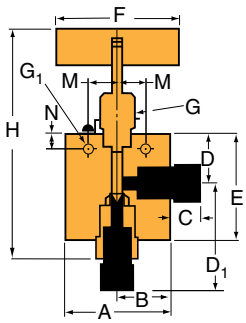
2-Way Angle

Figure 3



3-Way / 2 Stem Manifold

Figure 4



2-Way Angle / Replaceable Seat

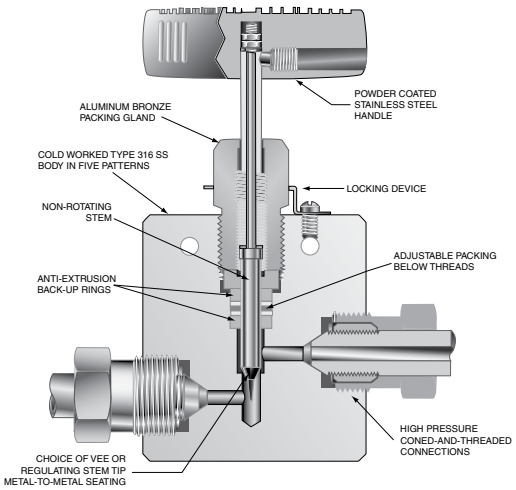
Needle Valves - 60VM Series

Pressures to 60,000 psi (4137 bar)

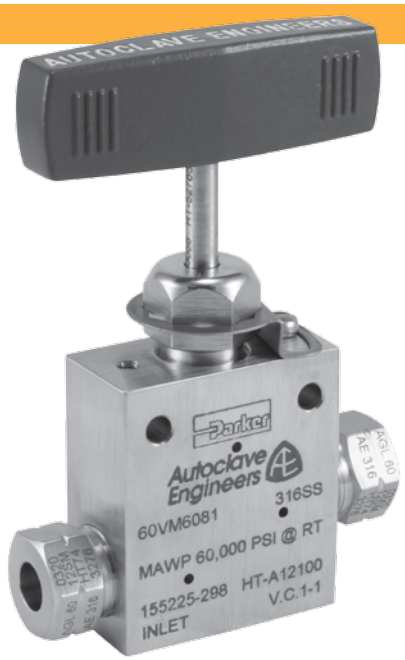
Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/4	F250C	0.062 (1.57)	0.08	60,000 (4137)
3/8	F375C	0.062 (1.57)	0.09	60,000 (4137)
9/16	F562C	0.078 (1.98)	0.14	60,000 (4137)

Notes:
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%.*

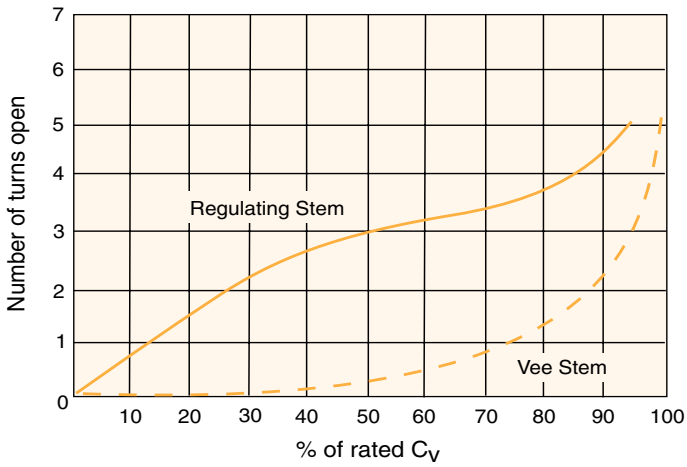
*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Autoclave tubing



Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. The 60VM Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **60VM4071**

60VM — **Valve Series**

4 — **Outside Diameter Tube Size**
- **4**-1/4”
- **6**-3/8”
- **9**-9/16”

07 — **Stem/Seat Type**
- **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
- **88** - Regulating stem with replaceable seat

1 — **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

—

XX — **Options**

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated from 0°F (-17.8°C) to 450°F (232°C). High temperature packing is available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number.

TG - standard valve with PTFE glass packing to 600°F (316°C). **See note below.**
GY - standard valve with graphite braided yarn packing to 800°F (427°C).
HT - extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).
B - standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).
LT - extended stuffing box valve with PTFE packing & Cryogenic trim materials to -423°F (-252°C).
K - anti-vibration collet and gland assembly.

Note: 40VM and 60VM valves supplied with Peak/PTFE Glass/Peek

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R60VM4071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found in the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

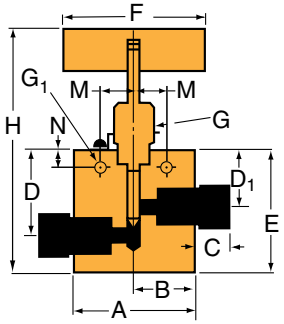
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
2-Way Straight																	
60VM4071	VEE	1/4	0.062	2.00	1.00	0.50	1.69	1.31	2.12	3.00	1.00	0.22	4.75	0.69	0.38	1.00	See Figure 1
60VM4081	REG	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(42.93)	(33.27)	(53.85)	(76.20)	(25.40)	(5.59)	(120.65)	(17.53)	(9.65)	(25.40)	
60VM6071	VEE	3/8	0.062	2.00	1.00	0.53	1.69	1.31	2.25	3.00	1.00	0.22	4.87	0.69	0.38	1.00	
60VM6081	REG	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(42.93)	(33.27)	(57.15)	(76.20)	(25.40)	(5.59)	(123.70)	(17.53)	(9.65)	(25.40)	
60VM9071	VEE	9/16	0.078	2.62	1.31	0.72	1.75	1.31	2.50	3.00	1.00	0.28	5.13	0.69	0.38	1.50	
60VM9081	REG	(14.29)	(1.98)	(66.55)	(33.27)	(18.29)	(45.45)	(33.27)	(63.50)	(76.20)	(25.40)	(7.11)	(130.30)	(17.53)	(9.65)	(38.10)	
2-Way Angle																	
60VM4072	VEE	1/4	0.062	2.00	1.00	0.50	1.31		2.38	3.00	1.00	0.22	5.00	0.69	0.38	1.00	See Figure 2
60VM4082	REG	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(33.27)		(60.45)	(76.20)	(25.40)	(5.59)	(127.00)	(17.53)	(9.65)	(25.40)	
60VM6072	VEE	3/8	0.062	2.00	1.00	0.53	1.31		2.62	3.00	1.00	0.22	5.25	0.69	0.38	1.00	
60VM6082	REG	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(33.27)		(66.55)	(76.20)	(25.40)	(5.59)	(133.35)	(17.53)	(9.65)	(25.40)	
60VM9072	VEE	9/16	0.078	2.62	1.31	0.72	1.31		2.81	3.00	1.00	0.28	5.44	0.69	0.38	1.50	
60VM9082	REG	(14.29)	(1.98)	(66.55)	(33.27)	(18.29)	(33.27)		(71.37)	(76.20)	(25.40)	(7.11)	(138.18)	(17.53)	(9.65)	(38.10)	
3-Way / 2 on Pressure																	
60VM4073	VEE	1/4	0.062	2.00	1.00	0.50	1.69	1.31	2.38	3.00	1.00	0.22	4.75	0.69	0.38	1.00	See Figure 3
60VM4083	REG	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(42.93)	(33.27)	(60.45)	(76.20)	(25.40)	(5.59)	(120.65)	(17.53)	(9.65)	(25.40)	
60VM6073	VEE	3/8	0.062	2.00	1.00	0.53	1.69	1.31	2.75	3.00	1.00	0.22	4.87	0.69	0.38	1.00	
60VM6083	REG	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(42.93)	(33.27)	(68.86)	(76.20)	(25.40)	(5.59)	(123.70)	(17.53)	(9.65)	(25.40)	
60VM9073	VEE	9/16	0.078	2.62	1.31	0.72	1.75	1.31	3.03	3.00	1.00	0.28	5.13	0.69	0.38	1.50	
60VM9083	REG	(14.29)	(1.98)	(66.55)	(33.27)	(18.29)	(45.45)	(33.27)	(76.96)	(76.20)	(25.40)	(7.11)	(130.30)	(17.53)	(9.65)	(38.10)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

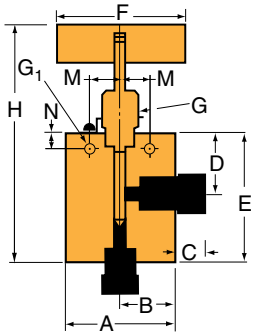
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 1



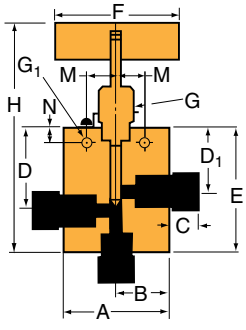
2-Way Straight

Figure 2



2-Way Angle

Figure 3



3-Way / 2 on Pressure

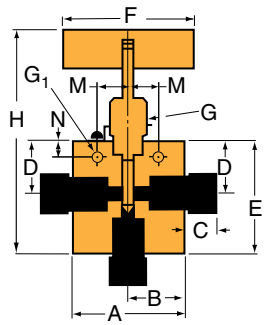
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
3-Way / 1 on Pressure																	
60VM4074	VEE	1/4	0.062	2.00	1.00	0.50	1.31		2.38	3.00	1.00	0.22	5.00	0.69	0.38	1.00	See Figure 4
60VM4084	REG	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(33.27)		(60.45)	(76.20)	(25.40)	(5.59)	(127.00)	(17.53)	(9.65)	(25.40)	
60VM6074	VEE	3/8	0.062	2.00	1.00	0.53	1.31		2.62	3.00	1.00	0.22	5.25	0.69	0.38	1.00	
60VM6084	REG	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(33.27)		(66.55)	(76.20)	(25.40)	(5.59)	(133.35)	(17.53)	(9.65)	(25.40)	
60VM9074	VEE	9/16	0.078	2.62	1.31	0.72	1.31		2.81	3.00	1.00	0.28	5.44	0.69	0.38	1.50	
60VM9084	REG	(14.29)	(1.98)	(66.55)	(33.27)	(18.29)	(33.27)		(71.37)	(76.20)	(25.40)	(7.11)	(138.18)	(17.53)	(9.65)	(38.10)	
2-Way Angle / Replaceable Seat																	
60VM4872	VEE	1/4	0.062	2.00	1.00	0.50	1.31	2.12	2.62	3.00	1.00	0.22	6.28	0.69	0.38	1.00	See Figure 5
60VM4882	REG	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(33.27)	(53.85)	(66.55)	(76.20)	(25.40)	(5.59)	(159.51)	(17.53)	(9.65)	(25.40)	
60VM6872	VEE	3/8	0.062	2.00	1.00	0.53	1.31	2.36	2.62	3.00	1.00	0.22	6.52	0.69	0.38	1.00	
60VM6882	REG	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(33.27)	(59.94)	(66.55)	(76.20)	(25.40)	(5.59)	(165.60)	(17.53)	(9.65)	(25.40)	
60VM9872	VEE	9/16	0.078	2.62	1.31	0.72	1.31	2.68	2.62	3.00	1.00	0.28	6.90	0.69	0.38	1.50	
60VM9882	REG	(14.29)	(1.98)	(66.55)	(33.27)	(18.29)	(33.27)	(68.07)	(66.55)	(76.20)	(25.40)	(7.11)	(175.26)	(17.53)	(9.65)	(38.10)	
3-Way / 2-Stem Manifold																	
60VM4075	VEE	1/4	0.062	2.00	1.00	0.50	1.72	1.31	3.44	3.00	1.00	0.22	6.07	0.69	0.38	1.00	See Figure 6
60VM4085	REG	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(43.69)	(33.27)	(87.38)	(76.20)	(25.40)	(5.59)	(154.18)	(17.53)	(9.65)	(25.40)	
60VM6075	VEE	3/8	0.062	2.00	1.00	0.53	1.88	1.31	3.75	3.00	1.00	0.22	6.37	0.69	0.38	1.00	
60VM6085	REG	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(47.75)	(33.27)	(95.25)	(76.20)	(25.40)	(5.59)	(161.80)	(17.53)	(9.65)	(25.40)	
60VM9075	VEE	9/16	0.078	2.62	1.31	0.72	2.06	1.31	4.12	3.00	1.00	0.28	6.37	0.69	0.38	1.50	
60VM9085	REG	(14.29)	(1.98)	(66.55)	(33.27)	(18.29)	(52.32)	(33.27)	(104.65)	(76.20)	(25.40)	(7.11)	(161.80)	(17.53)	(9.65)	(38.10)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

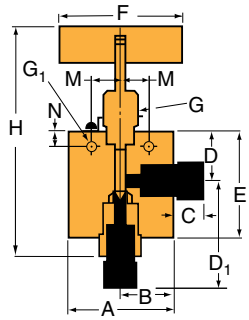
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 4



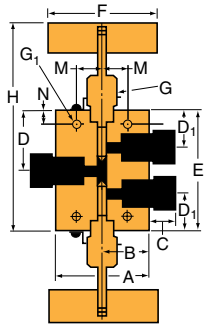
3-Way / 1 on Pressure

Figure 5



2-Way Angle / Replaceable Seat

Figure 6



3-Way / 2 Stem Manifold

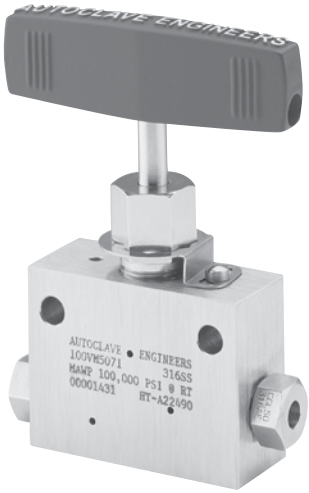
Needle Valves - 100VM & 150V Series

Pressures to 150,000 psi (10350 bar)

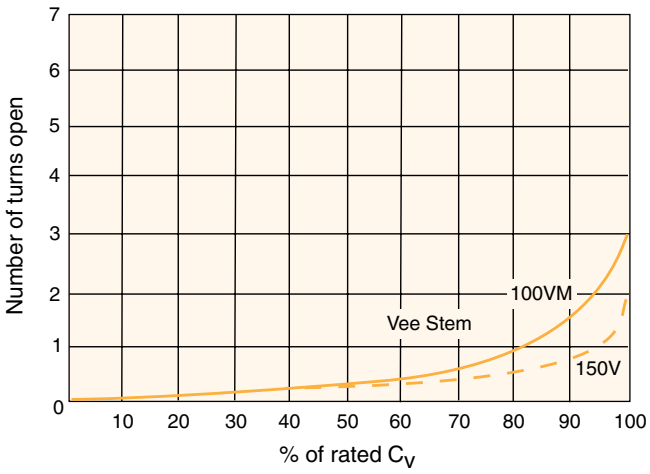
Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
Series 100VM				
1/4, 5/16, 3/8	F312C150	0.062 (1.57)	.09	100,000 (6895)
Series 150V				
5/16	F312C150	0.062 (1.57)	.06	150,000 (10342)

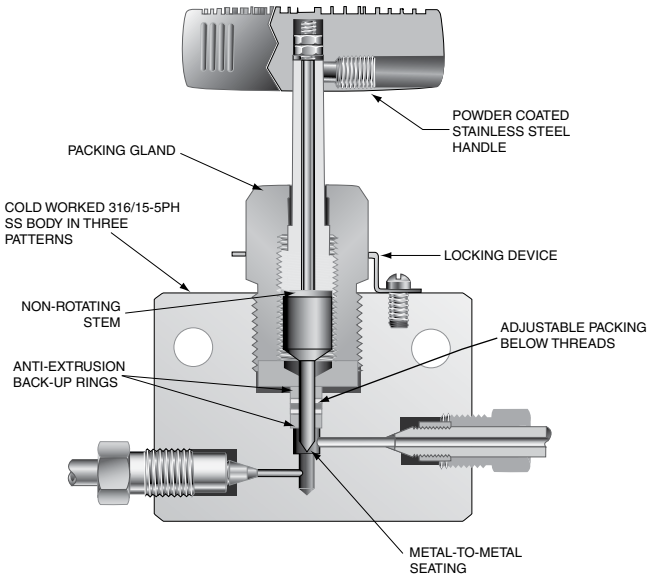
Notes:
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%.*

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*

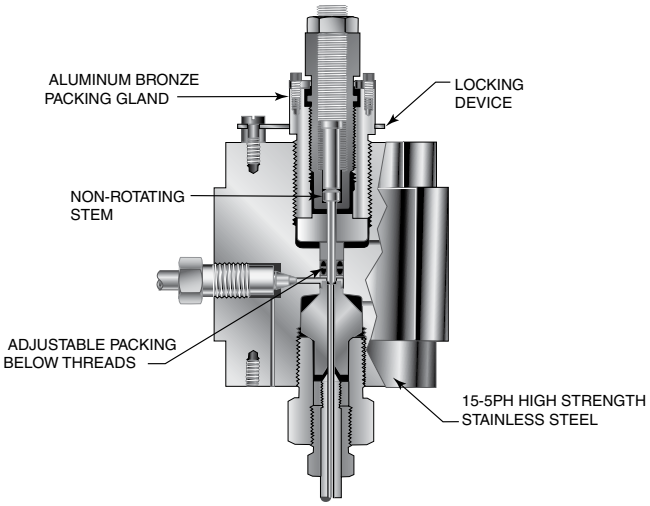


Generalized Flow Coefficient Curves (C_V)





100VM Series



Notes: Torque wrench required to operate valves.

150V Series

To ensure proper fit use Autoclave tubing

Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. The 100V Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **100VM5071**

100VM	5	07	1	—	XX
Valve Series 100VM 150V	**Outside Diameter Tube Size** ***4**-1/4" **5**-5/16" ***6**-3/8"	**Stem Type** **07** - non-rotating Vee stem (on off service) **08** - non-rotating regulating stem (tapered tip for regulating shutoff	**Body Pattern** **1** - two-way straight **2** - two-way angle **3** - three-way, two on pressure		**Options** For extreme temperature and other options, see Valve Options.

* Note: 1/4" and 3/8" for 100VM only.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C), and to 230°F (110°C) with nylon-leather packing.
K - anti-vibration collet and gland assembly.

For other packing options consult the factory.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R100VM15071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found in the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

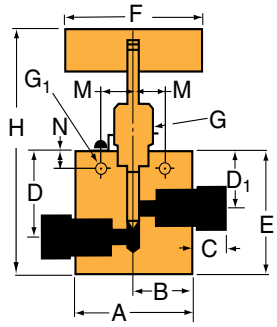
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)													Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N			
2-Way Straight																		
100VM4071 100VM5071 100VM6071	VEE	1/4" (6.35) 5/16" (7.93) 3/8" (9.53)	0.062 (1.57)	3.00 (76.20)	1.50 (38.10)	0.52 (13.21)	1.75 (44.45)	1.44 (36.58)	2.25 (57.15)	4.00 (101.60)	1.12 (28.45)	0.34 (8.64)	5.32 (135.13)	1.12 (28.45)	0.50 (12.70)	1.38 (35.05)		**See Figure 1**
2-Way Angle																		
100VM4072 100VM5072 100VM6072	VEE	1/4" (6.35) 5/16" (7.93) 3/8" (9.53)	0.062 (1.57)	2.25 (57.15)	1.50 (38.10)	0.52 (13.21)	1.44 (36.58)		3.00 (76.20)	4.00 (101.60)	1.12 (28.45)	0.34 (8.64)	6.05 (153.67)	0.94 (23.88)	0.50 (12.70)	1.38 (35.05)		**See Figure 2**

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

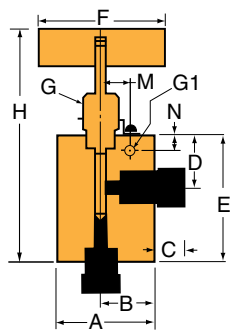
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 1



2-Way Straight

Figure 2



2-Way Angle

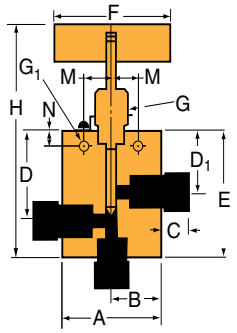
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)												Block Thick-ness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N		
3-Way / 2 On Pressure																	
100VM4073 100VM5073 100VM6073	VEE	1/4" (6.35) 5/16" (7.93) 3/8" (9.53)	0.062 (1.57)	3.00 (76.20)	1.50 (38.10)	0.52 (13.21)	1.75 (44.45)	1.44 (36.58)	3.25 (82.55)	4.00 (101.60)	1.12 (28.45)	0.34 (8.64)	6.31 (160.27)	1.12 (28.45)	0.50 (12.70)	1.38 (35.05)	**See Figure 3**
2-Way Angle/Replaceable Seat																	
100VM4872 100VM5872 100VM6872	VEE	1/4" (6.35) 5/16" (7.93) 3/8" (9.53)	0.062 (1.57)	2.25 (57.15)	1.50 (38.10)	0.52 (13.21)		1.44 (36.58)	3.00 (76.20)	4.00 (101.60)	1.12 (28.45)	0.34 (8.64)	7.57 (192.30)	0.94 (23.88)	0.50 (12.70)	1.38 (35.05)	**See Figure 4**
2-Way Angle / Replaceable Seat																	
150V5072	VEE	5/16 (7.93)	0.062 (1.57)	3.75 (95.25)	1.88 (47.63)	.052 (13.21)	2.25 (57.15)	2.63 (66.80)	4.00 (101.60)		1.650 (41.91)		7.12 (180.85)	1.25† (31.75)			**See Figure 5**

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.
See mounting note below for 150V series.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

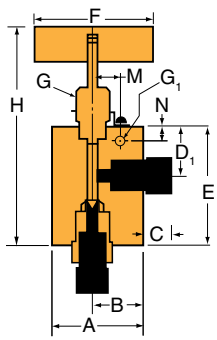
For prompt service, Parker Autoclave Engineers stock select products. Consult factory.

Figure 3



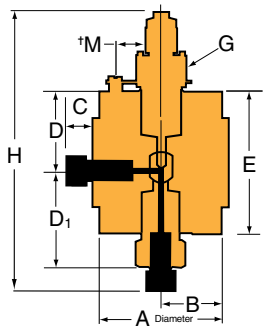
3-Way / 2 on Pressure

Figure 4



2-Way Angle / Replaceable Seat

Figure 5



2-Way Angle / Replaceable Seat

† (2) 1/4"-20 mounting holes 180° apart and (1) locking device screw 90° apart

Needle Valves

Pipe Valves

P Series

Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave Engineers a reputation for reliable efficient product performance. Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, research, and oil and gas industries.

Pipe Valve Features:

- P Series valve design provides in-line pipe connections for 1/4” to 1” pipe sizes. 1/8 connections offset.
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling (1/8" NPT rotating stem design).
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tips.
- Operating temperature range from -423°F (-252°C) to 400°F (204°C).

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, check valves and line filters.

Parker

Autoclave Engineers

www.autoclave.com

Valve Series - P Series

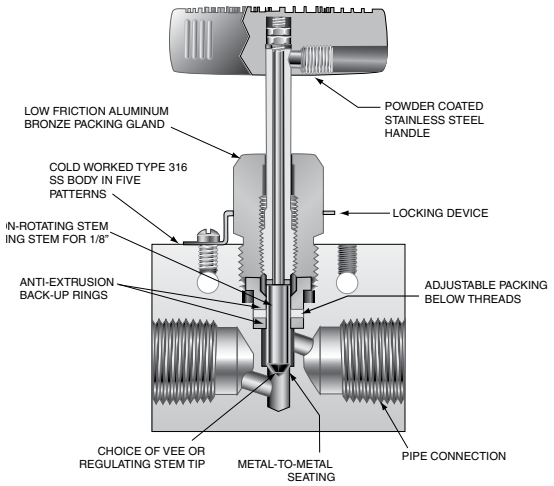
Pressures to 15,000 psi (1034 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/8	Pipe	0.078 (1.98)	0.11	15,000 (1034)
1/4	Pipe	0.203 (5.16)	0.63	15,000 (1034)
3/8	Pipe	0.219 (5.56)	0.75	15,000 (1034)
1/2	Pipe	0.312 (7.92)	1.30	15,000 (1034)
3/4	Pipe	0.438 (11.13)	2.50	10,000 (690)
1	Pipe	0.562 (14.27)	4.40	10,000 (690)

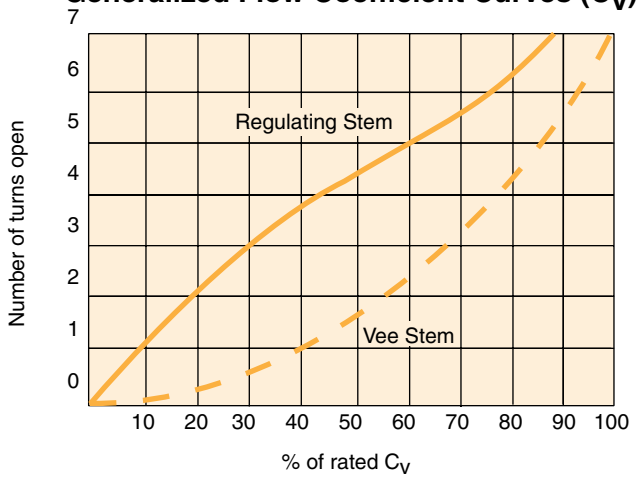
Notes:

* *C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%. (Based on water)*

** *For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative.

Typical catalog number: **15P4071**

15P — Valve Series

10P-10,000 psi (690 bar)
15P-15,000 psi (1034 bar)

4 — Nominal Pipe Size

2-1/8”
4-1/4”
6-3/8”
8-1/2”
12-3/4”
16-1”

Note: 3/4" and 1" 10,000 psi (690 bar) max.

07 — Stem/Seat Type

00 - rotating Vee stem (on-off service)
01 - rotating regulating stem (tapered tip for regulating and shut off)
07 - non-rotating Vee stem (on-off service)
08 - non-rotating regulating stem (tapered tip for regulating and shutoff)

1 — 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

XX — Options

For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box is available for service from 0°F (-17.8°C) to 650°F (343°C) by adding the following suffixes to catalog order number. †

TG standard valve with PTFE glass packing to 600°F (316°C).

GY standard valve with graphite braided yarn packing to 650°F (343°C).

B standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).

LT extended stuffing box valve with Teflon packing and cryogenic trim materials to -423°F (-252°C).

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R15P4071 or R10P12071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

† Parker Autoclave Engineers recommends pipe connections be operated between -423°F (-252°C) and 400°F (204°C). For additional valve options, contact your Sales Representative.

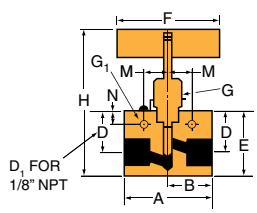
Catalog Number	Stem Type	Pipe Size	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H	M	N	Block Thickness	Valve Pattern
2-Way Straight																	
15P2001	VEE	1/8	0.078	1.50	0.75		0.56	0.82	1.25	1.75	0.56	0.16	2.53	0.45	0.20	0.63	
15P2011	REG	(3.18)	(1.98)	(38.10)	(19.05)		(14.22)	(20.62)	(31.75)	(44.45)	(14.22)	(4.06)	(64.26)	(11.43)	(5.16)	(15.88)	
15P4071	VEE	1/4	0.203	2.00	1.00		1.41		2.00	3.00	0.75	0.22	4.63	0.62	0.38	0.75	
15P4081	REG	(6.35)	(5.16)	(50.80)	(25.40)		(35.81)		(50.80)	(76.20)	(19.05)	(5.59)	(117.60)	(15.75)	(9.65)	(19.05)	
15P6071	VEE	3/8	0.219	2.50	1.25		1.41		2.00	3.00	0.75	0.22	4.63	0.62	0.38	1.00	
15P6081	REG	(9.53)	(5.56)	(63.50)	(31.75)		(35.81)		(50.80)	(76.20)	(19.05)	(5.59)	(117.60)	(15.75)	(9.65)	(25.4)	**See Figure 1**
15P8071	VEE	1/2	0.312	3.00	1.50		2.06		2.88	4.00	1.00	0.34	5.93	0.69	0.50	1.38	
15P8081	REG	(12.70)	(7.92)	(76.20)	(38.10)		(52.32)		(73.15)	(101.60)	(25.40)	(8.64)	(150.62)	(17.53)	(12.70)	(35.05)	
10P12071	VEE	3/4	0.437	3.50	1.75		2.63		3.75	10.25	1.12	0.44	7.00	0.88	0.63	1.75	
10P12081	REG	(19.05)	(11.10)	(88.90)	(44.45)		(66.80)		(95.25)	(260.35)	(28.45)	(11.18)	(177.80)	(22.35)	(16.00)	(44.45)	
10P16071	VEE	1	0.562	4.12	2.06		3.31		4.62	10.25	1.62	0.56	9.00	1.25	1.13	1.75	
10P16081	REG	(25.40)	(14.27)	(104.65)	(52.32)		(84.07)		(117.35)	(260.35)	(41.15)	(14.22)	(228.60)	(31.75)	(28.70	(44.45)	
2-Way Angle																	
15P2002	VEE	1/8	0.078	1.50	0.75		0.56		1.38	1.75	0.56	0.16	2.66	0.45	0.20	0.63	
15P2012	REG	(3.18)	(1.98)	(38.10)	(19.05)		(14.22)		(34.93)	(44.45)	(14.22)	(4.06)	(67.56)	(11.43)	(5.16)	(15.88)	
15P4072	VEE	1/4	0.203	2.00	1.00		1.41		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	
15P4082	REG	(6.35)	(5.16)	(50.80)	(25.40)		(35.81)		(61.98)	(76.20)	(19.05)	(5.59)	(122.17)	(15.75)	(9.65)	(19.05)	
15P6072	VEE	3/8	0.219	2.50	1.25		1.41		2.44	3.00	0.75	0.22	4.81	0.62	0.38	1.00	
15P6082	REG	(9.53)	(5.56)	(63.50)	(31.75)		(35.81)		(61.98)	(76.20)	(19.05)	(5.59)	(122.17)	(15.75)	(9.65)	(25.40)	**See Figure 2**
15P8072	VEE	1/2	0.312	3.00	1.50		2.06		3.38	4.00	1.00	0.34	6.43	0.69	0.50	1.38	
15P8082	REG	(12.70)	(7.92)	(76.20)	(38.10)		(52.32)		(85.85)	(101.60)	(25.40)	(8.64)	(163.32)	(17.53)	(12.70)	(35.05)	
10P12072	VEE	3/4	0.437	3.50	1.75		2.63		4.25	10.25	1.12	0.44	7.50	0.88	0.63	1.75	
10P12082	REG	(19.05)	(11.10)	(88.90)	(44.45)		(66.80)		(107.95)	(260.35)	(28.45)	(11.18)	(190.50)	(22.35)	(16.00)	(44.45)	
10P16072	VEE	1	0.562	4.12	2.06		3.31		5.12	10.25	1.62	0.56	9.00	1.25	1.13	1.75	
10P16082	REG	(25.40)	(14.27)	(104.65)	(52.32)		(84.07)		(130.05)	(260.35)	(41.15)	(14.22)	(228.60)	(31.75)	(28.70	(44.45)	
3-Way / 2 on Pressure																	
15P4073	VEE	1/4	0.203	2.00	1.00		1.41		2.62	3.00	0.75	0.22	5.00	0.62	0.38	0.75	
15P4083	REG	(6.35)	(5.16)	(50.80)	(25.40)		(35.71)		(66.55)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(19.05)	
15P6073	VEE	3/8	0.219	2.50	1.25		1.41		2.62	3.00	0.75	0.22	5.00	0.62	0.38	1.00	
15P6083	REG	(9.53)	(5.56)	(63.50)	(31.75)		(35.71)		(66.55)	(76.20)	(19.05)	(5.59)	(127.00)	(15.75)	(9.65)	(25.40)	
15P8073	VEE	1/2	0.312	3.00	1.50		2.06		3.62	4.00	1.00	0.34	6.52	0.69	0.50	1.38	**See Figure 3**
15P8083	REG	(12.70)	(7.92)	(76.20)	(38.10)		(52.40)		(91.95)	(101.60)	(25.40)	(8.64)	(165.61)	(17.53)	(12.70)	(35.05)	
10P12073	VEE	3/4	0.437	3.50	1.75		2.65		4.62	10.25	1.12	0.44	7.88	0.88	0.63	1.75	
10P12083	REG	(19.05)	(11.10)	(88.90)	(44.45)		(67.31)		(117.35)	(260.35)	(28.45)	(11.18)	(200.15)	(22.35)	(16.00)	(44.45)	
10P16073	VEE	1	0.562	4.12	2.06		3.31		5.88	10.25	1.62	0.56	9.75	1.25	1.13	1.75	
10P16083	REG	(25.40)	(14.27)	(104.65)	(52.32)		(84.12)		(149.35)	(260.35)	(41.15)	(14.22)	(247.65)	(31.75)	(28.70)	(44.45)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves. Panel mount screws for the 1/8" NPT are M3.5 x .7 thd.

** H Dimension is with stem in closed position.*

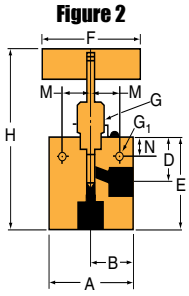
For prompt service, Parker Autoclave stocks select products. Consult factory.
All dimensions for reference only and subject to change.

Figure 1



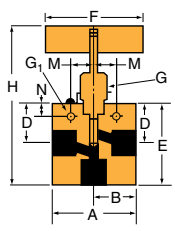
2-Way Straight

Figure 2



2-Way Angle

Figure 3



3-Way /2 on Pressure

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thick-ness	Valve Pattern
3-Way / 1 on Pressure																	
15P4074	VEE	1/4	.0203	2.00	1.00		1.41		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75	See Figure 4
15P4084	REG	(6.35)	(5.16)	(50.80)	(25.40)		(35.71)		(61.98)	(76.20)	(19.05)	(5.59)	(122.17)	(15.75)	(9.65)	(19.05)	
15P6074	VEE	3/8	0.219	2.50	1.25		1.41		2.44	3.00	0.75	0.22	4.81	0.62	0.38	1.00	
15P6084	REG	(9.53)	(5.56)	(63.50)	(31.75)		(35.71)		(61.98)	(76.20)	(19.05)	(5.59)	(122.17)	(15.75)	(9.65)	(25.40)	
15P8074	VEE	1/2	0.312	3.00	1.50		2.06		3.38	4.00	1.00	0.34	6.31	0.69	0.50	1.38	
15P8084	REG	(12.70)	(7.92)	(76.20)	(38.10)		(52.40)		(85.85)	(101.60)	(25.40)	(8.64)	(160.27)	(17.53)	(12.70)	(35.05)	
10P12074	VEE	3/4	0.437	3.50	1.75		2.65		4.25	10.25	1.12	0.44	7.50	0.88	0.63	1.75	
10P12084	REG	(19.05)	(11.10)	(88.90)	(44.45)		(67.31)		(107.95)	(260.35)	(28.45)	(11.18)	(190.50)	(22.35)	(16.00)	(44.45)	
10P16074	VEE	1	0.562	4.12	2.06		3.31		5.12	10.25	1.62	0.56	9.09	1.25	1.13	1.75	
10P16084	REG	(25.40)	(14.27)	(104.65)	(52.32)		(84.07)		(130.05)	(260.35)	(41.15)	(14.22)	(230.89)	(31.75)	(28.70)	(44.45)	
3-Way/2-Stem Manifold																	
15P4075	VEE	1/4	0.203	2.00	1.00		1.69	1.19	3.38	3.00	0.75	0.22	5.75	0.62	0.38	0.75	See Figure 5
15P4085	REG	(6.35)	(5.16)	(50.80)	(25.40)		(42.88)	(30.18)	(85.85)	(76.20)	(19.05)	(5.59)	(146.05)	(15375)	(9.65)	(19.05)	
15P6075	VEE	3/8	0.219	2.50	1.25		1.69	1.19	3.38	3.00	0.75	0.22	5.75	0.62	0.38	1.00	
15P6085	REG	(9.53)	(5.56)	(63.50)	(31.75)		(42.88)	(30.18)	(85.85)	(76.20)	(19.05)	(5.59)	(146.05)	(15.75)	(9.65)	(25.40)	
15P8075	VEE	1/2	0.312	3.00	1.50		2.56	1.75	5.12	4.00	1.00	0.34	8.05	0.69	0.50	1.38	
15P8085	REG	(12.70)	(7.92)	(76.20)	(38.10)		(65.07)	(44.45)	(130.05)	(101.60)	(25.40)	(8.64)	(204.47)	(17.53)	(12.70)	(35.05)	
10P12075	VEE	3/4	0.437	3.50	1.75		3.25	2.25	6.50	10.25	1.12	0.44	9.75	0.88	0.63	1.75	
10P12085	REG	(19.05)	(11.10)	(88.90)	(44.45)		(82.55)	(57.15)	(165.10)	(260.35)	(28.45)	(11.18)	(247.65)	(22.35)	(16.00)	(44.45)	
10P16075	VEE	1	0.562	4.12	2.06		3.75	2.81	7.50	10.25	1.62	0.56	11.47	1.25	1.13	1.75	
10P16085	REG	(25.40)	(14.27)	(104.65)	(52.32)		(95.25)	(71.42)	(190.50)	(260.35)	(41.15)	(14.22)	(291.38)	(31.75)	(28.70)	(44.45)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

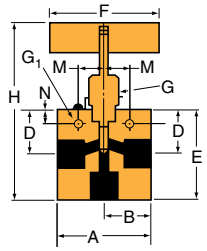
***H Dimension is with stem in closed position.**
All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

NOTE: NPT (Pipe) Connections:

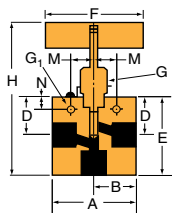
- NPT threads must be sealed using a high quality PTFE tape and/or paste product. Refer to thread sealant manufacturer's instructions on how to apply thread sealant.
- Sealing performance may vary based on many factors such as pressure, temperature, media, thread quality, thread material, proper thread engagement and proper use of thread sealant.
- Customer should limit the number of times an NPT fitting is assembled and disassembled because thread deformation during assembly will result in deteriorating seal quality over time. When using only PTFE tape, consider using thread lubrication to prevent galling of mating parts.

Figure 4



3-Way/1 on Pressure

Figure 5



3-Way/2-Stem Manifold

WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.
This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).

02-1251SE January2013

Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

ISO-9001 Certified

Needle Valves

Mini Valves

MVE/MV Series

Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave a reputation for reliable efficient product performance.
Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, research, and oil and gas industries.

Mini Valve Features:

- Mini valve provides a rugged compact design.
- Tubing sizes available are 1/16” and 1/8”.
- Rising stem/barstock body design.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem and packing gland design have been selected to achieve extended thread cycle life and reduced handle torque.
- Vee stem tip provided.
- Available in five body patterns.
- Mini valves available with metric tube glands.

Parker Autoclave Engineers valves are complemented by a complete line of mini fittings and tubing. The MVE/MV Series uses Parker Autoclave Engineers' SpeedBite connection. This single-ferrule compression sleeve connection delivers fast, easy make-up and reliable bubble-tight performance in liquid or gas service.

Parker

Autoclave Engineers

www.autoclave.com

Needle Valves - MVE/MV Series

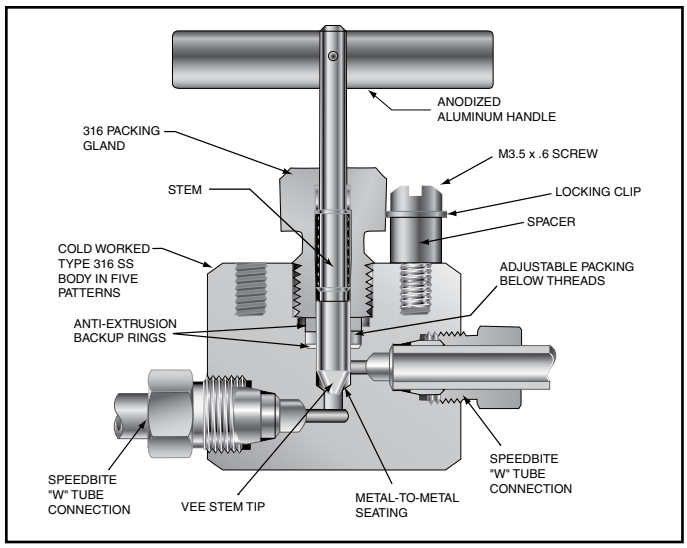
Pressures to 15,000 psi (1034 bar)

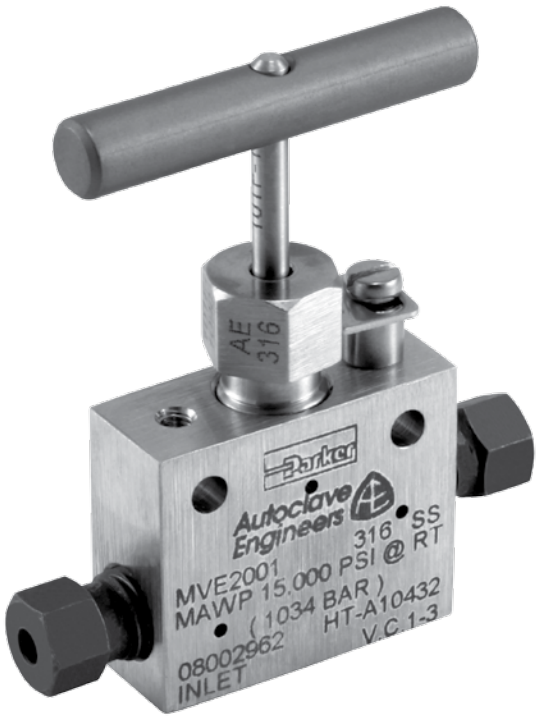
Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V*	Pressure Rating psi (bar) @ Room Temperature**
1/16	W062	0.055 (1.40)	0.05	15,000 (1034)
1/8	W125	0.078 (1.98)	0.11	15,000 (1034)

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)*

** *For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*





To ensure proper fit use Parker Autoclave tubing

Ordering Procedure

For complete information on valve options, contact your Sales Representative. MVE Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **MVE2001**

MVE — **2** — **00** — **1** — — **XX**

MVE Valve Series

MVE - 3/8 Hex tubing glands

MV - 10mm Hex tubing glands

2 Outside Diameter Tube Size

1-1/16”
2-1/8”

00 Stem Type

00 - rotating Vee stem (on-off service)

01 - rotating Regulating stem (tapered tip for regulating and shut-off)

1 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

XX Options

See valve options for ratings.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing is available for service from 0°F (-17.8°C) to 600°F (316°C) by adding the following suffixes to catalog order number.†
TG standard valve with PTFE glass packing to 600°F (316°C).

†*Parker Autoclave Engineers does not recommend compression sleeve connections below 0°F (-17.8°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.*

Valve Maintenance

Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

2-Way Straight

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
MVE1001	VEE	1/16	0.055	1.38	0.69	0.45	0.81	0.56	1.13	1.75	0.56	0.16	2.38	0.45	0.20	0.56	See Figure 1
MV1001	VEE	(1.57)	(1.40)	(34.93)	(17.45)	(11.43)	(20.65)	(14.30)	(28.58)	(44.45)	(14.27)	(4.04)	(60.38)	(11.49)	(5.16)	(14.27)	
MVE2001	VEE	1/8	0.078	1.38	0.69	0.45	0.81	0.56	1.13	1.75	0.56	0.16	2.38	0.45	0.20	0.56	
MV2001	VEE	(3.18)	(1.98)	(34.93)	(17.45)	(11.43)	(20.65)	(14.30)	(28.58)	(44.45)	(14.27)	(4.04)	(60.38)	(11.49)	(5.16)	(14.27)	

2-Way Angle

MVE1002	VEE	1/16	0.055	1.38	0.69	0.45	0.56		1.38	1.75	0.56	0.16	2.63	0.45	0.20	0.56	See Figure 2
MV1002	VEE	(1.57)	(1.40)	(34.93)	(17.45)	(11.43)	(14.30)		(34.93)	(44.45)	(14.27)	(4.04)	(66.75)	(11.49)	(5.16)	(14.27)	
MVE2002	VEE	1/8	0.078	1.38	0.69	0.45	0.56		1.38	1.75	0.56	0.16	2.38	0.45	0.20	0.56	
MV2002	VEE	(3.18)	(1.98)	(34.93)	(17.45)	(11.43)	(14.30)		(34.93)	(44.45)	(14.27)	(4.04)	(60.38)	(11.49)	(5.16)	(14.27)	

3-Way / 2 on Pressure

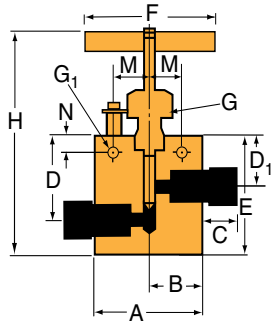
MVE1003	VEE	1/16	0.055	1.38	0.69	0.45	0.81	0.56	1.44	1.75	0.56	0.16	2.69	0.45	0.20	0.56	See Figure 3
MV1003	VEE	(1.57)	(1.40)	(34.93)	(17.45)	(11.43)	(20.65)	(14.30)	(36.50)	(44.45)	(14.27)	(4.04)	(68.30)	(11.49)	(5.16)	(14.27)	
MVE2003	VEE	1/8	0.078	1.38	0.69	0.45	0.81	0.56	1.44	1.75	0.56	0.16	2.69	0.45	0.20	0.56	
MV2003	VEE	(3.18)	(1.98)	(34.93)	(17.45)	(11.43)	(20.65)	(14.30)	(36.50)	(44.45)	(14.27)	(4.04)	(68.30)	(11.49)	(5.16)	(14.27)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting screws are M3.5 x .7 thd.
Tube glands are 3/8" hex on standard MVE models
Tube glands are 10mm hex on MV models.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

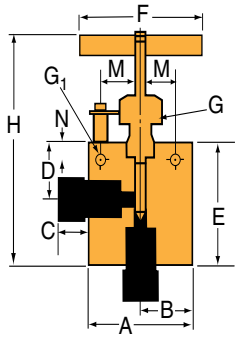
For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

Figure 1



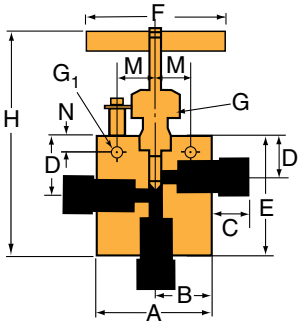
2-Way Straight

Figure 2



2-Way Angle

Figure 3



3-Way / 2 on Pressure

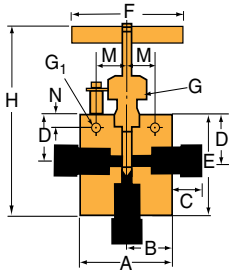
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thick-ness	Valve Pattern
3-Way / 1 on Pressure																	
MVE1004	VEE	1/16	0.055	1.38	0.69	0.45	0.56	0.56	1.44	1.75	0.56	0.16	2.69	0.45	0.20	0.56	See Figure 4
MV1004	VEE	(1.57)	(1.40)	(34.93)	(17.45)	(11.43)	(14.22)	(14.30)	(36.50)	(44.45)	(14.27)	(4.04)	(68.30)	(11.49)	(5.16)	(14.27)	
MVE2004	VEE	1/8	0.078	1.38	0.69	0.45	0.56	0.56	1.44	1.75	0.56	0.16	2.69	0.45	0.20	0.56	
MV2004	VEE	(3.18)	(1.98)	(34.93)	(17.45)	(11.43)	(14.22)	(14.30)	(36.50)	(44.45)	(14.27)	(4.04)	(68.30)	(11.49)	(5.16)	(14.27)	
3-Way / 2-Stem Manifold																	
MVE1005	VEE	1/16	0.055	1.38	0.69	0.45	0.81	0.56	1.63	1.75	0.56	0.16	4.11	0.45	0.20	0.56	See Figure 5
MV1005	VEE	(1.57)	(1.40)	(34.93)	(17.45)	(11.43)	(20.65)	(14.30)	(41.28)	(44.45)	(14.27)	(4.04)	(104.44)	(11.49)	(5.16)	(14.27)	
MVE2005	VEE	1/8	0.078	1.38	0.69	0.45	0.81	0.56	1.63	1.75	0.56	0.16	4.11	0.45	0.20	0.56	
MV2005	VEE	(3.18)	(1.98)	(34.93)	(17.45)	(11.43)	(20.65)	(14.30)	(41.28)	(44.45)	(14.27)	(4.04)	(104.44)	(11.49)	(5.16)	(14.27)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting screws are M3.5 x .7 thd.
Tube glands are 3/8 hex on standard MVE models
Tube glands are 10mm hex on MV models

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

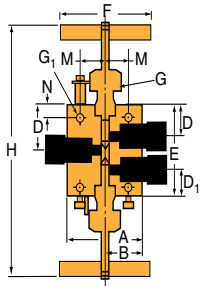
For prompt service, Parker Autoclave stocks select products. Consult factory.

Figure 4



3-Way / 1 on Pressure

Figure 5



3-Way / 2-Stem Manifold

WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).

02-0114SE January2013

Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

ISO-9001 Certified

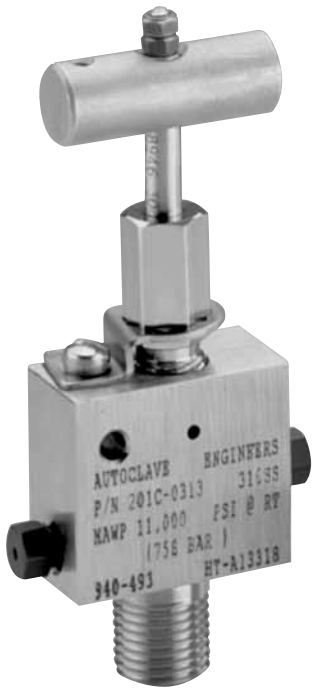
Needle Valves

Low Pressure

Bottle Valve Series

Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. Parker Autoclave Engineers has long been established as the world leader in high-pressure fluid handling components for the chemical/petrochemical, research, and oil and gas industries. Bottle valves are used on sample bottles and cylinders for remote sampling in the oil industry.



Bottle Valve Features:

- BTV Series valve design provides male inlet connections from 1/8" to 1/2" NPT.
- Outlet connections in NPT or tube to 1/4".
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Available with Vee stem tips.
- Available in five body patterns.

Parker Autoclave Engineers valves are complemented by a complete line of low pressure fittings, tubing, check valves and line filters. The Bottle Valve Series use Parker Autoclave Engineers' SpeedBite connection. This single-ferrule compression sleeve-connection delivers fast, easy make-up and reliable bubble-tight performance in liquid or gas service.

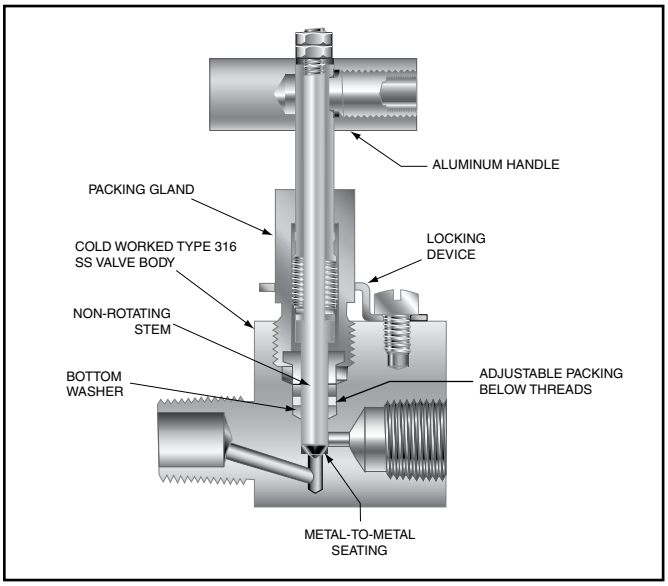
Parker

Autoclave Engineers

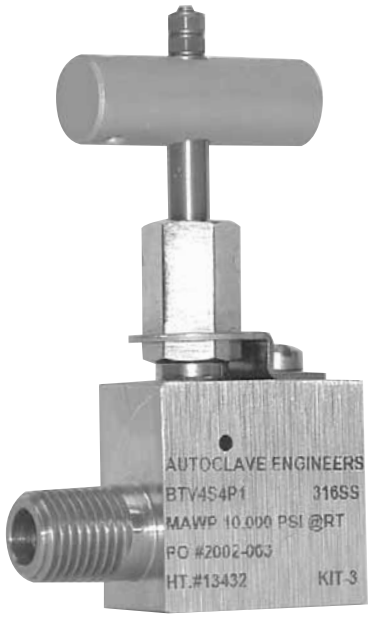
www.autoclave.com

Valve Series - BTV Series

Pressures to 15,000 psi (1034 bar)



To ensure proper fit use Autoclave tubing



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. BTV Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **BTV4S4P1**

BTV	4	S	4	P	1	—	XX
Valve Series	**Male NPT** **2**-1/8” **4**-1/4” **6**-3/8” **8**-1/2”	**Male NPT Position** **F** - Front **S** - Side **B** - Bottom	**Female Port Sizes** **2**-1/8” **4**-1/4” **6**-3/8” **8**-1/2”	**Female Connection Type** **P** - NPT **L** - Low Pressure	**Body Pattern** **1** - Straight **2** - Angle **3** - 3 Way 2 on Pressure *2 **4** - 3 Way 1 on Pressure *1		**Options** **R** - Regulating Stem

*Note: 1 inlet is NPT male
2 inlets are NPT male and 1 female connection

Valve Options

Standard Parker Autoclave valves with PTFE packing may be operated to 450°F (232°C).
R regulating stem

Parker Autoclave Engineers does not recommend compression sleeve connections below 0°F (-17.8°C) or above 650°F(343°C). For additional valve options, contact your Sales Representative.

Valve Maintenance

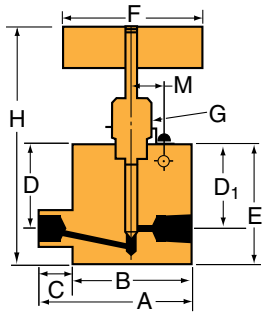
Repair Kits: add “R” to the front of valve catalog number for proper repair kit. (Example: **RBTV4F2L1**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

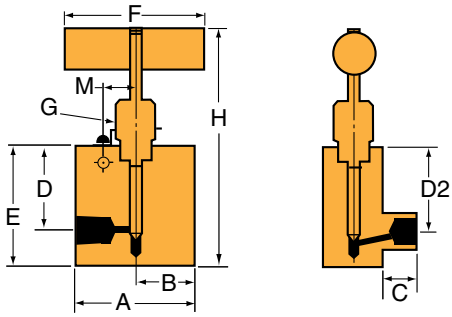
Catalog Number	Stem Type	Pipe/ Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	D_2	E	F	G	H	M	Block Thickness	Valve Pattern
2-Way Straight																
BTV4S4P1 Side Inlet	VEE	1/4	0.094	2.00	1.31	0.69	0.82	0.82		1.28	1.50	0.61	3.41	0.56	0.75	See Figure 1
		(6.35)	(2.39)	(50.80)	(33.27)	(17.53)	(20.83)	(20.83)		(32.51)	(38.10)	(15.49)	(86.61)	(14.22)	(19.05)	
BTV4F2L1 Front Inlet	VEE	1/8	0.094	1.50	0.75	0.63	0.81		0.88	1.38	1.50	0.61	3.49	0.56	0.63	See Figure 2
		(3.18)	(2.39)	(38.10)	(19.05)	(15.88)	(20.57)		(22.35)	(35.05)	(38.10)	(15.49)	(88.65)	(14.22)	(16.00)	
2-Way Angle																
BTV4B2L2 Bottom Inlet	VEE	1/8	0.094	2.00	1.00	0.81	1.19			1.63	1.50	0.75	4.75	0.62	0.75	See Figure 3
		(3.18)	(2.39)	(50.80)	(25.40)	(20.57)	(30.23)			(41.40)	(38.10)	(19.05)	(120.65)	(15.75)	(19.05)	
BTV4B4P2 Bottom Inlet	VEE	1/4	0.203	1.50	1.00	1.25	1.19			1.63	3.00	0.75	5.30	0.62	0.75	See Figure 3
		(6.35)	(5.16)	(38.10)	(25.40)	(31.75)	(30.23)			(41.40)	(76.20)	(19.05)	(134.62)	(15.75)	(19.05)	

Figure 1



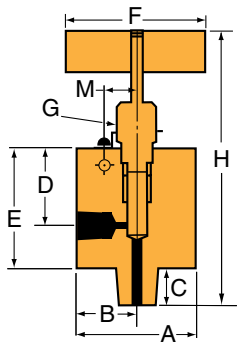
2-Way Straight

Figure 2



2-Way Straight

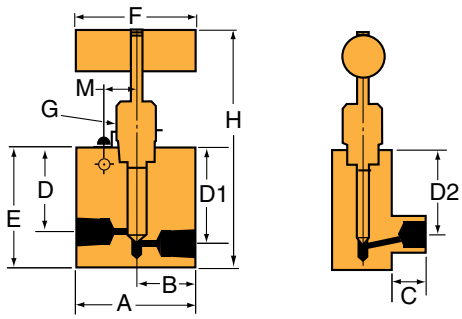
Figure 3



2-Way Angle

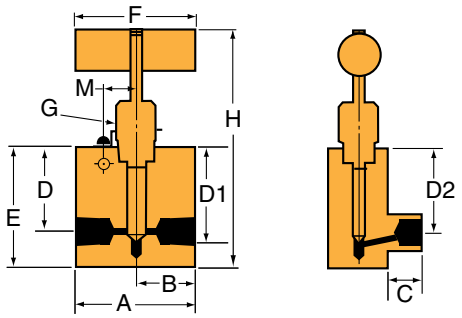
Catalog Number	Stem Type	Pipe/ Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	D_2	E	F	G	H	M	Block Thickness	Valve Pattern
3-Way/2 on Pressure																
BTV4F2L3 Front Inlet	VEE	1/8	0.094	1.50	0.75	0.63	0.81	1.06	0.88	1.38	1.50	0.75	3.49	0.50	0.75	See Figure 4
		(3.18)	(2.39)	(38.10)	(19.05)	(15.88)	(20.57)	(26.92)	(22.35)	(34.93)	(38.10)	(19.05)	(88.65)	(12.70)	(19.05)	
3-Way/1 on Pressure																
BTV4F2L4 Front Inlet	VEE	1/8	0.094	1.50	.75	0.63	0.81	0.81	0.88	1.38	1.50	0.75	3.49	0.50	0.75	See Figure 5
		(3.18)	(2.39)	(38.10)	(19.05)	(15.88)	(20.57)	(20.57)	(22.35)	(34.93)	(38.10)	(19.05)	(86.66)	(12.70)	(19.05)	

Figure 4



3-Way / 2 on Pressure

Figure 5



3-Way / 1 on Pressure

G - Packing gland mounting hole drill size

** H Dimension is with stem in closed position.*

For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

All dimensions for reference only and subject to change.

Needle Valves

MicroMetering

VRMM Series

Pressures to 60,000 psi (4137 bar)

MicroMetering valves are designed for applications where more precise control of small flows is required than is possible with a standard regulating stem. Barrel and Thimble micrometer design permits settings to be repeated.

Metering is effected by a finely tapered stem acting in a precisely mated replaceable seat. Very fine stem position is achieved utilizing a 40 TPI thread. The Barrel and Thimble are set for proper metering at the factory.

These valves are designed for metering only and cannot be used as a shutoff valve. Minimum flow is factory set and occurs at "0" position. DO NOT OPERATE THE VALVE BELOW THE ZERO POSITION OR DAMAGE WILL RESULT. When shutoff action is required, a correlated shutoff valve from Parker AE series 10V, 30VM or 60VM should be installed in series with the MicroMetering valve.

MicroMetering Valve Features:

- Barrel and Thimble design permits repeatable settings.
- Barrel divisions every 0.025"
- 25 Thimble divisions, each representing 0.001" stem travel
- One revolution = 0.025" stem travel
- Cold-worked type 316 stainless steel body with stainless steel packing gland. Stem and seat are cold-worked type 316 stainless steel.
- Packing below stem threads is PTFE for the 10VRMM and 30VRMM valves and nylon-leather for the 60VRMM. For packing options, see Technical Information Section.
- SpeedBite "W" connections are used on the 10VRMM and Parker AE High Pressure coned-and-threaded connections on 30VRMM and 60VRMM.

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, check valves andline filters.

Parker

Autoclave Engineers®

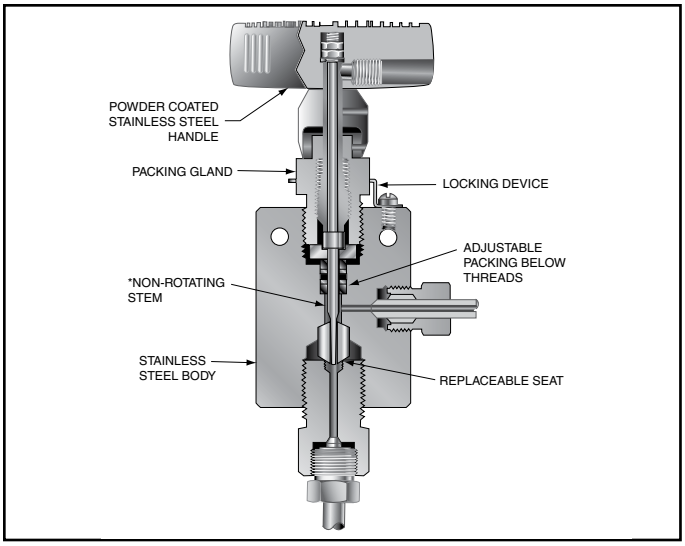
www.autoclave.com

Pressures to 60,000 psi (4137 bar)

	Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V	Pressure Rating psi (bar) @ Room Temperature**
10VRMM	1/8	W125	0.062 (1.57)	0.004	15,000 (1034)
30VRMM	1/4	F250C	0.062 (1.57)	0.004	30,000 (2069)
60VRMM	1/4	F250C	0.062 (1.57)	0.004	60,000 (4137)
60VRMM	3/8	F375C	0.062 (1.57)	0.004	60,000 (4137)

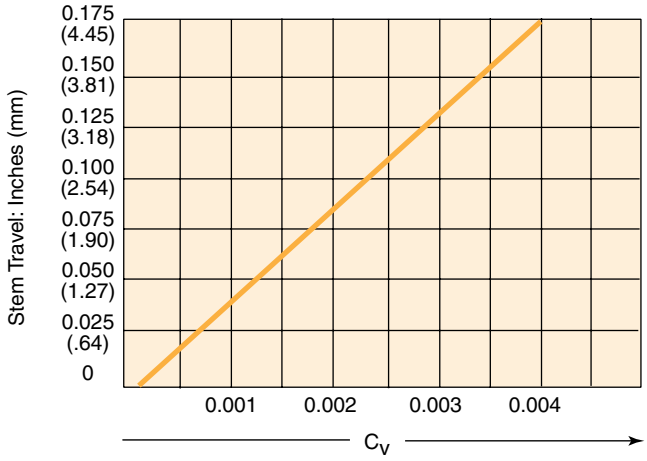
Note:

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section*



To ensure proper fit use Parker Autoclave Engineers tubing

Flow Coefficient (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. VRMM Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **60VRMM4812**

60VRMM	4	81	2	—	XX
Valve Series	**Outside Diameter Tube Size**	**Stem/Seat Type**	**Body Pattern**		**Options**
10VRMM **30VRMM** **60VRMM**	**2**-1/8” **4**-1/4” **6**-3/8”	**81** - Rotating regulating one piece stem with replaceable seat.	**2** - two-way angle		For extreme temperature and other options, see Valve Options.

NOTE:
Ordering procedure for information only. Models available are shown in tables on next page.

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box is available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number

TG - standard valve with PTFE glass packing to 600°F (316°C). **See note below.**

GY - standard valve with graphite braided yarn packing to 800°F (427°C).

HT - extended stuffing box valve with graphite braided yarn packing to 1200°F (649°C).

B - standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).

LT - extended stuffing box valve with PTFE packing & Cryogenic trim materials to -423°F (-252°C).

Note: 60VRMM valves supplied with Peak/PTFE Glass/Peek

Parker Autoclave Engineers does not recommend compression sleeve connections below 0°F (-17.8°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.

See Needle Valve options for stem and seat coatings for erosive service.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R60VRMM**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Catalog Number	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
10VRMM2812	1/8	0.062	1.50	0.88	0.31	0.94	1.56	3.00	0.62	0.16	5.06	1.00	0.25	0.75	See Figure 1
	(3.17)	(1.57)	(38.10)	(22.35)	(7.87)	(23.87)	(39.62)	(76.20)	(15.74)	(4.06)	(128.52)	(25.40)	(6.35)	(19.05)	
** Note: M dimension is distance between holes for mounting bracket.*															
30VRMM4812	1/4	0.062	2.00	1.00	0.50	1.12	2.00	3.00	0.97	0.22	5.06	0.69	0.50	1.00	See Figure 2
	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(28.44)	(50.80)	(76.20)	(24.63)	(5.58)	(128.52)	(17.25)	(12.70)	(25.40)	
60VRMM4812	1/4	0.062	2.00	1.00	0.50	1.31	2.63	3.00	0.97	0.22	6.06	0.69	0.38	1.00	
	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(33.27)	(66.80)	(76.20)	(24.63)	(5.58)	(153.92)	(17.25)	(9.65)	(25.40)	
60VRMM6812	3/8	0.062	2.00	1.00	0.53	1.31	2.63	3.00	0.97	0.22	6.06	0.69	0.38	1.00	
	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(33.27)	(66.80)	(76.20)	(24.63)	(5.58)	(153.92)	(17.25)	(9.65)	(25.40)	

G - Packing gland mounting hole drill size

G_1 - Bracket mounting hole size

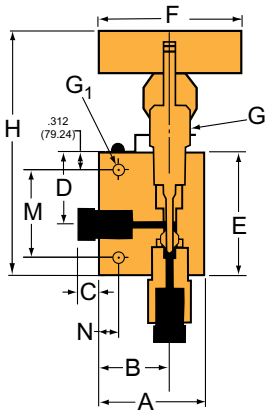
Panel mounting drill size: 0:22" all valves.

** H Dimension is with stem in closed position.*

All dimensions for reference only and subject to change.

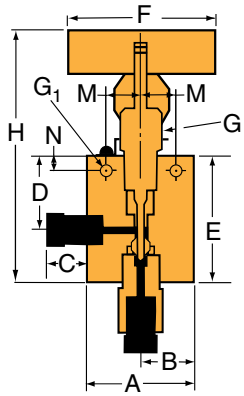
For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

Figure 1



10VRMM

Figure 2



30VRMM/60VRMM

Needle Valves

Block and Bleed

MVBB Series

Pressures to 20,000 psi (1379 bar)

Parker Autoclave Engineers series MVBB block and bleed valve is a two stem manifold valve providing an economical and convenient method of blocking, bleeding and calibrating pressure transmitters and gauges. The valve utilizes the mini valve packing and stem design making it compact and easy to use. The valve can be surface or panel mounted for safe operation. In addition, manifold style valves reduce the number of fittings and space required for installation.

Block and Bleed Features:

- MVBB Series valve design provides large valve performance in a small package
- Tubing sizes: 1/4" and 3/8"
- Rising stem/barstock body design.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem and packing gland design have been selected to achieve extended thread cycle life and reduced handle torque.

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubings and accessories. The MVBB Series uses Parker Autoclave Engineers' medium pressure connections. This coned and threaded connection provides a reliable bubble-tight seal for dependable performance in gas or liquid service.

Parker

Autoclave Engineers

www.autoclave.com

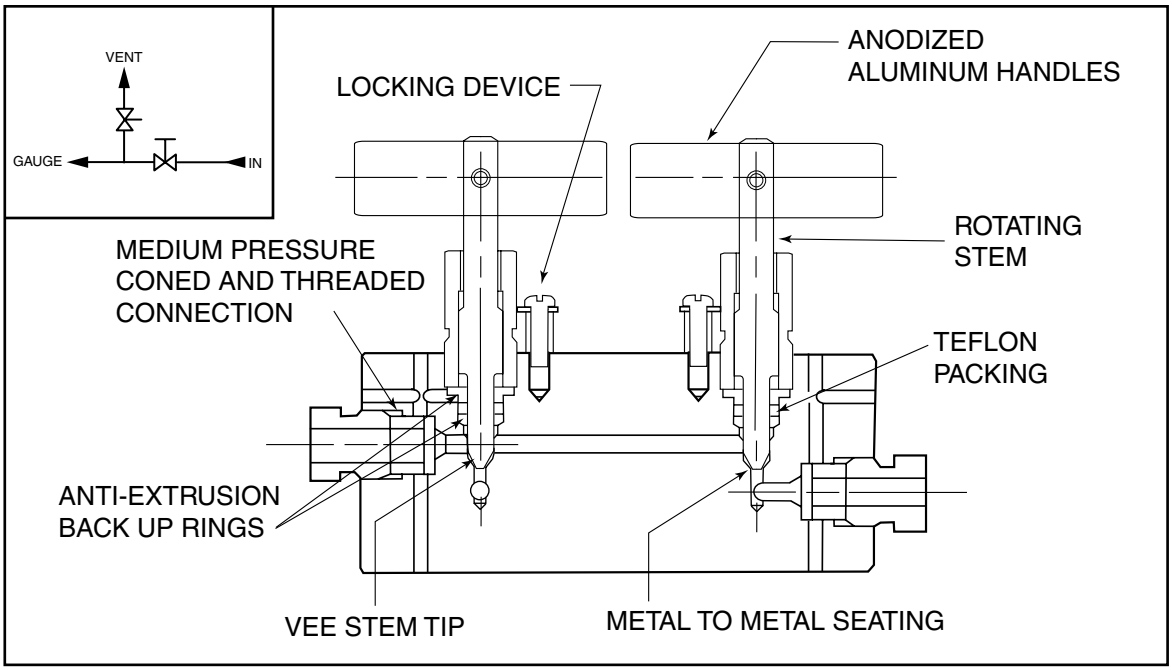
Needle Valves - MVBB Series

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	SF250CX	0.093 (2.36)	0.20	20,000 (1379)
3/8	SF375CX	0.093 (2.36)	0.20	20,000 (1379)

Notes:

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Autoclave tubing

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing is available for service from 0°F (-17.8°C) to 800°F (427°C) by adding the following suffixes to catalog order number.

TG standard valve with PTFE glass packing to 600°F (316°C)

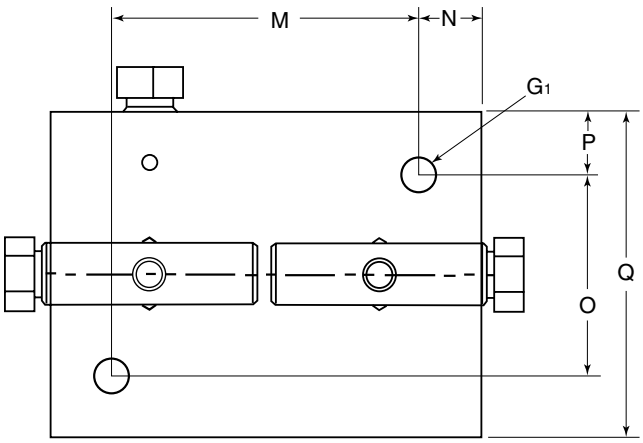
GY standard valve with Graphite braided yarn packing to 800°F (427°C).

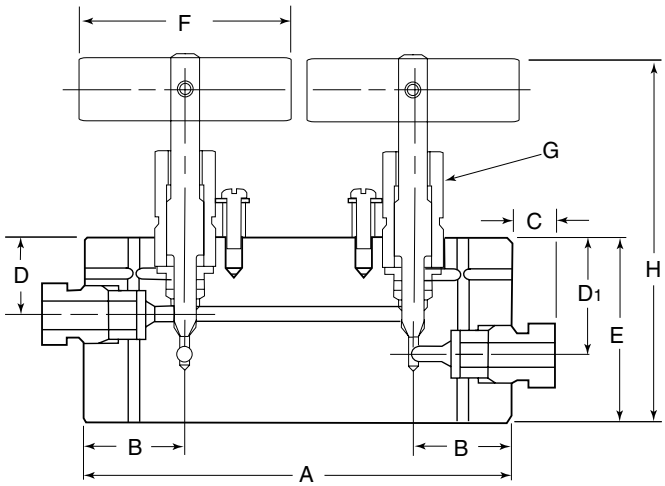
For additional valve options, contact your Sales Representative.

Note: Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)														
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N	O	P	Q
20MVBB	**VEE**	1/4	0.094	3.50	0.813	0.38	0.625	0.938	1.50	1.75	0.56	0.281	2.94	2.50	0.485	1.63	.500	2.625
		(6.35)	(2.39)	(88.90)	(20.65)	(9.65)	(15.88)	(23.83)	(38.10)	(44.45)	(14.27)	(7.14)	(74.68)	(63.50)	(12.32)	(41.40)	12.70	66.68
20MVBB6	**VEE**	3/8	0.094	3.88	1.00	0.44	0.625	0.938	1.50	1.75	0.56	0.281	2.94	2.88	0.50	1.63	.500	2.625
		(9.53)	(2.39)	(98.60)	(25.40)	(11.10)	(15.88)	(23.83)	(38.10)	(44.45)	(14.27)	(7.14)	(74.68)	(73.15)	(12.70)	(41.40)	12.70	66.68

For complete information on available options, contact your Sales representative. MVBB Series valves are furnished with connection components unless otherwise specified.





G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

Needle Valves

Double Block and Bleed

20DBNV Series

Pressures to 20,000 psi (1379 bar)

Parker Autoclave Engineers series DBNV double block and bleed valve is a three system manifold valve providing an economical and convenient method of blocking and bleeding in applications such as pressure monitoring and test, chemical injection and drain line isolation. The valve utilizes our standard valve packing and stem design to make it compact and easy to use. Manifold style valves reduce the number of fittings and space required for installation.

Block and Bleed Features:

- 20DBNV Series valve design provides large valve performance in a small package.
- Tubing sizes: 1/4" to 1".
- Rising stem/barstock body design.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem and packing gland design have been selected to achieve extended thread cycle life and reduced handle torque.
- Temperatures from -100°F (-73°C) to 600°F (316°C)

Parker Autoclave Engineers' valves are complemented by a complete line of fittings, tubings and accessories. The 20DBNV Series uses Parker Autoclave Engineers' pressure connections. This coned and threaded connection provides a reliable bubble-tight seal for dependable performance in gas or liquid service.

Parker

Autoclave Engineers

www.autoclave.com

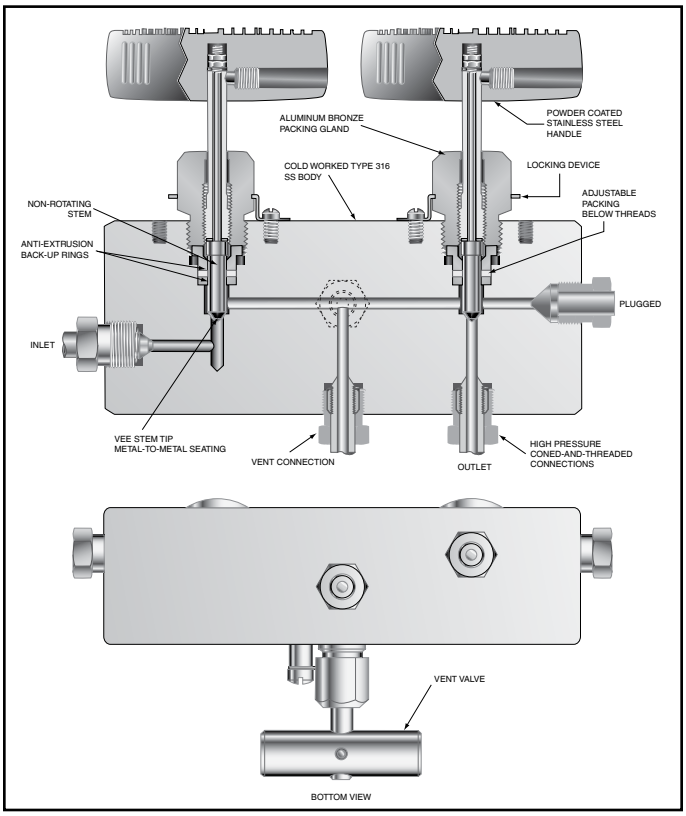
Needle Valves - 20DBNV Series

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	SF250CX	0.093 (2.36)	0.10	20,000 (1379)
3/8	SF375CX	0.093 (2.36)	0.27	20,000 (1379)
9/16	F562C	0.093 (2.36)	0.27	20,000 (1379)

Notes:

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Parker Autoclave Engineers tubing

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers' valves with PTFE packing may be operated to 450°F (232°C). High temperature packing is available for service from 0°F (-17.8°C) to 800°F (427°C) by adding the following suffixes to catalog order number.

TG standard valve with PTFE glass packing to 600°F (316°C).

B standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).

For additional valve options, contact your Sales Representative.

Note: Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Ordering Procedure

For complete information on available end connections, see end connections options below. 20DBNV valves are furnished complete with tube connections.

Typical catalog number: **20DBNV M4 M4 XXX**

20DBNV
Valve Series
20DBNV Double Block & Bleed Needle Valve

M4
Tube Connection
M4 - SF250CX20
M6 - SF375CX20
H9 - F562C
(see chart below)

M4
Vent Connection
M4 - SF250CX20
(see chart below)

XXX
Options
TG - PTFE Glass Packing
B - Cryogenic Trim -100°F (-73°C)
K - Anti-vibration Collet & Gland Assembly

Connection Options

Catalog Number	Tube Connection Number	Connection	MAWP @ Room Temperature	Vent Connection Number	Vent Connection
20DBNVM4M4	M4	SF250CX20	20,000 psi (1379 bar)	M4	SF250CX20
20DBNVM6M4	M6	SF375CX20	20,000 psi (1379 bar)	M4	SF250CX20
20DBNVH9M4	H9	F562C	20,000 psi (1379 bar)	M4	SF250CX20

MAWP: Maximum Allowable Working Pressure

Valve Options

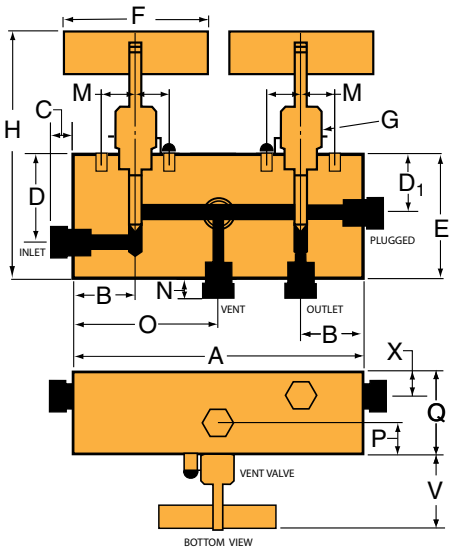
See needle valve options for complete information on available stem types, optional connections and additional valve options. For material options consult factory.

Valve Maintenance

Consult your Parker Autoclave Engineers representative for pricing on repair kits. Refer to the Operation and Maintenance manual for proper maintenance procedures.

Catalog Number	Stem Type	Pipe Size	Orifice Dia.	Dimensions - inches (mm)															
				A	B	C	D	D_1	E	F	G	H	M	N	O	P	Q	V	X
20DBNVM4M4	VEE	1/4	0.094	5.25	1.00	0.38	1.50	1.13	2.13	3.00	1.00	4.65	0.69	0.50	0.75	0.63	1.50	1.43	.50
		(6.35)	(2.39)	(133.35)	(25.40)	(9.65)	(38.10)	(28.70)	(54.10)	(76.20)	(25.40)	(118.11)	(17.53)	(12.70)	(19.05)	(16.00)	(38.10)	(36.32)	(12.70)
20DBNVM6M4	VEE	3/8	0.094	5.25	1.00	0.44	1.50	1.13	2.13	3.00	1.00	4.65	0.69	0.50	0.75	0.63	1.50	1.43	.50
		(9.53)	(2.39)	(133.35)	(25.40)	(11.18)	(38.10)	(28.70)	(54.10)	(76.20)	(25.40)	(118.11)	(17.53)	(12.70)	(19.05)	(16.00)	(38.10)	(36.32)	(12.70)
20DBNVH9M4	VEE	9/16	0.094	5.88	1.31	0.53	1.50	1.13	3.00	3.00	1.00	5.53	0.69	0.50	1.38	0.63	1.75	1.43	.75
		(14.29)	(2.39)	(149.35)	(33.27)	(13.46)	(38.10)	(28.70)	(76.20)	(76.20)	(25.40)	(140.46)	(17.53)	(12.70)	(35.05)	(16.00)	(44.45)	(36.32)	(19.05)

For complete information on available options, contact your Sales representative. **20DBNV** Series valves are furnished with connection components unless otherwise specified.



G - Packing gland mounting hole drill size
H Dimension is with stem in closed position.
All dimensions for reference only and subject to change

For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

02-9259BE January 2013

Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

ISO-9001 Certified

Needle Valves - Wellhead Gauge and Bleed Valves

Pressures to 30,000 psi (2068 bar)

Wellhead Gauge Valve

Series	Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V	Pressure Rating psi (bar) @ Room Temperature
20GV	3/8	F375C	0.125 (3.18)	0.23	20,000 (1379)
20GV	9/16	SF562CX	0.125 (3.18)	0.23	20,000 (1379)
30GV	9/16	F562C	0.125 (3.18)	0.33	30,000 (2068)
Bleed Valve					
20BV	3/8	SM375CX	0.093 (2.36)	-	20,000 (1379)
20BV	9/16	SM562CX	0.093 (2.36)	-	20,000 (1379)
30BV	9/16	M562C	0.093 (2.36)	-	30,000 (2068)*

Notes:
** Rating shown is in closed position.*
Rating @ 15,000 psi (1034 bar) in open position. *Glands and collars included*

Parker Autoclave Engineers' Wellhead Gauge valves are designed for reliable shut-off service at a maximum working pressure of 30,000 psi (2068 bar). The Wellhead Gauge and Bleed Valves are standard in 316 stainless steel material. Special materials available on request.

Applications:

Wellhead Gauge Valve
- Sample Lines
- Instrument calibration

Bleed Valve
- Pressure bleed

Gauge Valve Features:
- One inlet, three outlet ports
- Metal-to-metal bubble tight shut-off
- Packing below stem threads
- Two piece non-rotating stem on standard valves

Bleed Valve Features:
- One piece hex construction allows easy installation
- Vent port tapped for plumbing to safe area
- Tee handle for easy operation
- Positive blow out prevention on stem
- 1/8" NPT outlet connection

Ordering Procedure

Typical catalog number: **30GV9078**

30GV	9	07	8
Valve Series	**Outside Diameter Tube Size**	**Stem Type**	**Body Pattern**
20GV **30GV**	**6**-3/8" **9**-9/16"	**00** - one piece VEE stem **07**- non-rotating VEE stem	**8** - 4 ports, 1 inlet, 3 outlets

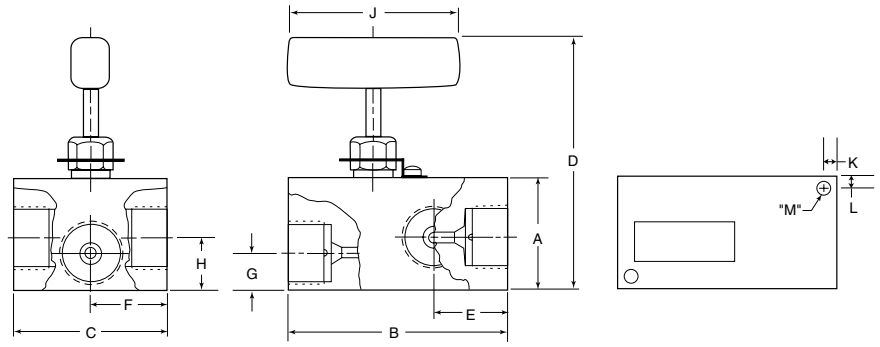
Bleed Valve

Typical catalog number: **30BV9002**

30BV	9	00	2
Valve Series	**Outside Diameter Tube Size**	**Stem Type**	**Body Pattern**
20BV **30BV**	**6**-3/8" **9**-9/16"	**00** - one piece VEE stem	**2** -Angle

Wellhead Gauge Valve

Catalog Number	Connection Type	Connection Size	Pressure Rating psi (bar)	Dimensions - inches (mm)									Valve Pattern
				A	B	C	D	E	F	G	H	J	
20GV6078	SF375CX	3/8	20,000	2.00	3.12	2.00	4.52	1.13	1.00	0.50	0.94	3.00	See Figure 1
			(1379)	(50.80)	(79.25)	(50.80)	(114.80)	(28.58)	(25.40)	(12.70)	(23.83)	(76.20)	
20GV9078	SF562CX	9/16	20,000	2.00	3.88	2.75	4.54	1.31	1.38	0.66	0.94	3.00	
			(1379)	(50.80)	(98.55)	(69.85)	(115.31)	(33.27)	(34.93)	(16.76)	(23.83)	(76.20)	
30GV9078	F562C	9/16	30,000	2.00	3.88	2.75	4.50	1.31	1.38	0.66	0.94	3.00	
			(2068)	(50.80)	(98.55)	(69.85)	(114.30)	(33.27)	(34.93)	(16.76)	(23.83)	(76.20)	

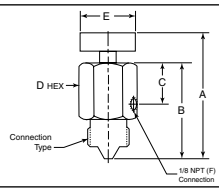


Mounting Dimensions			
	K	L	"M" Dia.
20GV6078	.25 (6.4)	.25 (6.4)	.28 (7.1)
20GV9078	.38 (9.7)	.38 (9.7)	.28 (7.1)
30GV9078	.38 (9.7)	.38 (9.7)	.28 (7.1)

Figure 1 - Wellhead Gauge Valve

Bleed Valve

Catalog Number	Connection Type	Connection Size	Pressure Rating psi (bar)	Dimensions - inches (mm)					Valve Pattern
				A	B	C	D	E	
20BV6002	SM375CX	3/8	20,000	3.23	2.42	1.12	1.38	1.50	
			(1379)	(82.04)	(61.47)	(28.45)	(35.05)	(38.10)	
20BV9002	SM562CX	9/16	20,000	3.68	2.86	1.12	1.38	1.50	
			(1379)	(93.47)	(76.64)	(28.45)	(35.05)	(38.10)	
30BV9002	M562C	9/16	30,000	3.44	2.61	1.12	1.38	1.50	
			(2068)	(87.38)	(66.29)	(28.45)	(35.05)	(38.10)	



02-1250SE January2013

Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

ISO-9001 Certified

Needle Valves

Extreme Temperature

HT, LT and PV Series

Pressures to 60,000 psi (4137 bar)

Parker Autoclave Engineers has two different styles of valves for extreme temperature. Standard valves can be supplied with packing for operation from -100°F (-73°C) to 800°F (427°C), or with the addition of an extended packing housing for operation from -423°F (-252°C) to 1200°F (649°C). The extended packing housing provides the means of removing the packing from the extreme temperature medium. Machined grooves on the housing act as a heatsink to remove heat or cold.
The second, which is economically priced, is a modified standard designed for the power industry. It operates to 1200°F (649°C) with graphite packing and no extended packing housing.

Extreme Temperature Valve Features:

- The extreme temperature option can be ordered on low, medium, high, micro-metering and other valve series.
- Reliable long life operation with extended stuffing box at very high and low temperatures.
- Design available for operation to 1200°F (649°C) without extended packing housing.
- Available with a variety of tubing connections and orifice sizes.
- Non-rotating stem.
- Wide range of material options
- Adjustable packing below threads.
- Metal to metal seating.
- Anti-extrusion back-up rings.

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, and accessories.

Applications:

- Hot well condenser
- Super-heated steam hookup/ measurement
- Supercritical fluid processing
- Boiler ignition system

Parker

Autoclave Engineers®

www.autoclave.com

Needle Valve - HT, LT Series

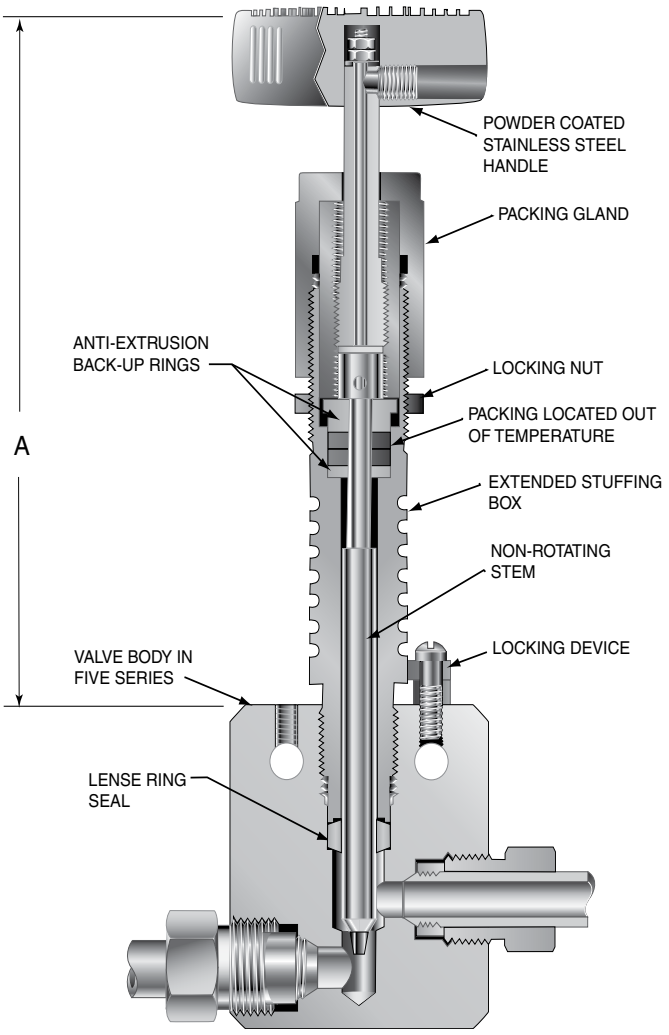
Standard Valve with Stuffing Box option - Pressures to 60,000 psi (4137 bar)

High Temperature Valves to 1200°F (649°C)

High Temperature Packing Option
Standard Parker Autoclave Engineers valves can be operated up to 800°F (427°C) at the packing with appropriate packing materials. See table in Technical Section for temperature ratings and ordering information.

High Temperature Extended Stuffing Box Option "HT"
For operation above 800°F (427°C) at the packing, optional extended stuffing box removes packing and stem threads from the hot zone. The "HT" option is standard graphite-yarn packing; add "HT" to valve order number. For other packing materials, add both "HT" and the suffix for the desired packing material (See table in Technical Section).

High or Low Temperature Air Operated Valves with extended stuffing box can be ordered by adding suffix "HT" to Air Operated Valve order number.



Cryogenic Valves to -423°F (256°C)

Low Temperature Trim Materials Option "B"
While all WETTED parts in most Parker AE valves are type 316SS, some TRIM parts are constructed of mechanically preferable materials. For low temperature to -100°F (-73°C), type 316SS trim parts and PTFE packing can be furnished (except Series 100V and 150V). To order, add suffix "B" to valve order number.

Cryogenic Extended Stuffing Box Option "LT"
For operation below -100°F (-73°C) or for rigorous cycling, an extended stuffing box removes packing from the extreme low temperature zone. The "LT" option also includes many type 316 SS trim parts and PTFE packing. Add "LT" suffix to valve order number.

Valve Series	O.D. Tube Size inches	Dimension"A" inches (mm)
10V	1/8 1/4 3/8 1/2	5.38 (136.65) 5.94 (150.87) 5.94 (150.87) 5.94 (150.87)
SW	1/4 3/8 1/2	5.50 (139.70) 5.50 (139.70) 6.31 (160.27)
10SM & 20SM	1/4 3/8 9/16 3/4 1	5.50 (139.70) 5.50 (139.70) 6.31 (160.27) 6.31 (160.27) 6.31 (160.27)
30SC	1	9.52 (241.80)
30VM	1/4 3/8 9/16	5.94 (150.87) 5.94 (150.87) 5.94 (150.87)
40VM	9/16	6.19 (157.22)
60VM	1/4 3/8 9/16	5.87 (149.10) 5.94 (150.87) 6.19 (157.22)
10VRMM	1/8	5.38 (136.65)
30VRMM	1/4	5.94 (150.87)
60VRMM	1/4 3/8	6.06 (153.92) 6.06 (153.92)

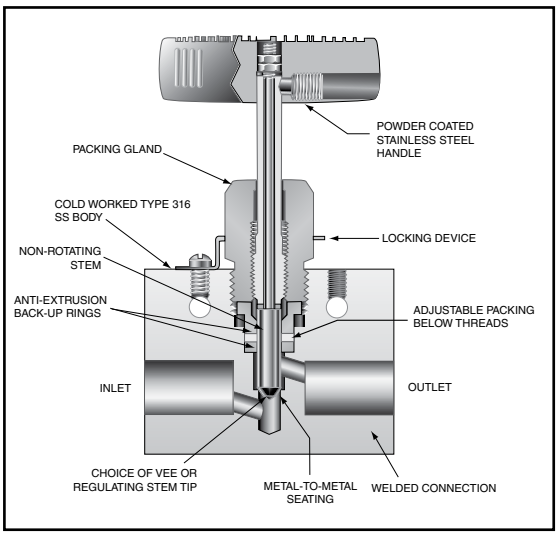
Note: Caution should be exercised in proper selection of medium pressure tubing based on actual operating conditions. Two series available: 10,000 psi (690 bar) and 20,000 psi (1379 bar).
Handle Extenders *are available to facilitate extreme temperature operation of valves and for remote actuation through an insulating wall or barricade.* See appropriate valve ordering section.
* See Valve Actuators section.
All dimensions for reference only and subject to change.

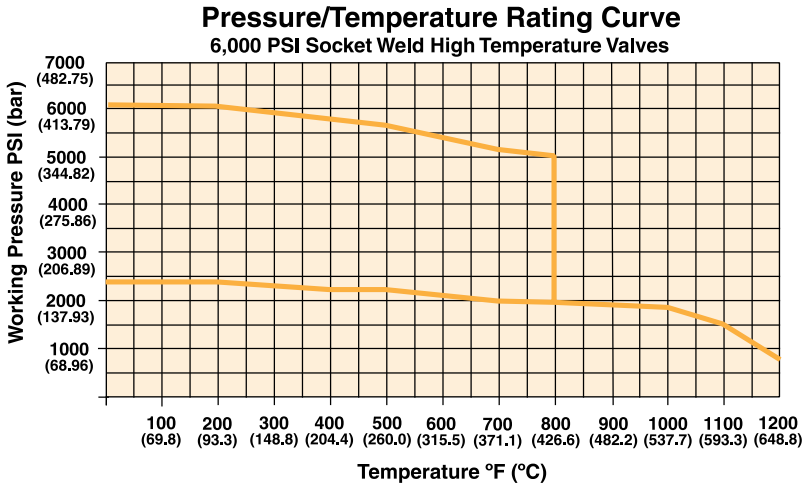
Needle Valve - PV Series

Pressures to 6,000 psi (414 bar)

Tube Outside Diameter	Connection Type	Orifice Size	Pressure Rating psi (bar) @ Room Temperature**
1/4	TW/PW	3/16”	6,000 (414)
3/8	TW/PW	1/4”	6,000 (414)
1/2	TW/PW	1/4”	6,000 (414)
3/4	TW/PW	1/2”	6,000 (414)
10mm	TW	6.50mm	6,000 (414)
12mm	TW	6.50mm	6,000 (414)
14mm	TW	6.50mm or 9.0mm	6,000 (414)
16mm	TW	9.00mm or 11.0mm	6,000 (414)

TW - Tube Weld
PW - Pipe Weld
*Note: ** For temperature ratings see pressure/temperature rating guide chart below..*





See Technical Information section for curve details.

Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative.

Typical catalog number: **PV4TW6MG**

PV — Valve Series

4 — Outside Diameter Tube Size
- **4**-1/4”
- **6**-3/8”
- **8**-1/2”
- **12**- 3/4”
- **A**-10mm
- **B**-12mm
- **C**-14mm
- **D**-16mm

TW — Connection Type
- **TW** - Tube Socket Weld
- **PW** - Pipe Socket Weld

Outlet See Note — Size/Type

6M — Port Size
- **3** -3/16”
- **4** -1/4”
- **8** -1/2”
- **6M** - 6.5mm
- **9M** - 9.0mm
- **11M** - 11.0mm

G — Packing
- **G** - Graphic Yarn
- **GF** -Grafoil

Note: Use if outlet connection is different - *Example: PV4TW**ATW**6M-G*

Valve Options

For optional connection sizes, connection types,material or other options not listed contact your sales representative.
Consult factory for availability of dissimilar end connections.

Valve Maintenance

Repair Kits: add “R” to the front of valve catalog number for proper repair kit. (Example: **RPV4TWG**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

2-Way Straight

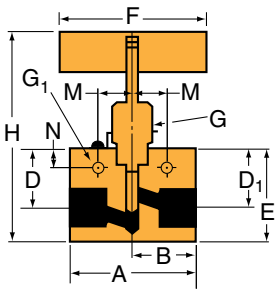
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
PV4TW3G	VEE	1/4	0.187	2.00	1.00		1.41	1.41	2.00	3.00	0.75	0.22	4.43	0.62	0.38	0.75	See Figure 1
		(6.35)	(4.75)	(50.80)	(25.40)		(35.81)	(35.81)	(50.80)	(76.20)	(19.05)	(5.59)	(112.52)	(15.75)	(9.65)	(19.05)	
PVT6TW4G	VEE	3/8	0.250	2.00	1.00		1.41	1.41	2.00	3.00	0.75	0.22	4.43	0.62	0.38	0.75	
		(9.53)	(6.35)	(50.80)	(25.40)		(35.81)	(35.81)	(50.80)	(76.20)	(19.05)	(5.59)	(112.52)	(15.75)	(9.65)	(19.05)	
Metric (In)																	
PVCTW6MG	VEE	14.00	6.5	50.80	25.40		35.81	35.81	50.80	76.20	19.05	5.59	111.00	15.75	9.65	19.05	
		(0.55)	(0.26)	(2.00)	(1.00)		(1.41)	(1.41)	(2.00)	(3.00)	(0.75)	(0.22)	(4.37)	(0.62)	(0.38)	(0.75)	
PVCTW9MG	VEE	14.00	9.0	63.50	31.75		52.32	52.32	73.15	101.60	22.23	5.59	148.34	17.53	12.70	25.40	
		(0.55)	(0.35)	(2.50)	(1.25)		(2.06)	(2.06)	(2.88)	(4.00)	(0.88)	(0.22)	(5.84)	(0.69)	(0.50)	(1.00)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22” all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

Figure 1



2-Way Straight

02-0117SE January2013

Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

ISO-9001 Certified

Needle Valves

Diverter

20DV Series

Pressures to 20,000 psi (1379 bar)

Parker Autoclave Engineers diverter valves provide the ability to direct incoming flow to one of two outlets. Flow is changed by rotating the handle in or out causing a double-ended stem to block the flow path to the outlet not needed. Diverter valves eliminate the need for multiple valves and the possibility of error in flow direction changes.

AE Diverter Valve Features:

- Diverts incoming flow to one of two outlet lines.
- Tubing sizes from 9/16" to 1".
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, and accessories. The 20DV series uses Parker Autoclave Engineers' medium pressure connection. This coned and threaded connection provides a reliable bubble-tight seal for dependable performance to 20,000 psi (1379).

Parker

Autoclave Engineers

www.autoclave.com

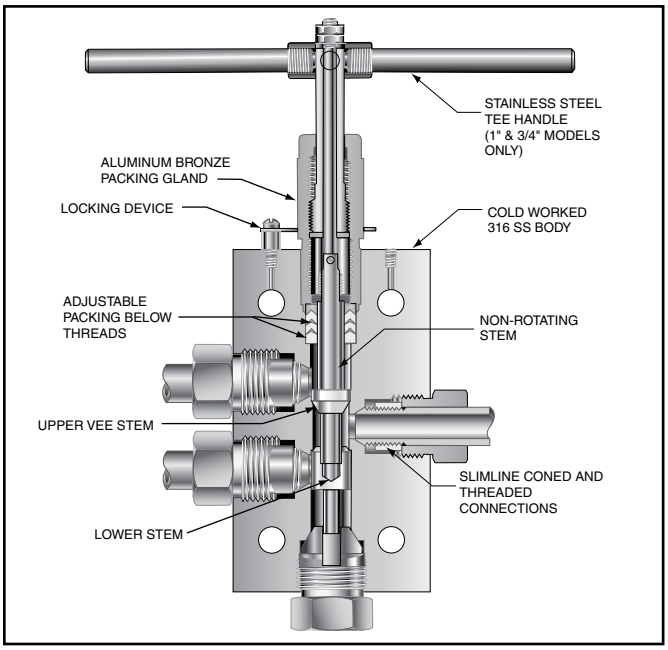
Valve Series - 20DV Series

Pressures to 20,000 psi (1379 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V	Pressure psi (bar) @ Room Temperature**
9/16	SF562CX	0.359 (9.12)	1.5	20,000 (1379)
3/4	SF750CX	0.516 (13.10)	2.9	20,000 (1379)
1	SF1000CX	0.562 (14.27)	4.5	20,000 (1379)

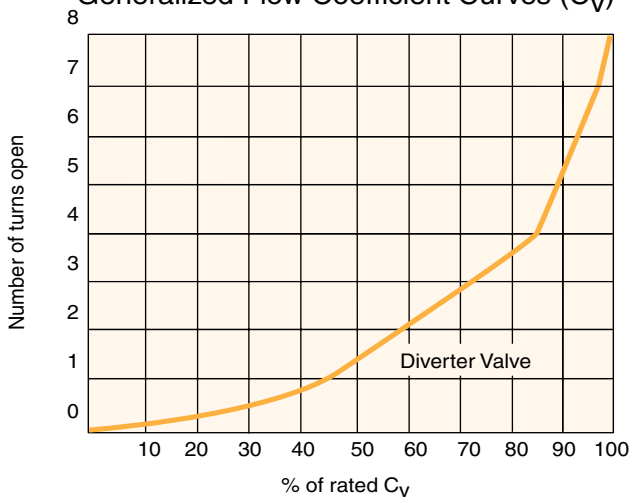
Notes:

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Parker Autoclave Engineers tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. The 20DV Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **20DV16077**

20DV — **Valve Series**

16 — **Outside Diameter Tube Size**
9-9/16"
12-3/4"
16-1"

07 — **Stem Type**
07 - non-rotating Vee stem (on off service)

7 — **Body Pattern**
7 - diverter

—

XX — **Options**
For extreme temperature and other options, see Valve Options.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box is available for service from -423°F (-252°C) to 1200°F (649°C) by adding the following suffixes to catalog order number.

HT extended stuffing box valve with graphite braided yarn packing to 1200°F (648°C).
B standard valve with cryogenic trim materials and PTFE packing to -100°F (-73°C).
LT extended stuffing box valve with PTFE packing and cryogenic trim materials to -423°F (-252°C).
K anti-vibe collet gland assembly.

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R20DV16077**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

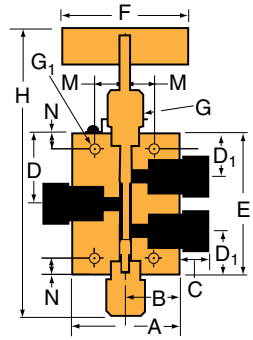
Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm)											Block Thickness	Valve Pattern
				A	B	C	D	D_1	E	F	G	G_1	H*	M	N	
20DV9077	VEE	9/16	0.359	2.50	1.25	0.53	2.41	1.75/1.63	4.69	4.00	1.00	0.34	8.88	0.69	0.50	1.00	See Figure 1
		(14.29)	(9.12)	(63.50)	(31.75)	(13.46)	(61.21)	(44.45/41.40)	(119.13)	(101.60)	(25.40)	(8.64)	(225.55)	(17.53)	(12.70)	(25.40)	
20DV12077	VEE	3/4	0.516	3.00	1.50	0.62	3.00	2.13/1.81	5.69	10.25	1.12	0.44	10.12	0.88	0.62	1.38	
		(19.05)	(13.11)	(76.20)	(38.10)	(15.75)	(76.20)	(54.10/45.97)	(144.53)	(260.35)	(28.45)	(11.18)	(257.05)	(22.35)	(15.75)	(35.05)	
20DV16077	VEE	1	0.562	4.12	2.06	0.72	3.75	2.81/2.62	7.25	10.25	1.62	0.56	12.79	1.25	1.12	1.75	
		(25.40)	(14.27)	(104.65)	(52.33)	(18.29)	(95.25)	(71.37/66.55)	(184.15)	(260.35)	(41.15)	(14.22)	(324.87)	(31.75)	(28.45)	(44.45)	

G - Packing gland mounting hole drill size
G_1 - Bracket mounting hole size
Panel mounting drill size: 0.22" all valves.

** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

Figure 1



Diverter 20DV Series

Needle Valves

Yoke

Y Series

Pressures to 50,000 psi (3447 bar)

Parker Autoclave Engineers' yoke valves are extra heavy-duty, plant grade instrument valves for industrial and severe service applications. Yoke valves feature low closing torque for ease of operation and are designed for use with Parker Autoclave Engineers medium and high pressure tubing and fittings.

Yoke Valve Features:

- Tubing sizes from 9/16" to 1".
- Rising stem/barstock body design.
- Non-rotating stem prevents stem/seat galling.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tips.
- Available in two body patterns.
- Optional materials for cryogenic and other applications.

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, and accessories.

Parker

Autoclave Engineers

www.autoclave.com

Valve Series - Y Series

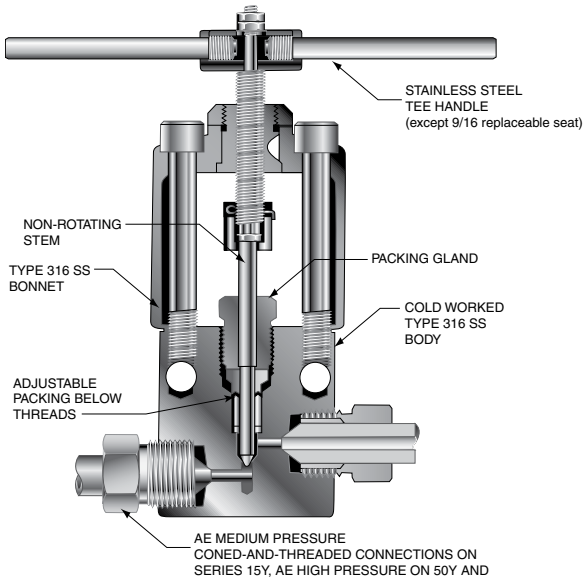
Pressures to 50,000 psi (3447 bar)

Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V *	Pressure psi (bar) @ Room Temperature**
9/16	F562C	0.188 (4.76)	0.66	50,000 (3447)
3/4	SF750CX	0.438 (11.13)	2.41	15,000 (1034)
1	SF1000CX	0.562(14.27)	3.15	15,000 (1034)
1	F1000C43	0.375 (9.53)	2.3	43,000 (2965)

Notes:

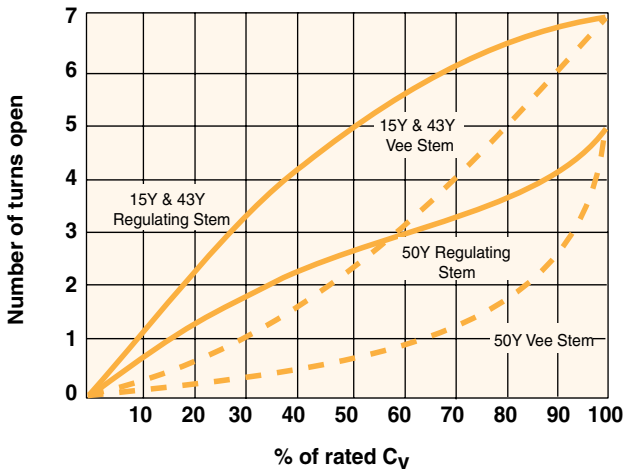
** C_V values shown are for 2-way straight valve pattern. For 2-way angle patterns, increase C_V value 50%.*

*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section.*



To ensure proper fit use Parker Autoclave Engineers tubing

Generalized Flow Coefficient Curves (C_V)



Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. The Y Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number: **50Y9071**

50Y — **Valve Series**
- **15Y**
- **43Y**
- **50Y**

9 — **Outside Diameter Tube Size**
- **9**-9/16”
- **12**-3/4”
- **16**-1.0”

07 — **Stem/Seat Type**
- **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
- **88** - Regulating stem with replaceable seat

1 — **Body Pattern**
- **1** - two-way straight
- **2** - two-way angle

—

XX — **Options**
- **TG** - PTFE Glass Packing
- **B** - Cryogenic Trim and PTFE Packing

See Valve options for ratings

Valve Options

Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing is available for service from 0°F (-17.8°C) to 600°F (316°C) by adding the following suffixes to catalog order number.

TG standard valve with PTFE glass packing to 600°F (316°C).
B standard valve with cryogenic trim materials and PTFE packing to -100°F (-73°C).

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R50Y9071**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

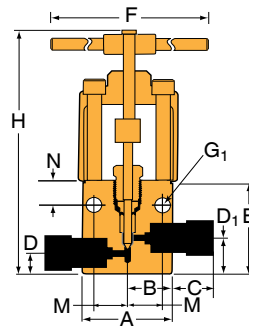
Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Catalog Number	Stem Type	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	D_1	E	F	G	G_1	H*	M	N	Block Thickness	Valve Pattern
2-Way Straight																	
15Y12071	VEE	3/4	0.438	3.00	1.50	0.63	.75	1.50	3.50	8.00		0.28	9.38	1.13	0.88	1.38	See Figure 1
15Y12081	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.88)	(19.05)	(38.10)	(88.90)	(203.20)		(7.11)	(238.25)	(28.58)	(22.23)	(34.93)	
15Y16071	VEE	1.00	0.562	4.13	2.06	0.63	.88	1.88	4.13	10.25		0.28	10.00	1.50	1.13	1.75	
15Y16081	REG	(25.40)	(14.27)	(104.78)	(52.39)	(15.88)	(22.35)	(47.75)	(104.78)	(260.35)		(7.11)	(254.00)	(38.10)	(28.58)	(44.45)	
43Y16071	VEE	1.00	0.375	4.13	2.07	0.72	1.00	1.88	4.13	10.25		0.28	9.56	1.50	1.00	1.75	
43Y16081	REG	(25.40)	(9.53)	(104.90)	(52.45)	(18.29)	(25.40)	(47.75)	(104.78)	(260.35)		(7.11)	(242.82)	(38.10)	(25.40)	(44.45)	
50Y9071	VEE	9/16	0.188	3.00	1.50	0.56	.688	1.25	3.25	13.00		0.50	8.69	1.13	0.88	1.38	
50Y9081	REG	(14.27)	(4.78)	(76.20)	(38.10)	(14.27)	(17.48)	(31.75)	(82.55)	(330.20)		(12.70)	(220.73)	(28.58)	(22.23)	(34.93)	
2-Way Angle																	
15Y12072	VEE	3/4	0.438	3.00	1.50	0.63	1.75		3.75	8.00		0.28	9.63	1.13	0.88	1.38	See Figure 2
15Y12082	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.88)	(44.45)		(95.25)	(203.20)		(7.11)	(244.48)	(28.58)	(22.23)	(34.93)	
15Y16072	VEE	1.00	0.562	4.13	2.06	0.63	2.25		4.50	10.25		0.28	10.38	1.50	1.13	1.75	
15Y16082	REG	(25.40)	(14.27)	(104.90)	(52.39)	(15.88)	(57.15)		(114.30)	(260.35)		(7.11)	(263.53)	(38.10)	(28.58)	(44.45)	
43Y16072	VEE	1.00	0.375	4.13	2.07	0.72	2.31		4.56	10.25		0.28	10.80	1.50	1.00	1.75	
43Y16082	REG	(25.40)	(9.53)	(104.90)	(52.45)	(18.29)	(58.67)		(115.82)	(260.35)		(7.11)	(274.32)	(38.10)	(25.40)	(44.45)	
50Y9072	VEE	9/16	0.188	3.00	1.50	0.56	1.50		3.50	13.00		0.50	8.81	1.13	0.88	1.38	
50Y9082	REG	(14.27)	(4.78)	(76.20)	(38.10)	(14.27)	(38.10)		(88.90)	(330.20)		(12.70)	(223.82)	(28.58)	(22.23)	(34.93)	
2-Way Angle/Replaceable Seat																	
15Y12872	VEE	3/4	0.438	3.00	1.50	0.63	2.06		4.00	8.00		0.28	11.31	1.13	0.88	1.38	See Figure 3
15Y12882	REG	(19.05)	(11.13)	(76.20)	(38.10)	(15.88)	(52.32)		(101.60)	(203.20)		(7.11)	(287.27)	(28.58)	(22.23)	(34.93)	
15Y16872	VEE	1.00	0.562	4.13	2.06	0.63	2.06		4.13	10.25		0.28	11.75	1.50	1.03	1.75	
15Y16882	REG	(25.40)	(14.27)	(104.78)	(52.39)	(15.88)	(52.32)		(104.78)	(260.35)		(7.11)	(298.45)	(38.10)	(26.16)	(44.45)	
43Y16872	VEE	1.00	0.375	4.13	2.07	0.72	2.13		4.38	10.25		0.28	11.95	1.50	1.00	1.75	
43Y16882	REG	(25.40)	(9.53)	(104.78)	(52.45)	(18.29)	(54.10)		(111.25)	(260.35)		(7.11)	(303.53)	(38.10)	(25.40)	(44.45)	
50Y9872	VEE	9/16	0.188	3.00	1.50	0.56	1.38		3.38	4.00		0.28	12.12	1.13	1.06	1.38	
50Y9882	REG	(14.27)	(4.78)	(76.20)	(38.10)	(14.27)	(35.05)		(85.73)	(101.60)		(7.11)	(307.85)	(28.58)	(26.97)	(34.93)	

G - Bracket mounting hole size ** H Dimension is with stem in closed position.*
All dimensions for reference only and subject to change.

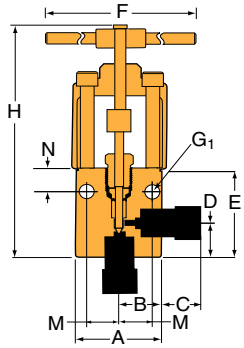
For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.

Figure 1



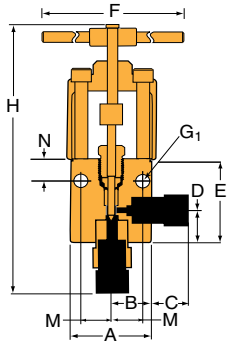
2-Way Straight

Figure 2



2-Way Angle

Figure 3



2-Way Angle/Replaceable Seat

Needle Valves

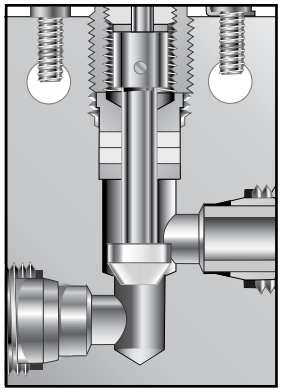
Options

Parker Autoclave Engineer's Needle Valves can be supplied with a number of options to meet your requirements. These include various materials of construction, packing material, high temperature packing, handle colors, stem options, custom valves, pneumatic actuators, and a number of other options.

The following pages provide details on these options. For additional or technical information not found in this section, please consult the factory or local distributor.

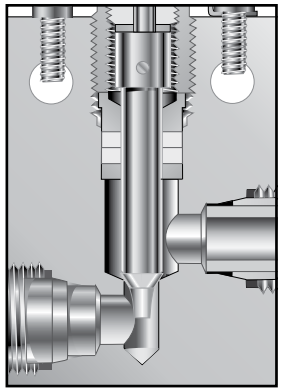
Three Stem Types

Three types of stems are offered by Parker Autoclave Engineers: Vee, Regulating and MicroMetering. Both Vee and Regulating stems are interchangable on most Parker AE valves and provide bubble-tight shut-off against liquids and gases.



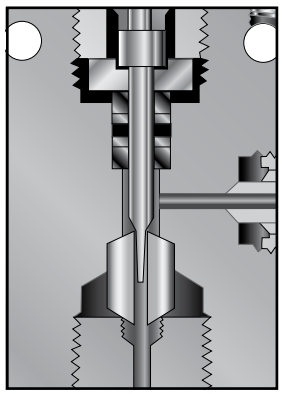
VEE Stem

The Vee stem is used for direct on-off, metal-to-metal shut-off with quick-opening flow characteristics.



Regulating Stem

In some applications, more precise flow control is required than is possible with a Vee stem. For these cases, Autoclave offers a non-rotating, two-piece regulating stem which can be used for both control and shut-off. This stem has a 4° taper at the tip in conjunction with a standard 60° section for shut-off. While it is not as precise as the control associated with the MicroMetering stem, especially with smaller flows, it does offer substantially better control than the Vee stem.



MicroMetering Stem

Where precise control of small flows is required, Autoclave offers special MicroMetering valves. For complete information on MicroMetering valves, refer to Micro-Metering in the Needle Valve section.

Optional Materials

To order optional materials for wetted parts, add the following designations to the order number.

316L	Type 316 extra low carbon stainless steel
HB	*Hastelloy B-2
HC	*Hastelloy C276 wetted parts
IN	*Inconel 600
IN625	*Inconel 625
IN825	*Incoloy 825
KMO	*Monel K500
MO	*Monel 400 or 450
NI	Nickel 200
TI	Titanium grade 2

Note: For duplex, super duplex and other materials contact your sales representative.

* *Trademark names*

Air Operated Valves

Refer to Valve Actuators section for available models.

Packing Options

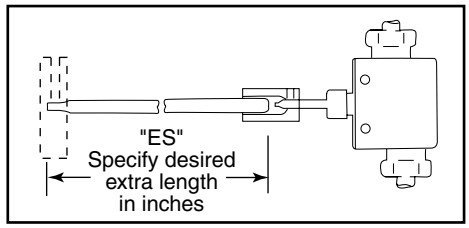
Refer to the valve model required, and see valve options in that section.

Optional Connections

In addition to standard tube connections, Parker Autoclave Engineers can supply many valve and fitting series with such optional end connections as Female or Male NPT, Socket Weld to O.D. tube size, or nominal pipe size, Female “AN” (MS 33649), Male “AN (MS 33656), Butt Weld and British straight thread. Contact factory for current information. Metric sizes can be supplied on most Parker Autoclave Engineers valves and fittings on special order.

Anti-Vibration Adder
For valves or other components supplied with anti-vibration option, add -K to catalog number. See fitting and tubing sections for anti-vibration information.

Stem and Handle Extenders
Stem Extenders are offered for high or low temperature operation on most Parker Autoclave Engineers valves. They are also useful for remote actuation, such as behind a barricade. To order any valve with a Stem Extender, add “ES” and the length (6”, 12”, 18” or 24”) to the beginning of the valve catalog number: e.g. ES12-30VM4071. Other lengths on special order. To order stem extender only, please provide extender number and the prefix of the valve model. Ex: ES12-20SM6 (handle not included.)



Abrasive or Highly Erosive Service Option
For service conditions where high flows, erosive mediums, or high pressures cause premature wear on stems and seats, N-Dura coating can be supplied to increase component life.

N-Dura coating is specifically used to enhance stem and seat life by providing a protective coating over a base substrate. This creates a thin, hard, protective coating with no effects of brittleness. The coating will not peel, chip or flake off the base material. The coating hardness is in a range of minimum 85 Rc surpassing other coatings and most materials.

The additional performance characteristics provided with the coating are reduced friction, corrosion resistance exceeding 400 stainless steel, and operating temperature ranges from -300°F to 1200°F.
The coating has been tested in erosive applications, yielding far better results than Stellite®, which has been utilized extensively in these applications. With few exceptions, most major ferrous and non ferrous materials can be successfully coated.

Most valves in this catalog are available with N-Dura coated stems or with both N-Dura coated stems and replaceable seats. This coating is available for all stem options. To order both N-Dura stems on any valve pattern, add suffix “CS” to the catalog model number. To order both N-Dura coated stems and N-Dura coated replaceable seats (available on 2-way angle replaceable seat pattern only) add suffix “CSS” to the catalog number. Stellite® is available as a special upon request.

Optional Valve Handles
Blue powder coated stainless handles are standard on the majority of the valve series. Stainess handles can be purchased in different colors if required, contact the factory for color options.

Exception: Heavy-duty Stainless Steel T-handles assemblies are standard on our larger valves, see detailed information on each section for handles used.

Panel Mounting
Most Parker Autoclave Engineers valve series can be panel mounted through the locking device screw hole and a corresponding hole opposite the packing gland. To order a set of two panel mounting screws, add PM to the catalog order number.

Handle Lockouts: Handle lockouts are available to lockout valves in the open or closed position preventing unauthorized personnel from actuating valves during shutdowns or emergency situations. Lockouts consist of two halves that completely cover the valve handle and can be locked for security. They are constructed of durable plastic resistant to abrasion, solvents, and chemical agents. Consult factory for details.
To order lockouts with valves add -L to part number.
Lockout part numbers: 90088 - 2.5" (63.5) to 5.0" (127.0) handle size
90194 - 6.5" (165.1) to 10.0" (254.0) handle size

Note: Modifications may be required to some valves to use lockouts if purchased separately. See page 1 of ball valve options for photo of clamp style lockout.

Note: Many standard and special options and accessories for Parker Autoclave Engineers valves are listed here. Not all options apply to all valve series - see individual ordering pages for specifics. Some options listed here are special order options with prices quoted on application. See Custom Valves/Manifolds section for other options.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

02-0120SE January2013

Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers Specifications AES-222. Failure to do so will void warranty.

ISO-9001 Certified

Pneumatic Valve Actuator

Pressures to 150,000 psi (10342 bar)

The need to control process and vent valves from a remote location makes air operated valves a vital component to many processing operations.

All Parker Autoclave Engineer's valves are available with diaphragm or piston type actuators. Six sizes of air actuators (light, heavy light, medium, heavy duty or extra heavy, single and double stage) are offered to meet the service requirements of Parker Autoclave Engineer's Low, Medium and High Pressure valves. Both air-to-open (normally closed) and air-to-close (normally open) designs are included in the product line. Optional air to open and close are available upon request.

For most Parker Autoclave Engineers valve series there is a choice of two or more actuator designs. This provides the most efficient and economical pneumatic valve operation for any combination of process requirements and available air pressure.

Actuators are available for outdoor service. These operators provide corrosion resistant components and prevent the ingress of outside elements.

Limit switch packages for valve position indication are also available upon request.

Parker

Autoclave Engineers®

www.autoclave.com

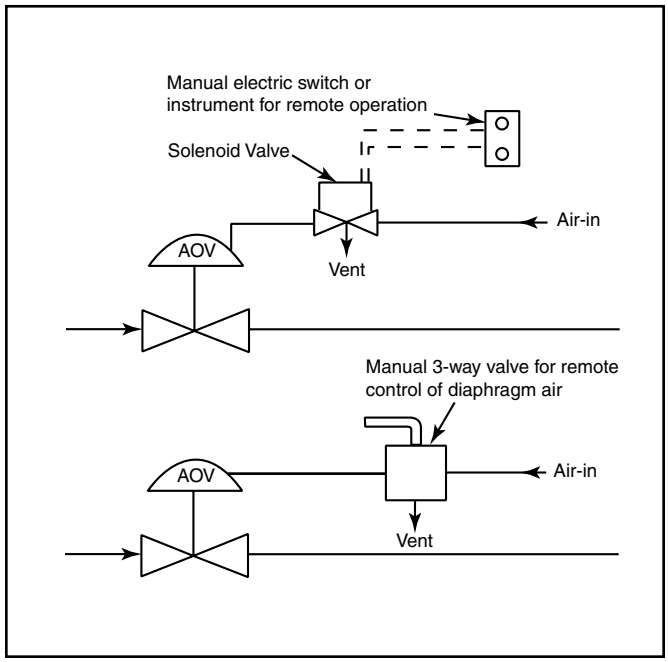
Actuator - Pneumatic

Pressures to 150,000 psi (10342 bar)

Pneumatic Actuator

Pressures to 150,000 psi (10342 bar)

Six sizes of air operators (light, heavy light, medium, heavy duty or extra heavy, single and double stage) are offered for remote on-off operation or automatic operation of Parker Autoclave Engineer's low, medium or high pressure valves. The actuators are available in air-to-open (normally closed) and air-to-close (normally open) designs.



Remote on-off

Parker Autoclave Engineer's air-operated valves (**ATO**- Air-To-Open or **ATC**-Air-To-Close) can be controlled by a 3-way manual low pressure valve or by a low pressure solenoid valve. These are actuated by either a manual switch or an automatic control instrument. Parker Autoclave Engineer's air-operated, high pressure valves permit process control from a remotely located panel without the necessity of piping high pressure lines to the control panel. Safety is greatly increased and process "hold-up" is reduced. Prudent selection of ATO or ATC valves, together with the air controlling devices, permits the design of systems to "fail safe" in either the closed or open condition in the event of loss of operating air, or electrical failure, or malfunction.
Where explosion proof conditions are a requirement, pneumatic actuated valves can be considered. Remote mounting of the solenoid valve removes the potential from the hazardous area.

Ordering Procedure

To order a valve with an air operator, select the duty rating and type of the air operator from the chart below. Add the air operator identifying suffix to the catalog number of the Parker Autoclave Engineer's valve. To order a 2-way straight, 30VM vee stem, 9/16" valve with a medium duty air-to-close air operator, specify: ex: **30VM9071-C1S** for a yoke style piston air actuated valve or **30VM9071-CM** for an integral style diaphragm air operated valve.

To order the same valve with an extended high temperature stuffing box, add HT to the ordering number: ex: **30VM9071-C1SHT** or **30VM9071-CMHT**.

To order a dual air operator manifold valve, specify both operators if different. The same valve with a medium duty ATC on one stem and a medium duty ATO on the other, specify: ex: **30VM9075-C1SO1S.**

To order a valve with operators for outdoor service add an "OD" suffix to the catalog number.

Note: Ordering air actuated valves models with regulating stems is not recommend. These are open/close actuators and will not regulate flow.

Duty Rating	Operator	Type	Ordering Suffix
Light	Diaphragm	Air-to-open	OL
		Air-to-close	CL
	Piston	Air-to-open	OLP
		Air-to-close	CLP
Mini-Light	Piston	Air-to-open	OHLP
		Air-to-close	CHLP
Medium	Diaphragm	Air-to-open	OM
		Air-to-close	CM
	Piston	Air-to-open	O1S
		Air-to-close	C1S
Heavy	Diaphragm	Air-to-open	OH
		Air-to-close	CH
	Piston	Air-to-open	O2S
		Air-to-close	C2S
Extra Heavy Single Stage	Piston	Air-to-open	HO1S
		Air-to-close	HC1S
Extra Heavy Double Stage	Piston	Air-to-open	HO2S
		Air-to-close	HC2S
Outdoor Service Actuators			
Medium	Piston	Air-to-open	O1SOD
		Air-to-close	C1SOD
Heavy	Piston	Air-to-open	O2SOD
		Air-to-close	C2SOD
Extra Heavy Single Stage	Piston	Air-to-open	HO1SOD
		Air-to-close	HC1SOD
Extra Heavy Doubl Stage	Piston	Air-to-open	HO2SOD
		Air-to-close	HC2SOD

Pneumatic Valve Actuators - Actuator Quick Selector Guide

This table allows the designer to quickly select an appropriate air actuator based on valve style and size, maximum system operating pressure and maximum available air pressure. For example, if the system operating pressure is 25,000 psi (1724 bar) and the available air pressure is 60 psi (4.14 bar) and an air-to-open (spring fail closed) valve is required, a 30VM or 60VM valve with a heavy duty air operator can be used. More specific sizing data is available in the sizing charts on the following pages.

Valve Series	Tube Outside Diameter in (mm)	Air-to-Close									
		Light		Medium		Heavy		Extra Heavy Single Stage		Extra Heavy Two Stage	
		System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)
10V	1/8 (3.18)	15,000 (1034.20)	100 (6.89)	15,000 (1034.20)	30 (2.07)						
	1/4 (6.35)	10,000 (689.46)	100 (6.89)	15,000 (1034.20)	40 (2.76)						
	3/8 (9.52)	10,000 (689.46)	100 (6.89)	15,000 (1034.20)	40 (2.76)						
	1/2 (12.70)			10,000 (689.46)	65 (4.48)						
SW	1/4 (6.35)			15,000 (1034.20)	65 (4.48)						
	3/8 (9.52)			15,000 (1034.20)	90 (6.21)	15,000 (1034.20)	50 (3.45)				
	1/2 (12.70)			8,000 (551.57)	100 (6.89)	10,000 (689.46)	60 (4.13)				
10SM	9/16 (14.27)			8,600 (592.94)	100 (6.89)	10,000 (689.45)	55 (3.79)	10,000 (689.45)	45 (3.10)	10,000 (689.46)	20 (1.38)
	3/4 (19.05)			4,,800 (330.94)	100 (6.89)	10,000 (689.46)	100 (6.89)	10,000 (689.46)	75 (5.17)	10,000 (689.46)	35 (2.41)
	1 (25.40)			2,800 (193.05)	100 (6.89)	6,300 (434.36)	100 (6.89)	8,500 (586.04)	100 (6.89)	10,000 (689.46)	35 (2.41)
20SM	1/4 (6.35)			20,000 (1378.93)	95 (6.55)	20,000 (1378.93)	50 (3.45)				
	3/8 (9.52)			19,000 (1310.00)	100 (6.89)	20,000 (1378.93)	55 (3.79)				
	9/16 (14.27)			10,700 (737.73)	100 (6.89)	20,000 (1378.93)	85 (5.86)	20,000 (1378.93)	60 (4.13)	20,000 (1378.93)	30 (2.07)
	3/4 (19.05)			6,100 (420.57)	100 (6.89)	13,600 (937.67)	100 (6.89)	19,000 (1310.00)	100 (6.89)	20,000 (1378.93)	50 (3.45)
	1 (25.40)			3,900 (268.89)	100 (6.89)	8,800 (606.73)	100 (6.89)	12,500 (861.83)	100 (6.89)	20,000 (1378.93)	75 (5.17)

NOTE: For 10P and 15P series pipe valves see sizing data tables.

Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Pneumatic Valve Actuators - Actuator Quick Selector Guide

Valve Series	Tube Outside Diameter in (mm)	Air-to-Open									
		Light		Medium		Heavy		Extra Heavy Single Stage		Extra Heavy Two Stage	
		System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)
10V	1/8 (3.18)	8,200 (565.36)	60 (4.14)	15,000 (1034.20)	45 (3.10)						
	1/4 (6.35)	5,600 (386.10)	60 (4.14)	15,000 (1034.20)	65 (4.48)						
	3/8 (9.52)	5,600 (386.10)	60 (4.14)	15,000 (1034.20)	65 (4.48)						
	1/2 (12.70)			10,000 (689.46)	95 (6.55)						
SW	1/4 (6.35)			15,000 (1034.20)	100 (6.89)						
	3/8 (9.52)			10,000 (689.46)	95 (6.55)	15,000 (1034.20)	75 (5.17)				
	1/2 (12.70)			6,000 (413.68)	95 (6.55)	10,000 (689.46)	75 (5.17)				
10SM	9/16 (14.27)			7,900 (544.68)	95 (6.55)	10,000 (689.45)	75 (5.17)	10,000 (689.45)	65 (4.48)	10,000 (689.46)	40 (2.76)
	3/4 (19.05)							10,000 (689.46)	95 (6.55)	10,000 (689.46)	65 (4.14)
	1 (25.40)							6,500 (448.15)	100 (6.89)	10,000 (689.46)	85 (5.81)
20SM	1/4 (6.35)			20,000 (1378.93)	95 (6.55)	20,000 (1378.93)	50 (3.45)				
	3/8 (9.52)			18,250 (1258.27)	95 (6.55)	18,250 (1258.27)	50 (3.45)				
	9/16 (14.27)			9,800 (675.68)	95 (6.55)	15,700 (1082.46)	75 (5.17)	20,000 (1378.93)	85 (5.86)	20,000 (1378.93)	55 (3.79)
	3/4 (19.05)					6,000 (413.68)	75 (5.17)	15,000 (1034.20)	100 (6.89)	20,000 (1378.93)	80 (5.52)
	1 (25.40)					4,000 (275.79)	75 (5.17)	10,000 (689.46)	100 (6.89)	20,000 (1378.93)	100 (6.89)

NOTE: For 10P and 15P series pipe valves see sizing data tables.

Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Pneumatic Valve Actuators - Actuator Quick Selector Guide

Valve Series	Tube Outside Diameter in (mm)	Air-to-Close								Air-to-Open							
		Light		Medium		Heavy		Extra Heavy Two Stage		Light		Medium		Heavy		Extra Heavy Two Stage	
		System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)	System Pressure psi (bar)	Air Pressure psi (bar)
30SC	1 (25.40)							30,000 (2068.39)	80 (5.52)							30,000 (2068.39)	80 (5.52)
30VM	1/4 (6.35)			30,000 (2068.39)	50 (3.45)	30,000 (2068.39)	30 (2.07)					30,000 (2068.39)	75 (5.17)	30,000 (2068.39)	40 (2.76)		
	3/8 (9.52)			30,000 (2068.39)	75 (5.17)	30,000 (2068.39)	40 (2.76)					30,000 (2068.39)	95 (6.55)	30,000 (2068.39)	50 (3.45)		
	9/16 (14.27)			30,000 (2068.39)	75 (5.17)	30,000 (2068.39)	40 (2.76)					30,000 (2068.39)	95 (6.55)	30,000 (2068.39)	50 (3.45)		
40VM	9/16 (14.27)					40,000 (2757.86)	45 (3.10)							40,000 (2757.86)	55 (3.79)		
60VM	1/4 (6.35)			60,000 (4136.79)	75 (5.17)	60,000 (4136.79)	40 (2.76)					60,000 (4136.79)	95 (6.55)	60,000 (4136.79)	50 (3.45)		
	3/8 (9.52)			60,000 (4136.79)	75 (5.17)	60,000 (4136.79)	40 (2.76)					60,000 (4136.79)	95 (6.55)	60,000 (4136.79)	50 (3.45)		
	9/16 (14.27)			60,000 (4136.79)	90 (6.21)	60,000 (4136.79)	45 (3.10)					60,000 (4136.79)	95 (6.55)	60,000 (4136.79)	50 (3.45)		
100VM	5/16 (7.92)			100,000 (6894.55)	100 (6.89)	100,000 (6894.65)	50 (3.45)							100,000 (6894.65)	70 (4.83)		
150V	5/16 (7.92)					150,000 (10341.97)	80 (5.52)							150,000 (10341.97)	75 (5.17)		

MVE/MV Mini Valves Series

Valve Series	Tube Outside Diameter in (mm)	Air-to-Close			Air-to-Open		
		Mini-Light			Mini-Light		
MVE	1/16 (1.57)	15,000 (1034.20)	75 (5.17)		15,000 (1034.20)	100 (6.89)	
MV	1/8 (3.18)	15,000 (1034.20)	75 (5.17)		15,000 (1034.20)	100 (6.89)	

Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

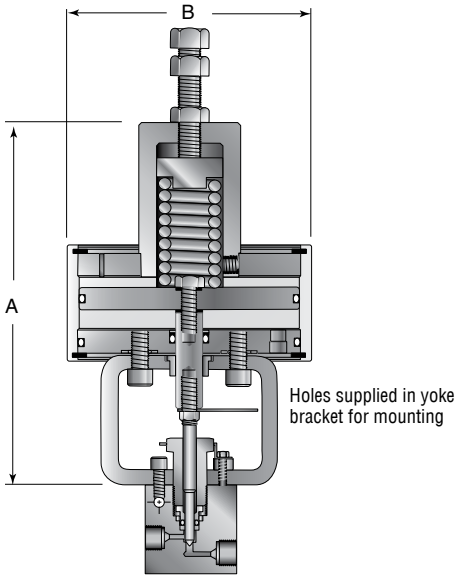
Pneumatic Valve Actuators - Piston Style Pneumatic

Pressures to 150,000 psi (10342 bar)

Piston type air-operated valves offer a unique, reliable design providing for a long and dependable life. These valves are more compact than diaphragm valves and are appropriate for applications such as high-flow gas and liquid delivery systems to reactors and mixer/vaporizers.

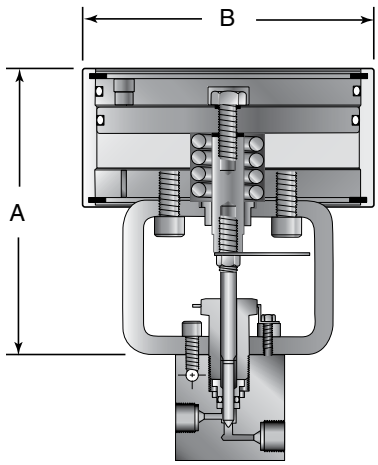
Parker Autoclave Engineer's piston type actuators feature:

- Small, compact, piston actuator
- Air-to-open or -close with spring return
- Yoke design for separation of process and air pressure †
- Ease of stem replacement
- Stem position indicator is standard†
- Positive shut-off metal-to-metal seating
- High actuator cycle life
- 1/8" NPT air inlet connection except Extra Heavy duty has 3/8" NPT



Air-to-Open (ATO)

NOTE: Air inlet for air to open operator is located in the back, opposite the front of valve. For other locations, consult factory.



Air-to-Close (ATC)

† The standard Mini-Light operator does not utilize the yoke design. A yoke design is available upon request.


Mini-Light

Air Operator Materials

Cylinder, piston, cover plates, spring housing
- Anodized aluminum (for corrosion and wear resistance).

Yoke
- Painted Steel

Technical Data

Air Operator

- Maximum allowable working pressure: 100 psi (6.89 bar)
- Allowable piston temperature range: -20°F to 200°F (-29°C to 93°C)
- Area of piston:
  - Light duty - 4.9 sq. in (31.6 sq. cm)
  - Mini-Light duty - 5.4 sq. in (34.8 sq. cm)
  - Medium duty - 19.6 sq. in (126.5 sq. cm)
  - Heavy duty - 39.2 sq. in (252.9 sq. cm)
  - Extra Heavy duty single stage - 56 sq. in (361.3 sq. cm)
  - Extra Heavy duty double stage - 112 sq. in (722.6 sq. cm)
- Approximate air usage/cycle @ 100 psi (6.89 bar):
  - Light duty - .003 SCF (.00008 SCM)
  - Mini-Light duty - .007 SCF (.0002 SCM)
  - Medium duty - .04 SCF (.0011 SCM)
  - Heavy duty - .08 SCF (.0022 SCM)
  - Extra Heavy duty single stage - .33 SCF (.0095 SCM)
  - Extra Heavy duty double stage - .67 SCF (.019 SCM)
- Tested to 100,000 cycles at 100 psi (6.89 bar) with no leakage or signs of wear or fatigue.

Duty Rating	Type	Ordering Suffix	Dimensions: inches (mm)	
			A	B
Light	Air-to-open	OLP	5.50 (139.70)	2.81 (71.37)
	Air-to-close	CLP	3.94 (100.08)	2.81 (71.37)
† Mini-Light	Air-to-open	OHLP	3.84 (97.67)	3.06 (77.72)
	Air-to-close	CHLP	2.61 (66.3)	3.06 (77.70)
Medium	Air-to-open	O1S	8.25 (209.55)	5.69 (144.52)
	Air-to-close	C1S	5.50 (139.70)	5.69 (144.52)
Heavy	Air-to-open	O2S	11.88 (301.75)	5.69 (144.52)
	Air-to-close	C2S	8.50 (215.90)	5.69 (144.52)
Extra Heavy Single Stage	Air-to-open	HO1S	15.16 (385.06)	9.44 (239.77)
	Air-to-close	HC1S	8.75 (217.67)	9.44 (239.77)
Extra Heavy Two Stage	Air-to-open	HO2S	18.50 (469.90)	9.44 (239.78)
	Air-to-close	HC2S	11.94 (303.27)	9.44 (239.78)

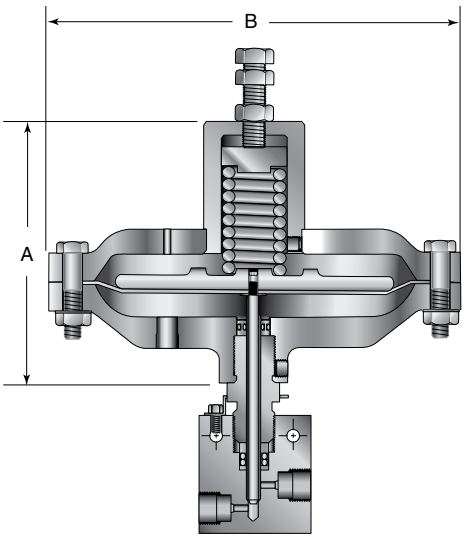
Pneumatic Valve Actuators - Diaphragm Style Pneumatic

Pressures to 150,000 psi (10342 bar)

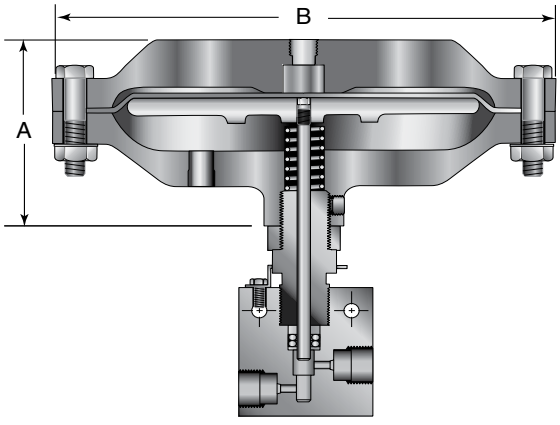
Diaphragm type air-operated valves are an efficient and economical means for "remote on-off" control of a wide range of process requirements. Diaphragm type actuators are designed to provide a dependable alternative to piston type actuators.

Parker Autoclave Engineer's diaphragm type air actuators feature:

- Economical diaphragm design
- Air-to-open or -close with spring return
- Integral connection of valve and operator for height resticted applications.
- Oversized weep holes for separation of process and air operator pressures.
- Stem position indicator optional
- Medium actuator cycle life
- 1/8" NPT air inlet connection



Air-to-Open (ATO)



Air-to-Close (ATC)

Air Operator Materials

Upper and lower housing, spring housing
- Anodized aluminum†

Diaphragm plate
- Cast ductile iron.

Technical Data

Air Operator

- Maximum allowable working pressure: 100 psi (6.89 bar)
- Allowable diaphragm temperature range: -40°F to 200°F (-40°C to 93°C)
- Area of diaphragm:
  - Light duty - 4.9 sq. in (31.6 sq. cm)
  - Medium duty - 19.6 sq. in (126.5 sq. cm)
  - Heavy duty - 45.66 sq. in (294.58 sq. cm)
- Approximate air usage/cycle @ 100 psi (6.89 bar):
  - Light duty - .007 SCF (.00019 SCM)
  - Medium duty - .07 SCF (.0019 SCM)
  - Heavy duty - .2 SCF (.0056 SCM)

†Note: OH and CH are carbon steel painted

Duty Rating	Type	Ordering Suffix	Dimensions: inches (mm)	
			A	B
Light	Air-to-open	OL	5.00 (127.00)	4.25 (107.95)
	Air-to-close	CL	2.38 (60.45)	4.25 (107.95)
Medium	Air-to-open	OM	6.42 (163.01)	7.12 (180.90)
	Air-to-close	CM	3.75 (95.25)	7.12 (180.90)
Heavy	Air-to-open	OH	8.75 (222.25)	10.00 (254.00)
	Air-to-close	CH	4.69 (119.13)	10.00 (254.00)

Pneumatic Valve Actuators - Air Operator Sizing Data

Air-to-Close

Series 10V and SW Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-4 (6.89-27.57)	6 (41.37)	8 (55.16)	10 (68.95)	12 (82.74)	14 (96.53)	15 (103.42)							
10V2	Light Duty	Air Pressure psi (bar)	30 (2.07)	40 (2.76)	55 (3.79)	65 (4.48)	85 (5.86)	95 (6.55)	100 (6.89)					15,000 (1034.20)	0.16 (4.06)	0.12
	Medium Duty		25 (1.72)	25 (1.72)	25 (1.72)	25 (1.72)	25 (1.72)	25 (1.72)	30 (2.07)							
10V4	Light Duty		40 (2.76)	60 (4.13)	75 (5.17)	95 (6.55)								10,000 (689.46)	0.19 (4.83)	0.20
	Medium Duty		30 (2.07)	30 (2.07)	30 (2.07)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.76)					15,000 (1034.20)		
10V6	Light Duty		40 (2.76)	60 (4.13)	75 (5.17)	100 (6.89)								10,000 (689.46)	0.19 (4.83)	0.20
	Medium Duty		30 (2.07)	30 (2.07)	30 (2.07)	35 (2.41)	35 (2.41)	35 (2.41)	40 (2.76)					15,000 (1034.20)		
10V8	Medium Duty		50 (3.45)	50 (3.45)	55 (3.79)	65 (4.48)								10,000 (689.46)	0.31 (7.90)	0.86
SW4	Medium Duty		40 (2.76)	40 (2.76)	40 (2.76)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)					15,000 (1034.20)	0.25 (6.40)	0.65
SW6	Medium Duty		50 (3.45)	50 (3.45)	55 (3.79)	70 (4.83)	75 (5.17)	85 (5.86)	90 (6.21)					15,000 (1034.20)	0.25 (6.40)	0.95
	Heavy Duty		20 (1.38)	25 (1.72)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)					15,000 (1034.20)		
SW8	Medium Duty		65 (4.48)	70 (4.83)	100 (6.89)									8,000 (551.57)	0.38 (9.70)	1.90
	Heavy Duty		35 (2.41)	35 (2.41)	50 (3.45)	60 (4.13)								10,000 (698.46)		

Series 10SM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-3 (6.89-20.68)	4 (27.58)	6 (41.37)	8 (55.16)	10 (68.95)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)				
10SM9	Medium Duty	Air Pressure psi (bar)	65 (4.48)	65 (4.48)	75 (5.17)	100 (6.89)								8,600 (592.94)	0.38 (9.65)	1.75
	Heavy Duty		35 (2.41)	35 (2.41)	40 (2.76)	50 (3.45)	55 (3.79)							10,000 (689.46)		
	Extra Heavy Duty Single Stage		30 (2.07)	30 (2.07)	30 (2.07)	35 (2.41)	45 (3.10)							10,000 (689.46)		
	Extra Heavy Duty Two Stage		15 (1.03)	15 (1.03)	15 (1.03)	20 (1.38)	20 (1.38)							10,000 (689.46)		
10SM12	Medium Duty		90 (6.21)	100 (6.89)										4,800 (330.94)	0.44 (11.18)	2.80
	Heavy Duty		45 (3.10)	45 (3.10)	60 (4.13)	80 (5.52)	100 (6.89)							10,000 (689.46)		
	Extra Heavy Duty Single Stage		35 (2.41)	35 (2.41)	50 (3.45)	60 (4.13)	70 (4.83)							10,000 (689.46)		
	Extra Heavy Duty Two Stage		20 (1.38)	20 (1.38)	25 (1.72)	30 (2.07)	35 (2.41)							10,000 (689.46)		
10SM16	Medium Duty		100 (6.89)											2,800 (193.05)	0.56 (14.22)	5.20
	Heavy Duty		60 (4.13)	70 (4.83)	100 (6.89)									6,300 (434.36)		
	Extra Heavy Duty Single Stage		45 (3.10)	50 (3.45)	70 (4.83)	95 (6.55)								8,500 (586.46)		
	Extra Heavy Duty Two Stage		25 (1.72)	25 (1.72)	35 (2.41)	45 (3.10)	55 (3.79)							10,000 (689.46)		

Air-to-Close - Series 20SM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-3 (6.89-20.68)	4 (27.58)	6 (41.37)	8 (55.16)	10 (68.95)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)				
20SM4 15P4†	Medium Duty	Air Pressure psi (bar)	40 (2.76)	40 (2.76)	40 (2.76)	40 (2.76)	50 (3.45)	60 (4.13)	70 (4.83)	80 (5.52)	85 (5.86)	95 (6.55)		20,000 (1378.93)	0.25 (6.35)	0.31
	Heavy Duty		20 (1.38)	20 (1.38)	20 (1.38)	20 (1.38)	25 (1.72)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)				
20SM6 15P6†	Medium Duty		45 (3.10)	45 (3.10)	45 (3.10)	45 (3.10)	55 (3.79)	65 (4.48)	75 (5.17)	85 (5.86)	95 (6.55)	100 (6.89)		19,000 (1309.98)	0.25 (6.35)	0.75
	Heavy Duty		25 (1.72)	25 (1.72)	25 (1.72)	25 (1.72)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	55 (3.79)		20,000 (1378.93)		
20SM9 15P8†	Medium Duty		60 (4.13)	60 (4.13)	65 (4.48)	80 (5.52)	100 (6.89)							10,700 (737.73)	0.38 (9.65)	1.30
	Heavy Duty		30 (2.07)	30 (2.07)	30 (2.07)	40 (2.76)	50 (3.45)	55 (3.79)	60 (4.13)	70 (4.83)	80 (5.52)	85 (5.86)		20,000 (1378.93)		
	Extra Heavy Duty Single Stage		25 (1.72)	25 (1.72)	25 (1.72)	30 (2.07)	35 (2.41)	45 (3.10)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)		20,000 (1378.93)		
	Extra Heavy Duty Two Stage		15 (1.03)	15 (1.03)	15 (1.03)	15 (1.03)	20 (1.38)	20 (1.38)	25 (1.72)	25 (1.72)	30 (2.07)	30 (2.07)		20,000 (1378.93)		
20SM12 10P12†	Medium Duty		80 (5.44)	80 (5.44)	100 (6.80)									6,100 (420.57)	0.44 (11.18)	2.50
	Heavy Duty		40 (2.72)	40 (2.72)	50 (3.40)	60 (4.08)	75 (5.10)	90 (6.12)	100 (6.80)					13,600 (937.67)		
	Extra Heavy Duty Single Stage		30 (2.07)	30 (2.07)	40 (2.76)	50 (3.45)	60 (4.13)	65 (4.48)	75 (5.17)	85 (5.86)	95 (6.55)	100 (6.89)		19,000 (1310.00)		
	Extra Heavy Duty Two Stage		15 (1.03)	15 (1.03)	20 (1.38)	25 (1.72)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	50 (3.45)		20,000 (1378.93)		
20SM16 10P16†	Medium Duty		100 (6.89)	100 (6.89)										3,900 (268.89)	0.56 (14.22)	3.40
	Heavy Duty		50 (3.45)	50 (3.45)	70 (4.83)	100 (6.89)								8,800 (606.73)		
	Extra Heavy Duty Single Stage		40 (2.76)	40 (2.76)	55 (3.79)	70 (4.83)	85 (5.86)	100 (6.89)						12,500 (861.83)		
	Extra Heavy Duty Two Stage		20 (1.38)	20 (1.38)	25 (1.72)	35 (2.41)	40 (2.76)	50 (3.45)	55 (3.79)	60 (4.48)	70 (4.83)	75 (5.17)		20,000 (1378.93)		

Series 30SC Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-10 (6.89-68.94)	15 (103.42)	16 (110.31)	18 (124.10)	20 (137.89)	22 (151.68)	24 (165.47)	26 (179.26)	28 (193.05)	30 (206.84)				
30SC16	Extra Heavy Duty Two Stage	Air Pressure psi (bar)	30 (2.07)	40 (2.76)	45 (3.10)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)	70 (4.83)	75 (5.17)	80 (5.52)		30,000 (2068.39)	0.50 (12.70)	2.61

*** C_V data is for 2-way straight valves.*
For angle pattern, add approximately 50% to the C_V valve.

***CAUTION:** While testing has shown O-rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring, FREQUENT INSPECTIONS SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.*

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Air-to-Close - Series 30VM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-10 (6.89-68.94)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)	22 (151.68)	24 (165.47)	26 (179.26)	28 (193.05)	30 (206.84)			
30VM4	Medium Duty	Air Pressure psi (bar)	25 (1.72)	25 (1.72)	25 (1.72)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	50 (3.45)	55 (3.79)	30,000 (2068.39)	0.19 (4.83)	0.12
	Heavy Duty		15 (1.03)	15 (1.03)	15 (1.03)	15 (1.03)	20 (1.38)	20 (1.38)	20 (1.38)	25 (1.72)	25 (1.72)	25 (1.72)	30 (2.07)			
30VM6 & 30VM9	Medium Duty		30 (2.07)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)	70 (4.83)	75 (5.17)	30,000 (2068.39)	0.19 (4.83)	0.23 (30VM6)
	Heavy Duty		15 (1.03)	15 (1.03)	20 (1.38)	20 (1.38)	25 (1.72)	25 (1.72)	30 (2.07)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.76)			0.33 (30VM9)

Series 40VM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)								Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-10 (6.89-68.94)	15 (103.42)	20 (137.89)	25 (172.37)	30 (206.84)	35 (241.31)	40 (275.79)				
40VM9	Medium Duty	Air Pressure psi (bar)	40 (2.76)	50 (3.45)	60 (4.13)	70 (4.83)	80 (5.52)	90 (6.21)	90 (6.21)		40,000 (2757.86)	0.25 (6.35)	0.28
	Heavy Duty		20 (1.38)	25 (1.70)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	45 (3.10)				

Series 60VM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)										Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-20 (6.89-137.89)	25 (172.37)	30 (206.84)	35 (241.31)	40 (275.79)	45 (310.26)	50 (344.73)	55 (379.21)	60 (413.68)				
60VM4 & 60VM6	Medium Duty	Air Pressure psi (bar)	30 (2.07)	30 (2.07)	35 (2.41)	45 (3.10)	50 (3.45)	55 (3.79)	60 (4.13)	70 (4.83)	75 (5.17)		60,000 (4136.79)	0.25 (6.35)	0.08 (60VM4)
	Heavy Duty		15 (1.03)	15 (1.03)	20 (1.38)	25 (1.72)	25 (1.72)	30 (2.07)	30 (2.07)	35 (2.41)	40 (2.76)				0.09 (60VM6)
60VM9	Medium Duty		35 (2.41)	40 (2.76)	50 (3.45)	55 (3.79)	65 (4.48)	70 (4.83)	75 (5.17)	85 (5.86)	90 (6.21)		60,000 (4136.79)	0.25 (6.35)	0.14
	Heavy Duty		20 (1.38)	20 (1.38)	25 (1.72)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.76)	45 (3.10)	45 (3.10)				

Series 100VM & 150V Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)									Maximum Pressure psi (bar)*	Stem Travel in (mm)	Flow Coefficient**
			1-40 (6.89-275.79)	50 (344.73)	60 (413.68)	70 (482.63)	80 (551.57)	90 (620.52)	100 (689.46)	150 (1034.20)				
100VM4 100VM5 100VM6	Medium Duty	Air Pressure psi (bar)	50 (3.45)	55 (3.79)	65 (4.48)	75 (5.17)	85 (5.86)	95 (6.55)	100 (6.89)			100,000 (6894.65)	0.12 (3.05)	0.09
	Heavy Duty		30 (2.07)	30 (2.07)	35 (2.41)	40 (2.76)	40 (2.76)	45 (3.10)	50 (3.45)					
150V5	Heavy Duty		35 (2.41)	40 (2.76)	45 (3.10)	45 (3.10)	50 (3.45)	55 (3.79)	60 (4.13)	100 (6.89)		150,000 (10341.97)	0.12 (3.05)	0.06

Pneumatic Valve Actuators - Air Operator Sizing Data

Air-to-Open

Series 10V Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-6 (6.89-41.37)	8 (110.31)	10 (124.10)	12 (82.74)	14 (96.53)	15 (103.42)							
10V2	Light Duty	Air Pressure: psi (bar)	60 **(4.13)**	60 **(4.13)**										8,200 **(565.36)**	0.12 to 0.09***
		Spring Pre-Compression: in. (mm)	0.31 **(7.87)**	0.38 **(9.65)**											
		Stem Travel in (mm)	0.12 **(3.05)**	0.06 **(1.52)**											
	Medium Duty	Air Pressure: psi (bar)	40 **(2.76)**	40 **(2.76)**	40 **(2.76)**	40 **(2.76)**	40 **(2.76)**	45 **(3.10)**						15,000 **(1034.20)**	0.12
		Spring Pre-Compression: in. (mm)	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**	0.16 **(4.06)**							
		Stem Travel in (mm)	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**	0.12 **(3.05)**							
10V4 10V6	Light Duty	Air Pressure: psi (bar)	60 **(4.13)**											5,600 **(386.46)**	0.02 to 0.17***
		Spring Pre-Compression: in. (mm)	0.38 **(9.65)**												
		Stem Travel in (mm)	0.06 **(1.52)**												
10V4	Medium Duty	Air Pressure: psi (bar)	45 **(3.10)**	45 **(3.10)**	50 **(3.45)**	55 **(3.79)**	60 **(4.14)**	65 **(4.48)**						15,000 **(1034.20)**	0.20
		Spring Pre-Compression: in. (mm)	0.12 **(3.05)**	0.12 **(3.05)**	0.14 **(3.65)**	0.18 **(4.75)**	0.20 **(5.08)**	0.22 **(5.59)**							
		Stem Travel in (mm)	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**							
10V6	Medium Duty	Air Pressure: psi (bar)	45 **(3.10)**	45 **(3.10)**	50 **(3.45)**	55 **(3.79)**	60 **(4.13)**	65 **(4.48)**						15,000 **(1034.20)**	0.20
		Spring Pre-Compression: in. (mm)	0.12 **(3.05)**	0.12 **(3.05)**	0.14 **(3.56)**	0.18 **(4.57)**	0.20 **(5.08)**	0.22 **(5.57)**							
		Stem Travel in (mm)	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**	0.19 **(4.83)**							
10V8	Medium Duty	Air Pressure: psi (bar)	75 **(5.17)**	85 **(5.86)**	95 **(6.55)**									10,000 **(689.46)**	0.86
		Spring Pre-Compression: in. (mm)	0.25 **(6.35)**	0.30 **(7.62)**	0.38 **(9.65)**										
		Stem Travel in (mm)	0.25 **(6.35)**	0.25 **(6.35)**	0.25 **(6.35)**										
	Heavy Duty	Air Pressure: psi (bar)	50 **(3.45)**	55 **(3.79)**	60 **(4.13)**									10,000 **(689.46)**	0.86
		Spring Pre-Compression: in. (mm)	0.14 **(3.56)**	0.20 **(5.08)**	0.24 **(6.10)**										
		Stem Travel in (mm)	0.25 **(6.35)**	0.25 **(6.35)**	0.25 **(6.35)**										

*** C_V data is for 2-way straight valves.*
For angle pattern, add approximately 50% to the C_V valve.

***CAUTION:** While testing has shown O-rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring, FREQUENT INSPECTIONS SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.*

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Series SW Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-6 (6.89-41.37)	8 (55.16)	10 (68.95)	12 (82.74)	14 (96.53)	15 (103.41)							
SW4	Medium Duty	Air Pressure: psi (bar)	65 (4.48)	65 (4.48)	75 (5.17)	85 (5.52)	95 (6.55)	95 (6.55)						15,000 (1034.20)	0.65
		Spring Pre-Compression: in. (mm)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.31 (7.87)	0.36 (9.14)	0.38 (9.14)							
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	025 (6.35)	025 (6.35)	025 (6.35)							
SW6	Medium Duty	Air Pressure: psi (bar)	75 (5.17)	75 (5.17)	95 (6.55)	95 (6.55)	95 (6.55)	100 (6.89)						13,500 (930.77)	0.62 to 0.95
		Spring Pre-Compression: in. (mm)	0.25 (6.35)	0.25 (6.35)	0.28 (7.11)	0.44 (11.17)	0.52 (13.21)	0.56 (14.22)							
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)	0.10 (2.54)	0.06 (1.53)							
SW6	Heavy Duty	Air Pressure: psi (bar)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)	70 (4.83)	75 (5.17)						15,000 (1034.20)	0.95
		Spring Pre-Compression: in. (mm)	0.14 (3.56)	0.19 (4.83)	0.24 (6.10)	0.28 (7.11)	0.34 (8.64)	0.36 (9.14)							
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)							
SW8	Medium Duty	Air Pressure: psi (bar)	95 (6.55)	95 (6.55)										7,200 (469.41)	1.75
		Spring Pre-Compression: in. (mm)	0.38 (9.65)	0.56 (14.22)											
		Stem Travel in (mm)	0.25 (6.35)	0.05 (1.53)											
SW8	Heavy Duty	Air Pressure: psi (bar)	65 (4.48)	75 (5.17)	75 (5.17)									10,000 (689.46)	1.14
		Spring Pre-Compression: in. (mm)	0.28 (7.11)	0.38 (9.65)	0.44 (11.18)										
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)										

Series MVE/MV Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-6 (6.89-41.37)	8 (55.15)	10 (68.95)	12 (82.74)	14 (96.53)	15 (103.41)							
MVE1 MV1	Mini-Light Duty	Air Pressure: psi (bar)	60 (4.13)	65 (4.48)	75 (5.17)	85 (5.86)	90 (6.21)	100 (6.89)						15,000 (1034.20)	MVE1/MV1 (0.05)
		Spring Pre-Compression: in. (mm)	0.073 (1.85)	0.094 (2.39)	0.125 (3.18)	0.147 (3.73)	0.172 (4.37)	0.188 (4.78)							
MVE2 MV2		Stem Travel in (mm)	0.094 (2.39)	0.094 (2.39)	0.094 (2.39)	0.094 (2.39)	0.094 (2.39)	0.094 (2.39)							MVE2/MV2 (0.11)

*** C_V data is for 2-way straight valves.*
For angle pattern, add approximately 50% to the C_V valve.

***CAUTION:** While testing has shown O-rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring, FREQUENT INSPECTIONS SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.*

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Air-to-Open - Series 10SM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-4 (6.89-27.58)	6 (41.37)	8 (55.15)	10 (68.95)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)				
10SM9	Medium Duty	Air Pressure: psi (bar)	95 (6.55)	95 (6.55)	95 (6.55)									7,900 (544.68)	1.74 to 0.72***
		Spring Pre-Compression: in. (mm)	0.38 (9.65)	0.44 (11.18)	0.56 (14.22)										
		Stem Travel in (mm)	0.25 (6.35)	0.19 (4.83)	0.06 (1.52)										
	Heavy Duty	Air Pressure: psi (bar)	55 (3.79)	65 (4.48)	70 (4.83)	75 (5.17)								10,000 (689.46)	1.74 to 0.72***
		Spring Pre-Compression: in. (mm)	0.22 (5.59)	0.28 (7.11)	0.34 (8.64)	0.44 (11.18)									
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)									
	Extra Heavy Duty Single Stage	Air Pressure: psi (bar)	45 (3.10)	45 (3.10)	55 (3.79)	60 (4.13)								10,000 (689.46)	1.75
		Spring Pre-Compression: in. (mm)	0.31 (7.87)	0.34 (8.64)	0.47 (11.94)	0.59 (14.99)									
		Stem Travel in (mm)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)									
	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	25 (1.72)	30 (2.07)	35 (2.41)	40 (2.76)								10,000 (689.46)	1.75
		Spring Pre-Compression: in. (mm)	0.16 (4.06)	0.19 (4.83)	0.25 (6.35)	0.28 (7.11)									
		Stem Travel in (mm)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)									
10SM12	Extra Heavy Duty Single Stage	Air Pressure: psi (bar)	55 (3.79)	65 (4.48)	80 (5.52)	95 (6.55)								10,000 (689.46)	2.80
		Spring Pre-Compression: in. (mm)	0.44 (11.18)	0.63 (16.00)	0.84 (21.34)	1.06 (26.92)									
		Stem Travel in (mm)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)									
	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	40 (2.76)	50 (3.45)	55 (3.79)	60 (4.13)								10,000 (689.46)	2.80
		Spring Pre-Compression: in. (mm)	0.22 (5.59)	0.31 (7.87)	0.44 (11.18)	0.53 (13.46)									
		Stem Travel in (mm)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)									
10SM16	Extra Heavy Duty Single Stage	Air Pressure: psi (bar)	75 (5.17)	100 (6.89)										6,500 (448.15)	5.20
		Spring Pre-Compression: in. (mm)	0.69 (17.53)	1.13 (28.70)											
		Stem Travel in (mm)	0.50 (12.70)	0.50 (12.70)											
	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	55 (3.79)	65 (4.48)	75 (5.17)	85 (5.86)								10,000 (689.46)	5.20
		Spring Pre-Compression: in. (mm)	0.34 (8.64)	0.53 (13.46)	0.69 (17.53)	0.88 (22.35)									
		Stem Travel in (mm)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)									

Air-to-Open - Series 20SM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-4 (6.89-27.58)	6 (41.37)	8 (55.15)	10 (68.95)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)				
20SM4 15P4†	Medium Duty	Air Pressure: psi (bar)	65 (4.48)	65 (4.48)	65 (4.48)	75 (5.17)	85 (5.86)	95 (6.55)	95 (6.55)	95 (6.55)	95 (6.55)			20,000 (1378.93)	0.31 to 0.22***
		Spring Pre-Compression: in. (mm)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.31 (7.87)	0.38 (9.65)	0.44 (11.18)	0.50 (12.70)	0.56 (14.22)				
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)	0.12 (3.05)	0.06 (1.52)				
	Heavy Duty	Air Pressure: psi (bar)	35 (2.41)	35 (2.41)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	50 (3.45)	50 (3.45)	50 (3.45)				
20SM6 15P6†	Medium Duty	Air Pressure: psi (bar)	65 (4.48)	65 (4.48)	75 (5.17)	85 (5.86)	95 (6.55)	95 (6.55)	95 (6.55)	95 (6.55)				18,250 (1258.27)	0.75 to 0.57***
		Spring Pre-Compression: in. (mm)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.31 (7.87)	0.38 (9.65)	0.44 (11.18)	0.50 (12.70)	0.56 (14.22)					
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)	0.12 (3.05)	0.06 (1.52)					
	Heavy Duty	Air Pressure: psi (bar)	35 (2.41)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	50 (3.45)	50 (3.45)	50 (3.45)					
20SM9 15P8†	Medium Duty	Air Pressure: psi (bar)	85 (5.86)	90 (6.21)	95 (6.55)	95 (6.55)								9,800 (675.68)	1.29 to 0.53***
		Spring Pre-Compression: in. (mm)	0.31 (7.87)	0.34 (8.64)	0.47 (11.94)	0.56 (14.22)									
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.15 (3.81)	0.06 (1.52)									
	Heavy Duty	Air Pressure: psi (bar)	50 (3.45)	55 (3.79)	65 (4.48)	70 (4.83)	75 (5.17)	75 (5.17)	75 (5.17)					15,700 (1082.46)	1.29 to 0.53***
		Spring Pre-Compression: in. (mm)	0.19 (4.83)	0.22 (5.59)	0.28 (7.11)	0.34 (8.64)	0.44 (11.18)	0.50 (12.70)	0.56 (14.22)						
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)	0.12 (3.05)	0.06 (1.52)						
	Extra Heavy Duty Single Stage	Air Pressure: psi (bar)	40 (2.76)	40 (2.76)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)	70 (4.83)	75 (5.17)	85 (5.86)			20,000 (1378.93)	1.30
		Spring Pre-Compression: in. (mm)	0.25 (6.35)	0.28 (7.11)	0.38 (9.65)	0.47 (11.94)	0.56 (14.22)	0.66 (16.76)	0.75 (19.05)	0.84 (21.34)	0.94 (23.88)				
		Stem Travel in (mm)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)				
	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.72)	40 (2.72)	45 (3.10)	50 (3.45)	50 (3.45)	55 (3.79)			20,000 (1378.93)	1.30
		Spring Pre-Compression: in. (mm)	0.13 (3.30)	0.16 (4.06)	0.19 (4.83)	0.25 (6.35)	0.28 (7.11)	0.34 (8.64)	0.38 (9.65)	0.44 (11.18)	0.47 (11.94)				
		Stem Travel in (mm)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)	0.38 (9.65)				

† Maximum rating is based on the valve rating.

**** C_V varies because of spring compression limitations. The flow coefficient range is given for the maximum stem travel (lowest system pressure) to minimum travel (highest system pressure).*

Air-to-Open - Series 20SM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-4 (6.89-27.58)	6 (41.37)	8 (55.15)	10 (68.95)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)				
20SM12 10P12†	Heavy Duty	Air Pressure: psi (bar)	65 (4.48)	75 (5.17)										6,000 (413.68)	0.80 to 0.78***
		Spring Pre-Compression: in. (mm)	0.28 (7.11)	0.38 (9.65)											
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)											
	Extra Heavy Duty Single Stage	Air Pressure: psi (bar)	50 (3.45)	60 (4.13)	70 (4.83)	80 (5.52)	90 (6.21)	100 (6.89)	100 (6.89)					15,000 (1034.19)	2.50
		Spring Pre-Compression: in. (mm)	0.38 (9.65)	0.50 (12.70)	0.66 (16.76)	0.81 (20.57)	0.97 (24.64)	1.13 (28.70)	1.22 (30.99)						
		Stem Travel in (mm)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)				
	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	40 (2.76)	45 (3.10)	50 (3.45)	55 (3.79)	60 (4.13)	65 (4.48)	70 (4.83)	75 (5.17)	80 (5.52)			20,000 (1378.93)	2.50
		Spring Pre-Compression: in. (mm)	0.19 (4.83)	0.25 (6.35)	0.31 (7.87)	0.41 (10.41)	0.50 (12.70)	0.56 (14.22)	0.66 (16.76)	0.72 (18.29)	0.81 (20.57)				
		Stem Travel in (mm)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)	0.44 (11.18)				
20SM16 10P16†	Heavy Duty	Air Pressure: psi (bar)	75 (5.17)											4,000 (275.79)	2.73 to .15***
		Spring Pre-Compression: in. (mm)	0.38 (9.65)												
		Stem Travel in (mm)	0.25 (6.35)												
	Extra Heavy Duty Single Stage	Air Pressure: psi (bar)	65 (4.48)	80 (5.52)	95 (6.55)	100 (6.89)								10,000 (689.46)	3.40
		Spring Pre-Compression: in. (mm)	0.50 (12.70)	0.75 (19.05)	0.97 (24.64)	1.22 (30.99)									
		Stem Travel in (mm)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)									
	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	50 (3.45)	55 (3.79)	65 (4.48)	70 (4.83)	80 (5.52)	85 (5.86)	90 (6.21)	100 (6.89)	100 (6.89)			20,000 (1378.93)	3.40
		Spring Pre-Compression: in. (mm)	0.25 (6.35)	0.38 (9.65)	0.50 (12.70)	0.63 (16.00)	0.75 (19.05)	0.84 (21.34)	0.97 (24.64)	1.09 (27.69)	1.22 (30.99)				
		Stem Travel in (mm)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)				

† Maximum rating is based on the valve rating.

*** C_V data is for 2-way straight valves.*
For angle pattern, add approximately 50% to the C_V valve.

**** C_V varies because of spring compression limitations. The flow coefficient range is given for the maximum stem travel (lowest system pressure) to minimum travel (highest system pressure).*

***CAUTION:** While testing has shown O-rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring, FREQUENT INSPECTIONS SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.*

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Air-to-Open - Series 30SC Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-15 (6.89-103.42)	16 (110.31)	18 (124.10)	20 (137.89)	22 (151.68)	24 (165.47)	26 (179.26)	28 (193.05)	30 (206.84)				
30SC16	Extra Heavy Duty Two Stage	Air Pressure: psi (bar)	70 (4.83)	75 (5.17)	75 (5.17)	80 (5.52)	85 (5.86)	95 (6.55)	100 (6.89)	100 (6.89)	100 (6.89)			30,000 (2068.39)	2.61
		Spring Pre-Compression: in. (mm)	0.56 (14.22)	0.62 (15.75)	0.68 (17.27)	0.75 (19.05)	0.88 (22.35)	0.94 (23.88)	1.00 (25.40)	1.06 (26.92)	1.38 (35.05)				
		Stem Travel in (mm)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)	0.50 (12.70)				

Series 30VM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-10 (6.89-68.95)	12 (82.74)	14 (96.53)	16 (110.31)	18 (124.10)	20 (137.89)	22 (151.68)	24 (165.47)	26 (179.26)	28 (193.05)	30 (206.84)		
30VM4	Medium Duty	Air Pressure: psi (bar)	45 (3.10)	45 (3.10)	55 (3.79)	55 (3.79)	55 (3.79)	55 (3.79)	65 (4.48)	65 (4.48)	65 (4.48)	65 (4.48)	75 (5.17)	30,000 (2068.39)	0.12
		Spring Pre-Compression: in. (mm)	0.12 (3.15)	0.12 (3.05)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.31 (7.87)		
		Stem Travel in (mm)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)		
	Heavy Duty	Air Pressure: psi (bar)	25 (1.72)	25 (1.72)	30 (2.07)	30 (2.07)	30 (2.07)	30 (2.07)	35 (2.41)	35 (2.41)	35 (2.41)	35 (2.41)	40 (2.76)		
30VM6 & 30VM9	Medium Duty	Air Pressure: psi (bar)	45 (3.10)	55 (3.79)	55 (3.79)	65 (4.48)	65 (4.48)	75 (5.17)	75 (5.17)	75 (5.17)	85 (5.86)	85 (5.86)	95 (6.55)	30,000 (2068.39)	0.33 (30VM6) 0.33 (30VM9)
		Spring Pre-Compression: in. (mm)	0.12 (3.05)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.25 (6.35)	0.31 (7.87)	0.31 (7.87)	0.31 (7.87)	0.38 (9.65)	0.38 (9.65)	0.44 (11.18)		
		Stem Travel in (mm)	0.19 (4.13)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)		
	Heavy Duty	Air Pressure: psi (bar)	25 (1.72)	30 (2.07)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.76)	40 (2.76)	40 (2.76)	45 (3.10)	45 (3.10)	50 (3.45)		

Series 40VM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-10 (6.89-68.95)	15 (103.42)	20 (137.89)	25 (172.37)	30 (206.84)	35 (241.31)	40 (275.79)						
40VM9	Medium Duty	Air Pressure: psi (bar)	60 (4.13)	70 (4.83)	75 (5.17)	85 (5.86)	95 (6.55)	100 (6.89)	100 (6.89)					40,000 (2757.86)	0.28
		Spring Pre-Compression: in (mm)	0.12 (3.05)	0.18 (4.57)	0.25 (6.35)	0.31 (7.87)	0.38 (9.65)	0.43 (10.92)	0.5 (12.70)						
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)						
	Heavy Duty	Air Pressure: psi (bar)	30 (2.07)	35 (2.41)	40 (2.76)	45 (3.10)	50 (3.45)	50 (3.45)	55 (3.79)						

Air-to-Open - Series 60VM Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-15 (6.89-103.42)	20 (137.89)	25 (172.37)	30 (206.84)	35 (241.31)	40 (275.79)	45 (310.26)	50 (344.73)	55 (379.21)	60 (413.68)			
60VM4 & 60VM6	Medium Duty	Air Pressure: psi (bar)	55 (3.79)	65 (4.48)	65 (4.48)	65 (4.48)	75 (5.17)	75 (5.17)	85 (5.86)	85 (5.86)	85 (5.86)	95 (6.55)		60,000 (4136.79)	0.08 (60VM4)
		Spring Pre-Compression: in. (mm)	0.12 (3.05)	0.19 (4.83)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.25 (6.35)	0.31 (7.87)	0.31 (7.87)	0.31 (7.87)	0.38 (9.65)			
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)			
	Heavy Duty	Air Pressure: psi (bar)	30 (2.07)	35 (2.41)	35 (2.41)	35 (2.41)	40 (2.76)	40 (2.76)	45 (3.10)	45 (3.10)	45 (3.10)	50 (3.45)			0.09 (60VM6)
60VM9	Medium Duty	Air Pressure: psi (bar)	55 (3.74)	65 (4.42)	65 (4.42)	75 (5.10)	75 (5.10)	85 (5.78)	95 (6.46)	95 (6.46)	95 (6.46)	95 (6.46)		60,000 (4136.79)	0.14
		Spring Pre-Compression: in. (mm)	0.12 (3.05)	0.19 (4.83)	0.19 (4.83)	0.25 (6.35)	0.25 (6.35)	0.31 (7.87)	0.38 (9.65)	0.38 (9.65)	0.44 (11.18)	0.50 (12.70)			
		Stem Travel in (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.19 (4.83)	0.12 (3.05)			
	Heavy Duty	Air Pressure: psi (bar)	30 (2.07)	35 (2.41)	35 (2.41)	40 (2.76)	40 (2.76)	45 (3.10)	50 (3.45)	50 (3.45)	50 (3.45)	50 (3.45)			

Series 100VM and 150V Valves

Valve Series	Operator Duty		System Pressure KSI (Mpa)											Maximum Pressure psi (bar)*	Flow Coefficient Cv**
			1-20 (6.89-137.89)	40 (275.79)	60 (13.68)	80 (551.57)	90 (620.52)	100 (689.46)	125 (861.83)	150 (1034.20)					
100VM4 100VM5 100VM6	Heavy Duty	Air Pressure: psi (bar)	35 (2.41)	40 (2.76)	50 (3.45)	60 (4.14)	70 (4.83)	70 (4.83)						100,000 (6894.65)	0.09 to 0.07***
		Spring Pre-Compression: in. (mm)	0.12 (3.05)	0.19 (4.83)	0.25 (6.35)	0.31 (7.87)	0.38 (9.65)	0.38 (9.65)							
		Stem Travel in (mm)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)							
150V5	Heavy Duty	Air Pressure: psi (bar)	30 (2.07)	40 (2.76)	45 (3.10)	55 (3.79)	60 (4.13)	60 (4.13)	70 (4.83)	75 (5.17)				150,000 (10341.97)	0.06
		Spring Pre-Compression: in. (mm)	0.12 (3.05)	0.19 (4.83)	0.25 (6.35)	0.31 (7.87)	0.38 (9.65)	0.38 (9.65)	0.44 (11.18)	0.56 (14.22)					
		Stem Travel in (mm)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.12 (3.05)	0.06 (1.52)					

*** C_V data is for 2-way straight valves.*
For angle pattern, add approximately 50% to the C_V valve.

**** C_V varies because of spring compression limitations. The flow coefficient range is given for the maximum stem travel (lowest system pressure) to minimum travel (highest system pressure).*

***CAUTION:** While testing has shown O-rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring, FREQUENT INSPECTIONS SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.*

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Electric Flow Control Valve

Pressures to 60,000 psi (4137 bar)

The need to remotely control process flow at high pressure makes this valve a vital component to processing operations. Parker Autoclave Engineers now has a flow control valve available in several models. Parker Autoclave Engineers' control valve utilizes our standard Micro-metering valve coupled to an electric actuator. The combination of these two precision, high quality components, provide a superior low flow control valve for use with liquids and gases.

Electric Flow Control Valve Features:

- Sizes 1/8", 1/4" and 3/8"
- C_V: 0.004
- Precise, accurate control
- Temperatures: -100°F to +600°F
- End connections: low pressure and high pressure Autoclave
- Materials: 316 SS, special materials available
- Controller Enclosure Rating: IP65 Weatherproof

Parker

Autoclave Engineers®

www.autoclave.com

Electric Flow Control Valve

Flow Control Valvs - Electric

Pressures to 60,000 psi (4137 bar)

	Tube Outside Diameter Size Inches	Connection Type	Orifice Size Inches (mm)	Rated C_V	Pressure Rating psi (bar) @ Room Temperature**
10VRMM	1/8	W125	0.062 (1.57)	0.004	15,000 (1034)
30VRMM	1/4	F250C	0.062 (1.57)	0.004	30,000 (2069)
60VRMM	1/4	F250C	0.062 (1.57)	0.004	60,000 (4137)
60VRMM	3/8	F375C	0.062 (1.57)	0.004	60,000 (4137)

Note:

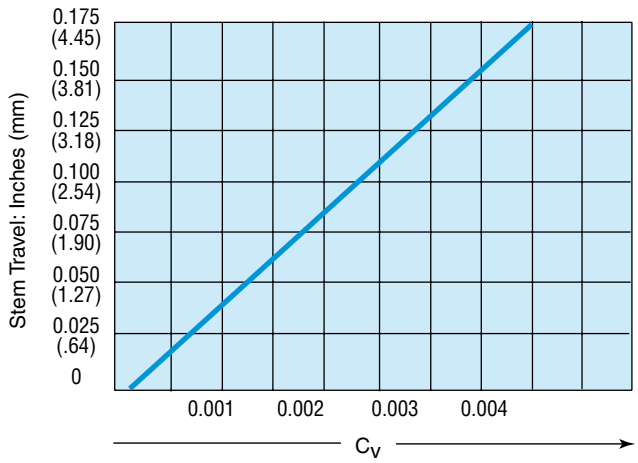
*** For complete temperature ratings see pressure/temperature rating guide in Technical Information section*

Controller Specifications

The microprocessor controlled motor guarantees optimum voltage, current and torque control when starting, running or stopping valve rotation. The microprocessor also assures accurate stem location and repeatability.

Power Requirement: 24VDC/50 Watts Min.
Control Input: 4-20 mA or 0-10 VDC
Operating Temperature: -22°F (-30°C) to 185°F (85°C)
2 foot lead cable
Anodized Aluminum Housing, IP65 (NEMA 4X) Weatherproof

Flow Coefficient (C_V)



Note: 1 turn is equal to 0.025" (0.64mm)

Ordering Information

Model	Control Input	No. Rotations	Controller RPMs	Fig.
10VRMM2812-C4	4 - 20 mA	6	10	1
10VRMM2812-C10	0 - 10 VDC	6	10	1
30VRMM4812-C4	4 - 20 mA	6	10	2
30VRMM4812-C10	0 - 10 VDC	6	10	2
60VRMM4812-C4	4 - 20 mA	6	10	2
60VRMM4812-C10	0 - 10 VDC	6	10	2
60VRMM6812-C4	4 - 20 mA	6	10	2
60VRMM6812-C10	0 - 10 VDC	6	10	2

Note: For micrometering valve details see needle valve section.

Valve Options

Extreme Temperatures
Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). Optional packing or trim material available by adding the following suffixes to catalog order number.†

TG - standard valve with PTFE glass packing to 600°F (316°C).
B - standard valve with cryogenic trim material and PTFE packing to -100°F (-73°C).

†*Parker Autoclave Engineers does not recommend compression sleeve connections below 0°F (-17.8°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.*

See Needle Valve options for stem and seat coatings for erosive service.
Metering valve not to be used as a shutoff valve.

Valve Maintenance

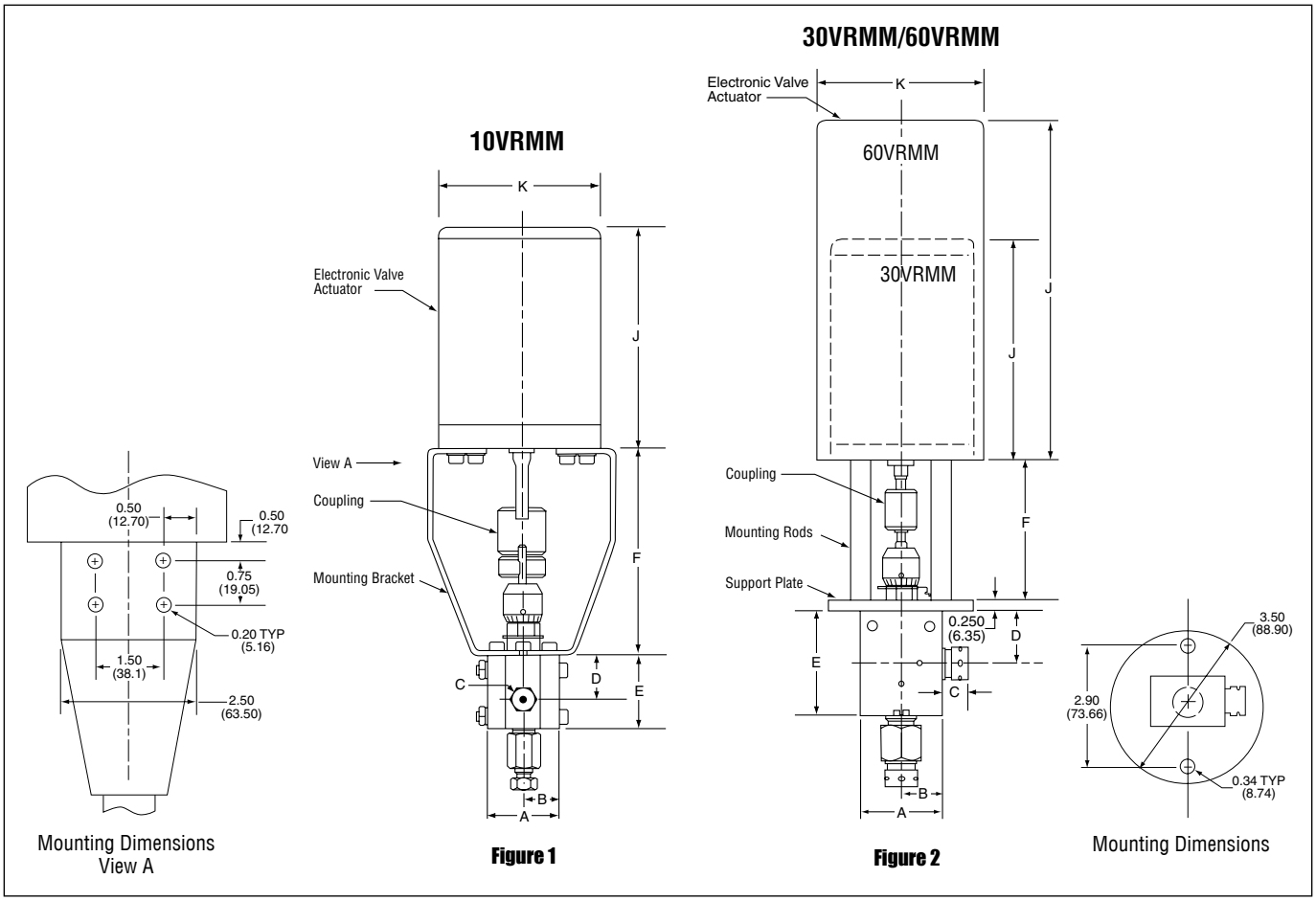
Repair Kits: add "R" to the front of valve catalog number for proper repair kit. (Example: **R60VRMM4882-C**)

Valve Bodies: Valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies. Refer to the Tools, Installation, Operation and Maintenance section for proper maintenance procedures.

Catalog Number	Outside Diameter Tube	Orifice Diameter	Dimensions - inches (mm) A	B	C	D	E	F	G	J	K	Block Thickness	Valve Pattern
10VRMM2812-C4	1/8	0.062	1.50	0.88	0.31	0.94	1.56	4.50	2.50	4.75	3.50	0.75	See Figure 1
10VRMM2812-C10	(3.17)	(1.57)	(38.10)	(22.35)	(7.87)	(23.87)	(39.62)	(114.30)	(63.50)	(120.65)	(88.90)	(19.05)	
30VRMM4812-C4	1/4	0.062	2.00	1.00	*0.50	1.12	2.00	3.50	3.50	4.75	3.50	1.00	See Figure 2
30VRMM4812-C10	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(28.44)	(50.80)	(88.90)	(88.90)	(120.65)	(88.90)	(25.40)	
60VRMM4812-C4	1/4	0.062	2.00	1.00	0.50	1.31	2.63	3.50	3.50	8.30	4.10	1.00	
60VRMM4812-C10	(6.35)	(1.57)	(50.80)	(25.40)	(12.70)	(33.27)	(66.80)	(88.90)	(88.90)	(210.80)	(104.14)	(25.40)	
60VRMM6812-C4	3/8	0.062	2.00	1.00	0.53	1.31	2.63	3.50	3.50	8.30	4.10	1.00	
60VRMM6812-C10	(9.53)	(1.57)	(50.80)	(25.40)	(13.46)	(33.27)	(66.80)	(88.90)	(88.90)	(210.80)	(104.14)	(25.40)	

*Distance gland extends



Mounting Dimensions View A

Figure 1

Figure 2

Mounting Dimensions