Table of Contents

Go to Table of Contents

V
U
VQ
NP6
SN6
PV
MPN
Cyl & Acc
End Conn

* Actual pressure rating will be determined by the valve configuration, body material, seat material and other factors.

Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus

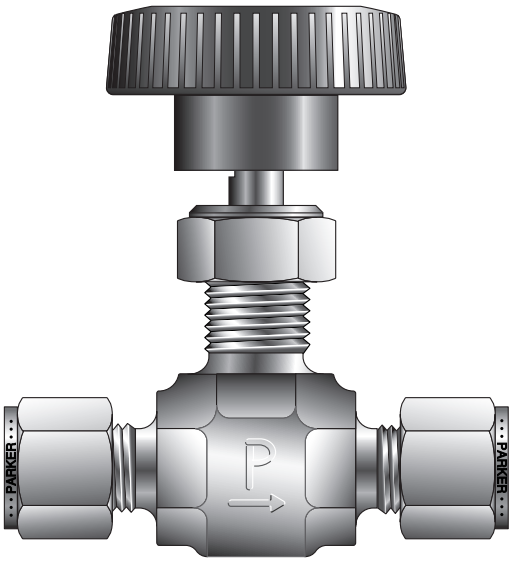
V

Introduction

Parker V Series Needle Valves are designed for positive leak tight shut-off and regulation of fluids in process, power, and instrumentation applications. With a wide variety of port sizes and styles, temperature capabilities ranging from -65°F to 450°F (-54°C to 232°C) and pressures to 5000 psig (345 bar), V Series Needle Valves provide the user with the utmost in flexibility when designing miniaturized tubing or piping systems.

Features

- Choice of three stem types:
  R-Stem – All metal, blunt stem tip
  N-Stem – All metal, tapered needle stem tip
  K-Stem – PCTFE stem tip
- Differential hardness between the strain hardened stem and cold formed body threads provides improved cycle life
- Choice of PTFE packing or elastomeric O-ring stem seals
- 316 Stainless Steel, Steel, Brass and Monel® Alloy 400 construction
- Inline and angle patterns
- Wide variety of US Customary and SI ports
- Panel mountable
- 100% factory tested
- Optional color coded handles



Model Shown: 4Z-V4LK-SS

Specifications

Pressure Ratings:
316 Stainless Steel: 5000 psig (345 bar) CWP
Brass, Steel and Monel® Alloy 400:
3000 psig (207 bar) CWP

Orifice: 0.078" to 0.312" (2.0mm to 7.9mm)

C_V: 0.12 to 1.90

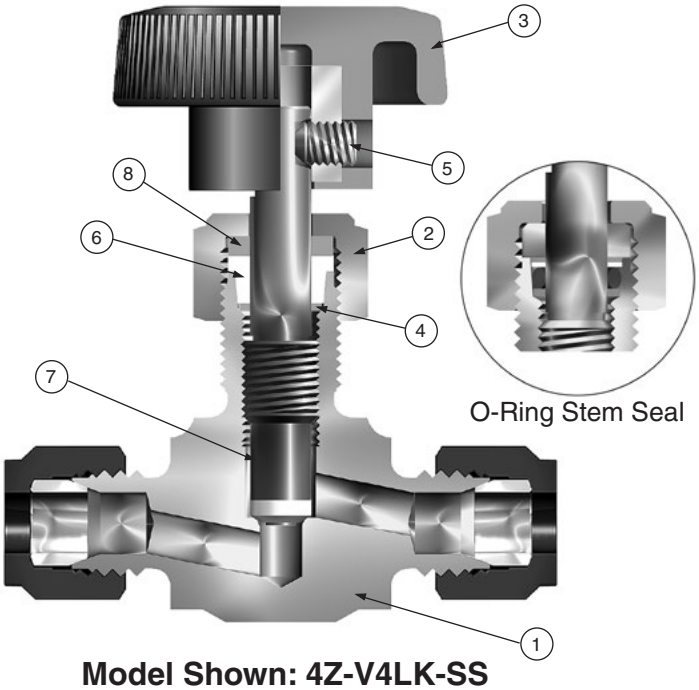
Port size: 1/8" to 3/4" (3mm to 12mm)

Temperature Ratings:
Stainless Steel and Monel® Alloy 400:
-65°F to 450°F (-54°C to 232°C)
Brass: -65°F to 400°F (-54°C to 204°C)
Steel: -20°F to 350°F (-29°C to 177°C)
PTFE Packing:
-65°F to 450°F (-54°C to 232°C)
PCTFE Stem Tip:
-65°F to 350°F (-54°C to 177°C)
Nitrile Rubber Stem Seal:
-30°F to 250°F (-34°C to 121°C)
Fluorocarbon Rubber Stem Seal:
-15°F to 400°F (-26°C to 204°C)
Ethylene Propylene Rubber Stem Seal:
-70°F to 275°F (-57°C to 135°C)

Note: When combining body, seat and seal materials, the most restrictive temperature rating becomes the limiting factor on temperature range.

Monel® Alloy 400 is the registered trademark of Special Metals Corporation.

Materials of Construction (with PTFE Packing)

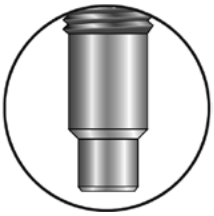


Model Shown: 4Z-V4LK-SS

Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus

Stem Types

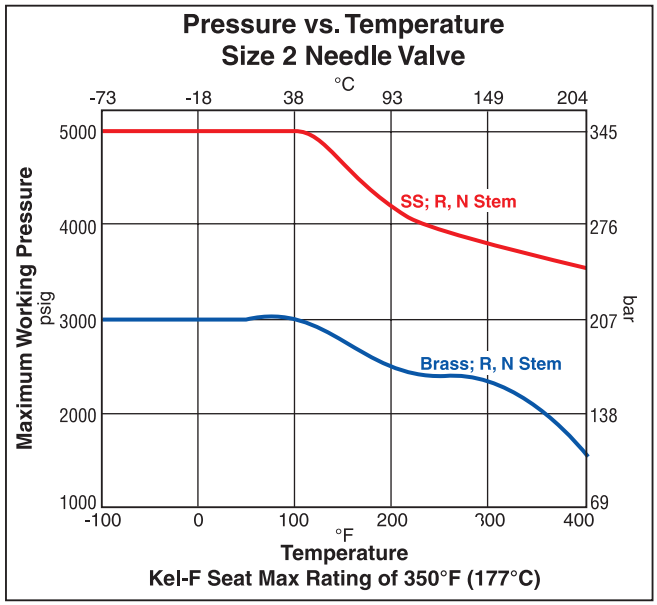
K
PCTFE tipped

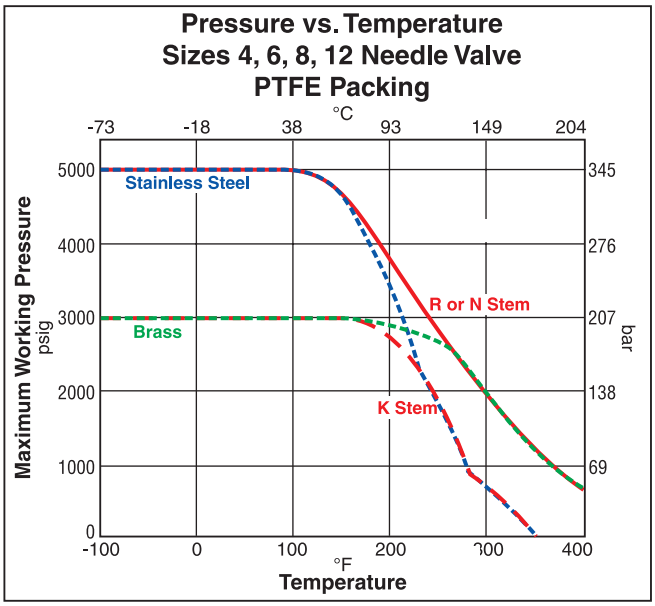


N
Needle (2-1/2°)

R
Blunt (30°)

Pressure vs. Temperature





Note: To determine MPa, multiply bar by 0.1

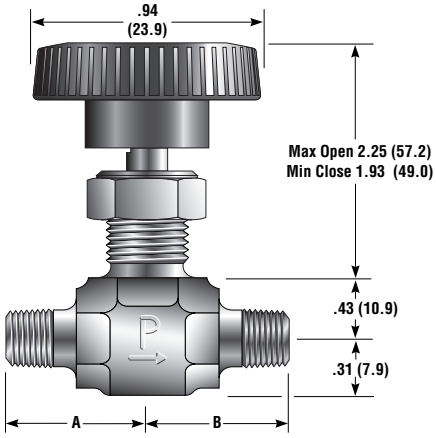
Materials of Construction (with PTFE Packing)

Item #	Part Description	Stainless Steel	Brass	Steel	Monel® Alloy 400
1	Body	ASTM A 182 Type F316	ASTM B 283 Alloy C37700	ASTM A 576 Grade 1214	ASTM B 564 Alloy N04400
2	Packing Nut	ASTM A 479 Type 316	ASTM A 479 Type 316	ASTM A 479 Type 316	ASTM A 479 Type 316
3	Handle*	Nylon 6/6 with SS insert	Nylon 6/6 with SS insert	Nylon 6/6 with SS insert	Nylon 6/6 with SS insert
4	Lower Packing Washer	ASTM A 479 Type 316	ASTM A 479 Type 316	ASTM A 479 Type 316	ASTM B 164 Alloy N04400
5	Handle Screw	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
6	Packing**	PTFE	PTFE	PTFE	PTFE
7	Stem (R and N Stem)	ASTM A 276 Type 316	ASTM A 276 Type 316	ASTM A 276 Type 316	ASTM B 164 Alloy N04400
7A	Stem (K Stem)	ASTM A 276 Type 316, with PCTFE	ASTM A 276 Type 316, with PCTFE	ASTM A 276 Type 316, with PCTFE	ASTM B 164 with PCTFE
8	Upper Packing Washer	Brass	Brass	Brass	Brass
9	Panel Nut***	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel

* Handles for V8 and V12 Series Valves with R and N Stems are aluminum T-bars.
** Optional O-ring elastomeric stem seals are available – See How to Order.
*** Panel Nut is nickel plated brass on V2 Series Valves. Panel Nuts must be ordered separately – See page 10.
Lubrication: Perfluorinated Polyether

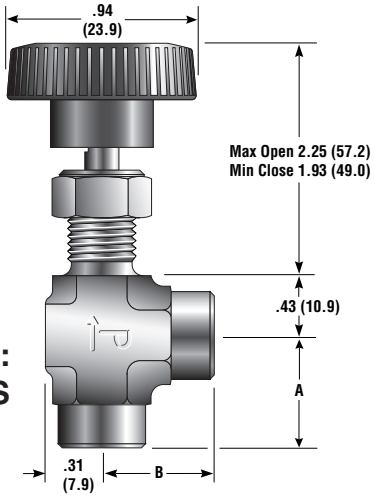
Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus

V2 Series Dimensions / Flow Data



Model Shown:
2M-V2LN-SS

Panel Hole Diameter:
0.45 (11.4)
Max Panel Thickness:
0.25 (6.4)



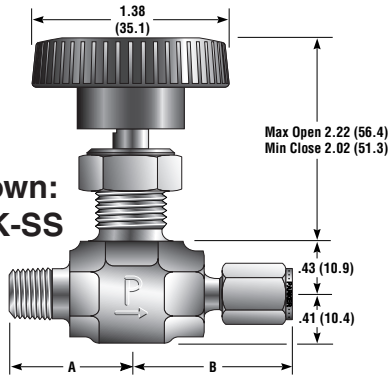
Model Shown:
2F-V2AR-V-SS

Basic Part Number		End Connections		Stem	Flow Data						Dimensions			
		Inlet	Outlet		Orifice		Inline		Angle		A†		B†	
Inline	Angle	(Port 1)	(Port 2)	Type	Inch	mm	C_V	X_T*	C_V	X_T*	Inch	mm	Inch	mm
2A-V2LR	2A-V2AR	1/8" Compression A-LOK®		Blunt	0.078	2.0	0.12	0.78	0.14	0.67	1.01	25.7	1.01	25.7
2A-V2LN	2A-V2AN			Needle			0.12	0.80	0.14	0.63				
2A-V2LK	2A-V2AK			PCTFE			0.13	0.83	0.14	0.63				
2F-V2LR	2F-V2AR	1/8" Female NPT		Blunt	0.093	2.4	0.13	0.61	0.16	0.49	0.94	23.9	0.94	23.9
2F-V2LN	2F-V2AN			Needle			0.12	0.66	0.18	0.39				
2F-V2LK	2F-V2AK			PCTFE			0.12	0.73	0.17	0.54				
2M-V2LR	2M-V2AR	1/8" Male NPT		Blunt	0.093	2.4	0.13	0.61	0.16	0.49	0.75	19.1	0.75	19.1
2M-V2LN	2M-V2AN			Needle			0.12	0.66	0.18	0.39				
2M-V2LK	2M-V2AK			PCTFE			0.12	0.73	0.17	0.54				
2Z-V2LR	2Z-V2AR	1/8" Compression CPI™		Blunt	0.078	2.0	0.12	0.78	0.14	0.67	1.01	25.7	1.01	25.7
2Z-V2LN	2Z-V2AN			Needle			0.12	0.80	0.14	0.63				
2Z-V2LK	2Z-V2AK			PCTFE			0.13	0.83	0.14	0.63				
4A-V2LR	4A-V2AR	1/4" Compression A-LOK®		Blunt	0.078	2.0	0.12	0.78	0.14	0.67	1.09	27.7	1.09	27.7
4A-V2LN	4A-V2AN			Needle			0.12	0.80	0.14	0.63				
4A-V2LK	4A-V2AK			PCTFE			0.13	0.83	0.14	0.63				
4Z-V2LR	4Z-V2AR	1/4" Compression CPI™		Blunt	0.078	2.0	0.12	0.78	0.14	0.67	1.09	27.7	1.09	27.7
4Z-V2LN	4Z-V2AN			Needle			0.12	0.80	0.14	0.63				
4Z-V2LK	4Z-V2AK			PCTFE			0.13	0.83	0.14	0.63				

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = X_T$.
† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

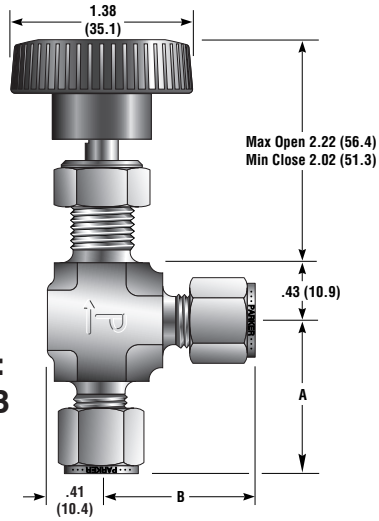
Dimensions in inches/millimeters are for reference only, subject to change.

V4 Series



Model Shown:
4M4Z-V4LK-SS

Panel Hole Diameter:
0.52 (13.2)
Max Panel Thickness:
0.25 (6.4)



Model Shown:
4A-V4AN-BN-B

( ) Denotes dimensions in millimeters

Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus

V4 Series Dimensions / Flow Data

Basic Part Number		End Connections		Stem Type	Flow Data						Dimensions			
		Inlet	Outlet		Orifice		Inline		Angle		A†		B†	
Inline	Angle	(Port 1)	(Port 2)		Inch	mm	C_V	X_T*	C_V	X_T*	Inch	mm	Inch	mm
2A-V4LR	2A-V4AR	1/8" Compression A-LOK®		Blunt	0.078	2.0	0.12	0.52	0.15	0.64	1.10	27.9	1.10	27.9
2A-V4LN	2A-V4AN			Needle			0.12	0.68	0.15	0.59				
2A-V4LK	2A-V4AK			PCTFE			0.14	0.66	0.17	0.49				
2F-V4LR	2F-V4AR	1/8" Female NPT		Blunt	0.176	4.5	0.43	0.77	0.55	0.63	0.81	20.6	0.81	20.6
2F-V4LN	2F-V4AN			Needle			0.43	0.69	0.55	0.63				
2F-V4LK	2F-V4AK			PCTFE			0.45	0.55	0.58	0.68				
2M-V4LR	2M-V4AR	1/8" Male NPT		Blunt	0.125	3.2	0.28	0.67	0.36	0.55	0.81	20.6	0.81	20.6
2M-V4LN	2M-V4AN			Needle			0.28	0.63	0.36	0.51				
2M-V4LK	2M-V4AK			PCTFE			0.29	0.51	0.37	0.59				
2Z-V4LR	2Z-V4AR	1/8" Compression CPI™		Blunt	0.078	2.0	0.12	0.52	0.15	0.64	1.10	27.9	1.10	27.9
2Z-V4LN	2Z-V4AN			Needle			0.12	0.68	0.15	0.59				
2Z-V4LK	2Z-V4AK			PCTFE			0.14	0.66	0.17	0.49				
4A-V4LR	4A-V4AR	1/4" Compression A-LOK®		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.15	29.2	1.15	29.2
4A-V4LN	4A-V4AN			Needle			0.43	0.77	0.55	0.63				
4A-V4LK	4A-V4AK			PCTFE			0.45	0.69	0.58	0.68				
4M-V4LR	4M-V4AR	1/4" Male NPT		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	0.94	23.9	0.94	23.9
4M-V4LN	4M-V4AN			Needle			0.43	0.77	0.55	0.63				
4M-V4LK	4M-V4AK			PCTFE			0.45	0.69	0.58	0.68				
4W-V4LR	4W-V4AR	1/4" Tube Socket Weld		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	0.80	20.3	0.80	20.3
4W-V4LN	4W-V4AN			Needle			0.43	0.77	0.55	0.63				
4W-V4LK	4W-V4AK			PCTFE			0.45	0.69	0.58	0.68				
4Z-V4LR	4Z-V4AR	1/4" Compression CPI™		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.15	29.2	1.15	29.2
4Z-V4LN	4Z-V4AN			Needle			0.43	0.77	0.55	0.63				
4Z-V4LK	4Z-V4AK			PCTFE			0.45	0.69	0.58	0.68				
6A-V4LR	6A-V4AR	3/8" Compression A-LOK®		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.17	29.7	1.17	29.7
6A-V4LN	6A-V4AN			Needle			0.43	0.77	0.55	0.63				
6A-V4LK	6A-V4AK			PCTFE			0.45	0.69	0.58	0.68				
6Z-V4LR	6Z-V4AR	3/8" Compression CPI™		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.17	29.7	1.17	29.7
6Z-V4LN	6Z-V4AN			Needle			0.43	0.77	0.55	0.63				
6Z-V4LK	6Z-V4AK			PCTFE			0.45	0.69	0.58	0.68				
M3A-V4LR	M3A-V4AR	3mm Compression A-LOK®		Blunt	0.078	2.0	0.12	0.52	0.15	0.64	1.10	27.9	1.10	27.9
M3A-V4LN	M3A-V4AN			Needle			0.12	0.68	0.15	0.59				
M3A-V4LK	M3A-V4AK			PCTFE			0.14	0.66	0.17	0.49				
M3Z-V4LR	M3Z-V4AR	3mm Compression CPI™		Blunt	0.078	2.0	0.12	0.52	0.15	0.64	1.10	27.9	1.10	27.9
M3Z-V4LN	M3Z-V4AN			Needle			0.12	0.68	0.15	0.59				
M3Z-V4LK	M3Z-V4AK			PCTFE			0.14	0.66	0.17	0.49				
M6A-V4LR	M6A-V4AR	6mm Compression A-LOK®		Blunt	0.156	4.0	0.37	0.78	0.48	0.60	1.15	29.2	1.15	29.2
M6A-V4LN	M6A-V4AN			Needle			0.37	0.72	0.48	0.58				
M6A-V4LK	M6A-V4AK			PCTFE			0.39	0.62	0.51	0.64				
M6Z-V4LR	M6Z-V4AR	6mm Compression CPI™		Blunt	0.156	4.0	0.37	0.78	0.48	0.60	1.15	29.2	1.15	29.2
M6Z-V4LN	M6Z-V4AN			Needle			0.37	0.72	0.48	0.58				
M6Z-V4LK	M6Z-V4AK			PCTFE			0.39	0.62	0.51	0.64				
M8A-V4LR	M8A-V4AR	8mm Compression A-LOK®		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.18	30.0	1.18	30.0
M8A-V4LN	M8A-V4AN			Needle			0.43	0.77	0.55	0.63				
M8A-V4LK	M8A-V4AK			PCTFE			0.45	0.69	0.58	0.68				
M8Z-V4LR	M8Z-V4AR	8mm Compression CPI™		Blunt	0.176	4.5	0.43	0.85	0.55	0.63	1.18	30.0	1.18	30.0
M8Z-V4LN	M8Z-V4AN			Needle			0.43	0.77	0.55	0.63				
M8Z-V4LK	M8Z-V4AK			PCTFE			0.45	0.69	0.58	0.68				

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = x_T$.

† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

Dimensions in inches/millimeters are for reference only, subject to change.

Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus

How to Order

Dimensions in inches/millimeters are for reference only, subject to change.

The correct part number is easily derived from the following example and ordering chart. The six product characteristics required are coded as shown in the chart.

Example 1, below, describes an angle pattern V4 Series needle valve equipped with 1/4" CPI™ compression inlet and outlet ports, a PCTFE tipped stem, Nitrile seals, and stainless steel construction.

Example 2, below, describes an inline pattern V6 Series needle valve equipped with 1/4" male NPT inlet port, 1/4" female NPT outlet port, a needle stem type, PTFE stem seal, brass construction.

Example 1: 4Z-V4AK-BN-SS (shown in the part number blocks below)

Example 2: 4M4F-V6LN-B

4Z		–	V4	AK	–	BN	–	SS
Inlet Port*	Outlet Port*		Valve Series	Stem Type		Stem Seal		Body Material

Inlet Port*	Outlet Port*	Valve Series	Stem Type	Stem Seal	Body Material
2A 2M 4A 2F 2Z 4Z		V2A V2L	**R** Blunt (30°) **N** Needle (2-1/2°) **K** PCTFE	**Blank** PTFE **BN** Nitrile Rubber **EPR** Ethylene Propylene Rubber **V** Fluorocarbon Rubber	**SS** Stainless Steel **S** Steel **M** Monel® Alloy 400 **B** Brass
2A 4A 6A M6A 2F 4M 6Z M6Z 2M 4W M3A M8A 2Z 4Z M3Z M8Z		V4A V4L			
4A 6A 8A M10A 4F 6M 8Z M10Z 4M 6W M8A M12A 4Z 6Z M8Z M12Z		V6A V6L			
4F 6Z 8Z M12A 6A 8A M10A M12Z 6F 8M M10Z		V8A V8L			
8F 10A 12A 8W 10Z 12Z		V12A V12L			

*If the inlet and outlet ports are the same, eliminate the outlet port designator.

How to Order Options

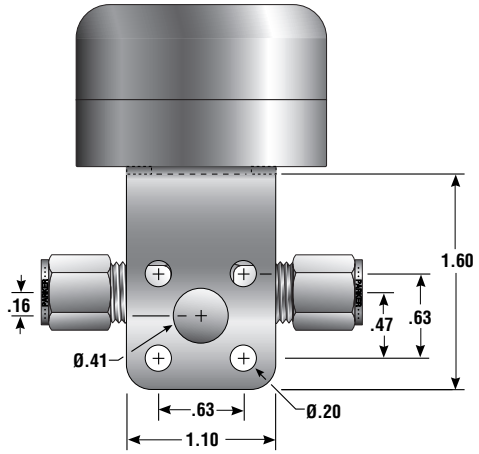
Colored Round Handles – Add the designator corresponding to the correct handle color as a suffix to the part number. Black is standard, **W** - white, **B** - blue, **G** - green, **R** - red, **Y** - yellow. **Example:** M10A-V6LK-SS-**G**

Oxygen Cleaning – Add the suffix **-C3** to the end of the part number to receive valves cleaned and assembled for oxygen service in accordance with Parker Specification ES8003. **Example:** 4A-V4AN-EPR-SS-**C3**

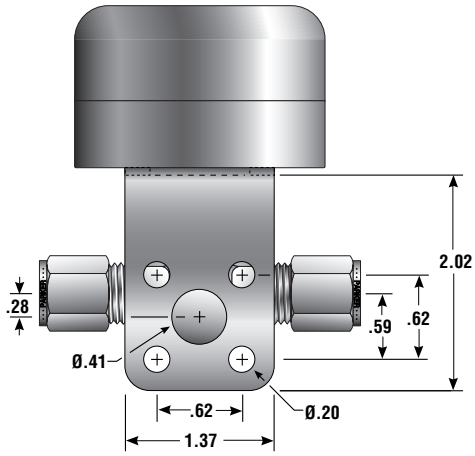
Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus

VQ Series Toggle Valves

VQ4 Valve Mounting Bracket



VQ6 Valve Mounting Bracket



How to Order Manual Toggle Valves

Dimensions in inches/millimeters are for reference only, subject to change.

The correct part number is easily derived from the following example and ordering chart. The six product characteristics required are coded as shown in the chart.

The example below describes a VQ4 Series inline pattern toggle valve equipped with 1/4" CPI™ compression inlet and outlet ports, PCTFE stem tip, Nitrile rubber stem seal, and stainless steel construction with panel mounting nut.

Example 1: 4Z-V4LQK-BN-SSP

4Z		–	V4LQ	K	–	BN	–	SSP
Inlet Port*	Outlet Port*		Valve Series	Stem Tip		Stem Seal		Body Material

Inlet Port*		Outlet Port*		Valve Series	Stem Tip	Stem Seal	Body Material
2A	**4A**	**6A**	**M6A**	**V4LQ**	**Blank** PTFE	**Blank** Fluorocarbon Rubber	**SSP** Stainless Steel with Panel Nut
2F	**4M**	**6Z**	**M6Z**	**V4AQ**	**K** PCTFE	**BN** Nitrile Rubber	
2M	**4Z**		**M8A**			**EPR** Ethylene Propylene Rubber	**BP** Brass with Panel Nut
2Z			**M8Z**			**KZ** Highly Fluorinated Fluorocarbon Rubber	
4F	**6A**	**8A**	**M10A**	**V6LQ**			
	6Z	**8Z**	**M10Z**	**V6AQ**			

*If the inlet and outlet ports are the same, eliminate the outlet port designator.

Parker Hannifin Corporation
Instrumentation Products Division
Jacksonville, AL USA
http://www.parker.com/ipdus