

# Needle Valves (V Series)

*Catalog 4110-V  
Revised, July 2001*



# V Series Needle Valves

## 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.

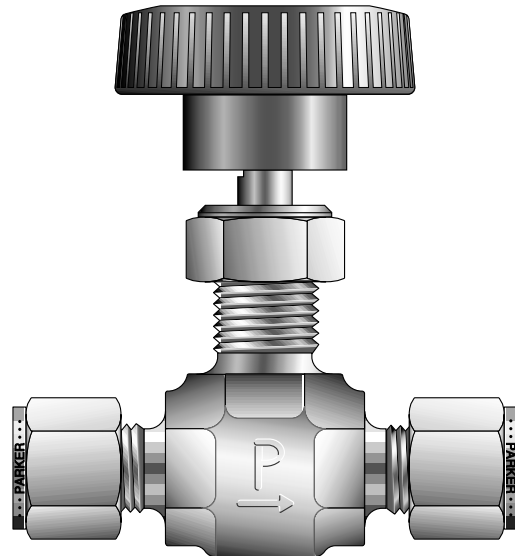
## Features

- 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 Alloy 400 construction
- Inline and angle patterns
- Wide variety of US Customary and SI ports
- Panel mountable
- 100% factory tested
- Optional color coded handles

## Specifications

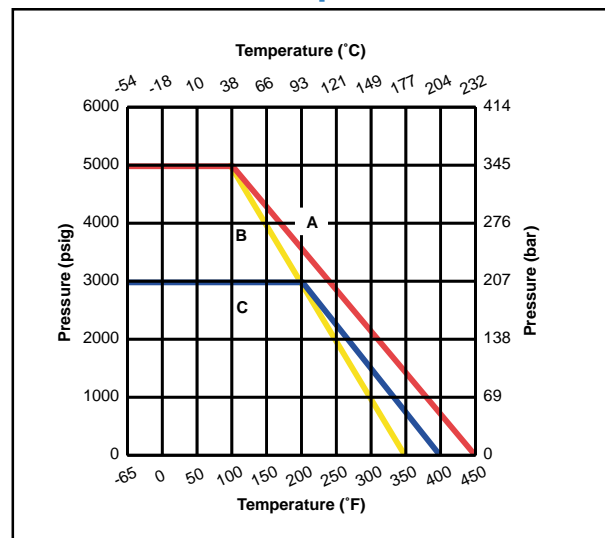
- Pressure Ratings:
  - 316 Stainless Steel:
    - 5000 psig (345 bar) CWP
  - Brass, Steel and Alloy 400:
    - 3000 psig (207 bar) CWP
- Orifice: 0.078" to 0.312" (2.0mm to 7.9mm)
- $C_v$ : 0.12 to 1.90
- Port size: 1/8" to 3/4" (3mm to 12mm)
- Temperature Ratings:
  - Stainless Steel and Alloy 400:
    - -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)
  - Buna-N 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.



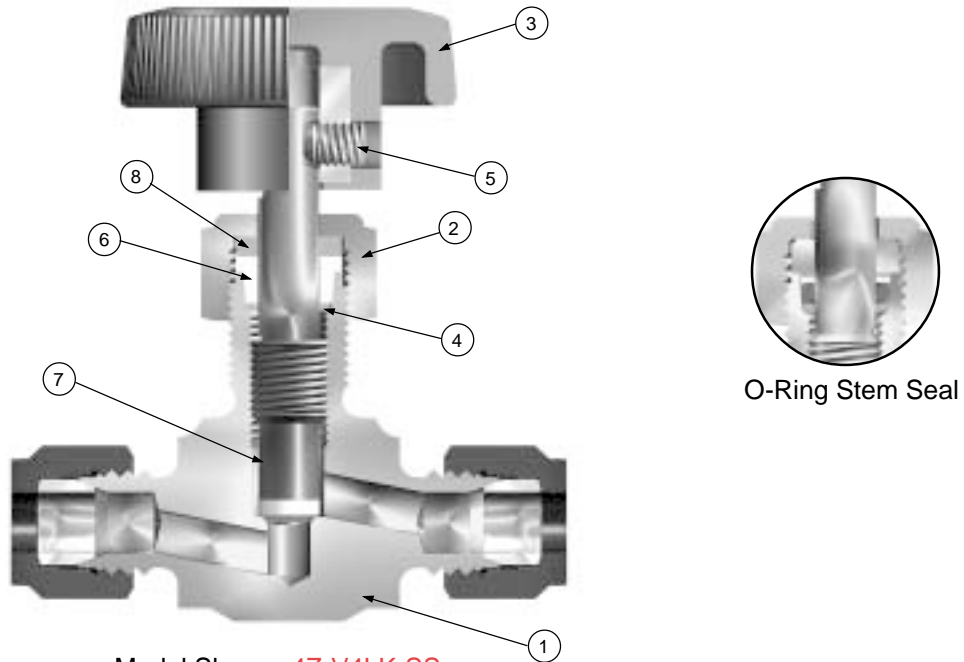
Model Shown: 4Z-V4LK-SS

## Pressure vs. Temperature



**Legend:** A - Stainless Steel with N or R stems; B - Stainless Steel with K stem; C - Brass, Steel, and Alloy 400 with N or R stems. Maximum temperature for Steel is 350 °F (177 °C)

**Note:** To determine MPa, multiply bar by 0.1



Model Shown: 4Z-V4LK-SS

## Materials of Construction (with PTFE Packing)

Item #	Part Description	Stainless Steel	Brass	Steel	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: Graphite filled hydrocarbon

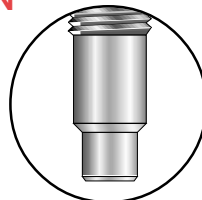
## Stem Types

**K**



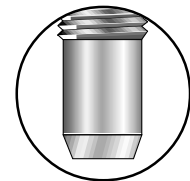
PCTFE tipped

**N**



Needle (2 1/2°)

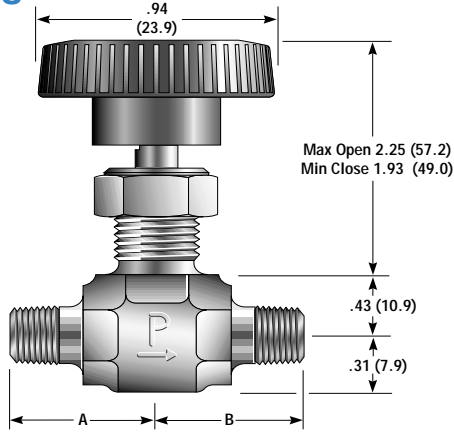
**R**



Blunt (30°)

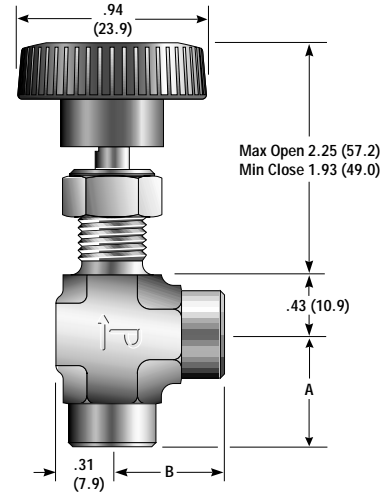
# V Series Needle Valves

## V2 Series



Model Shown: **2M-V2LN-B**

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



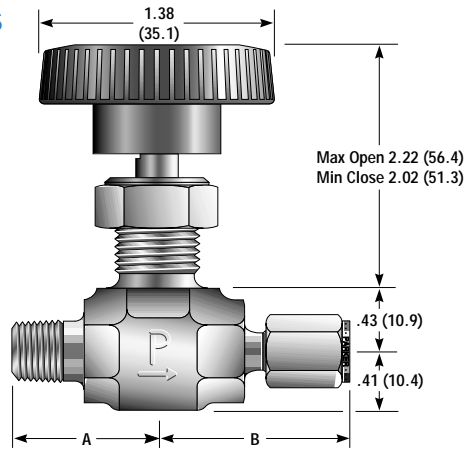
Model Shown: **2F-V2AR-V-SS**

## V2 Series Dimensions / Flow Data

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

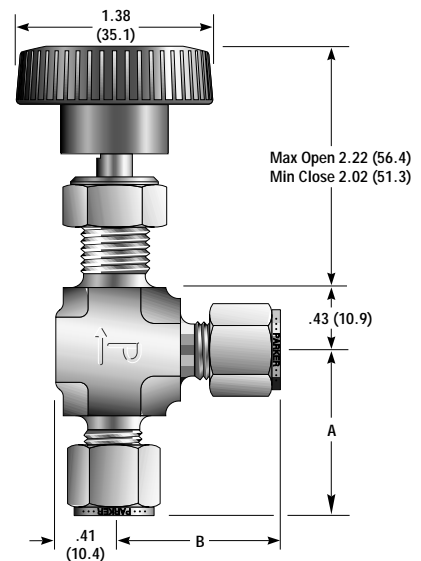
\* Tested in accordance with ISA S75.02. Gas flow will be choked when  $P_1 - P_2 / P_1 = X_T$ .  
† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

## V4 Series



Model Shown: **4M4Z-V4LK-SS**

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



Model Shown: **M6A-V4AN-BN-B**

( ) Denotes dimensions in millimeters

## V4 Series Dimensions / Flow Data

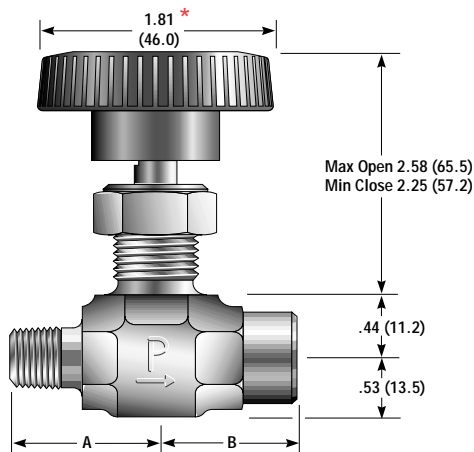
Basic Part Number		End Connections		Stem Type	Flow Data						Dimensions			
		Inlet (Port 1)	Outlet (Port 2)		Orifice		Inline		Angle		A†		B†	
Inline	Angle			Inch	mm	$C_v$	$X_T^*$	$C_v$	$X_T^*$	$C_v$	$X_T^*$	Inch	mm	Inch
2A-V4LR 2A-V4LN 2A-V4LK	2A-V4AR 2A-V4AN 2A-V4AK	1/8" Compression A-LOK®		Blunt Needle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

\* 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.

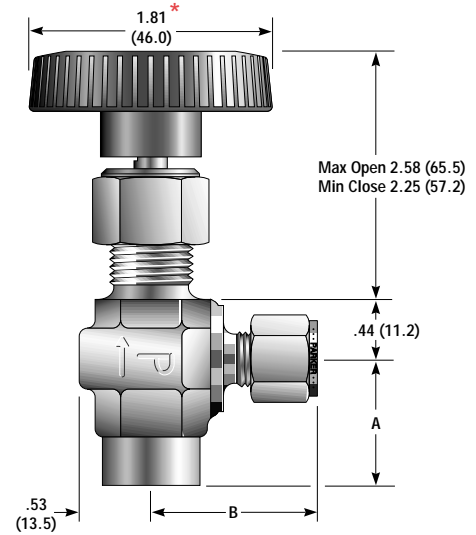
# V Series Needle Valves

## V6 Series



Model Shown: **6M4F-V6LR-V-SS**

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



Model Shown: **4F6Z-V6AK-SS**

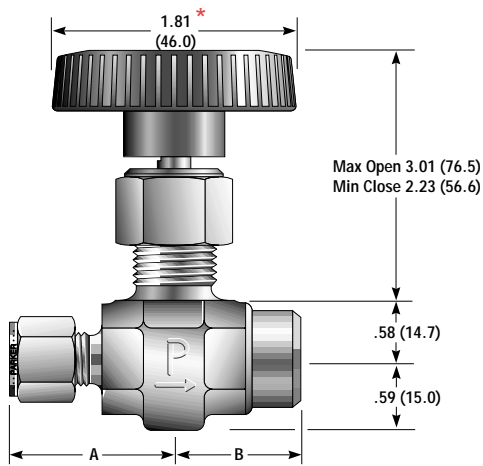
\* Note: Handle diameter for K Stem V6 Series Valves is 1.38 (35.4)  
( ) Denotes dimensions in millimeters

## V6 Series Dimensions / Flow Data

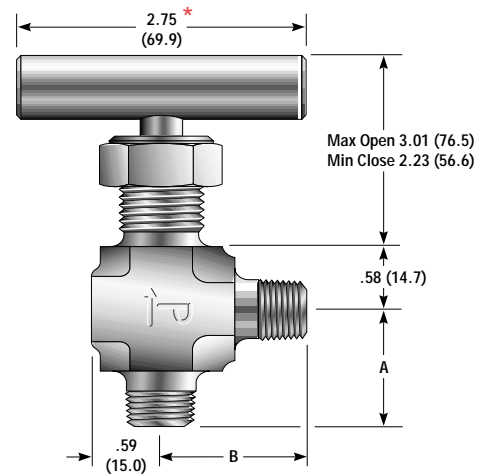
Basic Part Number		End Connections		Stem Type	Flow Data					Dimensions				
Inline	Angle	Inlet (Port 1)	Outlet (Port 2)		Orifice		Inline		Angle		A†		B†	
					Inch	mm	$C_v$	$X_T^*$	$C_v$	$X_T^*$	Inch	mm	Inch	mm
4F-V6LR 4F-V6LN 4F-V6LK	4F-V6AR 4F-V6AN 4F-V6AK	1/4" Female NPT		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	0.94	23.9	0.94	23.9
6A-V6LR 6A-V6LN 6A-V6LK	6A-V6AR 6A-V6AN 6A-V6AK	3/8" Compression A-LOK®		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.29	32.8	1.29	32.8
6M-V6LR 6M-V6LN 6M-V6LK	6M-V6AR 6M-V6AN 6M-V6AK	3/8" Male NPT		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.03	26.2	1.03	26.2
6Z-V6LR 6Z-V6LN 6Z-V6LK	6Z-V6AR 6Z-V6AN 6Z-V6AK	3/8" Compression CPI™		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.29	32.8	1.29	32.8
8A-V6LR 8A-V6LN 8A-V6LK	8A-V6AR 8A-V6AN 8A-V6AK	1/2" Compression A-LOK®		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.40	35.6	1.40	35.6
8Z-V6LR 8Z-V6LN 8Z-V6LK	8Z-V6AR 8Z-V6AN 8Z-V6AK	1/2" Compression CPI™		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.40	35.6	1.40	35.6
M10A-V6LR M10A-V6LN M10A-V6LK	M10A-V6AR M10A-V6AN M10A-V6AK	10mm Compression A-LOK®		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.30	33.0	1.30	33.0
M10Z-V6LR M10Z-V6LN M10Z-V6LK	M10Z-V6AR M10Z-V6AN M10Z-V6AK	10mm Compression CPI™		Blunt Needle PCTFE	0.228	5.8	0.73 0.55 0.80	0.90 0.61 0.87	1.23 0.92 1.23	0.50 0.62 0.56	1.30	33.0	1.30	33.0

\* 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.

## V8 Series



Model Shown: **8Z6F-V8LK-SS**



Model Shown: **8M-V8AN-EPR-SS**

Panel Hole Diameter:  
0.77 (19.6)  
Max Panel Thickness:  
0.40 (10.2)

\* Note: Handles for N or R Stem V8 Series Valves are a T-bar  
( ) Denotes dimensions in millimeters

## V8 Series Dimensions / Flow Data

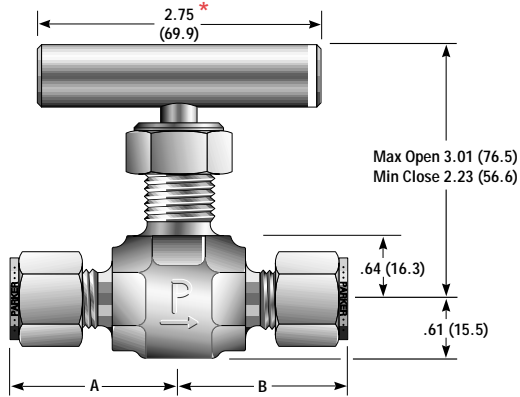
Basic Part Number		End Connections		Stem Type	Flow Data				Dimensions					
Inline	Angle	Inlet (Port 1)	Outlet (Port 2)		Orifice		Inline		Angle		A†		B†	
					Inch	mm	$C_v$	$X_T^*$	$C_v$	$X_T^*$	$C_v$	$X_T^*$	Inch	mm
6F-V8LR 6F-V8LN 6F-V8LK	6F-V8AR 6F-V8AN 6F-V8AK	3/8" Female NPT		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.34	34.0	1.34	34.0
8A-V8LR 8A-V8LN 8A-V8LK	8A-V8AR 8A-V8AN 8A-V8AK	1/2" Compression A-LOK®		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.53	38.9	1.53	38.9
8M-V8LR 8M-V8LN 8M-V8LK	8M-V8AR 8M-V8AN 8M-V8AK	1/2" Male NPT		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.34	34.0	1.34	34.0
8Z-V8LR 8Z-V8LN 8Z-V8LK	8Z-V8AR 8Z-V8AN 8Z-V8AK	1/2" Compression CPI™		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.53	38.9	1.53	38.9
M10A-V8LR M10A-V8LN M10A-V8LK	M10A-V8AR M10A-V8AN M10A-V8AK	10mm Compression A-LOK®		Blunt Needle PCTFE	0.281	7.1	1.13 0.97 1.18	0.79 0.78 0.80	1.52 1.18 1.69	0.66 0.75 0.66	1.42	36.1	1.42	36.1
M10Z-V8LR M10Z-V8LN M10Z-V8LK	M10Z-V8AR M10Z-V8AN M10Z-V8AK	10mm Compression CPI™		Blunt Needle PCTFE	0.281	7.1	1.13 0.97 1.18	0.79 0.78 0.80	1.52 1.18 1.69	0.66 0.75 0.66	1.42	36.1	1.42	36.1
M12A-V8LR M12A-V8LN M12A-V8LK	M12A-V8AR M12A-V8AN M12A-V8AK	12mm Compression A-LOK®		Blunt Needle PCTFE	0.281	7.1	1.13 0.97 1.18	0.79 0.78 0.80	1.52 1.18 1.69	0.66 0.75 0.66	1.51	38.4	1.51	38.4
M12Z-V8LR M12Z-V8LN M12Z-V8LK	M12Z-V8AR M12Z-V8AN M12Z-V8AK	12mm Compression CPI™		Blunt Needle PCTFE	0.281	7.1	1.13 0.97 1.18	0.79 0.78 0.80	1.52 1.18 1.69	0.66 0.75 0.66	1.51	38.4	1.51	38.4

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

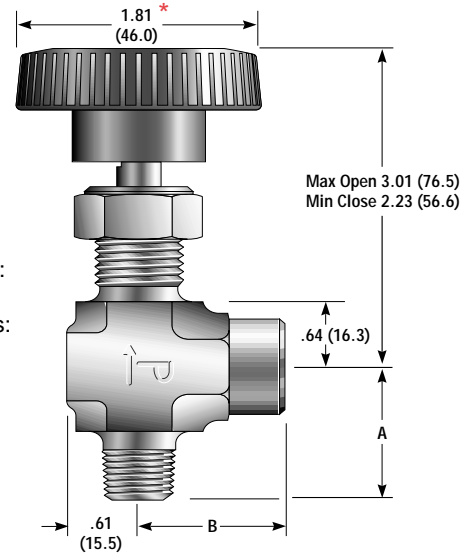
† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

# V Series Needle Valves

## V12 Series



Model Shown: 10Z-V12LN-B



Model Shown: 8M8F-V12AK-BN-SS

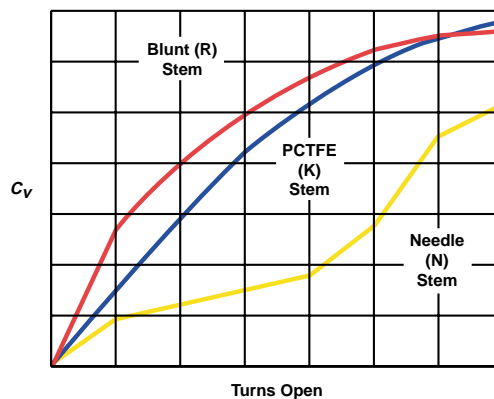
\* Note: Handles for N or R Stem V12 Series Valves are a T-bar  
( ) Denotes dimensions in millimeters

## V12 Series Dimensions / Flow Data

Basic Part Number		End Connections		Stem Type	Flow Data					Dimensions				
Inline	Angle	Inlet (Port 1)	Outlet (Port 2)		Orifice		Inline		Angle		A†		B†	
					Inch	mm	$C_v$	$X_T^*$	$C_v$	$X_T^*$	$C_v$	$X_T^*$	Inch	mm
8F-V12LR 8F-V12LN 8F-V12LK	8F-V12AR 8F-V12AN 8F-V12AK	1/2" Female NPT		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.38	35.1	1.38	35.1
8W-V12LR 8W-V12LN 8W-V12LK	8W-V12AR 8W-V12AN 8W-V12AK	1/2" Tube Socket Weld		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.12	28.4	1.12	28.4
10A-V12LR 10A-V12LN 10A-V12LK	10A-V12AR 10A-V12AN 10A-V12AK	5/8" Compression A-LOK®		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.52	38.6	1.52	38.6
10Z-V12LR 10Z-V12LN 10Z-V12LK	10Z-V12AR 10Z-V12AN 10Z-V12AK	5/8" Compression CPI™		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.52	38.6	1.52	38.6
12A-V12LR 12A-V12LN 12A-V12LK	12A-V12AR 12A-V12AN 12A-V12AK	3/4" Compression A-LOK®		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.52	38.6	1.52	38.6
12Z-V12LR 12Z-V12LN 12Z-V12LK	12Z-V12AR 12Z-V12AN 12Z-V12AK	3/4" Compression CPI™		Blunt Needle PCTFE	0.312	7.9	1.23 1.05 1.29	0.87 0.83 0.91	1.66 1.28 1.90	0.72 0.80 0.76	1.52	38.6	1.52	38.6

\* 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.

## V Series Flow Characteristics





## How to Order

The correct part number is easily derived from the following number sequence. The six product characteristics required are coded as shown below. \*Note: If the inlet and outlet ports are the same, eliminate the outlet port designator.

**Example:** 4Z - \* - V4A - K - BN - SS

①      ②      ③      ④      ⑤      ⑥

Inlet    Outlet    Valve    Stem    Stem    Body

Port    Port    Series    Type    Seal    Material

Describes a angle pattern V4 Series needle valve equipped with 1/4" CPI™ compression inlet and outlet ports, a PCTFE tipped stem, Buna-N seals, and stainless steel construction.

**Example:** 4M - 4F - V6L - N - - B

①      ②      ③      ④      ⑤      ⑥

Inlet    Outlet    Valve    Stem    Stem    Body

Port    Port    Series    Type    Seal    Material

Describes a 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.

① Inlet Port	② Outlet Port	③ Valve Series	④ Stem Type	⑤ Stem Seal	⑥ Body Material
2A, 2F, 2M, 2Z, 4A, 4Z		V2	R - Blunt (30°)  N - Needle (2 1/2°)  K - PCTFE	Blank - PTFE BN- Buna-N Rubber EPR- Ethylene Propylene Rubber V- Fluorocarbon Rubber	SS- Stainless Steel S - Steel M - Alloy 400 B - Brass
2A, 2F, 2M, 2Z, 4A, 4M, 4W, 4Z, 6A, 6Z, M3A, M3Z, M6A, M6Z, M8A, M8Z		V4			
4A, 4F, 4M, 4Z, 6A, 6M, 6W, 6Z, 8A, 8Z, M8A, M8Z, M10A, M10Z, M12A, M12Z		V6			
4F, 6A, 6F, 6Z, 8A, 8M, 8Z, M10A, M10Z, M12A, M12Z		V8			
8F, 8W, 10A, 10Z, 12A, 12Z		V12			

## Available End Connections

**Z** - One ferrule CPI™  
compression port

**A** - Two ferrule A-LOK®  
compression port

**M** - ANSI/ASME B1.20.1  
External pipe threads

**F** - ANSI/ASME B1.20.1  
Internal pipe threads



## 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**

**Sour Gas** – To obtain valves suitable for sour gas service in accordance with NACE Standard MR0175, add the suffix **NACE** to the end of the part number. **Example:** 8F-V12LR-SS-**NACE**

# V Series Needle Valves

---

## How to Order Components

**Colored Round Nylon Handles with Handle Screw** - Valve Series-Handle-Color. [Example: V4-HANDLE-BLUE](#)

**Stainless Steel T-Bar Handles with Handle Screw** - V2: V2-BAR-HANDLE-SS; V4: V4-BAR-HANDLE-SS; V6: V6-BAR-HANDLE-SS; V8: U12-BAR-HANDLE-SS; V12: U12-BAR-HANDLE-SS

**Aluminum T-Bar Handles with Handle Screw** - V2: Not available; V4: V4-BAR-HANDLE-AL; V6: V4-BAR-HANDLE-AL; V8: U12-BAR-HANDLE-AL; V12: U12-BAR-HANDLE-AL

**Panel Mounting Nuts** - V2: 2 Panel Nut; V4: 4 Panel Nut-SS; V6: 6 Panel Nut-SS; V8: 8 Panel Nut-SS

## How to Order Maintenance Kits

**PTFE Packing Stem Kits** - Consists of One Stem; One PTFE Packing; One Upper Packing Washer; One Lower Packing Washer; One Packing Nut; Maintenance Instructions.

Kit-Valve Series and StemType-Body Material. [Examples: KIT-V4K-SS; KIT-V6N-B](#)

**Fluorocarbon Rubber Packing Stem Kits** - Consists of One Stem; One Fluorocarbon Rubber O-ring Seal; One O-ring Back-up Gland; One O-ring Gland; One Lower Packing Washer; One Packing Nut; Maintenance Instructions.

Kit-Valve Series and Stem Type-V-Body Material. [Examples: KIT-V2R-V-B; KIT-V4K-V-SS](#)

**Buna-N Rubber Packing Stem Kits** - Consists of One Stem; One Buna-N Rubber O-ring Seal; One O-ring Back-up Gland; One O-ring Gland; One Lower Packing Washer; One Packing Nut; Maintenance Instructions.

Kit-Valve Series and Stem Type-BN-Body Material. [Examples: KIT-V2R-BN-B; KIT-V4K-BN-SS](#)

**Ethylene Propylene Rubber Packing Stem Kits** - Consists of One Stem; One Ethylene Propylene Rubber O-ring Seal; One O-ring Back-up Gland; One O-ring Gland; One Lower Packing Washer; One Packing Nut; Maintenance Instructions.

Kit-Valve Series and Stem Type-EPR-Body Material. [Examples: KIT-V2R-EPR-B; KIT-V4K-EPR-SS](#)

### **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.

© Copyright 2001, Parker Hannifin Corporation. All Rights Reserved.

The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such items, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

**1. Terms and Conditions of Sale:** All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

**2. Payment:** Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

**3. Delivery:** Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

**4. Warranty:** Seller warrants that items sold hereunder shall be free from defects in material or workmanship. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.**

**NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

**5. Limitation Of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.**

**6. Changes, Reschedules and Cancellations:** Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

**7. Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and not withstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

**8. Buyer's Property:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property, Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

**9. Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

**10. Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

**11. Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

**12. Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

11/98-P



Catalog 4110-V, 30M, 07/01

**Parker Hannifin Corporation**  
Instrumentation Valve Division  
2651 Alabama Highway 21 North  
Jacksonville, AL 36265-9681  
USA  
Phone: (256) 435-2130  
Fax: (256) 435-7718  
[www.parker.com/IVD](http://www.parker.com/IVD)



**Parker Hannifin plc**  
Instrumentation Products Division  
Riverside Road  
Pottington Business Park  
Barnstaple, Devon EX31 1NP  
England  
Phone: +44 (0) 1271 313131  
Fax: +44 (0) 1271 373636  
Email: [ipd@parker.com](mailto:ipd@parker.com)  
[www.parker.com/IPD](http://www.parker.com/IPD)

