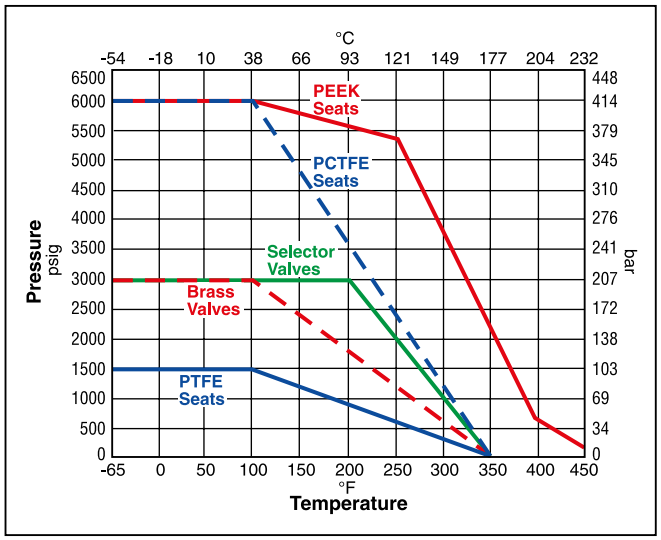
BALL AND PLUG VALVES


SERIES 60
PNEUMATIC VALVE ACTUATOR
PRESSURE RATING
120 PSIG
MODEL 61AD
SERIAL NO. 183425001
Parker
INSTRUMENTATION VALVE DIV.
JACKSONVILLE, AL. 36265
SS
Parker
OPEN
Parker
Instrumentation
ON
OFF
316

Pressure vs. Temperature



Note: To determine MPa, multiply bar by 0.1

Note: This Pressure versus Temperature chart reflects the maximum temperature range of indicated materials.

When combining seat and seal materials, the most restrictive temperature rating of the seats or seals becomes the limiting factor on valve temperature range.

Elastomeric stem packing and seals are recommended if the application subjects the valve to thermal cycling.

Please see pages 5 and 7 for maximum pressure ratings.

Temperature Ratings:

PTFE ..... -65°F to 350°F (-54°C to 177°C)
PCTFE..... -65°F to 350°F (-54°C to 177°C)
PEEK..... -65°F to 450°F (-54°C to 232°C)
Nitrile Rubber..... -40°F to 250°F (-40°C to 121°C)
Fluorocarbon Rubber..... -15°F to 450°F (-26°C to 232°C)
Ethylene Propylene Rubber.... -65°F to 300°F (-54°C to 149°C)
Highly Fluorinated
Fluorocarbon Rubber ..... -15°F to 200°F (-26°C to 93°C)

Flow Calculations with 1000 psig (69 bar) Inlet Pressure

Two-Way

Valve Series	Max. Cv	Pressure Drop ΔP		Water @ 60°F (16°C)		Air @ 60°F (16°C)	
		psig	bar	gpm	m³/hr	scfm	m³/hr
B2L	0.93	10	0.7	2.9	0.7	92.4	156.2
		50	3.5	6.6	1.5	200.3	338.3
		100	6.9	9.3	2.1	272.0	458.9
B6L	2.34	10	0.7	7.4	1.7	231.7	391.5
		50	3.5	16.5	3.8	494.2	834.7
		100	6.9	23.4	5.3	657.0	1107.9
B8L	6.42	10	0.7	20.3	4.6	637.1	1076.8
		50	3.5	45.4	10.3	1373.6	2320.3
		100	6.9	64.2	14.6	1852.3	3124.8

Three-Way

Valve Series	Max. Cv	Pressure Drop ΔP		Water @ 60°F (16°C)		Air @ 60°F (16°C)	
		psig	bar	gpm	m³/hr	scfm	m³/hr
B2X	0.63	10	0.7	2.0	0.5	62.7	106.0
		50	3.5	4.5	1.0	137.1	231.7
		100	6.9	6.3	1.4	188.4	317.9
B6X	0.87	10	0.7	2.8	0.6	86.7	146.6
		50	3.5	6.2	1.4	190.5	321.8
		100	6.9	8.7	2.0	263.2	444.4
B8X	3.62	10	0.7	11.5	2.6	360.6	609.5
		50	3.5	25.6	5.9	789.7	1343.5
		100	6.9	36.2	8.2	1087.4	1836.6

Two-Way B Series Ball Valves

Introduction

Parker manually, pneumatically, and electrically actuated two-way B Series Ball Valves provide quick 1/4 turn on-off control of fluids utilized in process and instrumentation applications. A broad selection of valve body, seat, and seal materials provide a wide range of pressures and temperatures at which the valve may be used.

Features

- Free floating ball design provides seat wear compensation.
- Available in 316 stainless steel and brass construction. Monel® Alloy 400 and Hastelloy® C-276 construction available upon request.
- Micro-finished ball provides a positive seal.
- Straight through flow path for minimum pressure drop.
- Bi-directional flow.
- Wide variety of US Customary and SI ports.
- 90° actuation.
- Panel mountable.
- Adjustable PTFE stem seal can be maintained in-line.
- Handle indicates flow direction.
- Low operating torques.
- Positive handle stops.
- Color coded handles.
- Optional pneumatic and electric actuation.
- Optional live-loaded PTFE stem seals.
- Optional non-adjustable O-ring stem seals.
- Optional upstream and downstream drain models.
- Optional stainless steel and extended handles.

Specifications

Pressure Ratings:

Material	CWP	with PTFE Seats
316 Stainless Steel	6000 psig (414 bar)*	1500 psig (103 bar)
Brass	3000 psig (207 bar)	1500 psig (103 bar)
Monel® Alloy 400		
B2 and B6:	3000 psig (207 bar)	1500 psig (103 bar)
B8:	2000 psig (138 bar)	1500 psig (103 bar)
Hastelloy® C-276		
B2 and B6:	4000 psig (276 bar)	1500 psig (103 bar)
B8:	3000 psig (207 bar)	1500 psig (103 bar)

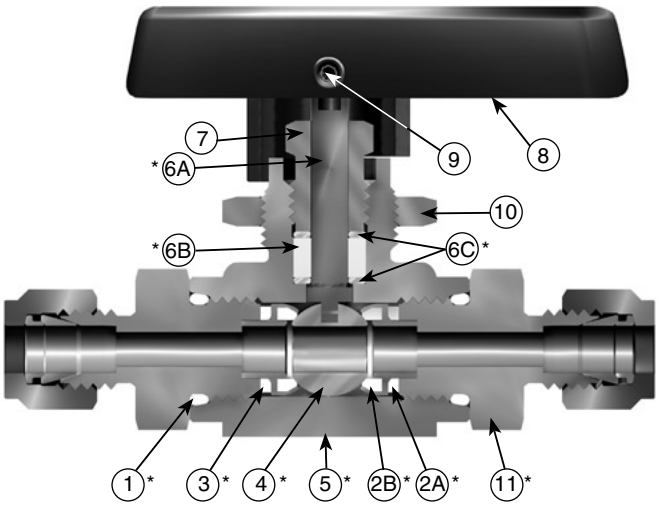
* B6 Series: 6000 psig rating or 4400 psig (303 bar) CWP
B8 Series: 6000 psig rating or 4000 psig (276 bar) CWP

Pressure Rating and Tubing Selection

For working pressures of A-LOK® and CPI™ tube connections, please see the Instrument Tubing Selection Guide (Bulletin 4200-TS), found in the Technical Section of the Parker Instrumentation Process Control Binder, or the Parker Instrument Fitting Installation Manual (Bulletin 4200-B4).

For working pressures of valves with external or internal pipe threads, please see Catalog 4260, Instrumentation Pipe Fittings.

Materials of Construction



Model Shown: 6A-B6LJ-SSP

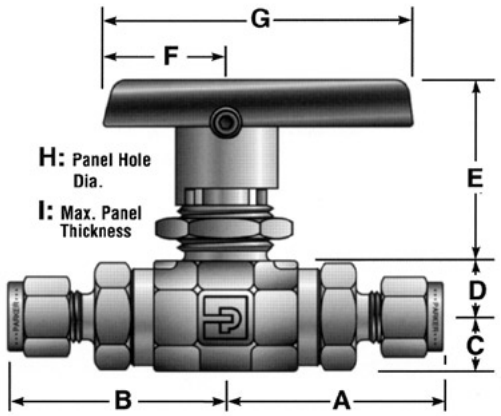
Materials of Construction

Item #	Part Description	Stainless Steel	Brass
*1	Connector O-Ring	PTFE**	
*2A	Seat Retainer	ASTM A 276 Type 316	ASTM B 16 Alloy C36000
*2B	Seat	PTFE, PCTFE, PEEK	
*3	Retainer Seal	PTFE**	
*4	Ball	316 Stainless Steel	
*5	Body	ASTM A 351 Grade CF3M	ASTM B 283 Alloy C37700
*6A	Stem	ASTM A 276 Type 316	
*6B	Stem Seal	PTFE**	
*6C	Stem Washer	316 Stainless Steel	
7	Packing Nut	ASTM A 479 Type 316	ASTM B 453 Alloy C34000
8	Handle	Nylon 6/6	
9	Handle Set Screw	Stainless Steel	
10	Panel Nut	316 Stainless Steel	
*11	End Connector	ASTM A 479 Type 316	ASTM B 16 Alloy C36000

* Wetted Parts.
** Optional stem seal and body seal materials are described in the How to Order section.
Lubrication: Perfluorinated Polyether.

Hastelloy® is a registered trademark of Haynes International.
Monel® Alloy 400 is a registered trademark of Special Metals Corporation.

Dimensions & Flow Data



Model Shown: 4A-B6LJ-SSP

Port Size	Basic Part #	Flow Data: Orifice Inch	Orifice mm	Cv	X_T*	End Connections Port 1 Port 2	Dimensions Inches (mm): A†	B†	C	D	E	F	G	H	I
1A	B2L	0.052	1.3	0.06	0.45	1/16" A-LOK®	1.30 (33.0)	1.30 (33.0)	0.33 (8.4)	0.33 (8.4)	0.94 (23.9)	0.75 (19.1)	1.88 (47.8)	0.58 (14.7)	0.13 (3.3)
1Z						1/16" CPI™									
2A		0.093	2.4	0.21	0.47	1/8" A-LOK®	1.36 (34.5)	1.36 (34.5)							
2Z						1/8" CPI™									
2F		0.165	4.2	0.93	0.43	1/8" Female NPT	1.07 (27.2)	1.07 (27.2)							
2M		0.165	4.2	0.93	0.43	1/8" Male NPT	1.18 (30.0)	1.18 (30.0)							
4A		0.165	4.2	0.93	0.43	1/4" A-LOK®	1.48 (37.6)	1.48 (37.6)							
4Z						1/4" CPI™									
4M		0.165	4.2	0.93	0.43	1/4" Male NPT	1.35 (34.3)	1.35 (34.3)							
M3A		0.086	2.2	0.18	0.44	3mm A-LOK®	1.37 (34.8)	1.37 (34.8)							
M3Z						3mm CPI™									
4A	B6L	0.187	4.7	1.04	0.42	1/4" A-LOK®	1.74 (44.2)	1.74 (44.2)	0.42 (10.7)	0.47 (11.9)	1.53 (38.9)	1.00 (25.4)	2.50 (63.5)	0.77 (19.6)	0.25 (6.4)
4Z						1/4" CPI™									
4F		0.250	6.4	2.34	0.29	1/4" Female NPT	1.51 (38.4)	1.51 (38.4)							
4M		0.250	6.4	2.34	0.29	1/4" Male NPT	1.62 (41.1)	1.62 (41.1)							
4Q		0.180	4.6	1.03	0.42	1/4" UltraSeal	1.51 (38.4)	1.51 (38.4)							
4V		0.188	4.8	1.04	0.42	1/4" VacuSeal	1.75 (44.5)	1.75 (44.5)							
6A		0.250	6.4	2.34	0.29	3/8" A-LOK®	1.80 (45.7)	1.80 (45.7)							
6Z						3/8" CPI™									
6M		0.250	6.4	2.34	0.29	3/8" Male NPT	1.62 (41.1)	1.62 (41.1)							
6Q		0.250	6.4	2.34	0.29	3/8" UltraSeal	1.51 (38.4)	1.51 (38.4)							
M6A		0.187	4.7	1.04	0.42	6mm A-LOK®	1.75 (44.5)	1.75 (44.5)							
M6Z						6mm CPI™									
M8A		0.250	6.4	2.34	0.42	8mm A-LOK®	1.78 (45.2)	1.78 (45.2)							
M8Z						8mm CPI™									
M10A		0.250	6.4	2.34	0.42	10mm A-LOK®	1.81 (46.0)	1.81 (46.0)							
M10Z						10mm CPI™									
6F	B8L	0.406	10.3	6.42	0.37	3/8" Female NPT	1.95 (49.5)	1.95 (49.5)	0.69 (17.5)	0.70 (17.8)	1.74 (44.2)	1.50 (38.1)	4.00 (101.6)	0.90 (22.9)	0.38 (9.7)
8F		0.406	10.3	6.42	0.37	1/2" Female NPT	2.15 (54.6)	2.15 (54.6)							
8A		0.406	10.3	6.42	0.37	1/2" A-LOK®	2.34 (59.4)	2.34 (59.4)							
8Z						1/2" CPI™									
8M		0.406	10.3	6.42	0.37	1/2" Male NPT	2.22 (56.4)	2.22 (56.4)							
8Q		0.375	9.5	5.57	0.37	1/2" UltraSeal	1.92 (48.8)	1.92 (48.8)							
8V		0.406	10.3	6.42	0.37	1/2" VacuSeal	2.21 (56.1)	2.21 (56.1)							
12A		0.406	10.3	6.42	0.37	3/4" A-LOK®	2.33 (59.2)	2.33 (59.2)							
12Z						3/4" CPI™									
12F		0.406	10.3	6.42	0.37	3/4" Female NPT	2.25 (57.1)	2.25 (57.1)							
M12A		0.375	9.5	5.57	0.37	12mm A-LOK®	2.33 (59.2)	2.33 (59.2)							
M12Z						12mm CPI™									
M16A		0.406	10.3	6.42	0.37	16mm A-LOK®	2.33 (59.2)	2.33 (59.2)							
M16Z						16mm CPI™									

* 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

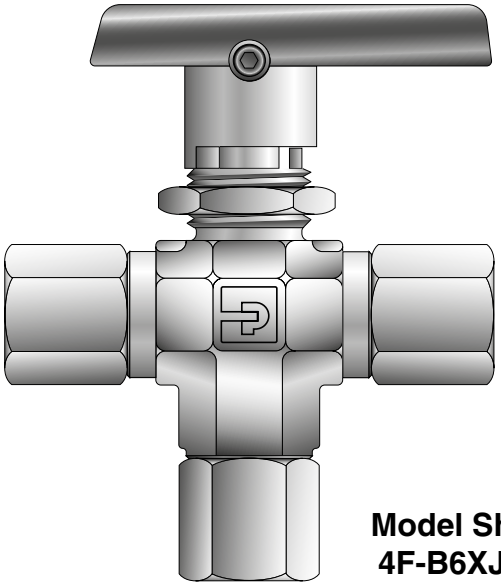
Three-Way B Series Ball Valves

Introduction

Parker manually, pneumatically, and electrically actuated three-way B Series Ball Valves may be used as diverting or selecting valves for fluids utilized in process and instrumentation applications. The standard three-way diverter valve is designed to accept media through the bottom port and direct it out of two outlet ports. When equipped with spring-loaded seats, the three-way valve may be used as a selector valve, alternately accepting media from either of two inlet sources (side ports) and directing it through a single outlet (bottom port).

Features

- Available in 316 stainless steel and brass construction. Monel® Alloy 400 and Hastelloy® C-276 construction available for Diverter Valves upon request.
- Micro-finished ball provides a positive seal.
- Wide variety of US Customary and SI ports.
- 180 degree actuation.
- Panel mountable.
- Adjustable PTFE stem seal can be maintained in-line.
- Handle indicates flow direction.
- Low operating torques.
- Positive handle stops.
- Color coded handles.
- Optional pneumatic and electric actuation.
- Optional live-loaded PTFE stem seals.
- Optional non-adjustable O-ring stem seals.
- Optional stainless steel and extended handles.



Model Shown:
4F-B6XJ2-BP

Diverter Valve Specifications

Pressure Ratings with bottom port as inlet:

Material	CWP	with PTFE Seats
316 Stainless Steel	6000 psig (414 bar)*	1500 psig (103 bar)
Brass	3000 psig (207 bar)	1500 psig (103 bar)
Monel® Alloy 400		
B2 and B6:	3000 psig (207 bar)	1500 psig (103 bar)
B8:	2000 psig (138 bar)	1500 psig (103 bar)
Hastelloy® C-276		
B2 and B6:	4000 psig (276 bar)	1500 psig (103 bar)
B8:	3000 psig (207 bar)	1500 psig (103 bar)

* B6 Series: 6000 psig rating or 4400 psig (303 bar) CWP
B8 Series: 6000 psig rating or 4000 psig (276 bar) CWP

Pressure Rating and Tubing Selection

For working pressures of A-LOK® and CPI™ tube connections,

Pressure Rating with side ports as inlet:

150 psig (10 bar)

Selector Valve Specifications

(Spring Loaded – B6 and B8 models only)

Pressure Rating with bottom port as inlet:

316 Stainless Steel..... 6000 psig (414 bar) CWP*
Brass .....3000 psig (207 bar) CWP

Pressure Rating with side ports as inlet:

316 Stainless Steel and Brass....3000 psig (207 bar) CWP

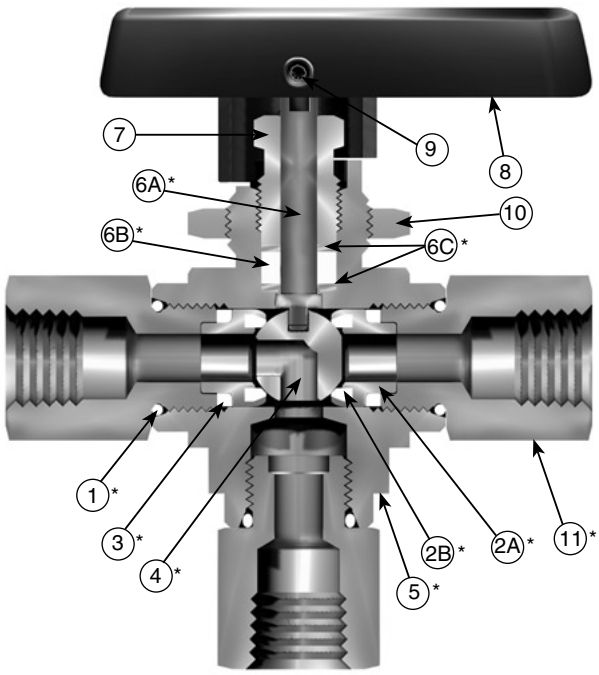
Pressure Rating and Tubing Selection

For working pressures of A-LOK® and CPI™ tube connections, please see the Instrument Tubing Selection Guide (Bulletin 4200-TS), found in the Technical Section of the Parker Instrumentation Process Control Binder, or the Parker Instrument Fitting Installation Manual (Bulletin 4200-B4).

For working pressures of valves with external or internal pipe threads, please see Catalog 4260, Instrumentation Pipe Fittings.

Three-Way B Series Ball Valves

Diverter Valve



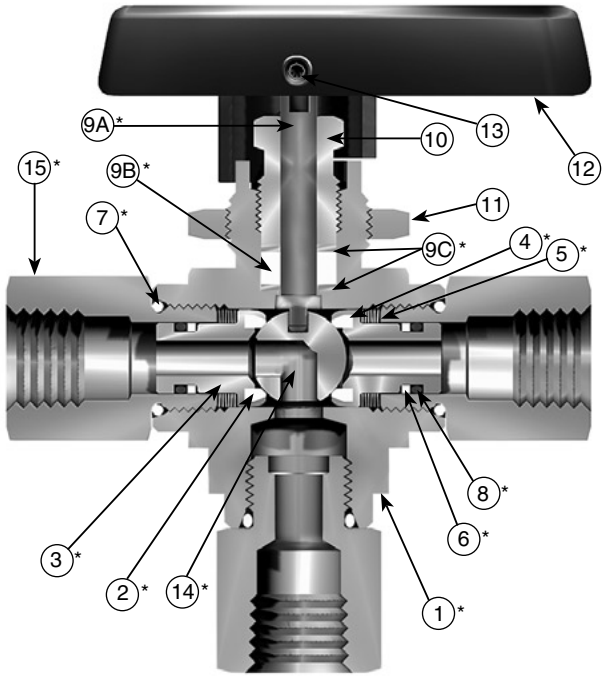
Model Shown: 4F-B6XJ-SSP

Materials of Construction

Item #	Part Description	Stainless Steel	Brass
*1	Connector O-Ring	PTFE**	
*2A	Seat Retainer	ASTM A 276 Type 316	ASTM B 16 Alloy C36000
*2B	Seat	PTFE, PCTFE, PEEK	
*3	Retainer Seal	PTFE**	
*4	Ball	316 Stainless Steel	
*5	Body	ASTM A 351 Grade CF3M	ASTM B 283 Alloy C37700
*6A	Stem	ASTM A 276 Type 316	
*6B	Stem Seal	PTFE**	
*6C	Stem Washer	316 Stainless Steel	
7	Packing Nut	ASTM A 479 Type 316	ASTM B 453 Alloy C34000
8	Handle	Nylon 6/6	
9	Handle Set Screw	Stainless Steel	
10	Panel Nut	316 Stainless Steel	
*11	End Connector	ASTM A 479 Type 316	ASTM B 16 Alloy C36000

* Wetted Parts.
** Optional stem seal and body seal materials are described in the How to Order section.
Lubrication: Perfluorinated Polyether.

Selector Valve



Model Shown: 4F-B6XS2-SSP

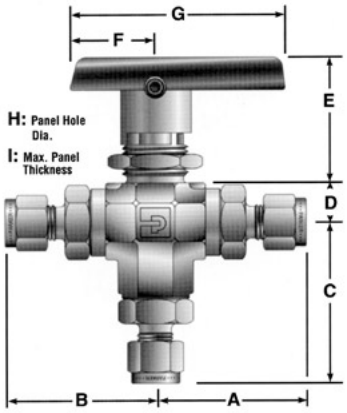
Materials of Construction

Item #	Part Description	Stainless Steel	Brass
1	Body	ASTM A 351 Grade CF3M	ASTM B 283 Alloy C37700
*2	Seat	PTFE, PEEK	
*3	Seat Retainer	ASTM A 276 Type 316	
4	Spring	Stainless Steel	
*5	Seat Retainer Washer	316 Stainless Steel	
*6	Back-up Ring	PTFE	
*7	Connector O-Ring	PTFE**	
*8	Seat Retainer O-Ring	Fluorocarbon Rubber**	
*9A	Stem	ASTM A 276 Type 316	
*9B	Stem Seal	PTFE*	
*9C	Stem Washer	316 Stainless Steel***	
10	Packing Nut	ASTM A 479 Type 316	ASTM B 453 Alloy C34000
11	Panel Nut	316 Stainless Steel	
12	Handle	Nylon 6/6	
13	Handle Set Screw	Stainless Steel	
*14	Ball	316 Stainless Steel	
*15	End Connector	ASTM A 479 Type 316	ASTM B 16 Alloy C36000

* Wetted Parts.
** Optional stem seal and body seal materials are described in the How to Order section.
Lubrication: Perfluorinated Polyether.
***The lower stem washer material is PEEK for B8 Selector Valves.
Lubrication: Perfluorinated polyether.

Three-Way B Series Ball Valves

Dimensions & Flow Data



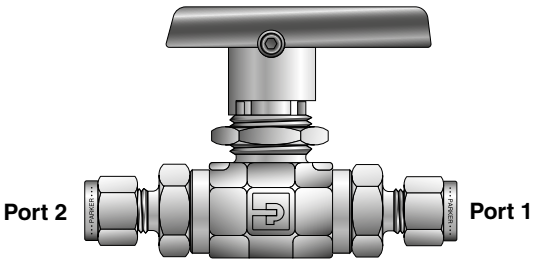
Model Shown:
4Z-B6XSPKR-V-SSP

Port Size	Basic Part #	Flow Data: Orifice Inch	Orifice mm	Cv	X_T*	End Connections: Port 1 / Port 2 / Port 3	A†	B†	C	D	E	F	G	H	I
							Dimensions Inches (mm)								
1A	B2X	0.052	1.3	0.06	0.56	1/16" A-LOK®	1.30 (33.0)	1.30 (33.0)	1.39 (35.3)	0.33 (8.4)	0.94 (23.9)	0.75 (19.1)	1.88 (47.8)	0.58 (14.7)	0.13 (3.3)
1Z						1/16" CPI™									
2A		0.093	2.4	0.21	0.64	1/8" A-LOK®	1.36 (34.5)	1.36 (34.5)	1.45 (36.8)						
2Z						1/8" CPI™									
2F		0.165	4.2	0.63	0.59	1/8" Female NPT	1.07 (27.2)	1.07 (27.2)	1.15 (29.2)						
2M		0.165	4.2	0.63	0.59	1/8" Male NPT	1.18 (30.0)	1.18 (30.0)	1.26 (32.0)						
4A		0.165	4.2	0.63	0.59	1/4" A-LOK®	1.48 (37.6)	1.48 (37.6)	1.56 (39.6)						
4Z						1/4" CPI™									
4M		0.165	4.2	0.63	0.59	1/4" Male NPT	1.35 (34.3)	1.35 (34.3)	1.43 (36.3)						
M3A		0.086	2.2	0.18	0.63	3mm A-LOK®	1.37 (34.8)	1.37 (34.8)	1.45 (36.8)						
M3Z						3mm CPI™									
4A	B6X	0.187	4.7	0.70	0.69	1/4" A-LOK®	1.74 (44.2)	1.74 (44.2)	1.88 (47.8)	0.47 (11.9)	1.53 (38.9)	1.00 (25.4)	2.50 (63.5)	0.77 (19.6)	0.25 (6.4)
4Z						1/4" CPI™									
4F		0.196	5.0	0.87	0.74	1/4" Female NPT	1.51 (38.4)	1.51 (38.4)	1.65 (41.9)						
4M		0.196	5.0	0.87	0.74	1/4" Male NPT	1.62 (41.1)	1.62 (41.1)	1.76 (44.7)						
4Q		0.180	4.6	0.68	0.67	1/4" UltraSeal	1.51 (31.8)	1.51 (31.8)	1.65 (33.8)						
4V		0.188	4.8	0.70	0.69	1/4" VacuSeal	1.75 (35.1)	1.75 (35.1)	1.89 (37.1)						
6A		0.196	5.0	0.87	0.74	3/8" A-LOK®	1.80 (45.7)	1.80 (45.7)	1.94 (49.3)						
6Z						3/8" CPI™									
6M		0.196	5.0	0.87	0.74	3/8" Male NPT	1.62 (41.1)	1.62 (41.1)	1.76 (44.7)						
6Q		0.196	5.0	0.87	0.74	3/8" UltraSeal	1.52 (38.6)	1.52 (38.6)	1.65 (41.9)						
M6A		0.187	4.7	0.70	0.69	6mm A-LOK®	1.75 (44.5)	1.75 (44.5)	1.88 (47.8)						
M6Z						6mm CPI™									
M8A		0.196	5.0	0.87	0.74	8mm A-LOK®	1.78 (45.2)	1.78 (45.2)	1.91 (48.5)						
M8Z						8mm CPI™									
M10A		0.196	5.0	0.87	0.74	10mm A-LOK®	1.81 (46.0)	1.81 (46.0)	1.95 (49.5)						
M10Z						10mm CPI™									
6F	B8X	0.406	10.3	3.62	0.64	3/8" Female NPT	1.95 (49.5)	1.95 (49.5)	2.29 (58.2)	0.70 (17.8)	1.74 (44.2)	1.50 (38.1)	4.00 (101.6)	0.90 (22.9)	0.38 (9.7)
8A		0.406	10.3	3.62	0.64	1/2" A-LOK®	2.34 (59.4)	2.34 (59.4)	2.68 (68.1)						
8Z						1/2" CPI™									
8F		0.406	10.3	3.62	0.64	1/2" Female NPT	2.15 (54.6)	2.15 (54.6)	2.49 (63.2)						
8M		0.406	10.3	3.62	0.64	1/2" Male NPT	2.22 (56.4)	2.22 (56.4)	2.59 (65.8)						
8Q		0.375	9.5	3.46	0.62	1/2" UltraSeal	1.93 (49.5)	1.93 (49.5)	2.27 (57.7)						
8V		0.406	10.3	3.62	0.64	1/2" VacuSeal	2.21 (56.1)	2.21 (56.1)	2.55 (65.0)						
12A		0.406	10.3	3.62	0.64	3/4" A-LOK®	2.33 (59.2)	2.33 (59.2)	2.68 (68.1)						
12Z						3/4" CPI™									
12F		0.406	10.3	6.42	0.37	3/4" Female NPT	2.25 (57.1)	2.25 (57.1)	2.59 (65.8)						
M12A		0.375	9.5	3.46	0.62	12mm A-LOK®	2.33 (59.2)	2.33 (59.2)	2.67 (67.8)						
M12Z						12mm CPI™									
M16A		0.406	10.3	3.62	0.64	16mm A-LOK®	2.33 (56.9)	2.33 (56.9)	2.67 (65.5)						
M16Z						16mm CPI™									

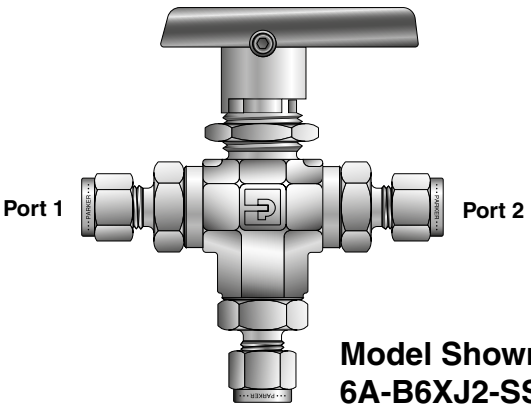
* Tested in accordance with ISA S75.02. Gas flow will be choked when P_1- P_2 / P_1= x_T.

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

How to Order



Model Shown: 6A-B6LJ2-SSP



Model Shown: 6A-B6XJ2-SSP

Port 1	Port 2	Port 3	–	Valve Series	Seat Material	–	Seal Material	–	Body Material

Ports 1, 2 and 3		Valve Series	Seat Material		Seal Material		Body Material	
1A	1/16" A-LOK®	**B2L**	**J**	PTFE	**(Blank)**	PTFE	**SSP**	316 Stainless Steel
1Z	1/16" CPI™	**B2X**	**J2**	PCTFE	**V**	Fluorocarbon Rubber	**BP**	Brass
2A	1/8" A-LOK®				**EPR**	Ethylene Propylene Rubber	**MP**	Monel® Alloy 400
2Z	1/8" CPI™				**BN**	Nitrile Rubber	**HCP**	Hastelloy® C-276
2F	1/8" Female NPT				**KZ**	Highly Fluorinated Fluorocarbon Rubber		
2M	1/8" Male NPT				**LT**	Live-Loaded PTFE Packing with PTFE Seals		
4A	1/4" A-LOK®				**VLT**	Live-Loaded PTFE Packing with Fluoro carbon Rubber Seals		
4Z	1/4" CPI™				**EPRLT**	Live-Loaded PTFE Packing with Ethylene Propylene Rubber Seals		
4M	1/4" Male NPT				**BNLT**	Live-Loaded PTFE Packing with Nitrile Rubber Seals		
M3A	3mm A-LOK				**KZLT**	Live-Loaded PTFE Packing with Highly Flourinated Fluoro-carbon Rubber Seals		
M3Z	3mm CPI™							
4A	1/4" A-LOK®	**B6L**	**J**	PTFE				
4Z	1/4" CPI™	**B6X**	**J2**	PCTFE				
4F	1/4" Female NPT		**S2**	Spring-Loaded PCTFE				
4M	1/4" Male NPT		**PKR**	PTFE Lubri-cated PEEK				
4Q	1/4" UltraSeal		**SPKR**	Spring-Loaded PTFE Lubri-cated PEEK				
4V	1/4" VacuSeal							
6A	3/8" A-LOK®							
6Z	3/8" CPI™							
6M	3/8" Male NPT							
6Q	3/8" UltraSeal							
M6A	6mm A-LOK®							
M6Z	6mm CPI™							
M8A	8mm A-LOK®							
M8Z	8mm CPI™							
M10A	10mm A-LOK®							
M10Z	10mm CPI™							
6F	3/8" Female NPT	**B8L**	**J**	PTFE				
8A	1/2" A-LOK®	**B8X**	**J2**	PCTFE				
8Z	1/2" CPI™		**S2**	Spring-Loaded PCTFE				
8F	1/2" Female NPT		**PKR**	PTFE Lubri-cated PEEK				
8M	1/2" Male NPT		**SPKR**	Spring-Loaded PTFE Lubri-cated PEEK				
8Q	1/2" UltraSeal							
8V	1/2" VacuSeal							
12Z	3/4" CPI™							
12F	3/4" Female NPT							
M12A	12mm A-LOK®							
M12Z	12mm CPI™							
M16A	16mm A-LOK®							
M16Z	16mm CPI™							

Notes:
1. Panel Mounting Nut supplied with each valve. Various port combinations are available.
2. See How to order.
3. VacuSeal and UltraSeal are not available in Brass.
4. 12F (3/4" Female NPT) not panel mountable.

See examples on page 10. See pages 11 and 12 for information about How to Order Options and Maintenance Kits.

B Series Ball Valves

How to Order (Continued)

Examples: Two-Way Valves

4Z	4F	–	B6L	J	–	BP
Port 1	Port 2		Valve Series	Seat Material	Seal Material	Body Material

Describes a B6L ball valve with a 1/4" CPI™ end connection for port 1 and a 1/4" female NPT end connection for port 2, PTFE seats, PTFE stem and body seals, brass construction, with a panel mounting nut.

8A	*	–	B8L	J	–	BN	–	SSP
Port 1	Port 2		Valve Series	Seat Material		Seal Material		Body Material

Describes a B8L ball valve with a 1/2" A-LOK® end connections for ports 1 and 2, PTFE seats, Nitrile rubber stem and body seals, stainless steel construction, with a panel mounting nut.
***Note:** If ports 1 and 2 are the same, eliminate the port 2 designator.

M3A	*	–	B2L	J2	–	VLT	–	SSP
Port 1	Port 2		Valve Series	Seat Material		Seal Material		Body Material

Describes a B2L ball valve with 3mm A-LOK® end connections for ports 1 and 2, PCTFE seats, fluorocarbon rubber body seals, PCTFE packing, stainless steel construction, with a panel mounting nut.
***Note:** If ports 1 and 2 are the same, eliminate the port 2 designator.

Examples: Three-Way Diverter Valves

4Z	4Z	4F	–	B6X	J2	–	V	–	BP
Port 1	Port 2	Port 3		Valve Series	Seat Material		Seal Material		Body Material

Describes a B6X ball valve with 1/4" CPI™ end connections for side ports 1 and 2, 1/4" female NPT end connection for bottom port 3, PCTFE seats, fluorocarbon rubber stem and body seals, brass construction, and a panel mounting nut.

2Z	*	*	–	B2X	J	–	SSP
Port 1	Port 2	Port 3		Valve Series	Seat Material	Seal Material	Body Material

Describes a B2X ball valve with 1/8" CPI™ end connections for ports 1, 2, and 3, PTFE seats, PTFE stem and body seals, stainless steel construction, and a panel mounting nut.
***Note:** If ports 1, 2, and 3 are the same, eliminate the port 2 and port 3 designators.

Examples: Three-Way Selector Valves

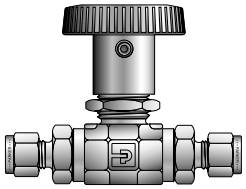
4M	4M	4F	–	B6X	S2	–	EPR	–	SSP
Port 1	Port 2	Port 3		Valve Series	Seat Material		Seal Material		Body Material

Describes a B6X ball valve with 1/4" male NPT end connections for side ports 1 and 2, 1/4" female NPT end connection for bottom port 3, spring-loaded PCTFE seats, ethylene propylene rubber stem and body seals, stainless steel construction, and a panel mounting nut.

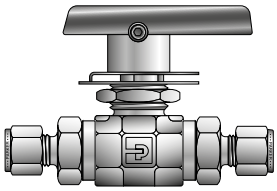
8A	*	*	–	B8X	S2	–	BNLT	–	SSP
Port 1	Port 2	Port 3		Valve Series	Seat Material		Seal Material		Body Material

Describes a B8X ball valve with 1/2" A-LOK® end connections for ports 1, 2, and 3, spring-loaded PCTFE seats, Nitrile rubber body seals, live loaded PTFE packing, stainless steel construction, and a panel mounting nut.
***Note:** If ports 1, 2, and 3 are the same, eliminate the port 2 and port 3 designators.

Options

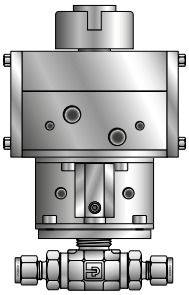


Round Handle



Lock-Out Handle

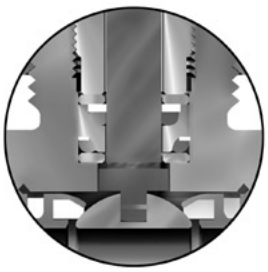
Actuator Options



Double Acting (61AD) Pneumatic Actuator

Spring Returns (61AC, 61S & AO) Pneumatic Actuator

70, 80 & 90 Series Electric Actuator



O-Ring Stem Seals

Live-Loaded Stem Seals

Two-Way Valve Upstream and Downstream Drain Options

For draining upstream or downstream media on two-way valves at pressures below 150 psig (10 bar), add the suffix **–VBU** (Vented Ball Upstream) or **–VBD** (Vented Ball Downstream). Example: 4Z-B6LJ-SSP-VBU. This option is also suitable to vent the ball cavity in vacuum applications. For pressures up to 3,000 psig (207 bar), select **S2** or **SPKR** spring-loaded seats and add the suffix **–VBU** (Vented Ball Upstream) or **–VBD** (Vented Ball Downstream). Example: 4Z-B6L**S2**-SSP**-VBU**

Note: VBD and VBU are ball cavity vents only.

B Series Ball Valves

How to Order Options

	Examples
Lock-Out Devices: Add the suffix LD to the end of the part number to order directly on the valve. For field installation, simply substitute the correct valve series number after LD.	4F-B6LJ2-BN-SSP-**LD** **LD-B8L**
Colored Lever Handles: Add the designator corresponding to the correct handle as a suffix to the part number (black is standard). **W** = white, **B** = blue, **G** = green, **R** = red, **Y** = yellow.	M6A-B6XPKR-SSP-**G**
Colored Round Handles: Add the designator corresponding to the correct handle as a suffix to the part number. **S** = Black, **S-W** = white, **S-B** = blue, **S-G** = green, **S-R** = red, **S-Y** = yellow. **NOTE:** Round handles are not recommended for B8 valves with PEEK seats.	M6A-B6XPKR-SSP-**S-G**
Metal Oval Handles: Add the designator corresponding to the correct handle as a suffix to the valve part number. **OVSS** = stainless steel, **SA** = oval aluminum. **NOTE:** Not available in size 2.	8F-B8LPKR-SSP-**OVSS**
Stainless Steel Handles: Add the suffix **-ST** to the end of the part number (B6 and B8 only).	4F-B6LJ-SSP-**ST**
Pneumatic Actuators: For detailed actuator information, refer to the Pneumatic Actuators section of this catalog. For factory assembly, add the actuator part number as the suffix to the valve part number. For field installation, specify the actuator desired. The appropriate mounting hardware may be obtained by adding the valve series and actuator size to the prefix **MK-**.	2F-B2XJ2-V-SSP-**61ACX-2** **61ACX-2** **MK-B2X-61**
Electric Actuators: For detailed actuator information refer to the Electric Actuators section of this catalog. For factory assembly, add the actuator part number as the suffix to the valve part number. For field installation, specify the actuator desired. The appropriate mounting hardware may be obtained by adding the valve series and actuator series to the prefix MK-.	8A-B8LPKR-BN-SS-**71A** **71A** MK-**B8L-70**
Oxygen Cleaning: Add the suffix **-C3** to the end of the part number to receive valves cleaned and asembled for oxygen service in accordance with Parker Specification ES8003.	4A-B6LJ-EPR-SSP-**C3**
Electron Beam Welded End Connections: For tamper resistant valves, add the suffix **-EBW** to the end of the part number of stainless steel valves to have end connections electron beam welded.	M6A-B6LSPKR-V-SSP-**EBW**
Fillet Weld End Connections: For seal welded valves, add the suffix **-FW** to the end of the part number of the stainless steel valves to have the end connections seal welded to the body.	8Z-B8LJ2-SSP-**FW**
Grounding Spring: To obtain B6 and B8 series valves with a grounding spring, add the suffix **-SPG** to the end of the part number.	8A-B8LJ2-SSP-**SPG**

How to Order Maintenance Kits

Colored Round Handle Kits: Series-Handle-Color. (Example consists of a green handle and handle screw.) **NOTE:** Stainless Steel kits not available in size 2.	**B6-RD-HANDLE-GREEN**
Stainless Steel Handle Kits: Series-Handle-SS. (Example consists of a stainless steel handle and handle screw.)	**B8-HANDLE-SS**
Colored Lever Handle Kits: Series-Handle-Color. (Example consists of a red handle and handle screw.)	**B6-HANDLE-RED**

Two-way Valve Seal Kits:

PTFE Stem Seal Kits: Kit-Valve Series and Seat Material-Body Material. (Consists of one PTFE stem seal, two stem seal washers, two encapsulated PTFE ball seats, two end connector PTFE seals, one assembly mandrel, maintenance instructions.)	**KIT-B2LJ-SS**
Elastomeric Stem Seal Kits: Kit-Valve Series and Seat Material-Elastomer Material-Body Material. (Consists of two stem seal Nitrile rubber O-rings, two PTFE back-up rings, two stem seal washers, two encapsulated PCTFE ball seats, two end connector Nitrile rubber O-ring seals, two seat retainer Nitrile rubber O-ring seals, stem glands and maintenance instructions.)	**KIT-B2LJ2-BN-SS**

Diverter Valve Seal Kits:

PTFE Stem Seal Kits: Kit-Valve Series and Seat Material-Body Material. (Consists of one PTFE stem seal, two stem seal washers, two encapsulated PEEK ball seats, three end connector PTFE seals, one assembly mandrel, maintenance instructions.)	**KIT-B6XPKR-SS**
Elastomeric Stem Seal Kits: Kit-Valve Series and Seat Material-Elastomer-Body Material. (Consists of two stem seal fluorocarbon rubber O-rings, two PTFE back-up rings, two stem seal washers, two encapsulated PTFE ball seats, three end connector fluorocarbon rubber O-ring seals, two seat retainer fluorocarbon rubber O-ring seals, stem glands and maintenance instructions.)	**KIT-B6XJ-V-SS**

Selector Valve Seal Kits:

PTFE Stem Seal Kits: Kit-Valve Series and Seat Material. (Consists of one PTFE stem seal, two stem seal washers, two encapsulated spring-loaded PCTFE ball seats, two seat retainer fluorocarbon rubber O-rings, three end connector PTFE seals, one assembly mandrel, maintenance instructions.)	**KIT-B6XS2**
Elastomeric Stem Seal Kits: Kit-Valve Series and Seat Material-Elastomer. (Consists of two stem seal fluorocarbon rubber O-rings, two PTFE back-up rings, two stem seal washers, two encapsulated spring-loaded PEEK ball seat assemblies, three end connector fluorocarbon O-ring seals, two seat retainer fluorocarbon rubber O-rings, stem glands and maintenance instructions.)	**KIT-B6XSPKR-V**

Live-loaded Seal Kits:

Kit-Valve Series and Seat Material-Seal Material-Body Material. (Consists of one live-loaded PTFE stem packing, two packing springs (B8 series valves have four springs), three packing washers, two PCTFE encapsulated ball seats, two Nitrile rubber end connector O-ring seals, two Nitrile rubber seat retainer O-ring seals, maintenance instructions.)	**KIT-B6LJ2-BNLT-SS**

PR Series Rotary Plug Valves

Introduction

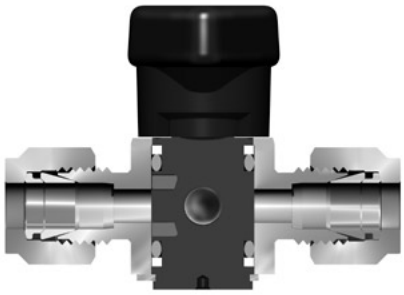
Parker PR Series Plug Valves provide positive leak tight shut-off, high flow capacity, and quick quarter-turn operation in a compact attractive package. The patented blow-out resistant seat design offers reliable sealing technology at all operating pressures. In addition to on-off actuation, the plug design allows forward flow throttling. A selection of valve seat and seal materials may be chosen for media compatibility and performance over a broad range of temperatures. The pressure balanced atmospheric seals are backed by PTFE rings to enhance their performance and increase cycle life.

Features

- Patented blow-out resistant seat design
- Pressures up to 3,000 psig (207 bar) CWP
- Quarter-turn operation
- Reliable simple design
- Straight-through flow
- Stainless steel and brass construction
- Nitrile, ethylene propylene, fluorocarbon, and highly fluorinated fluorocarbon rubber seats and seals
- PTFE back-up rings on atmospheric seals
- Low operating torque
- Minimum pressure drop
- Throttling capability
- Positive handle stops
- Color coded fracture resistant nylon handles with directional flow indication
- Easy to service
- 100% factory tested
- Options include lock-out devices, downstream venting, and both stainless steel and T-bar handles

Open

Closed



Model Shown: 4A-PR4-VT-SS

U.S. Patent 5,234,193

Specifications

Pressure Ratings:

Normal Flow Direction: 3000 psig (207 bar) CWP

Reverse Flow Direction: 150 psig (10 bar)

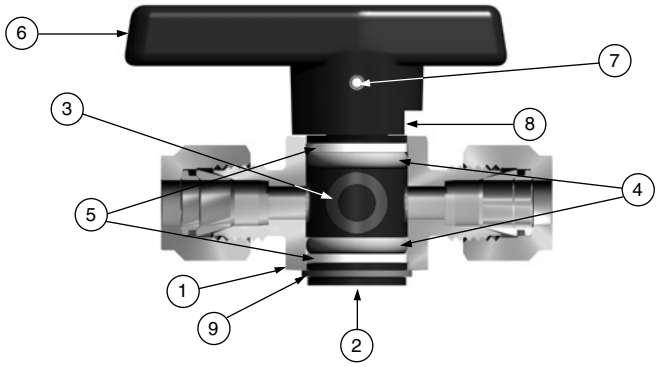
Downstream Vent Option: 150 psig (10 bar)

PR Series Rotary Plug Valves

Materials of Construction

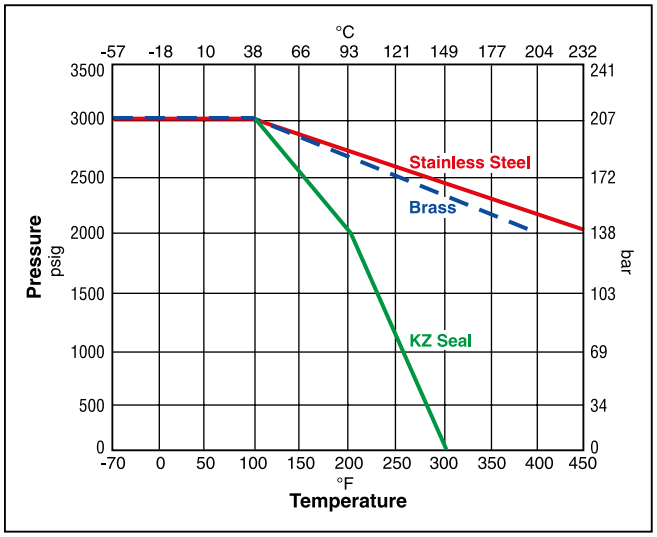
Item #	Part Description	Stainless Steel	Brass
1	Body	ASTM A 479 Type 316	ASTM B 16 Alloy C36000
2	Plug*	ASTM A 479 Type 316	ASTM B 16 Alloy C36000
3	Seat**	Fluorocarbon Rubber	
4	O-Ring Seals**	Fluorocarbon Rubber	
5	Back-up Rings	PTFE	
6	Handle	Nylon 6/6	
7	Handle Pin	316 Stainless Steel	
8	Body Pin	316 Stainless Steel (not shown)	
9	Retaining Ring	316 Stainless Steel	

* Plugs are PTFE color coated – Stainless steel plugs are black; Brass plugs are brown.
** Optional Seat and O-ring seal materials are available. Lubrication: Perfluorinated polyether



Model Shown: 4A-PR4-VT-SS

Pressure vs. Temperature



Note: To determine MPa, multiply bar by 0.1

Note: This Pressure versus Temperature chart reflects the maximum temperature range of indicated body materials.

The temperature rating of the elastomer seals become the limiting factor on temperature range.

Temperature Ratings

Material	Temperature Rating
Nitrile Rubber	-30°F to 225°F (-34°C to 107°C)
Fluorocarbon Rubber	-10°F to 450°F (-23°C to 232°C)
Highly Fluorinated Fluorocarbon Rubber	-10°F to 300°F (-23°C to 149°C)
Ethylene Propylene Rubber	-70°F to 275°F (-57°C to 135°C)

Flow Calculations with 1000 psig (69 bar) Inlet Pressure

Valve Series	Max. Cv	Pressure Drop ΔP		Water @ 60°F (16°C)		Air @ 60°F (16°C)	
		psig	bar	gpm	m³/hr	scfm	m³/hr
PR4	1.24	10	0.7	3.9	0.9	123.1	209.6
		50	3.4	8.8	2.0	265.9	446.3
		100	6.9	12.4	2.8	359.6	607.0
PR6	3.19	10	0.7	10.1	2.3	315.7	533.5
		50	3.4	22.6	5.1	672.3	1128.2
		100	6.9	31.9	7.2	891.6	1504.1

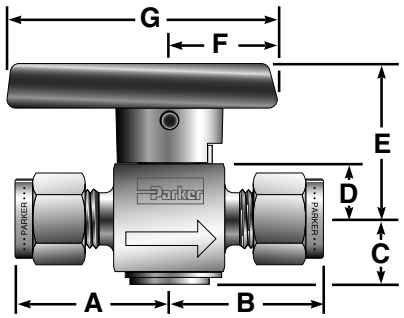
Kits

Plug Kits – Specify the combination of valve series, seal material, plug material, and handle color (if applicable).
Example: KIT-PR4-VT-SS-Y. This kit consists of a PR4 stainless steel plug with fluorocarbon rubber seat and seal elastomers, PTFE back-up rings, yellow handle, and handle pin.

Seal Kits – Specify the combination of valve series and seal material.
Example: KIT-PR4-BN. This kit consists of a PR4 Nitrile rubber seat and seal elastomers and PTFE back-up rings.

PR Series Rotary Plug Valves

Flow Data / Dimensions



Model Shown: 4A-PR4-VT-B

Port Size	Basic Part #	Flow Data: Orifice Inch	Orifice mm	Cv	X_T *	End Connections Port 1 Port 2	Dimensions Inches (mm): A†	B†	C	D	E	F	G
2F	PR4	0.193	4.9	1.24	0.39	1/8" Female NPT	0.89 (22.6)	0.89 (22.6)	0.46 (11.7)	0.38 (9.7)	1.07 (27.2)	0.75 (19.1)	1.88 (47.8)
2M		0.172	4.4	1.02	0.39	1/8" Male NPT	0.77 (19.6)	0.77 (19.6)					
2A		0.093	2.4	0.22	0.48	1/8" A-LOK®	1.00 (25.4)	1.00 (25.4)					
2Z						1/8" CPI™							
4F		0.193	4.9	1.24	0.39	1/4" Female NPT	1.05 (26.7)	1.05 (26.7)					
4M		0.193	4.9	1.24	0.39	1/4" Male NPT	0.96 (24.4)	0.96 (24.4)					
4A		0.187	4.7	1.18	0.41	1/4" A-LOK®	1.09 (27.7)	1.09 (27.7)					
4Z						1/4" CPI™							
4Q		0.187	4.7	1.18	0.41	1/4" UltraSeal	0.85 (21.7)	0.85 (21.7)					
4V		0.187	4.7	1.18	0.41	1/4" VacuSeal	1.02 (25.9)	1.02 (25.9)					
6M		0.193	4.9	1.24	0.39	3/8" Male NPT	0.94 (23.9)	0.94 (23.9)					
6A		0.193	4.9	1.24	0.39	3/8" A-LOK®	1.14 (29.0)	1.14 (29.0)					
6Z						3/8" CPI™							
M3A		0.086	2.2	0.15	0.48	3mm A-LOK®	0.98 (24.9)	0.98 (24.9)					
M3Z						3mm CPI™							
M6A		0.188	4.8	1.18	0.41	6mm A-LOK®	1.08 (27.4)	1.08 (27.4)					
M6Z						6mm CPI™							
M8A		0.193	4.9	1.24	0.48	8mm A-LOK®	1.11 (28.2)	1.11 (28.2)					
M8Z						8mm CPI™							
4F	PR6	0.281	7.1	3.19	0.28	1/4" Female NPT	1.19 (30.2)	1.19 (30.2)	0.67 (17.0)	0.56 (14.2)	1.49 (37.8)	0.99 (25.1)	2.40 (61.0)
6A		0.281	7.1	3.19	0.28	3/8" A-LOK®	1.33 (33.8)	1.33 (33.8)					
6Z						3/8" CPI™							
8F		0.281	7.1	3.19	0.28	1/2" Female NPT	1.44 (36.6)	1.44 (36.6)					
8M		0.281	7.1	3.19	0.28	1/2" Male NPT	1.32 (33.5)	1.32 (33.5)					
8A		0.281	7.1	3.19	0.28	1/2" A-LOK®	1.44 (36.6)	1.44 (36.6)					
8Z						1/2" CPI™							
M8A		0.250	6.4	2.84	0.29	8mm A-LOK®	1.30 (33.0)	1.30 (33.0)					
M8Z						8mm CPI™							
M10A		0.281	7.1	3.19	0.28	10mm A-LOK®	1.34 (34.0)	1.34 (34.0)					
M10Z						10mm CPI™							
M12A		0.281	7.1	3.19	0.28	12mm A-LOK®	1.47 (37.3)	1.47 (37.3)					
M12Z						12mm CPI™							

* 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.

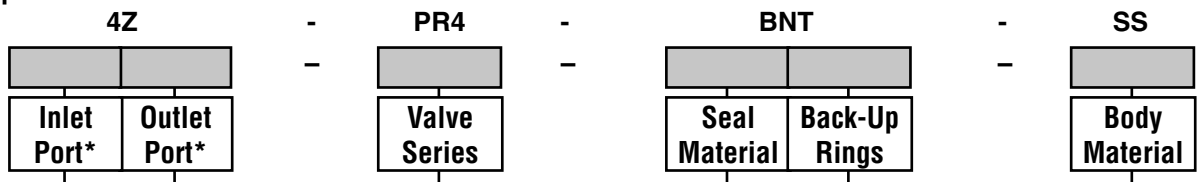
How to Order

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.

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

The following example describes a PR Series rotary plug valve equipped with 1/4" CPI™ compression inlet and outlet ports, Nitrile seals, PTFE back-up rings, and stainless steel construction.

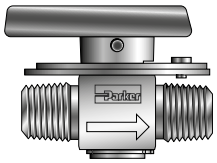
Example:



Inlet and Outlet Ports*				Valve Series	Seal Material		Back-Up Rings		Body Material	
2A	1/8" A-LOK®	**6M**	3/8" Male NPT	**PR4**	**V**	Fluorocarbon Rubber	**T**	PTFE	**SS**	Stainless Steel
2Z	1/8" CPI™	**6A**	3/8" A-LOK®		**KZ**	Highly Fluorinated Fluorocarbon Rubber			**B**	Brass
2F	1/8" Female NPT	**6Z**	3/8" CPI™		**EPR**	Ethylene Propylene Rubber				
2M	1/8" Male NPT	**M3A**	3mm A-LOK		**BN**	Nitrile Rubber				
4A	1/4" A-LOK®	**M3Z**	3mm CPI™							
4Z	1/4" CPI™	**M6A**	6mm A-LOK®							
4F	1/4" Female NPT	**M6Z**	6mm CPI™							
4M	1/4" Male NPT	**M8A**	8mm A-LOK®							
4Q	1/4" UltraSeal	**M8Z**	8mm CPI™							
4V	1/4" VacuSeal									
4F	1/4" Female NPT	**M8A**	8mm A-LOK®	**PR6**	**V**	Fluorocarbon Rubber				
6A	3/8" A-LOK®	**M8Z**	8mm CPI™		**EPR**	Ethylene Propylene Rubber				
6Z	3/8" CPI™	**M10A**	10mm A-LOK®		**BN**	Nitrile Rubber				
8A	1/2" A-LOK®	**M10Z**	10mm CPI™							
8Z	1/2" CPI™	**M12A**	12mm A-LOK®							
8F	1/2" Female NPT	**M12Z**	12mm CPI™							
8M	1/2" Male NPT									

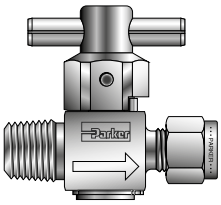
*If the inlet and outlet ports are the same, eliminate the outlet port designator.

Options



Lock-Out Device

Used to lock the handle from accidental rotation in either the opened or closed position. To order the device with the valve, add the suffix –**LD** to the end of the part number.
Example and model shown: 4F-PR4-VT-B-**LD.**
To order the device separately, specify **LD-PR4** or **LD-PR6**.



T-Bar Handle

An all metal bar stock design for higher strength and durability. Consists of a stainless steel pin and aluminum adapter. To order, add the suffix –**T** to the end of the part number.
Example and model shown: 4M4A-PR4-EPRT-SS-**T**.

Downstream Venting – As the valve is positioned from opened to closed, downstream pressure is released to atmosphere through a vent hole in the body and plug. The maximum recommended operating pressure for this option is 150 psig (10 bar). To order, insert **V** after PR in the model number. **Example:** 4A-PR**V**4-VT-B

Colored Handles – Black is the standard color. Add the designator corresponding to the correct handle color as a suffix to the part number: **W** – white, **B** – blue, **G** – green, **R** – red, **Y** – yellow. **Example:** M6A-PR4-BNT-SS-**G**

Stainless Steel Directional Handles – A stainless steel handle with the same design configuration as the standard nylon handle is available for the PR4 series. Add the designator –**ST** as a suffix to the part number.
Example: 4Q-PR4-EPRT-SS-**ST**

MB Series Ball Valves

Introduction

Parker MB Series Ball Valves, with their rugged compact design, offer positive shut off or directional control of fluids in process, power and instrumentation applications. The unique one piece seat/packing design insures excellent sealing characteristics while accommodating a superior temperature range and cycle life.

These valves are available in two-way and three-way configurations, brass and stainless steel construction, with a wide variety of port connections. Also, all ports are suitable as inlets to full operating pressure of the valve.

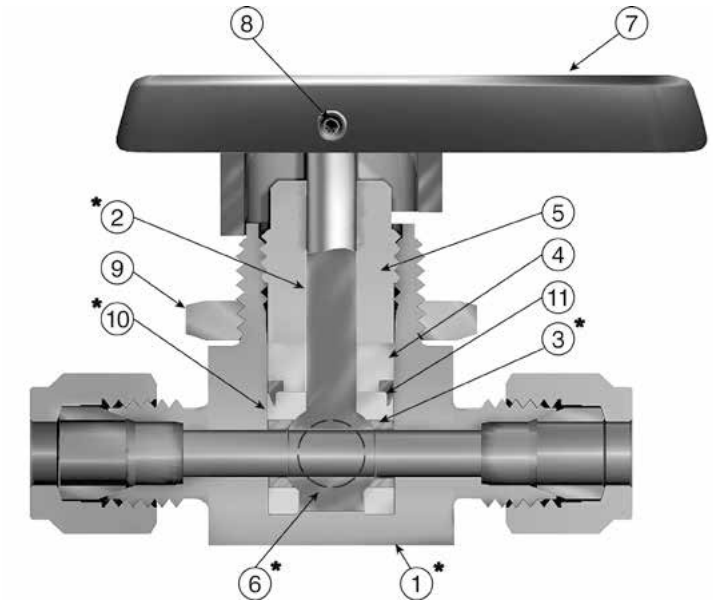
Features

- One piece seat/packing design
- Broad temperature range
- Coated metal inserts
- One piece stem/ball
- Wide variety of US Customary and SI ports
- Panel mountable to 1/4" thickness
- Bi-directional flow
- Handle indicates direction of flow
- Full operating pressure at any port
- Positive handle stops
- Color coded handles
- 100% factory tested
- Vent option
- Manual, electric or pneumatic actuation
- Leak-tight center-off position on three-way valves

Specifications

Pressure Rating	3000 psig* (207 bar) CWP - MB6 2500 psig* (172 bar) CWP - MB2/MB4/MB8
Temperature Rating	-65°F to 300°F (-54°C to 149°C)
Orificer	.052" to .406" (1.3mm to 10.3mm)
C_V	.05 to 6.96
Body Materials	Stainless Steel and Brass
Body Configurations	two-way (in-line and angle) 3-way, 4-way and 5-way
Port Connections	Tube compression (CPI™ / A-LOK®) NPT (Male / Female) BSP, VacuSeal and UltraSeal
Port Size	1/16" to 3/4" and 3mm to 12mm
Seat/Packing	PFA-Perfluoroalkoxy

* Preset from factory to 1000 psig (69 bar) bubble tight service. Packing nut must be tightened to achieve higher pressures. Packing in vented MB Series Ball Valves is factory adjusted for the maximum valve pressure rating of 500 psig (34 bar).

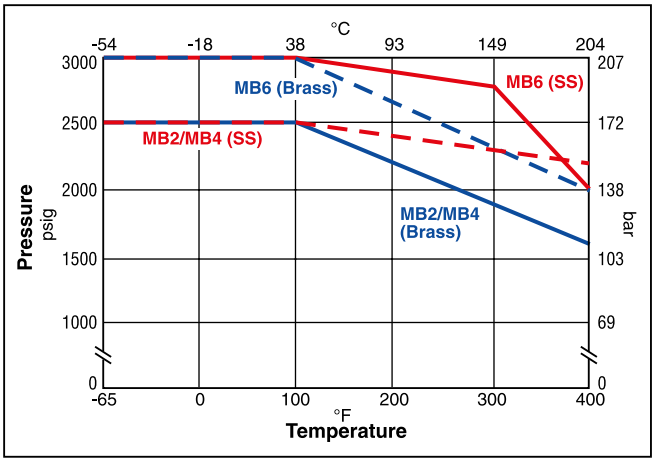


Materials of Construction

Item #	Part Description	Stainless Steel	Brass
1	Body	ASTM A 276 Type 316	ASTM B 16 Alloy C36000
2	Stem	ASTM A 276 Type 316	
3	Hollow Insert	316 Stainless Steel	
4	Packing Washer	ASTM B 16 Alloy C36000	
5	Packing Nut	ASTM A 479 Type 316	ASTM B 16 Alloy C36000
6	Solid Insert	316 Stainless Steel	
7	Handle	Nylon 6/6	
8	Set Screw	Stainless Steel	
9	Panel Nut	316 Stainless Steel**	
*10	Seat/Packing	Perfluoroalkoxy (PFA)	
11	Packing Ring	ASTM A 479 Type 316	

* Wetted Parts **Nickel Plated Brass for MB8
Lubrication: Perfluorinated polyether

Pressure vs. Temperature



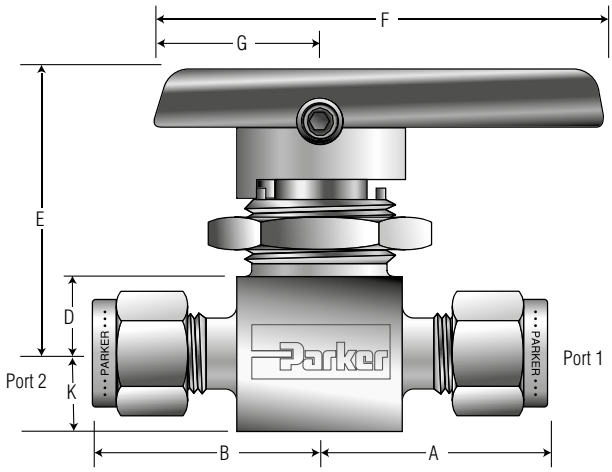
NOTE: To determine MPa, multiply bar by 0.1

Two-Way In-Line MB Series Ball Valves

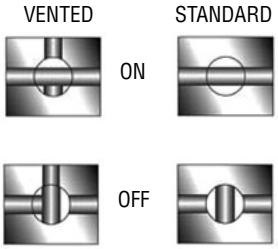
Two-Way In-Line Dimensions, Flow Data

Two-Way In-Line

Vented - In off position the downstream port vents to atmosphere through a hole in the side of the body.



H - Maximum Panel Thickness
I - Panel Hole Diameter
J - Body Width



Model shown: 4A-MB6LPFA-SSP

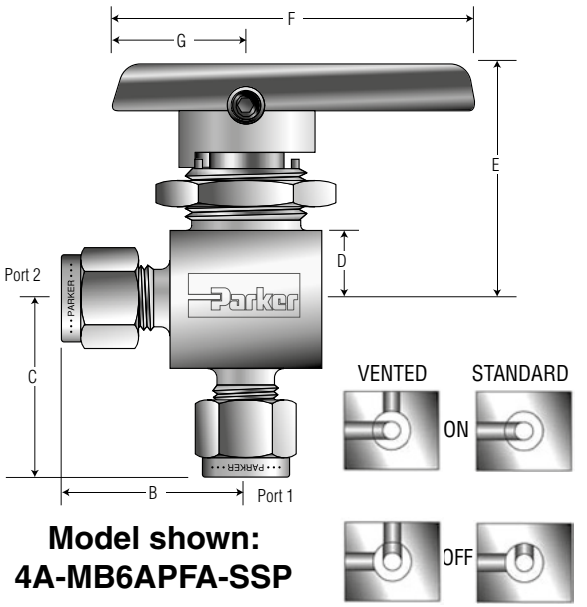
Port Size	Basic Part #	Flow Data: Orifice Inch	Orifice mm	Cv	X_T*	End Connections Port 1	Port 2	Dimensions Inches (mm): A†	B†	D	E	F	G	H	I	J	K
1Z	MB2L	0.052	1.3	0.03	0.46	1/16" CPI™		0.84 (21.3)	0.84 (21.3)	0.34 (8.6)	1.31 (33.3)	1.88 (47.8)	0.75 (19.1)	0.25 (6.4)	0.58 (14.7)	0.58 (14.7)	0.28 (7.1)
1A						1/16" A-LOK®											
2Z		0.093	2.4	0.20	0.42	1/8" CPI™		1.00 (25.4)	1.00 (25.4)								
2A						1/8" A-LOK®											
M3Z		0.086	2.2	0.17	0.43	3mm CPI™		1.00 (25.4)	1.00 (25.4)								
M3A						3mm A-LOK®											
2F	MB4L	0.125	3.2	0.44	0.34	1/8" Female NPT		0.81 (20.6)	0.81 (20.6)	0.34 (8.6)	1.31 (33.3)	1.88 (47.8)	0.75 (19.1)	0.25 (6.4)	0.58 (14.7)	0.58 (14.7)	0.28 (7.1)
4Z						1/4" CPI™		1.12 (28.5)	1.12 (28.5)								
4A						1/4" A-LOK®											
M6Z						6mm CPI™		1.12 (28.5)	1.12 (28.5)								
M6A						6mm A-LOK®											
2Z	MB6L	0.093	2.4	0.18	0.55	1/8" CPI™		1.09 (27.7)	1.09 (27.7)	0.44 (11.2)	1.56 (39.6)	2.37 (60.2)	0.88 (22.4)	0.25 (6.4)	0.77 (19.6)	0.80 (20.3)	0.38 (9.7)
2A						1/8" A-LOK®											
2F		0.187	4.7	1.02	0.53	1/8" Female NPT		1.00 (25.4)	1.00 (25.4)								
4M						1/4" Male NPT		1.00 (25.4)	1.00 (25.4)								
4Z						1/4" CPI™		1.19 (30.2)	1.19 (30.2)								
4A						1/4" A-LOK®											
4F						1/4" Female NPT		1.03 (26.2)	1.03 (26.2)								
4M4Z						1/4" Male NPT	1/4" CPI™	1.00 (25.4)	1.19 (30.2)								
4M4A						1/4" Male NPT	1/4" A-LOK®										
4V						1/4" VacuSeal		1.03 (26.2)	1.03 (26.2)								
6Z						3/8" CPI™		1.31 (33.3)	1.31 (33.3)								
6A						3/8" A-LOK®											
M6Z						6mm CPI™		1.19 (30.2)	1.19 (30.2)								
M6A						6mm A-LOK®											
M8Z						8mm CPI™		1.22 (31.0)	1.22 (31.0)								
M8A						8mm A-LOK®											
8A	MB8L	0.406	10.3	10.7	0.16	1/2" A-LOK®		1.94 (49.3)	1.94 (49.3)	0.69 (17.5)	2.39 (60.7)	4.50 (114.3)	1.50 (38.1)	0.38 (9.7)	1.50 (38.1)	1.50 (38.1)	0.69 (17.5)
8Z						1/2" A-CPI™											
8F		0.406	10.3	6.1	0.20	1/2" FNPT		1.56 (39.6)	1.56 (39.6)								
12A		0.406	10.3	6.4	0.19	3/4" A-LOK®		1.94 (49.3)	1.94 (49.3)								
12Z						3/4" CPI™											
M12A		0.375	9.5	10.7	0.16	12mm A-LOK®		1.96 (49.8)	1.96 (49.8)								
M12Z						12mm CPI™											

* 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.

Two-Way Angle/Three-Way MB Series Ball Valves

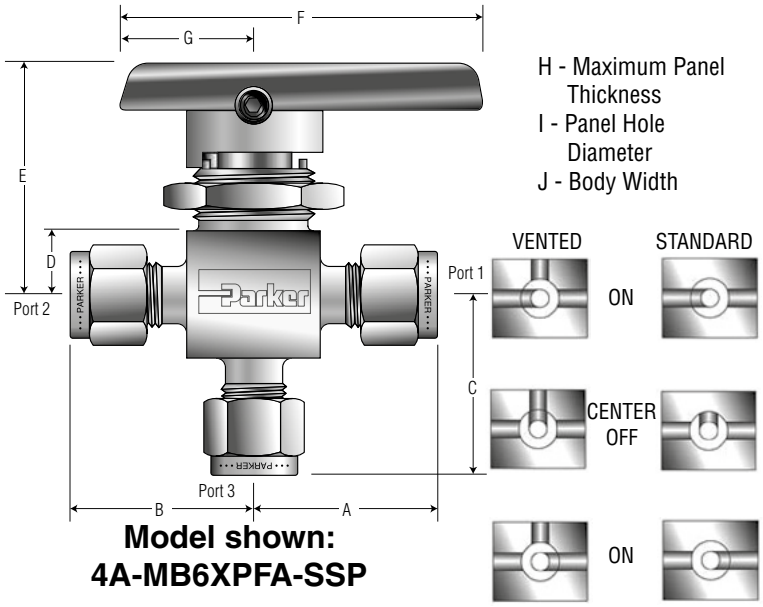
Two-Way Angle and Three-Way Dimensions, Flow Data

Two-Way Angle



Model shown:
4A-MB6APFA-SSP

Three-Way



Model shown:
4A-MB6XPFA-SSP

Port Size	Basic Part #	Flow Data: Orifice Inch	Orifice mm	Cv	X_T*	End Connections: Port 1	Port 2	Port 3 ‡	Dimensions Inches (mm): A†	B†	C	C	E	F	G	H	I	J
1Z	MB2A MB2X	0.052	1.3	0.02	0.58	1/16" CPI™			0.84 (21.3)	0.84 (21.3)	0.81 (20.6)	0.34 (8.6)	1.31 (33.3)	1.88 (47.8)	0.75 (19.1)	0.25 (6.4)	0.58 (14.7)	0.58 (14.7)
1A						1/16" A-LOK®												
2Z		0.093	2.4	0.18	0.48	1/8" CPI™			1.00 (25.4)	1.00 (25.4)	0.97 (24.6)							
2A						1/8" A-LOK®												
M3Z		0.086	2.2	0.15	0.47	3mm CPI™			1.00 (25.4)	1.00 (25.4)	0.97 (24.6)							
M3A						3mm A-LOK®												
2F	MB4A MB4X	0.125	3.2	0.34	0.45	1/8" Female NPT			0.81 (20.6)	0.81 (20.6)	0.81 (20.6)	0.34	1.31	1.88	0.75	0.25	0.58	0.58
4Z						1/4" CPI™			1.12 (28.4)	1.12 (28.4)	1.12 (28.4)							
4A						1/4" A-LOK®												
M6Z						6mm CPI™			1.12 (28.4)	1.12 (28.4)	1.12 (28.4)							
M6A						6mm A-LOK®												
4Z	MB6A MB6X	0.187	4.7	0.70	0.58	1/4" CPI™			1.19 (30.2)	1.19 (30.2)	1.15 (29.2)	(8.6)	(33.3)	(47.8)	(19.1)	(6.4)	(14.7)	(14.7)
4A						1/4" A-LOK®												
4F						1/4" Female NPT			1.03 (26.2)	1.03 (26.2)	1.03 (26.2)							
4V						1/4" VacuSeal			1.03 (26.2)	1.03 (26.2)	1.03 (26.2)							
4Z4Z4M						1/4" CPI™	1/4" CPI™	1/4" Male NPT	1.19 (30.2)	1.19 (30.2)	1.03 (26.2)	0.44 (11.2)	1.56 (39.6)	2.37 (60.2)	0.88 (22.4)	0.25 (6.4)	0.77 (19.6)	0.80 (20.3)
4A4A4M						1/4" A-LOK®	1/4" A-LOK®	1/4" Male NPT										
6Z						3/8" CPI™			1.31 (33.3)	1.31 (33.3)	1.23 (31.2)							
6A						3/8" A-LOK®												
M6Z						6mm CPI™			1.19 (30.2)	1.19 (30.2)	1.15 (29.2)							
M6A						6mm A-LOK®												
M8Z						8mm CPI™			1.22 (31.0)	1.22 (31.0)	1.18 (30.0)							
M8A						8mm A-LOK®												
8A	MB8A MB8X	0.406	10.3	5.4	0.36	1/2" A-LOK®			1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	0.69 (17.5)	2.39 (60.7)	4.50 (114.3)	1.50 (38.1)	0.38 (9.7)	1.50 (38.1)	1.50 (38.1)
8Z						1/2" A-CPI™												
8F		0.406	10.3	5.0	0.33	1/2 " Female NPT			1.56 (39.6)	1.56 (39.6)	1.56 (39.6)							
12A		0.406	10.3	4.9	0.39	3/4" A-LOK®			1.75 (44.5)	1.75 (44.5)	1.75 (44.5)							
12Z						3/4" CPI™												
M12A		0.375	9.5	5.6	0.37	12mm A-LOK®			1.75 (44.5)	1.75 (44.5)	1.75 (44.5)							
M12Z						12mm CPI™												

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_1 - P_2 / P_1 = x_T$.
‡ Not applicable for the two-way Angle pattern.
† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.

How to Order Two-Way In-Line, Two-Way Angle and Three-Way Patterns

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 following example describes a MB Series, two-way, in-line pattern ball valve with 1/8" CPI™ compression end connections for ports 1 and 2 Inline

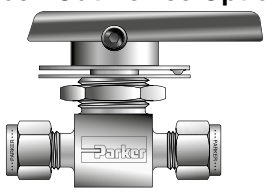
Example:

2Z	-	MB2LPFA	-	SSP
Port 1* / Port 2* / Port 3*	–	Valve Series / Seat Material	–	Body Material

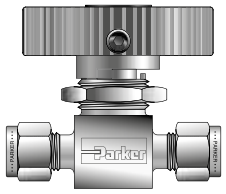
Ports 1, 2 and 3*				Valve Series	Seat Material	Body Material	
1Z	1/16" CPI™	**M3Z**	3mm CPI™	**MB2L**	**PFA** Perfluoro alkoxy	**SSP**	Stainless Steel (Stainless Steel with Stainless Steel Panel Nut)
1A	1/16" A-LOK®	**M3A**	3mm A-LOK®	**MB2A**		**BP**	Brass (Brass with Stainless Steel Panel Nut) (Only available in MB 2, 4, 6)
2Z	1/8" CPI™			**MB2X**			
2A	1/8" A-LOK®						
2F	1/8" Female NPT	**M6Z**	6mm CPI™	**MB4L**			
4Z	1/4" CPI™	**M6A**	6mm A-LOK®	**MB4A**			
4A	1/4" A-LOK®			**MB4X**			
2Z	1/8" CPI™	**6Z**	3/8" CPI™	**MB6L**			
2A	1/8" A-LOK®	**6A**	3/8" A-LOK®	**MB6A**			
2F	1/8" Female NPT	**M6Z**	6mm CPI™	**MB6X**			
4Z	1/4" CPI™	**M6A**	6mm A-LOK®				
4A	1/4" A-LOK®	**M8Z**	8mm CPI™				
4F	1/4" Female NPT	**M8A**	8mm A-LOK®				
4M	1/4" Male NPT						
4V	1/4" VacuSeal						
8Z	1/2" CPI™	**12Z**	3/4" CPI™	**MB8A**			
8A	1/2" A-LOK®	**12A**	3/4" A-LOK®	**MB8L**			
8F	1/2" Female NPT	**M12Z**	12mm CPI™	**MB8X**			
		M12A	12mm A-LOK®				

* Valves with identical port connections for port 1 and port 2 require only one designator.

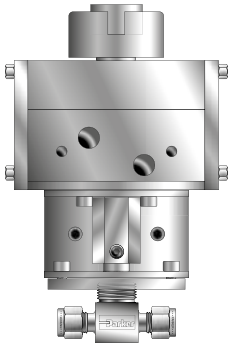
Lock-Out Device Option



Oval Handle Option



Pneumatic Actuator Option



How to Order Options (Two-Way, Angle, and Three-Way)

Lock-Out Devices – Add the suffix **-LD** to the end of the part number to order directly on the valve. **Example**: 2F-MB4LPFA-SSP-**LD**. For field installation, simply substitute the correct valve series number in the following nomenclature: **LD-**valve series. **Example**: **LD-**MB6L

Colored Handles – Add the designator corresponding to the correct handle as a suffix to the part number: **W** - white, **B** - blue, **G** - green, **R** - red, **Y** - yellow. **Example**: 4Z-MB6LPFA-SSP-**G**
NOTE: Not offered in MB8 series.

Stainless Steel Handles – Add the suffix **-ST** to the part number. **Example**: 4F-MB6LPFA-SSP-**ST** (MB6 series only)

Oval Handles – Add the suffix **-S** to the part number. **Example**: 6Z-MB6APFA-SSP-**S**. If requesting a colored oval handle, add the suffix **-S**-color designator. **Example**: 6Z-MB6APFA-SSP-**S-W**
NOTE: MB6 series only.

Vented Valves – Add the designator **V** after the **MB** in the part number for the vent option.
Example: 2Z-MB**V**2XPFA-SSP.

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-MB4LPFA-SSP-**C3**

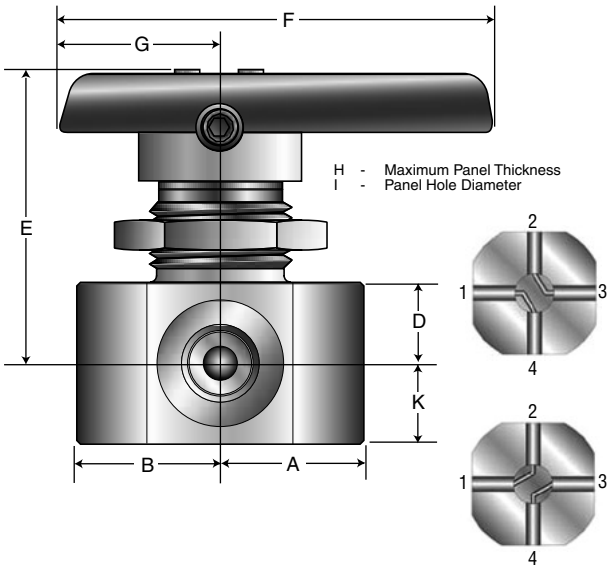
Pneumatic Actuators – For detailed actuator information, refer to the Pneumatic Actuators section of this catalog. For factory assembly, add the actuator part number as the suffix to the valve part number. **Example**: 4A-MB4LPFA-SSP-**61AC-2**. For field installation, specify the actuator desired. **Example**: **61AC-2**. The appropriate mounting hardware may be obtained by adding the valve series and actuator size to the prefix **MK-**. **Example**: **MK-**MB4L-61

Electric Actuators – For detailed actuator information, refer to the Electric Actuators section of this catalog. For factory assembly, add the actuator part number as the suffix to the valve part number. **Example**: M6A-MB6XPFA-SSP-**71C**. For field installation, specify the actuator desired. **Example**: **71C**. The appropriate mounting hardware may be obtained by adding the valve series and actuator series to the prefix **MK-**. **Example**: **MK-**MB6X-70

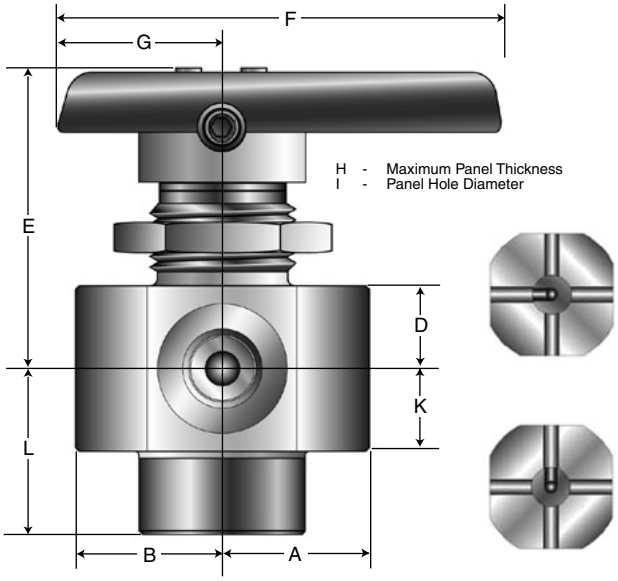
Four-Way and Five-Way MB Series Ball Valves

Dimensions, Flow Data

Four-Way



Five-Way



Port Size	Basic Part #	Flow Data: Orifice Inch	Orifice mm	Cv	X_T*	End Connections Port 1 Port 2	Dimensions Inches (mm) A†	B†	D	E	F	G	H	I	K	L
2A7	MB6X4	0.063	1.6	0.17	0.16	1/8" Female A-LOK®	0.97 (24.6)	0.97 (24.6)	0.44 (11.2)	1.57 (39.9)	2.37 (60.2)	0.88 (22.4)	0.25 (6.4)	0.77 (19.6)	0.44 (11.2)	
2Z7						1/8" Female CPI™										
2F						1/8" Female NPT	0.78 (19.8)	0.78 (19.8)								
2A7	MB6X5	0.063	1.6	0.17	0.16	1/8" Inverted A-LOK®	0.97 (24.6)	0.97 (24.6)	0.44 (11.2)	1.57 (39.9)	2.37 (60.2)	0.88 (22.4)	0.25 (6.4)	0.77 (19.6)	0.44 (11.2)	0.97 (24.6)
2Z7						1/8" Inverted CPI™										
2F						1/8" Female NPT	0.78 (19.8)	0.78 (19.8)								0.88 (22.4)

* 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.

How to Order Four-Way and Five-Way Patterns

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

The following example describes a MB-Series four-way pattern ball valve with 1/8" female CPI™ compression end connections for all ports, PFA seat and packing, stainless steel body construction, and a panel mounting nut.

Example:

2Z7 - **MB6X4PFA** - **SSP**

End Connection	Valve Series	Seat Material	Body Material
2F 1/8" Female NPT **2Z7** 1/8" CPI™ **2A7** 1/8" A-LOK®	**MB6X4** **MB6X5**	**PFA** Perfluoroalkoxy	**SSP** Stainless Steel (Stainless Steel with Stainless Steel Panel Nut)

How to Order Options

Colored Handles – Add the designator corresponding to the correct handle as a suffix to the part number: **W** - white, **B** - blue, **G** - green, **R** - red, **Y** - yellow. **Example**: 2F-MB6X4PFA-SSP-**R**

Stainless Steel Handles – Add the suffix **-ST** to the part number. **Example**: 2A7-MB6XPFA-SSP-**ST**