



FB Series Bellows Valve

Catalog 4145

June 2013

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



ENGINEERING YOUR SUCCESS.



Huntsville, Alabama, USA



Jacksonville, Alabama, USA

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Introduction

Parker FB Series Bellows Valves are designed to provide high integrity atmospheric sealing for severe service instrumentation applications. It includes a secondary packing that acts as a backup to the primary bellows seal.

Features

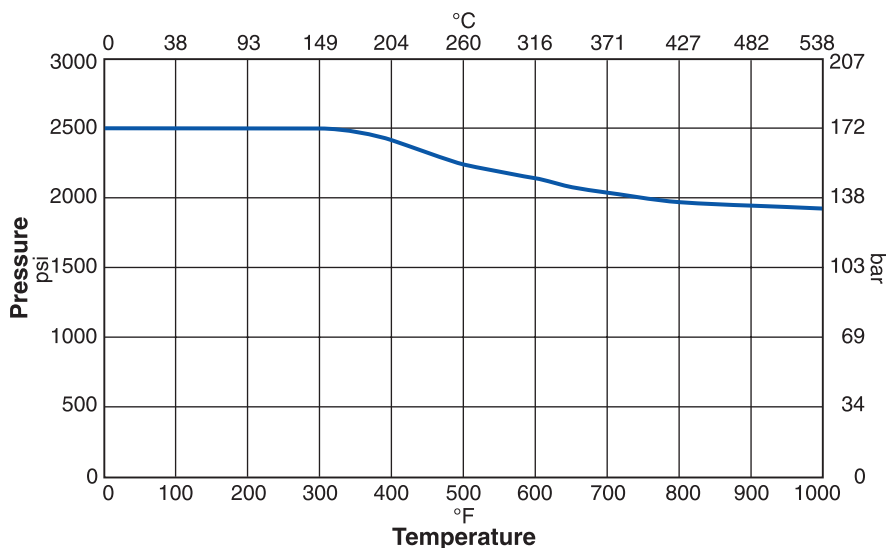
- Externally pressurized bellows stem seal
- Choice of Grafoil® or PTFE packing
- Packing acts as a secondary/backup seal above the primary bellows seal.
- Non-rotating stem tip
- Stem swivel and power threads above the primary seal
- Choice of blunt or regulating stem configurations
- 316SS construction
- 316L stainless steel bellows and welded components
- Wide variety of US Customary and SI ports
- Panel mountable
- 100% factory tested

Grafoil® is a registered trademark of GrafTech International Holdings, Inc.

Specifications

Pressure Rating	2500 psig (414 bar) CWP
Temperature Rating	
PTFE packing –	-65°F to 450°F (-54°C to 232°C)
Grafoil® packing –	-65°F to 1000°F (-54°C to 649°C)
Orifice	0.172" to 0.312" (4.4mm to 7.9mm)
Cv	0.40 to 1.03
Pressure Rating and Tubing Selection	
For working pressures of A-LOK® and CPI™ tube connections, please see the Instrumentation Tubing Selection Guide (Bulletin 4200-TS), found in the Technical Section of the Parker Instrumentation Products Master Binder, or the Parker Instrument Tube Fitting Installation Manual (Bulletin 4200-B4).	
For working pressures of valves with external or internal pipe threads, please see Catalog 4260, Instrumentation Pipe Fittings.	

Pressure vs. Temperature Curve



Materials of Construction

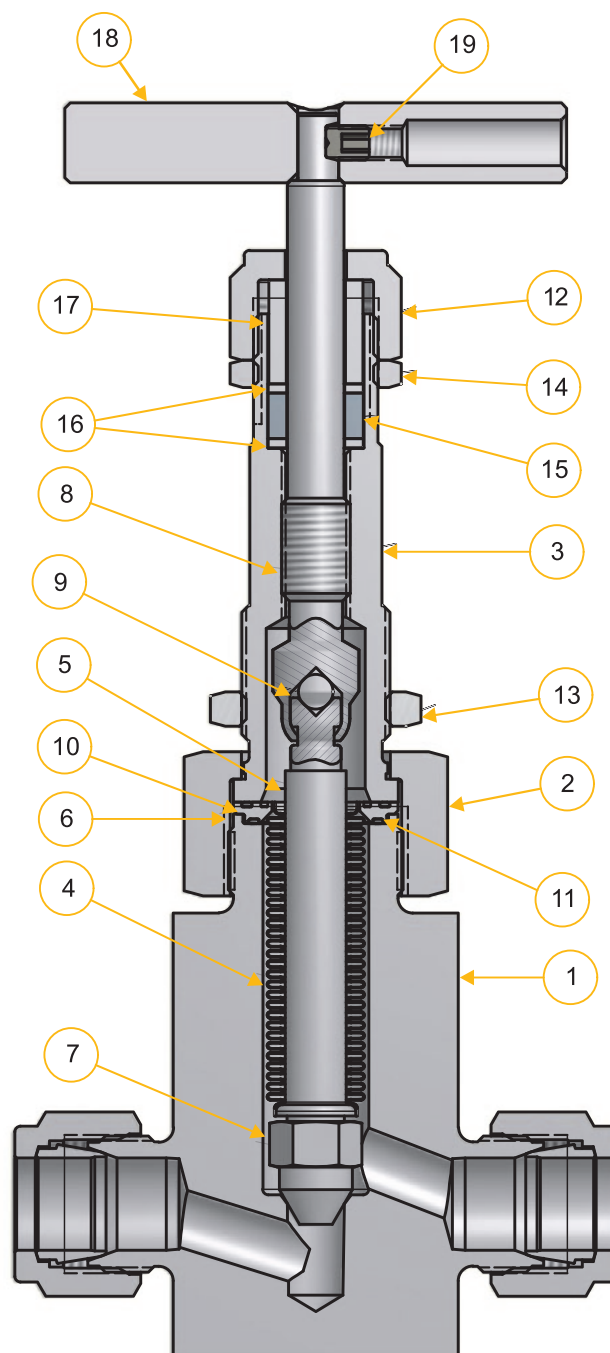
Item	Description	Material
1	Valve Body *	ASTM A 479, type 316
2	Bonnet Nut	ASTM A 479, type 316
3	Bonnet	ASTM A 479, type 316
4	Bellows *	ASME SA 240, type 316L
5	Lower Stem *	ASTM A 479, type 316L
6	Weld Ring *	ASTM A 479, type 316L
7	Stem Tip *	ASTM A 479, type 316
8	Upper Stem	ASTM A 564, type 630
9	Ball	440-C Stainless Steel
10	Metal O-ring – upper	Alloy X-718 (Inconel®)
11	Metal O-ring – lower*	Alloy X-718 (Inconel®)
12	Packing Nut	ASTM A 479, type 316
13	Panel Nut	Stainless Steel
14	Lock Nut	316 Stainless Steel
15	Packing **	Grafoil®
16	Packing Washer	316 Stainless Steel
17	Spacer	ASTM A 479, type 316
18	Handle ***	316 Stainless Steel
19	Set Screw	316 Stainless Steel

* Wetted parts

** Optional PTFE packing is available

*** Handle material is aluminum in PTFE packed valves

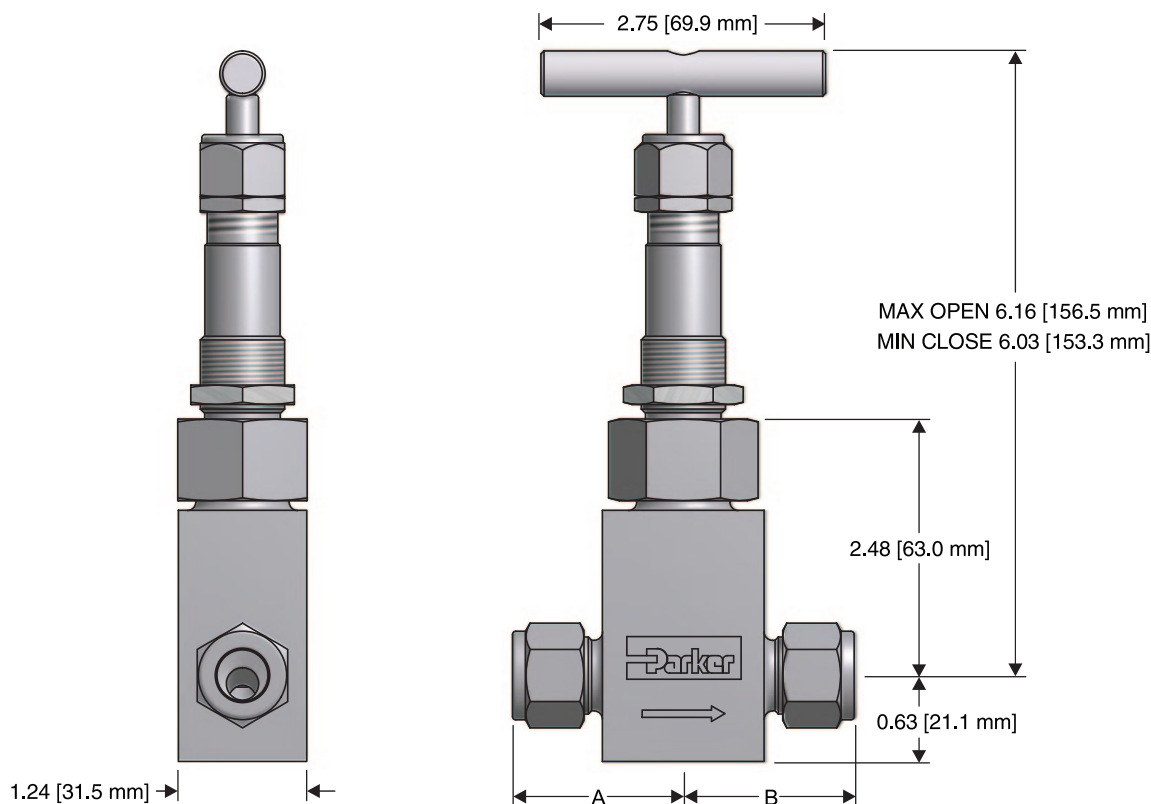
Lubrication: Molybdenum disulfide with soft metallic fillers



Grafoil® is a registered trademark of GrafTech International Holdings, Inc.

Inconel® is a registered trademark of Special Metals Corp.

FB Series Bellows Valve



Basic Part Number	End Connections		Stem Type	Flow Data		C _v	Dimensions			
	Inlet (port 1)	outlet (port 2)		Orifice			A **		B **	
				inch	mm		inch	mm	inch	mm
4A-FB8LR	1/4" compression A-LOK®		regulating	0.172	4.4	0.40	1.50	38.1	1.50	38.1
4A-FB8LB			blunt							
4Z-FB8LR	1/4" compression CPI™		regulating	0.172	4.4	0.40	1.50	38.1	1.50	38.1
4Z-FB8LB			blunt							
4F-FB8LR	1/4" Female NPT		regulating	0.250	6.4	0.48	1.13	28.7	1.13	28.7
4F-FB8LB			blunt							
6A-FB8LR	3/8" compression A-LOK®		regulating	0.250	6.4	0.48	1.60	40.6	1.60	40.6
6A-FB8LB			blunt							
6Z-FB8LR	3/8" compression CPI™		regulating	0.250	6.4	0.48	1.60	40.6	1.60	40.6
6Z-FB8LB			blunt							
6F-FB8LR	3/8" Female NPT		regulating	0.312	7.9	0.71	1.50	38.1	1.50	38.1
6F-FB8LB			blunt							
8A-FB8LR	1/2" compression A-LOK®		regulating	0.312	7.9	0.71	1.65	41.9	1.65	41.9
8A-FB8LB			blunt							
8Z-FB8LR	1/2" compression CPI™		regulating	0.312	7.9	0.71	1.65	41.9	1.65	41.9
8Z-FB8LB			blunt							
8F-FB8LR	1/2" Female NPT		regulating	0.312	7.9	0.71	1.50	38.1	1.50	38.1
8F-FB8LB			blunt							
8W-FB8LR	1/2" Tube socket weld		regulating	0.312	7.9	0.71	1.14	29.0	1.14	29.0
8W-FB8LB			blunt							



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.

Inlet Port*	Outlet Port*	Valve Series	Orientation	Stem Type	Packing	Body Material*
8Z		FB8	L	R	G	SS

Describes an inline pattern FB Series Bellows Valve equipped with 1/2" CPI™ compression inlet and outlet ports, a regulating stem type, Grafoil® packing, stainless steel construction.

Inlet Port*	Outlet Port*	Valve Series	Orientation	Stem Type	Packing	Body Material
4A 4Z 4F	6A 6Z 6F	8A 8Z 8F 8W	FB8 L Inline Pattern	R Regulating B Blunt	T PTFE G Grafoil®	SS Stainless Steel

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

How to Order Additional Options

Oxygen Cleaning – Add the suffix **-C3** to the end of the part number for receive valves cleaned and assembled for oxygen service in accordance with ASTM G 93 Level C.

How to Order Maintenance Kits

Stem Seal Kits: Consists of one bellows stem tip and maintenance instructions. Specify blunt or regulating stem tip.

Example: KIT-FB8-TIP-R (regulating stem tip)
KIT-FB8-TIP-B (blunt stem tip)

Bellows Kits: Consists of a welded bellows stem sub assembly, stem tip and maintenance instructions.

Example: KIT-FB8-WSA-R (regulating stem tip)
KIT-FB8-WSA-B (blunt stem tip)

Gasket Kits: Consists of one upper and lower metal o-ring and maintenance instructions.

Example: KIT-FB8-GASKET

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10. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. 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 Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding 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.

11. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement shall be deemed a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest. Seller shall have a security interest in, and lien upon, any property of Buyer in Seller's possession as security for the payment of any amounts owed to Seller by Buyer.

12. Improper use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, improper application or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

13. Cancellations and Changes. Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer.

14. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

15. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of the agreement. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.

16. Waiver and Severability. Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

17. Termination. This agreement may be terminated by Seller for any reason and at any time by giving Buyer thirty (30) days written notice of termination. In addition, Seller may by written notice immediately terminate this agreement for the following: (a) Buyer commits a breach of any provision of this agreement (b) the appointment of a trustee, receiver or custodian for all or any part of Buyer's property (c) the filing of a petition for relief in bankruptcy of the other Party on its own behalf, or by a third party (d) an assignment for the benefit of creditors, or (e) the dissolution or liquidation of the Buyer.

18. Governing Law. This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement. Disputes between the parties shall not be settled by arbitration unless, after a dispute has arisen, both parties expressly agree in writing to arbitrate the dispute.

19. 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 Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("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 a Product sold pursuant to this Agreement 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 a Product 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 the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product 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 Products 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 Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

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21. Equal Opportunity Clause. For the performance of government contracts and where dollar value of the Products exceed \$10,000, the equal employment opportunity clauses in Executive Order 11246, VEVRAA, and 41 C.F.R. §§ 60-1.4(a), 60-741.5(a), and 60-250.4, are hereby incorporated.

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