



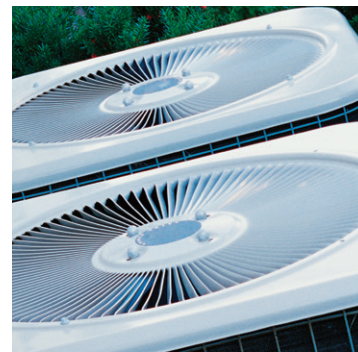
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Filter-Driers

VS and BFVS Series

Catalog A-1b, January 2020



ENGINEERING YOUR SUCCESS.

⚠ WARNING – USER RESPONSIBILITY

Failure or improper selection or improper use of the products 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 or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

For safety information see the Safety Guide at www.parker.com/safety or call 1-800-CParker.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" elsewhere in this document or available at www.parker.com.

Catalog A-1b, January 2020 supersedes Catalog A-1b, June 2018 and all prior publications.

VS Series Filter-Driers

Parker's VS Series filter-driers are ideal for protecting air-conditioning systems, compressors, and valves from the harmful effects of moisture, acid, and solid debris.

The compact design reduces refrigerant charge requirements. Multiple size products are available to optimize contaminant control. This product is ideal for air-conditioning OEM applications and private label opportunities.

Features and Benefits

- High capacity solid core design for excellent moisture and acid protection in air conditioning systems
- High filtration capacity for solid debris protection
- Unique, compact shape minimizes pressure drop and reduces refrigerant requirements
- Solid copper fittings for easy brazing
- High performance epoxy powder paint for excellent corrosion protection
- Available in 3 ODF fitting lengths for installation flexibility and improved corrosion resistance
- **Stainless steel body now available for ultimate corrosion protection**

Specifications

- 650 psi (45 bar) Maximum Rated Pressure
- 100% molecular sieve to maximize water adsorption
- 10 micron outlet filter (at 50% efficiency)
- 500 hour salt spray per ASTM B117
- UL Recognized component File SA1756 – SMGT2/SMGT8, cURus
- United States patent numbers D785,675; 9,951,980
- RoHS and REACH Compliant
- No CE marking according to Art. 4.3 PED 2014/68/EU



Specifications - VS Series

Refrigerant Holding Capacities

SERIES SIZE	OUNCES OF REFRIGERANT BY WEIGHT at 100°F			GRAMS (g) OF REFRIGERANT BY WEIGHT at 38°C		
	R-22	R-407C	R-410A	R-22	R-407C	R-410A
VS-040	1.3	1.1	1.1	35	33	31
VS-080	2.6	2.3	2.2	72	67	63
VS-160	5.2	4.6	4.4	144	134	126

Dimensions - Inches (mm)

MODEL		CONNECTION SIZE Inches	OVERALL LENGTH Inches (mm)		SOLDER SOCKET DEPTH Inches (mm)	LAY-IN LENGTH Inches (mm)	BODY DIAMETER Inches (mm)
SAE FLARE	ODF SOLDER		SAE FLARE	ODF SOLDER			
—	VS-042S	1/4	—	2.75 (69.9)	0.35 (8.9)	2.05 (52.1)	2.23 (56.6)
—	VS-043S	3/8	—	4.24 (107.7)	0.44 (11.2)	3.36 (85.3)	
VS-083	—	3/8	4.26 (108.2)	—	—	4.26 (108.2)	2.77 (70.4)
—	VS-083S	3/8	—	4.71 (119.6)	0.44 (11.2)	3.83 (97.3)	
VS-084	—	1/2	4.64 (117.9)	—	—	4.64 (117.90)	
—	VS-084S	1/2	—	4.87 (123.7)	0.50 (12.7)	3.87 (98.3)	
VS-163	—	3/8	4.85 (123.2)	—	—	4.85 (123.2)	3.46 (87.9)
—	VS-163S	3/8	—	5.29 (134.4)	0.44 (11.2)	4.41 (112.0)	
VS-164	—	1/2	5.23 (132.8)	—	—	5.23 (132.8)	
—	VS-164S	1/2	—	5.45 (138.4)	0.50 (12.7)	4.45 (113.0)	
VS-165	—	5/8	5.63 (143.0)	—	—	5.63 (143.0)	
—	VS-165S	5/8	—	4.49 (114.0)	0.66 (16.8)	3.17 (80.4)	

Selection Recommendations

MODEL	RATINGS AT AHRI STANDARD CONDITIONS													SELECTION RECOMMENDATIONS Tons (kW)
	DROPS OF WATER CAPACITY*								FLOW CAPACITY Tons at 1 psi ΔP (kW at 0.07 bar ΔP)				FILTRATION CAPACITY** Grams at 5 psi (0.34 bar) ΔP	
	R-22		R-134a		R-407C		R-410A		R-22	R-134a	R-407C	R-410A		
	75°F 25°C	125°F 52°C	75°F 25°C	125°F 52°C	75°F 25°C	125°F 52°C	75°F 25°C	125°F 52°C						
VS-042S	108	80	113	99	88	39	60	50	1.5 (5.3)	1.4 (4.9)	1.3 (4.7)	1.4 (4.9)	3	up to 5 (17.5)
VS-043S									4.8 (16.8)	4.4 (15.4)	4.4 (15.4)	4.6 (16.1)		
VS-083									4.2 (14.7)	3.8 (13.3)	3.8 (13.3)	4.0 (14.0)	6	3 thru 7.5 (10.5 thru 26)
VS-083S	204	151	212	186	166	73	120	100	5.0 (17.6)	4.6 (16.1)	4.5 (16.0)	4.8 (16.8)		
VS-084									6.4 (22.5)	5.9 (20.7)	5.9 (20.7)	6.2 (21.8)		
VS-084S									8.5 (29.8)	7.8 (27.4)	7.8 (27.4)	8.2 (28.8)		
VS-163									4.4 (15.4)	4.0 (14.0)	4.0 (14.0)	4.2 (14.7)	10	5 thru 12 (17.5 thru 42)
VS-163S									5.1 (17.9)	4.7 (16.5)	4.6 (16.3)	4.9 (17.2)		
VS-164									7.8 (27.4)	7.1 (24.9)	7.1 (24.9)	7.5 (26.3)		
VS-164S	440	325	458	401	358	158	240	200	10.4 (36.5)	9.5 (33.3)	9.5 (33.3)	10.0 (35.1)		
VS-165									10.4 (36.5)	9.5 (33.3)	9.5 (33.3)	10.0 (35.1)		
VS-165S									10.9 (38.2)	10.0 (35.1)	9.9 (34.9)	10.5 (36.9)		

* At 50 ppm EPD per AHRI Standard 710 except R-22 at 60 ppm EPD

** Per ASHRAE Standard 63.2 and AHRI 715230

20 drops = 1 gram

BFVS Series Filter-Driers

Parker's BFVS Series filter-driers are ideal for protecting air-conditioning systems, heat-pumps, compressors, and valves from the harmful effects of moisture, acid, and solid debris.

The compact design reduces refrigerant charge requirements. Multiple size products are available to optimize contaminant control. This product is ideal for OEM reverse flow applications and private label opportunities.

Features and Benefits

- High capacity solid core design for excellent moisture and acid protection in air-conditioning and heat pump systems
- High filtration capacity for solid debris protection
- Unique, compact shape minimizes pressure drop and reduces refrigerant requirements
- Solid copper fittings for easy brazing
- High performance epoxy powder paint for excellent corrosion protection
- Available in 3 ODF fitting lengths for installation flexibility and improved corrosion resistance
- **Stainless steel body now available for ultimate corrosion protection**

Specifications

- 650 psi (45 bar) Maximum Rated Pressure
- 100% molecular sieve to maximize water adsorption
- Conforming filter-seal
- 500 hour salt spray per ASTM B117
- UL Recognized component File SA1756 – SMGT2/SMGT8, cURus
- United States Patent Number D785,675; additional patents pending
- RoHS and REACH Compliant
- No CE marking according to Art. 4.3 PED 2014/68/EU



Specifications - BFVS Series

Refrigerant Holding Capacities

SERIES SIZE	OUNCES OF REFRIGERANT BY WEIGHT at 100°F			GRAMS (g) OF REFRIGERANT BY WEIGHT at 38°C		
	R-22	R-407C	R-410A	R-22	R-407C	R-410A
BFVS-040	1.4	1.3	1.2	39	37	34
BFVS-080	2.8	2.6	2.4	78	74	68
BFVS-160	5.2	4.9	4.5	147	139	128

Dimensions - Inches (mm)

MODEL ODF Solder	CONNECTION SIZE Inches	OVERALL LENGTH	SOLDER SOCKET DEPTH	LAY-IN LENGTH	BODY DIAMETER
BFVS-042S	1/4	2.75 (69.9)	0.35 (8.9)	2.05 (52.1)	2.23 (56.6)
BFVS-043S	3/8	4.24 (107.7)	0.44 (11.2)	3.36 (85.3)	
BFVS-083S	3/8	4.71 (119.6)	0.44 (11.2)	3.83 (97.3)	2.77 (70.4)
BFVS-084S	1/2	4.87 (123.7)	0.50 (12.7)	3.87 (98.3)	
BFVS-163S	3/8	5.29 (134.4)	0.44 (11.2)	4.41 (112.0)	3.46 (87.9)
BFVS-164S	1/2	5.45 (138.4)	0.50 (12.7)	4.45 (113.0)	
BFVS-165S	5/8	4.49 (114.0)	0.66 (16.8)	3.17 (80.4)	

Selection Recommendations

MODEL	RATINGS AT AHRI STANDARD CONDITIONS												SELECTION RECOMMENDATIONS Tons (kW) OEM	
	DROPS OF WATER CAPACITY*								FLOW CAPACITY Tons at 1 psi ΔP (kW at 0.07 bar ΔP)					FILTRATION CAPACITY** Grams at 5 psi (0.34 bar) ΔP
	R-22		R-134a		R-407C		R-410A		R-22	R-134a	R-407C	R-410A		
	75°F 25°C	125°F 52°C	75°F 25°C	125°F 52°C	75°F 25°C	125°F 52°C	75°F 25°C	125°F 52°C						
BFVS-043S	108	80	113	99	88	39	60	50	4.8 (16.8)	4.4 (15.4)	4.4 (15.4)	4.6 (16.1)	1.7	up to 5 (17.5)
BFVS-083S	204	151	212	186	166	73	120	100	5.0 (17.6)	4.6 (16.1)	4.5 (16.0)	4.8 (16.8)	5.5	3 thru 7.5 (10.5 thru 26)
BFVS-084S									8.1 (28.3)	7.4 (26.1)	7.4 (26.1)	7.8 (27.4)		
BFVS-163S	440	325	458	401	358	158	240	200	5.1 (17.9)	4.7 (16.5)	4.6 (16.3)	4.9 (17.2)	7.5	5 thru 12 (17.5 thru 42)
BFVS-164S									10.4 (36.5)	9.5 (33.3)	9.5 (33.3)	10.0 (35.1)		
BFVS-165S									10.9 (38.2)	10.0 (35.1)	9.9 (34.9)	10.5 (36.9)		

* At 50 ppm EPD per AHRI Standard 710 except R-22 at 60 ppm EPD

** Per ASHRAE Standard 63.2 and AHRI 715230

20 drops = 1 gram

OFFER OF SALE

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. 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 item described in its document, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer. All goods or work described will be referred to as "Products".

1. **Terms and Conditions.** Seller's willingness to offer Products, or accept an order for Products, to or from Buyer is expressly conditioned on Buyer's assent to these Terms and Conditions and to the terms and conditions found on-line at www.parker.com/saleterms/. Seller objects to any contrary or additional term or condition of Buyer's order or any other document issued by Buyer.

2. **Price Adjustments; Payments.** Prices stated on the reverse side or preceding pages of this document are valid for 30 days. After 30 days, Seller may change prices to reflect any increase in its costs resulting from state, federal or local legislation, price increases from its suppliers, or any change in the rate, charge, or classification of any carrier. The prices stated on the reverse or preceding pages of this document do not include any sales, use, or other taxes unless so stated specifically. Unless otherwise specified by Seller, all prices are F.O.B. Seller's facility, and payment is due 30 days from the date of invoice. After 30 days, Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.

3. **Delivery Dates; Title and Risk; Shipment.** All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon tender to the carrier at Seller's facility (i.e., when it's on the truck, it's yours). Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferral of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's changes in shipping, product specifications or in accordance with Section 13, herein.

4. **Warranty.** Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of five years from the date of delivery to Buyer. This warranty is made only to Buyer and does not extend to anyone to whom Products are sold after purchased from Seller. The prices charged for Seller's products are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **DISCLAIMER OF WARRANTY: THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

5. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 60 days after delivery or, in the case of an alleged breach of warranty, within 30 days after the date within the warranty period on which the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for any amount due to Seller from Buyer) must be commenced within thirteen months from the date of tender of delivery by Seller or, for a cause of action based upon an alleged breach of warranty, within thirteen months from the date within the warranty period on which the defect is or should have been discovered by Buyer.

6. **LIMITATION OF LIABILITY.** UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. **IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER**

HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.

7. **Contingencies.** Seller shall not be liable for any default or delay in performance if caused by circumstances beyond the reasonable control of Seller.

8. **User Responsibility.** The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

9. **Loss to 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 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.

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.

20. **Taxes.** Unless otherwise indicated, 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 Products.

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.



Parker Hannifin Corporation
A/C & Refrigeration Aftermarket
2445 South 25th Avenue • Broadview, IL 60155-3891 USA
phone 800 742 2681 • fax 800 241 2872
www.parker.com/coolparts