

BFK Bi-flow Filter Drier

Technical Bulletin

EMERSON **BFK** is a hermetic Bi-flow filter-drier in solid block style for use on liquid line in reversible refrigeration systems such as heat pump units.

Features

- Solid block
- Hermetic design
- Rugged steel shells
- Corrosion resistant epoxy paint
- Integrated check valves insure Bi-flow capability, eliminate the need for external check valves and reduce the external piping
- Pattern flow for non-turbulent performance
- High water and acid adsorption capacity
- High filtration capacity / efficiency

Construction / Function

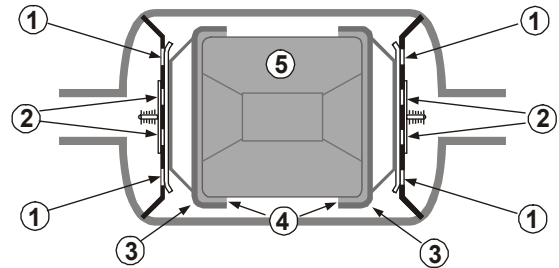
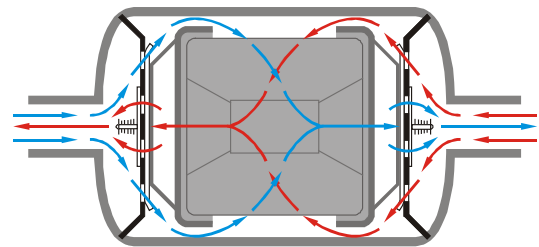
The active drying material is in the form of solid block. The solid block is a mixture of molecular Sieve and activated Alumina for maximum moisture and sufficient acid removal capability. These adsorbents are formed into a solid block and are held together by a **Synthetic binding material**.

The solid block is held tightly at both ends. The cushion felt pads for protection of the block are located at the ends of the block. The internal check valves deflect flow in order the BFK be suitable for installation in Bi-flow directional of liquid in heat pump systems. The internal block and felt pads insure the proper filtration.

- (1) = Inlet Flopper Valve
- (2) = Outlet Poppet Valve
- (3) = Steel Retaining Screen
- (4) = Final Filter Pad
- (5) = Moulded Desiccant Block






BFK



Technical Data

Max. working pressure PS	45 bar
Test pressure PT	47.3 bar
Liquid Temperature Refrigerant	-45...+65 °C
Fluid Group	I + II
List of released refrigerants	
Fluid group II (A1):	R134a, R404A, R407C, R410A, R450A, R507, R513A
Fluid group I (A2L):	R32, R452B, R454B, R454C, R1234ze, R1234yf
<small>Note: Fluid group classification according to PED 2014/68/EU.</small>	

Material shell	Steel
Paint	Epoxy Powder paint
Connections	Solder Flare Copper, ODF Burnished, SAE
Protection	500+ Hours salt spray test
Package	Individual packaged
Marking	 (A2L pending)  (acc. PED, V > 1 liter), 

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Selection table - A1 Refrigerants

Type	Part No.	Connection ODF*/SAE*	Flow capacity (kW) pressure drop 0.07 bar**					
			R134a	R407C	R404A R507	R410A	R450A	R513A
BFK 052	007343	1/4"(6mm) SAE	5.2	5.4	3.7	5.6	4.8	4.6
BFK 052S	007344	1/4" ODF	6.7	7.0	4.8	7.2	6.1	5.9
BFK 083	007345	3/8"(10mm) SAE	10.6	11.0	7.5	11.4	9.7	9.2
BFK 083S	007346	3/8" ODF	12.0	12.5	8.5	12.9	11.0	10.5
BFK 084	007347	1/2"(12mm) SAE	15.2	15.8	10.8	16.4	13.9	13.3
BFK 084S	007348	1/2" ODF	15.6	16.2	11.1	16.8	14.3	13.6
BFK 163	007349	3/8"(10mm) SAE	13.6	14.2	9.7	14.7	12.5	11.9
BFK 163S	007350	3/8" ODF	15.5	16.1	11.0	16.7	14.2	13.5
BFK 164	007351	1/2"(12mm) SAE	20.3	21.1	14.4	21.9	18.6	17.7
BFK 164S	007352	1/2" ODF	24.3	25.3	17.3	26.1	22.2	21.2
BFK 165	007353	5/8"(16mm) SAE	25.1	26.2	17.9	27.1	23.0	21.9
BFK 165S	007354	5/8" ODF	25.6	26.7	18.3	27.6	23.5	22.4
BFK 305S	007356	5/8" (16mm) ODF	34.1	35.6	24.3	36.8	31.3	29.8
BFK 307S	007357	7/8" (22mm) ODF	40.6	42.3	28.9	43.7	37.2	35.5
BFK 309S	007358	1-1/8" ODF	47.0	49.0	33.5	50.7	43.1	41.1

Selection table - A2L Refrigerants

Type	Part No.	Connection ODF*/SAE*	Flow capacity (kW) pressure drop 0.07 bar**					
			R32	R452B	R454B	R454C	R1234ze	R1234yf
BFK 052	007343	1/4"(6mm) SAE	8.1	6.3	6.4	4.2	4.6	3.8
BFK 052S	007344	1/4" ODF	10.4	8.1	8.2	5.4	5.9	4.8
BFK 083	007345	3/8"(10mm) SAE	16.3	12.8	12.8	8.5	9.2	7.6
BFK 083S	007346	3/8" ODF	18.5	14.5	14.6	9.7	10.5	8.6
BFK 084	007347	1/2"(12mm) SAE	23.5	18.4	18.5	12.3	13.3	10.9
BFK 084S	007348	1/2" ODF	24.1	18.8	18.9	12.6	13.6	11.2
BFK 163	007349	3/8"(10mm) SAE	21.1	16.5	16.6	11.0	11.9	9.8
BFK 163S	007350	3/8" ODF	23.9	18.7	18.8	12.5	13.6	11.1
BFK 164	007351	1/2"(12mm) SAE	31.3	24.5	24.7	16.4	17.8	14.6
BFK 164S	007352	1/2" ODF	37.5	29.3	29.5	19.6	21.3	17.5
BFK 165	007353	5/8"(16mm) SAE	38.8	30.4	30.6	20.3	22.0	18.1
BFK 165S	007354	5/8" ODF	39.7	31.0	31.2	20.7	22.5	18.5
BFK 305S	007356	5/8" (16mm) ODF	52.8	41.3	41.5	27.6	29.9	24.6
BFK 307S	007357	7/8" (22mm) ODF	62.8	49.1	49.4	32.8	35.6	29.2
BFK 309S	007358	1-1/8" ODF	72.7	56.9	57.2	38.0	41.2	33.8

Note 1: Flow capacities are in accordance with ARI710-86 and DIN8949

Note 2: *) SAE = Flare. ODF = Brazing female

Note 3: **) for 0.14 bar pressure drop, multiply values by 1.4

Note 4: Product label update is pending!

Nominal Flow Capacities bases on following operating conditions:

Refrigerant	Evaporating temperature	Liquid temperature	Flow rate kg/kW/sec.	Refrigerant	Evaporating temperature	Liquid temperature	Flow rate kg/kW/sec.
R134a	-15°C	+30°C	0.0068	R32	-15°C	+30°C	0.0039
R407C			0.0063	R452B			0.0043
R404A/R507			0.0088	R454B			0.0047
R410A			0.0059	R454C			0.0058
R450A			0.0074	R1234ze			0.0076
R513A			0.0079	R1234yf			0.0089

Note: For other operating conditions use the "Controls Navigator 4.1" selection tool.

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Water and Acid Adsorption Capacity

A1 Refrigerants

Type / Size	Water adsorption capacity (gram)												Acid Adsorption Capacity (gram)
	Liquid Temperature 24°C						Liquid Temperature 52°C						
	R134a	R404A R507	R407C	R410A	R450A	R513A	R134a	R404A R507	R407C	R410A	R450A	R513A	
BFK-05...	4.4	4.5	3.4	2.8	6.0	6.0	4.1	4.3	2.8	2.2	5.4	5.4	0.3
BFK-08...	9.6	9.9	7.5	6.2	10.2	10.1	8.9	9.4	6.0	4.7	9.2	9.2	0.6
BFK-16...	18.9	19.5	14.8	12.2	14.1	14.1	17.5	18.5	11.9	9.3	14.1	14.1	1.2
BFK-30...	34.5	35.6	27.1	22.4	28.8	28.8	31.9	33.7	21.7	17.0	31.7	31.7	2.0

A2L Refrigerants

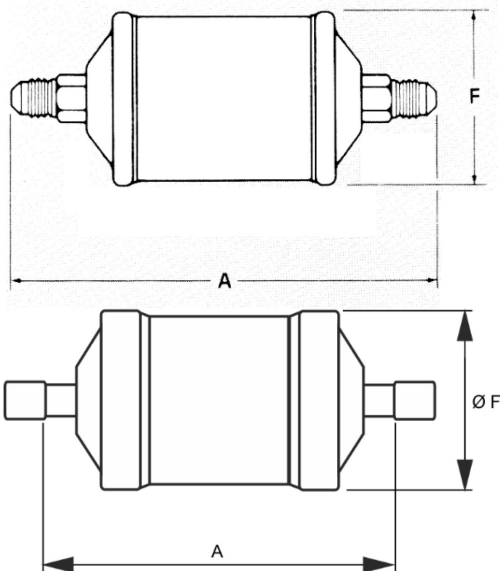
Type / Size	Water adsorption capacity (gram)										Acid Adsorption Capacity (gram)
	Liquid Temperature 24°C					Liquid Temperature 52°C					
	R32	R452B	R454B R454C	R1234ze	R1234yf	R32	R452B R454C	R454B	R1234ze	R1234yf	
BFK-05...	3.4	3.4	3.4	6.0	6.0	2.7	2.6	2.6	5.4	5.4	0.3
BFK-08...	5.7	5.7	5.7	10.2	10.2	4.5	4.4	4.4	9.2	9.2	0.6
BFK-16...	11.5	10.8	10.8	19.1	14.1	9.1	8.3	8.3	17.4	17.4	1.2
BFK-30...	23.2	21.9	21.9	39.1	28.8	18.4	17.0	17.0	35.5	35.5	2.0

The water capacities are according to ARI-Standard 710 and DIN 8948. (except R744)

Refrigerant	EPD	Refrigerant	EPD	Refrigerant	EPD	Refrigerant	EPD
R134a	50 ppm	R410A	50 ppm	R32	50 ppm	R454C	60 ppm
R407C	50 ppm	R450A	60 ppm	R452B	60 ppm	R1234ze	50 ppm
R404A/R507	50 ppm	R513A	60 ppm	R454B	60 ppm	R1234yf	50 ppm

Note: EPD = End Point Dryness

Dimensions (mm)



Type	Part No.	A (mm)	B (mm)	F (mm)	Connection			
					Brazing/ ODF (mm)	(Inch)	Flare/ SAE (mm)	(Inch)
BFK 052	007343	123	-	64	-	-	6	1/4"
BFK 052S	007344	106	9.5	64	-	1/4"	-	-
BFK 083	007345	151	-	64	-	-	10	3/8"
BFK 083S	007346	134	11.0	64	-	3/8"	-	-
BFK 084	007347	157	-	64	-	-	12	1/2"
BFK 084S	007348	136	12.7	64	-	1/2"	-	-
BFK 163	007349	172	-	76	-	-	10	3/8"
BFK 163S	007350	155	11.0	76	-	3/8"	-	-
BFK 164	007351	177	-	76	-	-	12	1/2"
BFK 164S	007352	156	12.7	76	-	1/2"	-	-
BFK 165	007353	189	-	76	-	-	16	5/8"
BFK 165S	007354	163	16.0	76	-	5/8"	-	-
BFK 305	007355	262	-	76	-	-	16	5/8"
BFK 305S	007356	236	16.0	76	-	5/8"	-	-
BFK 307S	007357	251	19.0	76	-	7/8"	-	-
BFK 309S	007358	251	24.0	76	-	1-1/8"	-	-

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