

## Series FF FILTER DRIERS

### PRODUCT DATA



### Application

Filter driers series FF are used for filtration of impurities by microscopic filters and to take away moisture from the refrigerant.

The filter driers are placed in the liquid line of airconditioning, refrigeration and deep freeze systems.

### Materials

<b>Housing</b>	steel
<b>Internals</b>	steel
<b>Drier</b>	molekularsieve, activated alumina
<b>Connections</b>	solder: copper, copper plated steel or nickel plated steel**
	flare: nickel plated steel

### Features

- Liquid line filter drier
- Drying agent in bulk
- Low pressure drop
- High performance
- Hermetic construction
- Solder or flare connections
  - FF ...MMS: solder connection in mm
  - FF ...S: solder connection in inch
  - FF ...: flare connection
- Refrigerants: all CFC, HCFC, HFC, not for ammonia

### Specification

<b>Nominal capacity</b>	see tables on page 2
<b>Water adsorption</b>	see table on page 3
<b>Maximum pressure PS</b>	43 bar(a) 40 bar(a) (for FF 410) 11 bar(a) at t < -20 °C
<b>Maximum test pressure PF</b>	61,5 bar(a) 57,2 bar(a) (for FF 410) 15,7 bar(a) at t < -20 °C
<b>Max. operating temperature</b>	80 °C
<b>Min. operating temperature</b>	-40 °C

### Installation

- Any mounting position in the liquid line.
- Flow in direction of arrow!
- When soldering the filter drier, the housing must not get warmer than 160 °C.
- Constructive modifications at the filter drier are not allowed.

## Capacities, Dimensions and Weights

### Filter drier with solder connections

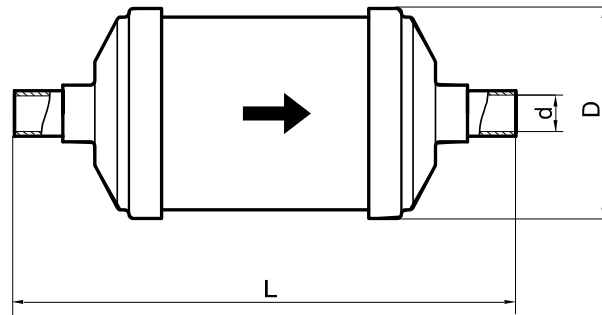
Type	Nominal cooling capacity (kW)*					Connections ODF (d)	Dimensions			Weight (kg)
	R134a	R22	R404A R507A	R407C	R410A		D (mm)	L (mm)	V <sub>F</sub> (dm <sup>3</sup> )	
FF 032MMS	9.8	10.7	7.0	10.1	10.6	6 mm	52	98.5	0.1	0.26
FF 032S	9.8	10.7	7.0	10.1	10.6	1/4"	52	98.5	0.1	0.26
FF 052MMS	9.6	10.5	6.8	9.9	10.4	6 mm	52	111.5	0.1	0.295
FF 052S	9.6	10.5	6.8	9.9	10.4	1/4"	52	111.5	0.1	0.295
FF 053MMS	23.3	25.4	16.6	23.9	25.0	10 mm	52	111.5	0.1	0.325
FF 053S	23.3	25.4	16.6	23.9	25.0	3/8"	52	111.5	0.1	0.325
FF 082MMS	9.1	9.9	6.5	9.3	9.7	6 mm	52	139.5	0.2	0.37
FF 082S	9.1	9.9	6.5	9.3	9.7	1/4"	52	139.5	0.2	0.37
FF 083MMS	22.7	24.8	16.1	23.3	24.4	10 mm	52	139.5	0.2	0.405
FF 083S	22.7	24.8	16.1	23.3	24.4	3/8"	52	139.5	0.2	0.405
FF 084MMS	30.2	33.0	21.5	31.1	32.6	12 mm	52	139.5	0.2	0.465
FF 084S	30.2	33.0	21.5	31.1	32.6	1/2"	52	139.5	0.2	0.465
FF 162MMS	8.8	9.6	6.2	9.0	9.4	6 mm	74	159	0.4	0.825
FF 162S	8.8	9.6	6.2	9.0	9.4	1/4"	74	159	0.4	0.825
FF 163MMS	22.7	24.8	16.1	23.3	24.4	10 mm	74	159	0.4	0.875
FF 163S	22.7	24.8	16.1	23.3	24.4	3/8"	74	159	0.4	0.875
FF 164MMS	33.6	36.6	23.9	34.5	36.1	12 mm	74	159	0.4	0.93
FF 164S	33.6	36.6	23.9	34.5	36.1	1/2"	74	159	0.4	0.93
FF 165S	47.8	52.1	34.0	49.1	51.4	16 mm - 5/8"	74	163	0.4	0.96
FF 303MMS	22.7	24.8	16.1	23.3	24.4	10 mm	74	235.5	0.6	1.305
FF 303S	22.7	24.8	16.1	23.3	24.4	3/8"	74	235.5	0.6	1.305
FF 304MMS	33.6	36.6	23.9	34.5	36.1	12 mm	74	235.5	0.7	1.35
FF 304S	33.6	36.6	23.9	34.5	36.1	1/2"	74	235.5	0.7	1.35
FF 305S	47.8	52.1	34.0	49.1	51.4	16 mm - 5/8"	74	239.5	0.7	1.41
FF 307S**	64.7	70.6	46.0	66.5	69.7	22 mm - 7/8"	74	259.5	0.6	1.45
FF 414MMS	38.8	42.4	27.6	39.9	41.8	12 mm	93	232.5	1.1	2.035
FF 414S	38.8	42.4	27.6	39.9	41.8	1/2"	93	232.5	1.1	2.035
FF 415S	60.5	66.0	43.0	62.2	65.1	16 mm - 5/8"	93	245.5	1.1	2.105
FF 417S**	84.1	91.7	59.8	86.4	90.5	22 mm - 7/8"	93	278.5	1.2	2.110

### Filter drier with flare connections

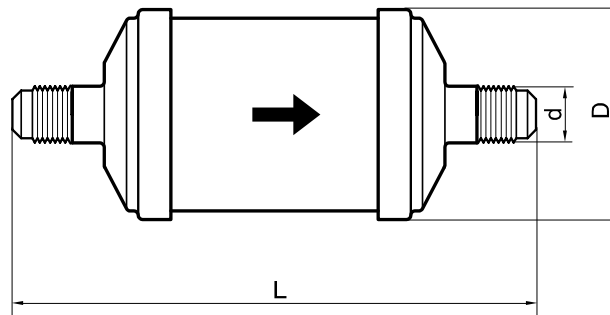
Type	Nominal cooling capacity (kW)*					Connections UNF (d)	Dimensions			Weight (kg)
	R134a	R22	R404A R507A	R407C	R410A		D (mm)	L (mm)	V <sub>F</sub> (dm <sup>3</sup> )	
FF 032	5.7	6.3	4.1	5.9	6.2	7/16"	52	108.5	0.1	0.26
FF 052	5.6	6.1	4.0	5.8	6.1	7/16"	52	121.5	0.1	0.295
FF 053	18.6	20.3	13.3	19.2	20.1	5/8"	52	127.5	0.1	0.325
FF 082	5.3	5.8	3.8	5.5	5.8	7/16"	52	149.5	0.2	0.37
FF 083	18.1	19.8	12.9	18.7	19.6	5/8"	52	155.5	0.2	0.405
FF 084	28.7	31.4	20.4	29.5	30.9	3/4"	52	159.5	0.2	0.465
FF 162	5.2	5.7	3.7	5.3	5.6	7/16"	74	169	0.4	0.825
FF 163	17.7	19.3	12.6	18.2	19.1	5/8"	74	175	0.4	0.875
FF 164	31.1	33.9	22.1	32.0	33.5	3/4"	74	179.5	0.4	0.93
FF 165	44.4	48.4	31.6	45.6	47.8	7/8"	74	183.5	0.4	0.96
FF 303	17.7	19.3	12.6	18.2	19.1	5/8"	74	251.5	0.6	1.305
FF 304	31.1	33.9	22.1	32.0	33.5	3/4"	74	255.5	0.7	1.35
FF 305	44.4	48.4	31.6	45.6	47.8	7/8"	74	259.5	0.7	1.41
FF 414	36.3	39.7	25.9	37.4	39.2	3/4"	93	252.5	1.1	2.035
FF 415	56.6	61.8	40.3	58.2	61.0	7/8"	93	265.5	1.1	2.105

\* Capacities are based on t<sub>0</sub> = -15 °C, t<sub>c</sub> = +30 °C and pressure drop Δp = 0.07 bar.

\*\* Nickel plated steel connections



Filter drier with solder connections



Filter drier with flare connections

## Water adsorption rate

### Water adsorption rate (g)

Refrigerant	R134a		R22		R404A R507A		R407C		R410A		
Final moisture	50 ppm		60 ppm		50 ppm		50 ppm		50 ppm		
Liquid temperature	24 °C	52 °C	24 °C	52 °C	24 °C	52 °C	24 °C	52 °C	24 °C	52 °C	
Type	030	4.0	3.7	3.9	3.6	4.3	4.0	3.6	3.1	2.5	2.3
	050	7.8	7.2	7.5	6.9	8.3	7.7	7.0	5.9	4.8	4.4
	080	12.6	11.6	12.1	11.1	13.4	12.4	11.2	9.6	7.7	7.0
	160	25.1	23.2	24.1	22.2	26.7	24.8	22.4	19.1	15.3	14.1
	300	48.5	44.8	46.7	42.9	51.7	47.9	43.2	37.0	29.7	27.2
	410	67.2	62.0	64.6	59.4	71.6	66.4	59.9	51.2	41.0	37.7

### Type Code / Order Information

	FF	16	4	MMS
Series				
Filter size				
Tube connection size in 1/8"				
Connection type: ( ) = flare S = solder in inch MMS = solder in mm				

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