Castel®
Italian technology

SF SERIES

Filter driers with replaceable solid core

Mechanical filters with replaceable filtering block

For refrigeration plants that use HCFC, HFC or HFO refrigerants



Applications

The filters in series SF411 and SF412, illustrated in this leaflet, are designed for installation on liquid line and on suction line of commercial refrigeration systems and civil and industrial air conditioning plants that use the following refrigerant fluids:

- HCFC (R22)
- HFC (R134a, R404A, R407C, R410A and R507)
- HFO and HFO/HFC mixtures (R1234ze, R448A, R449A, R450A, R452A and R513A)

belonging to Group 2, as defined in Article 13, Chapter 1, Point (b) of Directive 2014/68/EU, with reference to EC Regulation No. 1272/2008.

For specific applications with refrigerant fluids not listed above, please contact Castel Technical Department.

Operation

Dehydrating filters, liquid line: A large ring area between the cartridge and the inner surface of the filter allows for the accumulation of solid particles and prevents clogging. Before leaving the filter, the refrigerant fluid must pass through the mesh sieve in which cartridges are mounted. This eliminates the danger that small particles of drying material be dragged into circulation.

Mechanical filters, suction line: Good filtering of the refrigerant on the low-pressure side of the system is an absolute guarantee of protection for the compressor. System cleanliness is ensured by micro filtering cores, which filter out every kind of impurities derived from manufacture and assembly of the refrigerating system.



Construction

Dehydrating filters, liquid line: are manufactured with a zinc plated steel cover, zinc plated screws, and the steel body is equipped with brazing connections made from copper pipe EN 12735-1 – Cu-DHP.

They are sold in the following two configurations:

- Codes with an "A" suffix , equipped with 1/4" NPT threaded cover for mounting an access fitting with valve core, not included in the supply.
- Codes with an "B" suffix , equipped with blind cover.

Cartridges in series 4490, type A and type B, are made from moulding a dehydrating filler, made completely from 3 Å molecular sieves, with a suitable binder.

Cartridges in series 4490, type AA and type AB, are made from moulding a dehydrating filler, made from 80% 3 Å molecular sieves and 20% activated alumina, with a suitable binder.

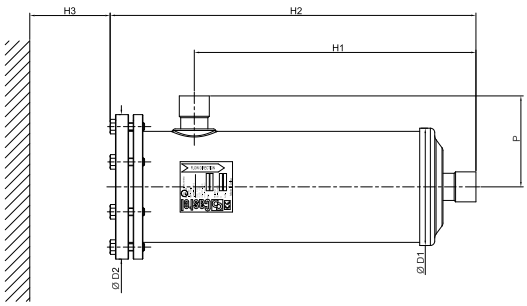
Cartridges in series 4490 must be ordered separately from the filter. They are supplied in individual packages, which are hermetically sealed in metal containers. These types of packaging are suitable for long-term storage of the cartridge. Each cartridge is supplied with two synthetic gaskets to be used as a seal between the two cartridges and between the cartridge and its covers.

Mechanical filters, suction line: are manufactured with a zinc plated steel cover, stainless steel screws, and the steel body is equipped with brazing connections made from copper pipe EN 12735-1 – Cu-DHP.

They are sold in the configuration with 1/4" NPT threaded cover for mounting access fitting with valve core kit G9150/R05, included in the supply.

Cartridge 4495: characterized by a large filter surface, these consist of metal mesh fabric with a controlled porosity filter sieve insert, which can retain solid particles to 20 microns. At both ends, soft felt gaskets ensure perfect seal with the plastic cups.

Cartridges in series 4495 must be ordered separately from the filter. They are supplied in individual packages, which are hermetically sealed in metal containers. These types of packaging are suitable for long-term storage of the cartridge.



GENERAL CHARACTERISTICS OF FILTER DRIERS WITH REPLACEABLE SOLID CORE

Catalogue Number		Core Cat. Number	Number of Cores	Core Filtering Surface [cm2]	Nominal Volume		Connections ODS		PS [bar]	TS [°C]		TA [°C]		Risk Category according to PED Recast
Threaded cover	Blind cover				[cu.in]	[cm3]	Ø [in.]	Ø [mm]		min.	max.	min.	max.	
SF411/5A	SF411/5B	4490/A - 4490/B : 4490/AA - 4490/AB	1	420	48	800	5/8"	16	47	– 40	+ 80	– 20	+ 50	1
SF411/7A	SF411/7B						7/8"	22						
SF411/M28A	SF411/M28B						–	28						
SF411/9A	SF411/9B						1.1/8"	–						
SF411/11A	SF411/11B						1.3/8"	35						
SF411/13A	SF411/13B						1.5/8"	–						
SF411/M42A	SF411/M42B						–	42						
SF411/17A	SF411/17B						2.1/8"	54						
SF411/21A	SF411/21B						2.5/8"							
SF412/7A	SF412/7B		2	840	96	1600	7/8"	22						
SF412/M28A	SF412/M28B						–	28						
SF412/9A	SF412/9B						1.1/8"	–						
SF412/11A	SF412/11B						1.3/8"	35						
SF411/13A	SF411/13B						1.5/8"	–						
SF412/M42A	SF412/M42B						–	42						
SF412/17A	SF412/17B							54						

GENERAL CHARACTERISTICS OF MECHANICAL BLOCK FILTERS

Catalogue Number	Number of Cores	Filtering block		Connections ODS		PS [bar]	TS [°C]		TA [°C]		Risk Category according to PED Recast
		Cat. Number	Filtering Surface [cm2]	Ø [in.]	Ø [mm]		min.	max.	min.	max.	
SF411/5C	1	4495/C	820	5/8"	16	47	– 40	+ 80	– 20	+ 50	I
SF411/7C				7/8"	22						
SF411/M28C				–	28						
SF411/9C				1.1/8"	–						
SF411/11C				1.3/8"	35						
SF411/13C				1.5/8"	–						
SF411/M42C				–	42						
SF411/17C				2.1/8"	54						
SF411/21C					–						

DIMENSIONS

Catalogue Number			CONNECTIONS ODS		Dimensions [mm]					
Solid core filter driers		Mechanical filters	Ø [in.]	Ø [mm]	Ø D1	Ø D2	H1	H2	H3	P
SF411/5A	SF411/5B	SF411/5C	5/8"	16	121	157	152,5	222,5	185	93
SF411/7A	SF411/7B	SF411/7C	7/8"	22			158,5	228,5		99
SF411/M28A	SF411/M28B	SF411/M28C	–	28			158,5	228,5		99
SF411/9A	SF411/9B	SF411/9C	1.1/8"	–			158,5	228,5		99
SF411/11A	SF411/11B	SF411/11C	1.3/8"	35			163,5	233,5		104
SF411/13A	SF411/13B	SF411/13C	1.5/8"	–			175,5	245,5		116
SF411/M42A	SF411/M42B	SF411/M42C	–	42			175,5	245,5		116
SF411/17A	SF411/17B	SF411/17C	2.1/8"	54			165,5	235,5		106
SF411/21A	SF411/21B	SF411/21C	2.5/8"	–			189,5	259,5		130
SF412/7A	SF412/7B	–	7/8"	22			300	370	324	99
SF412/M28A	SF412/M28B		–	28			300	370		99
SF412/9A	SF412/9B		1.1/8"	–			300	370		99
SF412/11A	SF412/11B		1.3/8"	35			305	375		104
SF411/13A	SF411/13B		1.5/8"	–			317	387		116
SF412/M42A	SF412/M42B		–	42			317	387		116
SF412/17A	SF412/17B		2.1/8"	54				377		106

REFRIGERANT FLOW CAPACITY OF FILTER DRIERS WITH REPLACEABLE SOLID CORE

Catalogue Number		Pressure drop 0,07 bar (1)) [kW]											
Threaded cover	Blind cover	R134a	R22	R404A	R407C	R410A	R507	R1234ze	R448A	R449A	R450A	R452A	R513A
SF411/5A	SF411/5B	83	90	59	85	87	57	73	78	77	66	60	69
SF411/7A	SF411/7B	145	158	103	149	153	100	128	138	136	116	105	122
SF411/M28A	SF411/M28B	198	216	141	204	209	137	175	188	186	158	143	167
SF411/9A	SF411/9B												
SF411/11A	SF411/11B	231	252	165	238	244	160	204	220	217	184	167	194
SF411/13A	SF411/13B	248	270	177	255	262	171	219	235	232	198	179	208
SF411/M42A	SF411/M42B												
SF411/17A	SF411/17B												
SF411/21A	SF411/21B												
SF412/7A	SF412/7B	145	158	103	149	153	100	128	138	136	116	105	122
SF412M28A	SF412M28B	224	244	160	231	236	155	198	213	210	179	162	188
SF412/9A	SF412/9B												
SF412/11A	SF412/11B	304	331	216	313	321	210	268	289	285	242	219	255
SF411/13A	SF411/13B	331	361	236	341	350	229	292	315	310	264	239	278
SF412/M42A	SF412/M42B												
SF412/17A	SF412/17B												

REFRIGERANT FLOW CAPACITY OF FILTER DRIERS WITH REPLACEABLE SOLID CORE

Catalogue Number		Pressure drop 0,14 bar (1)) [kW]											
Threaded cover	Blind cover	R134a	R22	R404A	R407C	R410A	R507	R1234ze	R448A	R449A	R450A	R452A	R513A
SF411/5A	SF411/5B	99	108	71	102	105	69	87	94	93	79	71	83
SF411/7A	SF411/7B	188	205,4	134	194	199	130	166	179	177	150	136	158
SF411/M28A	SF411/M28B	257	280,8	184	265	272	178	227	245	241	206	186	216
SF411/9A	SF411/9B												
SF411/11A	SF411/11B	300	327,6	214	310	317	208	265	286	282	240	217	253
SF411/13A	SF411/13B	322	351	230	332	340	223	284	306	302	257	232	271
SF411/M42A	SF411/M42B												
SF411/17A	SF411/17B												
SF411/21A	SF411/21B												
SF412/7A	SF412/7B	188	205,4	134	194	199	130	166	179	177	150	136	158
SF412M28A	SF412M28B	291	317,2	207	300	307	201	257	277	273	232	210	245
SF412/9A	SF412/9B												
SF412/11A	SF412/11B	395	430,3	281	407	417	273	349	375	370	315	285	332
SF411/13A	SF411/13B	447	487,35	319	461	472	309	395	425	419	357	323	376
SF412/M42A	SF412/M42B												
SF412/17A	SF412/17B												

(1) : Maximum values of the refrigerant flow capacity at which the drier can be used when fluid dehydration is not the a major problem, provided that the original moisture is limited before the installation of the drier.
The maximum refrigerant flow capacities are referred to a total pressure drop of 0,07 bar / 0,14 bar , inlet and outlet connections included, (according to ARI STANDARD 710-2009 - with liquid temperature at + 30 °C and evaporating temperature at - 15 °C)

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Castel has always been aware of environmental sustainability issues and gives its contribution to a cleaner environment, supplying the refrigeration and air conditioning industry with state-of-the-art and environment-friendly technology. With its commitment and steady research in its laboratories, Castel has developed a whole range of products using natural refrigerants, which reduce emissions to the minimum.

ISO 14001

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