



# Bi-flow hermetic filter driers

**CERTIFIED BY UNDERWRITERS LABORATORIES INC.**  
For refrigeration plants that use HCFC, HFC or HFO Refrigerants



**Castel**  
UL LISTED FILTER/DRYERS  
LISTED 50/50  
MWP = 680PSIG  
T. RANGE = -40/+178°F  
SOLID CORE  
BI-FLOW FILTER DRIER  
R22 - R134a - R404A  
R407C - R410A - R507  
PS = 17 bar



## Applications

The filters in series DB3 illustrated in this brochure are designed to be installed on the liquid line of air conditioning systems with reverse-cycle, heat pumps, and refrigeration plants that use the following refrigerant fluids:

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

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.

The filters can be installed on systems that use the following refrigerant fluids:

- HFC (R32)
- HFO (R1234yf)

classified as A2L in the ASHRAE 34-2013 standard, and belonging to Group 1, as defined in Article 13, Chapter 1, Point (a) 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.

## Construction

The filter body is made completely from steel with threaded connections, SAE FLARE, made from nickel plated steel. The product range also includes types with copper connections, EN 12735-1 - Cu-DHP; offering the possibility to solder the copper pipe inside the connections (ODS). Bi-flow filters have two built-in check valves, inserted inside on both

sides of the filter, which ensure that the refrigerant liquid always flows correctly from the outside of the cartridge to its core, regardless of the flow direction. Thus, all dirt particles in the circuit are trapped by the filter, regardless of the flow direction.

The cartridges are made from moulding a dehydrating filler made completely from 3 Å molecular sieves, with a suitable binder. The choice of using only 3 Å molecular sieves as the dehydrating material grants the cartridge extraordinary moisture adsorption capacity while maintaining reasonable deacidifying characteristics. The manufacturing process allows both products to be compact and strong, making them resistant to impact and abrasion. The cartridges are symmetrical and are designed to offer the maximum possible surface area to the incoming fluid, while the core hole guarantees a uniform wall thickness. As a result, the fluid encounters constant resistance, flows linearly, ensuring efficient dehydration and minimum charge loss. The cartridge is chemically inert, not deliquescent, does not react with refrigerating fluids, and is capable of capturing all oil by-products in the circuit.

When building heat pump systems or air conditioning systems with reverse-cycle, the use of bi-flow filter driers eliminates the need for external check valves and reduces external piping and brazing.

## Approvals

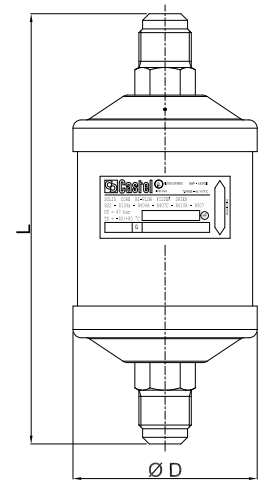
Filters in series DB3 have been approved by the American certification authority Underwriters Laboratories Inc. Filters in series DB3 are certified **UL-CSA Listed** for the USA and Canada with file SA7054, in compliance with American Standard UL 207 and Canadian Standard CSA C22.2 No. 140.3-15.



## General characteristics of bi-flow hermetic filter driers. SAE Flare connections

Catalogue Number 100% molecular sieves	International Reference	Block Filtering Surface [cm <sup>2</sup> ]	Nominal Volume [cm <sup>3</sup> ]	Connections	PS [bar]	TS [°C]		TA [°C]		Risk Category according to PED Recast
						min.	max.	min.	max.	
DB305/2	052	47	80	1/4"	47 (1)	- 40	+ 80	- 20	+ 50	Art. 4.3
DB308/3	083	78	130	3/8"						
DB308/4	084			1/2"						
DB316/3	163	134	250	3/8"						
DB316/4	164			1/2"						
DB316/5	165			5/8"						
DB330/5	305			274						

(1) : MWP = 680 psi according to UL approval

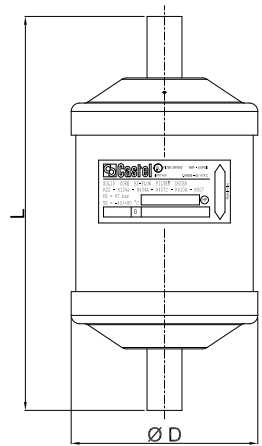


Male connections

## General characteristics of hermetic bi-flow filter driers. ODS connections

Catalogue Number 100% molecular sieves	International Reference	Block Filtering Surface [cm <sup>2</sup> ]	Nominal Volume [cm <sup>3</sup> ]	Connections		PS [bar]	TS [°C]		TA [°C]		Risk Category according to PED Recast
				ODS			min.	max.	min.	max.	
				Ø [in.]	Ø [mm]						
DB305/2S	052S	47	80	1/4"	-	47 (1)	- 40	+ 80	- 20	+ 50	Art. 4.3
DB308/3S	083S	78	130	3/8"	-						
DB308/4S	084S			1/2"	-						
DB316/3S	163S	134	250	3/8"	-						
DB316/4S	164S			1/2"	-						
DB316/5S	165S			5/8"	16						
DB316/7S	167S			7/8"	-						
DB330/5S	305S	274	500	5/8"	16						
DB330/7S	307S			7/8"	-						
DB330/9S	309S			1.1/8"	-						

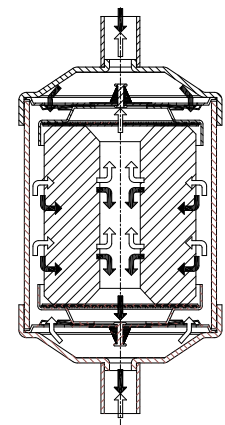
(1) : MWP = 680 psi according to UL approval



Solder connection

## Dimensions and weights

Catalogue Number	Connections			Dimensions [mm]		Weight [g]		
	SAE Flare	ODS		Ø D	L			
		Ø [in.]	Ø [mm]					
DB305/2	1/4"	-	-	64	121			
DB305/2S	-	1/4"	-		113			
DB308/3	3/8"	-	-	64	152			
DB308/3S	-	3/8"	-		138			
DB308/4	1/2"	-	-		157			
DB308/4S	-	1/2"	-	64	138			
DB316/3	3/8"	-	-		171			
DB316/3S	-	3/8"	-		157			
DB316/4	1/2"	-	-		176			
DB316/4S	-	1/2"	-		157			
DB316/5	5/8"	-	-		186			
DB316/5S	-	5/8"	16		163			
DB316/7S	-	7/8"	-		177			
DB330/5	5/8"	-	-		76		260	
DB330/5S	-	5/8"	16				237	
DB330/7S	-	7/8"	-	251				
DB330/9S	-	1.1/8"	-	259				





## Refrigerant flow capacity

Catalogue Number	Pressure drop 0,07 bar (1) [kW]												
	100% molecular sieves	R134a	R22	R32	R404A	R407C	R410A	R507	R1234yf	R1234ze	R448A	R449A	R450A
DB305/2	5,3	5,8	25,6	3,8	5,5	5,6	3,7	3,9	4,7	5,1	5,0	4,2	3,8
DB305/2S	8,3	9,1	40,1	6,0	8,6	8,8	5,8	6,1	7,4	7,9	7,8	6,7	6,0
DB308/3	11,3	12,3	54,3	8,0	11,6	11,9	7,8	8,2	10,0	10,7	10,6	9,0	8,1
DB308/3S	12,6	13,7	60,4	9,0	12,9	13,3	8,7	9,1	11,1	11,9	11,8	10,0	9,1
DB308/4	15,2	16,6	73,2	10,9	15,7	16,1	10,5	11,0	13,4	14,5	14,3	12,2	11,0
DB308/4S	17,0	18,5	81,6	12,1	17,5	17,9	11,7	12,3	15,0	16,1	15,9	13,5	12,2
DB316/3	15,7	17,1	75,5	11,2	16,2	16,6	10,9	11,4	13,9	14,9	14,7	12,5	11,3
DB316/3S	17,6	19,2	84,7	12,6	18,1	18,6	12,2	12,8	15,6	16,7	16,5	14,1	12,7
DB316/4	26,0	28,3	124,9	18,5	26,7	27,4	18,0	18,8	22,9	24,7	24,3	20,7	18,7
DB316/4S	27,9	30,4	134,1	19,9	28,7	29,5	19,3	20,2	24,6	26,5	26,1	22,3	20,1
DB316/5	31,9	34,8	153,5	22,8	32,9	33,7	22,1	23,1	28,2	30,3	29,9	25,5	23,0
DB316/5S	34,3	37,4	165,0	24,5	35,3	36,2	23,7	24,9	30,3	32,6	32,2	27,4	24,8
DB316/7S	37,7	41,1	181,3	26,9	38,8	39,8	26,1	27,3	33,3	35,8	35,3	30,1	27,2
DB330/5	34,0	37,1	163,7	24,3	35,1	35,9	23,6	24,7	30,1	32,4	31,9	27,2	24,6
DB330/5S	36,7	40,0	176,5	26,2	37,8	38,8	25,4	26,6	32,4	34,9	34,4	29,3	26,5
DB330/7S	40,3	44,0	194,1	28,8	41,6	42,6	27,9	29,3	35,6	38,4	37,8	32,2	29,1
DB330/9S	43,1	47,0	207,4	30,7	44,4	45,5	29,8	31,3	38,1	41,0	40,4	34,4	31,1

Continued

Catalogue Number	Pressure drop 0,14 bar (1) [kW]												
	100% molecular sieves	R134a	R22	R32	R404A	R407C	R410A	R507	R1234yf	R1234ze	R448A	R449A	R450A
DB305/2	6,6	7,3	32,0	4,7	6,9	7,0	4,6	4,8	5,9	6,3	6,2	5,3	4,8
DB305/2S	10,4	11,4	50,2	7,4	10,7	11,0	7,2	7,6	9,2	9,9	9,8	8,3	7,5
DB308/3	14,1	15,4	67,8	10,1	14,5	14,9	9,8	10,2	12,5	13,4	13,2	11,3	10,2
DB308/3S	15,7	17,1	75,6	11,2	16,2	16,6	10,9	11,4	13,9	14,9	14,7	12,5	11,3
DB308/4	19,0	20,8	91,5	13,6	19,6	20,1	13,2	13,8	16,8	18,1	17,8	15,2	13,7
DB308/4S	21,2	23,1	102,0	15,1	21,9	22,4	14,7	15,4	18,7	20,2	19,9	16,9	15,3
DB316/3	19,6	21,4	94,4	14,0	20,2	20,7	13,6	14,2	17,3	18,7	18,4	15,7	14,2
DB316/3S	22,0	24,0	105,9	15,7	22,7	23,3	15,2	16,0	19,4	20,9	20,6	17,6	15,9
DB316/4	32,4	35,4	156,1	23,1	33,4	34,3	22,5	23,5	28,7	30,8	30,4	25,9	23,4
DB316/4S	34,8	38,0	167,7	24,9	35,9	36,8	24,1	25,3	30,8	33,1	32,7	27,8	25,2
DB316/5	39,9	43,5	191,9	28,4	41,1	42,2	27,6	28,9	35,2	37,9	37,4	31,8	28,8
DB316/5S	42,9	46,8	206,3	30,6	44,2	45,3	29,7	31,1	37,9	40,8	40,2	34,2	30,9
DB316/7S	47,1	51,4	226,7	33,6	48,5	49,8	32,6	34,2	41,6	44,8	44,2	37,6	34,0
DB330/5	42,5	46,4	204,6	30,3	43,8	44,9	29,4	30,8	37,6	40,4	39,9	33,9	30,7
DB330/5S	45,9	50,0	220,6	32,7	47,3	48,5	31,8	33,3	40,5	43,6	43,0	36,6	33,1
DB330/7S	50,4	55,0	242,7	36,0	52,0	53,3	34,9	36,6	44,6	48,0	47,3	40,3	36,4
DB330/9S	53,9	58,8	259,2	38,4	55,5	56,9	37,3	39,1	47,6	51,2	50,5	43,0	38,9

(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 )

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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