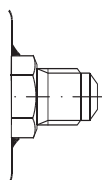
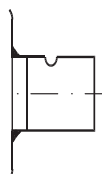




Bi-flow filter driers, DMB/DCB



Flare connection



Solder connection (copper)

Introduction

Bi-flow filter driers, type DMB/DCB, are for use in liquid lines on heat pumps.

Bi-flow filter driers have built-in check valves which ensure that refrigerant liquid always flows through the filter driers from the outer side of the filter core towards the center. Thus all dirt particles are retained irrespective of flow direction.

DMB/DCB filter driers ensure fast and effective adsorption of moisture as well as organic and inorganic acids.

When building heat pump systems, the use of Bi-flow filters can, depending on the type of system, save up to ten solder connections. This reduces production costs and the number of potential leakage points.



DMB filter driers

These filters contain a solid core consisting of 100% 3Å Molecular Sieve.

DMB filter driers are especially suitable for heat pumps with HFC refrigerant and polyolester oil with additives.

DCB filter driers

These filters contain a solid core consisting of 3Å Molecular Sieve and activated aluminium oxide.

DCB filter driers can be used in heat pumps with HCFC refrigerants and mineral oil, and also with HFC refrigerants and polyolester oil.

Features

- Optimum flow characteristics and dirt retention
- The check valves are not sensitive to dirt and give minimum restriction, irrespective of flow direction
- Effective dirt removal to 25 µm
- No dirt released by reversing the flow direction
- Available with solder (copper) and flare connections

Approvals

CE US UL file no. SA 6398
PED 97/23/EC - a3p3

Technical data

Refrigerants

DMB:
R134a, R404A, R407C, R507, R410A, R22.

DCB:
R22, R134a, R404A, etc.

Temperature of medium

-40°C to +70°C (-40°F to +158°F)

Dirt retention

Particles > 25 µm

Surface and volume

Filter	Solid core surface	Solid core volume	Filter drier volume (shell volume)	Filter drier volume (net volume)
	[cm ²]	[cm ³]	[l]	[l]
DMB/DCB 08	73	80	0.1	0.02
DMB/DCB 16	100	145	0.3	0.16
DMB/DCB 30	250	365	0.49	0.13

Acid capacity

Filter	Acid capacity
	[g] (TAN ¹⁾)
DCB 08	0.96
DCB 16	1.29
DCB 30	3.16

¹⁾ TAN = Total Acid Number, oleic acid

Technical data and capacities

DMB

Drying and liquid capacity

R134a, R507, R404A, R407C, R410A, R22

Type	Drying capacity [kg refrigerant] ¹⁾								Liquid capacity [kW] ²⁾			Max Working Pressure PS [bar]
	R134a		R404A R507		R407C R410A		R22		R134a	R404A R507	R22 R407C R410A	
	24°C	52°C	24°C	52°C	24°C	52°C	24°C	52°C				
DMB 082 / 082s	9.2	8.5	8.7	8.1	8.0	7.3	8.7	8.0	3.9	2.8	4.3	46
DMB 083 / 083s									7.4	5.3	8.2	46
DMB 084 / 084s									8.3	6.0	9.2	46
DMB 162	17.8	16.5	16.8	15.7	15.4	14.1	16.8	15.6	7.6	5.3	8.8	46
DMB 163 / 163s									18	13	20	46
DMB 164 / 164s									28	20	32	46
DMB 165 / 165s									37	29	40	46
DMB 303	43.5	40.4	41.4	38.4	37.8	34.6	41.2	38.1	19	15	21	46
DMB 304 / 304s									28	20	31	46
DMB 305 / 305s									38	28	42	46
DMB 307s									43	32	47	35

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

R134a:

From 1050 ppm W to 75 ppm W. If drying to 50 ppm W is required, reduce stated capacities by 15%.

R404A, R507:

From 1020 ppm W to 30 ppm W.

R407C:

From 1020 ppm W to 30 ppm W.

R410A:

From 1050 ppm W to 60 ppm W.

R22:

From 1050 ppm W to 60 ppm W in accordance with ARI 710-86.

²⁾ Capacity given in accordance with ARI 710-86

$t_e = -15^\circ\text{C} (5^\circ\text{F})$

$t_c = 30^\circ\text{C} (86^\circ\text{F})$

$\Delta p = 0.07 \text{ bar (1 psig)}$.

DCB

Drying and liquid capacity

R134a, R507, R404A, R407C, R410A, R22

Type	Drying capacity [kg refrigerant] ¹⁾								Liquid capacity [kW] ²⁾			Max Working Pressure PS [bar]
	R134a		R404A R507		R407C R410A		R22		R134a	R404A R507	R22 R407C R410A	
	24°C	52°C	24°C	52°C	24°C	52°C	24°C	52°C				
DCB 082 / 082s	8.3	7.6	7.8	7.1	7.0	6.2	7.8	7.0	3.9	2.8	4.3	46
DCB 083 / 083s									7.4	5.3	8.2	46
DCB 084 / 084s									8.3	6.0	9.2	46
DCB 162	15.6	14.2	14.5	13.3	13.1	11.6	14.6	13.2	7.6	5.3	8.8	46
DCB 163 / 163s									18	13	20	46
DCB 164 / 164s									28	20	32	46
DCB 165 / 165s									37	29	40	46
DCB 303	38.4	34.8	35.8	32.8	32.1	28.5	35.9	32.4	19	15	21	46
DCB 304 / 304s									28	20	31	46
DCB 305 / 305s									38	28	42	46
DCB 307s									43	32	47	35

Ordering

Flare

DMB

Flare

DCB

Type	Conn. in.	Conn. mm	Code no.
DMB 082	1/4	6	023Z1412
DMB 083	3/8	10	023Z1411
DMB 084	1/2	12	023Z1410
DMB 162	1/4	6	023Z1416
DMB 163	3/8	10	023Z1415
DMB 164	1/2	12	023Z1414
DMB 165	5/8	16	023Z1413
DMB 303	3/8	10	023Z1419
DMB 304	1/2	12	023Z1418
DMB 305	5/8	16	023Z1417

Type	Conn. in.	Conn. mm	Code no.
DCB 082	1/4	6	023Z1402
DCB 083	3/8	10	023Z1401
DCB 084	1/2	12	023Z1400
DCB 162	1/4	6	023Z1406
DCB 163	3/8	10	023Z1405
DCB 164	1/2	12	023Z1404
DCB 165	5/8	16	023Z1403
DCB 303	3/8	10	023Z1409
DCB 304	1/2	12	023Z1408
DCB 305	5/8	16	023Z1407

Solder (copper - ODF)

DMB

Solder (copper - ODF)

DCB

Type	Conn. in.	Code no.	Conn. mm	Code no.
DMB 082s	1/4	023Z1443	6	023Z1425
DMB 083s	3/8	023Z1442	10	023Z1424
DMB 084s	1/2	023Z1441	12	023Z1423
DMB 163s	3/8	023Z1446	10	023Z1422
DMB 164s	1/2	023Z1445	12	023Z1421
DMB 165s	5/8	023Z1444	16	023Z1444
DMB 304s	1/2	023Z1449	12	023Z1420
DMB 305s	5/8	023Z1448	16	023Z1448
DMB 307s	7/8	023Z1447	22	023Z1447

Type	Conn. in.	Code no.	Conn. mm	Code no.
DCB 082s	1/4	023Z1434	6	023Z1431
DCB 083s	3/8	023Z1433	10	023Z1430
DCB 084s	1/2	023Z1432	12	023Z1429
DCB 163s	3/8	023Z1437	10	023Z1428
DCB 164s	1/2	023Z1436	12	023Z1427
DCB 165s	5/8	023Z1435	16	023Z1435
DCB 304s	1/2	023Z1440	12	023Z1426
DCB 305s	5/8	023Z1439	16	023Z1439
DCB 307s	7/8	023Z1438	22	023Z1438

Identification

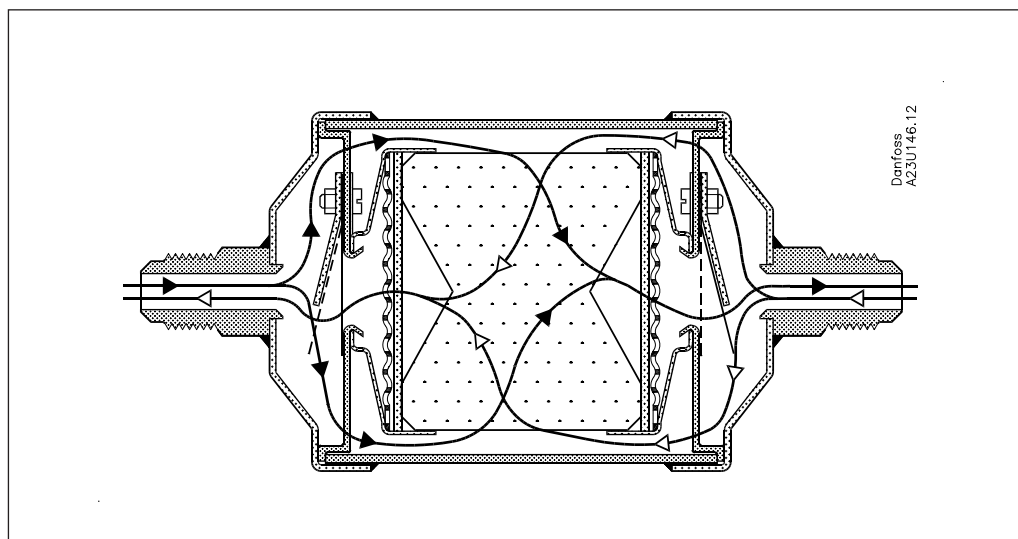
Example for type codes

D M B 16 4 s

Type codes

Filter drier	D	
Solid core	C	C = Core with 80% Molecular Sieve and 20% activated aluminium oxide
	M	M = Core with 100% Molecular Sieve
Application	B	Bi-flow
Size (volume)	08	8 in ³
	16	16 in ³
	30	30 in ³
Connection (filter connection in 1/8 of an inch increments)	2	1/4 in. / 6 mm
	3	3/8 in. / 10 mm
	4	1/2 in. / 12 mm
	5	5/8 in. / 16 mm
	7	7/8 in. / 22 mm
Connection type	(blank)	Flare connection
	s	Solder connection

Construction / flow direction



Selection example

Select the appropriate type (DMB or DCB) based on refrigerant and oil type. Then select the drier size based on the adsorption and liquid capacity required.

drier, a 1/2 inch connection must be chosen. Larger connections can be chosen in accordance with the liquid line dimension.

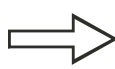
- a. Amount of charge: 15 kg R134a at $t_L = 24^\circ\text{C}$
To dry 15 kg R134a at 24°C from 1050 to 60 ppm moisture, a DMB 16 is necessary.
- b. Cooling capacity: $Q_e = 25 \text{ kW}$
To obtain a mass flow corresponding to 25 kW cooling capacity with a DMB 16 filter

- c. Result
DMB 164 or DMB 165 can be used.

If the initial moisture content is very small or a planned change of the filter drier is considered, a smaller filter drier size can be chosen.

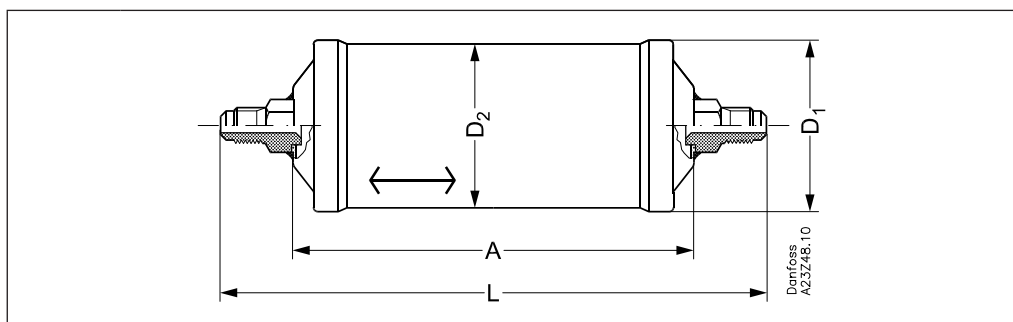
Type	Drying capacity [kg refrigerant] ¹⁾								Liquid capacity [kW] ²⁾			Max Working Pressure PS [bar]
	R134a		R404A R507		R407C R410A		R22		R134a	R404A R507	R22 R407C R410A	
	24°C	52°C	24°C	52°C	24°C	52°C	24°C	52°C				
DMB 162										6.0		46

DMB 162										7.6	5.3	8.8	46
DMB 163 / 163s										18	13	20	46
DMB 164 / 164s	17.8	16.5	16.8	15.7	15.4	14.1	16.8	15.6	28	20	32	46	
DMB 165 / 165s									37	28	40	46	



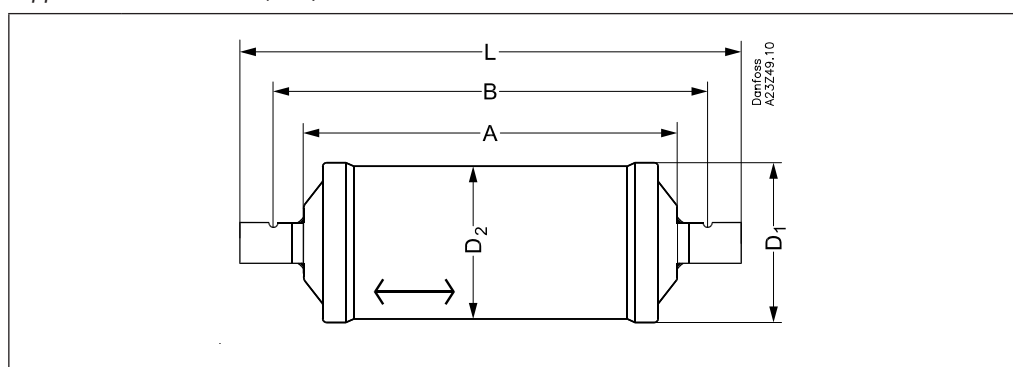
Dimensions and weights

Flare connections:



DMB/DCB	Flare connection		A mm	L mm	D1 mm	D2 mm	Weight kg
	mm	in					
082	6	1/4	103	147	58	54	0.5
083	10	3/8	103	160	58	54	0.5
084	12	1/2	103	168	58	54	0.6
162	6	1/4	112	156	80	76	0.8
163	10	3/8	112	169	80	76	0.8
164	12	1/2	112	177	80	76	0.9
165	16	5/8	112	186	80	76	0.9
303	10	3/8	188	245	80	76	1.1
304	12	1/2	188	253	80	76	1.2
305	16	5/8	188	262	80	76	1.2

Copper solder connections (ODF):



DMB/DCB	Solder connection		A mm	B mm	L mm	D1 mm	D2 mm	Weight kg
	mm	in						
082s	6	1/4	103	119	135	58	54	0.5
083s	10	3/8	103	122	141	58	54	0.5
084s	12	1/2	103	124	145	58	54	0.6
163s	10	3/8	112	131	150	80	76	0.8
164s	12	1/2	112	133	154	80	76	0.8
165s	16	5/8	112	136	160	80	76	0.9
304s	12	1/2	188	209	230	80	76	1.0
305s	16	5/8	188	212	236	80	76	1.1
307s	22	7/8	188	214	250	80	76	1.1

