

Data Sheet

Hermetic bi-flow filter drier Type **DMB** and **DCB**

DMB and DCB are for use in liquid lines on heat pumps.



Hermetic bi-flow filter driers, types DMB and DCB are for use in liquid lines on heat pumps.

Hermetic 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 and 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.

Available with flare and solder (Copper and cupulated steel) connections.

For other connections please contact your Danfoss Sales Representative.

Features

The Core type DMB

- 100% 3Å Molecular Sieve core
- High drying capacity minimizing the risk of acid formation (hydrolysis)
- Recommended for use with HFO, HC, HFC and HCFC refrigerants
- Will not deplete oil additives

The Core type DCB

- 80% 3Å Molecular Sieve with 20% activated alumina
- Perfect core blend for systems that operate at high condensing temperatures and require high drying capacity
- Recommended for use with HFO, HC, HFC and HCFC refrigerants

The Shell

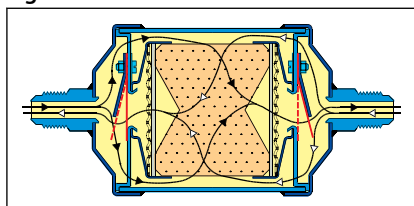
- PED approved for PS 46 bar
- Available with flare and solder (Copper and cu-plated steel) connections
- Optimum flow characteristics and dirt retention
- The check valves are not sensitive to dirt and give minimum restriction, irrespective of flow direction

The Filter

- Particles above 25 µm are retained
- No dirt released by reversing the flow direction
- Available in sizes 05 – 60 cubic inches

Construction

Figure 1: Flow direction



Product specification

Technical data

Figure 2: Flare connection

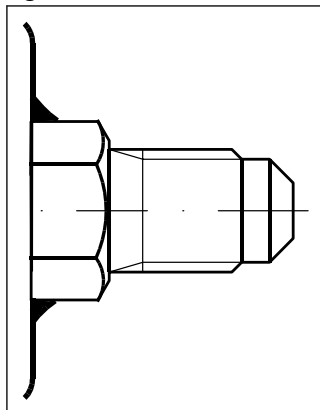


Figure 3: Solder connector (Copper)

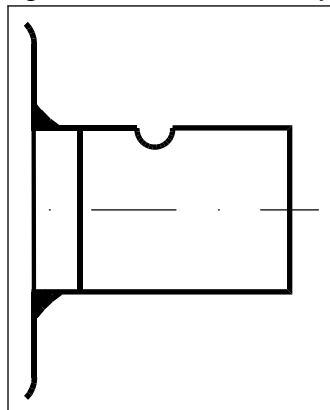


Figure 4: Solder connection (cu-plated steel)

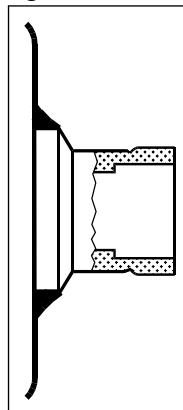


Table 1: Surface and volume

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 05	57	23	0.122	0.085
DMB/DCB 08	90	44	0.173	0.115
DMB/DCB 16	129	80	0.354	0.248
DMB/DCB 30	275	204	0.730	0.501
DMB/DCB 60	550	407	1.27	0.837

Table 2: Acid capacity DCB

Filter	Acid capacity ⁽¹⁾
	[g]
DCB 05	0.52
DCB 08	0.99
DCB 16	1.86
DCB 30	4.51
DCB 60	9.02

⁽¹⁾ Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number).

Temperature range:

-40 – 70 °C

Dirt retention

Particles > 25 µm

Identification

Table 3: Type codes

Type	Codes	Description
Filter drier	D	Drier
Solid core	C	80% Molecular Sieve / 20% activated alumina
	M	100% Molecular Sieve core
Application	B	Bi-flow
Filter housing volume (approx.)	08	8 in. ³
	16	16 in. ³
	30	30 in. ³
	60	60 in. ³

Hermetic bi-flow filter drier, Type DMB and DCB

Type	Codes	Description
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
	9	1 1/8 in.
Connection type	(blank)	Flare connection
	s	Solder connection (cu-plated steel connector)

Example for type codes

D	Filter drier
M	Solid core
B	Application
16	Size (volume)
4	Connection (filter connection in 1/8 of an inch increments)
s	Connection type

Selection

Table 4: Type selection is made considering the application

Refrigerant and oil types		DCB	DMB
Refrigerant	HFO	Recommended	Recommended
	HC ⁽¹⁾	Recommended	Recommended
	HFC	Recommended	Recommended
	HCFC	Recommended	Recommended
Oil	Mineral or AB	Recommended	Recommended
	POE or PAG, pure	Recommended	Recommended
	POE or PAG, with additives	Not recommended ⁽²⁾	Recommended

⁽¹⁾ Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants now

⁽²⁾ DCB Hermetic filter driers contain activated alumina, which is a polar material used for acid adsorption. Many oil additives are also polar substances and can be adsorbed by the activated alumina, rendering them useless, and reducing the drier's acid capacity, though this is not harmful to the system

Dimensions and weights

Figure 5: Flare connection (30 cu.in)

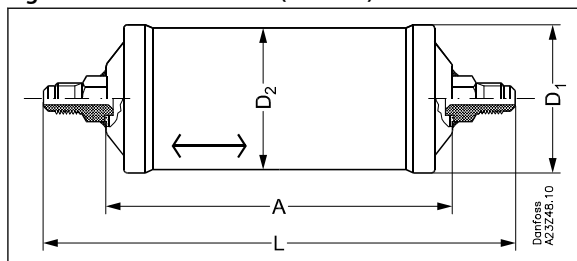


Figure 6: Flare connections (08- 16 cu.in)

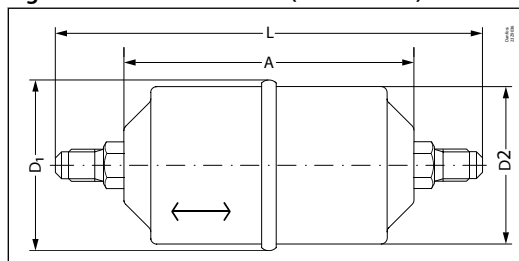


Table 5: DMB and DCB flare connection

Type	A [mm]	L [mm]	D ₁ [mm]	D ₂ [mm]	Net weight [Kg]
DMB/DCB 082	101	145	58	54	0.38
DMB/DCB 083	101	158	58	54	0.42
DMB/DCB 084	101	166	58	54	0.45
DMB/DCB 162	110	154	79	75	0.76
DMB/DCB 163	110	167	79	75	0.79
DMB/DCB 164	110	175	79	75	0.83

Hermetic bi-flow filter drier, Type DMB and DCB

Type	A	L	D ₁	D ₂	Net weight
	[mm]	[mm]	[mm]	[mm]	[Kg]
DMB/DCB 165	110	184	79	75	0.86
DMB/DCB 303	188	245	80	76	1.10
DMB/DCB 304	188	253	80	76	1.20
DMB/DCB 305	188	262	80	76	1.20

Figure 7: Solder connection (cu-plated 30-60 cu.in)

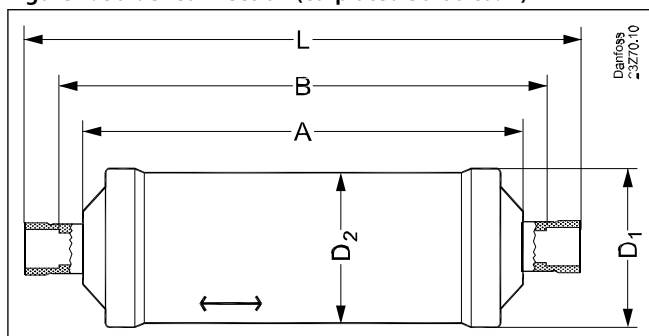


Figure 8: Solder connection (cu-plated 08-16 cu.in)

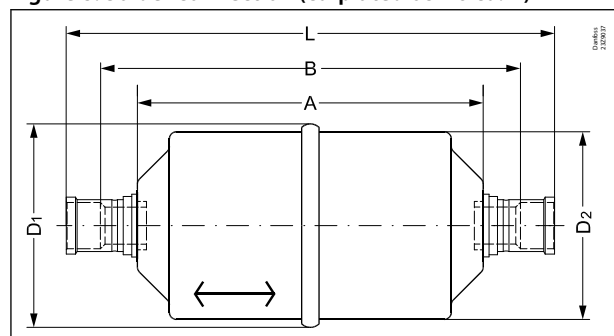


Table 6: DMB and DCB

Type	A	B	L	D ₁	D ₂	Net weight
	[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
DMB/DCB 082s	101	119	133	58	54	0.37
DMB/DCB 083s	101	121	139	58	54	0.38
DMB/DCB 084s	101	123	143	58	54	0.40
DMB/DCB 163s	110	130	148	79	75	0.75
DMB/DCB 164s	110	132	152	79	75	0.77
DMB/DCB 165s	110	136	160	79	75	0.78
DMB/DCB 304s	188	209	230	80	76	1.00
DMB/DCB 305s	188	212	236	80	76	1.10
DMB/DCB 307s	188	214	250	80	76	1.10
DMB 309s	188	198	252	80	76	1.44

Figure 9: Solder connection (pure copper 30 - 60cu.in)

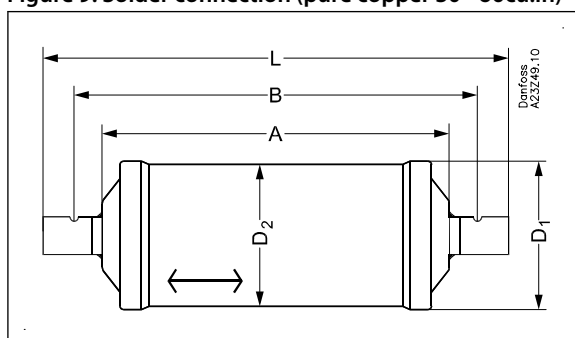


Figure 10: Solder connection (pure copper 05cu.in)

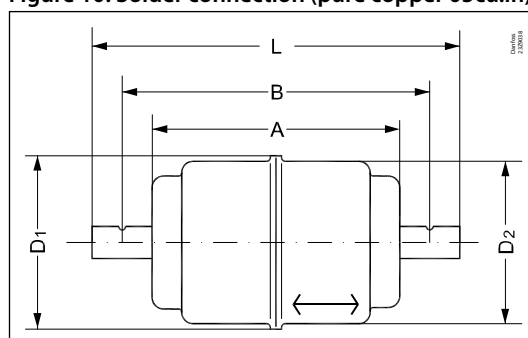
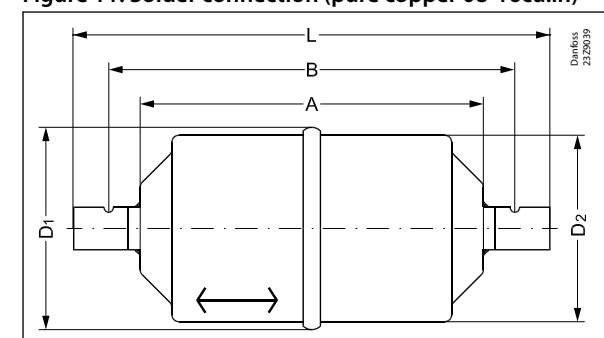


Figure 11: Solder connection (pure copper 08-16cu.in)



Hermetic bi-flow filter drier, Type DMB and DCB

Table 7: DMB/DCB solder connection

Type	Solder connection	A	B	L	D1	D2	Net weight
	[in] [mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg
DMB/DCB 054s	1/2	75	96	117	58	54	0.31
DMB/DCB 055s	5/8	75	99	123	58	54	0.35
DMB/DCB 082s	1/4(6)	101	117	133	58	54	0.36
DMB/DCB 083s	3/8(10)	101	120	139	58	54	0.37
DMB/DCB 084s	1/2(12)	101	122	143	58	54	0.38
DMB/DCB 163s	3/8(10)	110	129	148	79	75	0.74
DMB/DCB 164s	1/2(12)	110	131	152	79	75	0.76
DMB/DCB 165s	5/8(16)	110	134	158	79	75	0.77
DMB/DCB 304s	1/2(12)	188	209	230	80	76	1.00
DMB/DCB 305s	5/8(16)	188	212	236	80	76	1.10
DMB/DCB 307s	7/8(22)	188	214	250	80	76	1.10
DMB/DCB 607s	7/8(22)	319	353	381	80	76	2.00
DMB/DCB 609s	1 1/8	319	353	382	80	76	2.00

Ordering

Figure 12: Flare connection

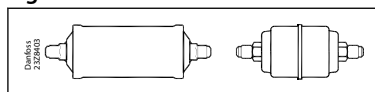


Table 8: Type DMB flare

Type	Conn.		Multi pack	
	[in.]	[mm]	Qty.	Code no.
DMB 082	1/4	6	24	023Z1078
DMB 083	3/8	10	24	023Z1076
DMB 084	1/2	12	24	023Z1074
DMB 163	3/8	10	12	023Z1083
DMB 164	1/2	12	12	023Z1081
DMB 165	5/8	16	12	023Z1080
DMB 303	3/8	10	8	023Z1419
DMB 304	1/2	12	8	023Z1418
DMB 305	5/8	16	8	023Z1417

Table 9: Type DCB flare

Type	Conn.		Multi pack	
	[in.]	[mm]	Qty.	Code no.
DCB 082	1/4	6	24	023Z1068
DCB 083	3/8	10	24	023Z1067
DCB 084	1/2	12	24	023Z1066
DCB 162	1/4	6	12	023Z1073
DCB 163	3/8	10	12	023Z1072
DCB 164	1/2	12	12	023Z1071
DCB 165	5/8	16	12	023Z1069
DCB 303	3/8	10	8	023Z1409
DCB 304	1/2	12	8	023Z1408
DCB 305	5/8	16	8	023Z1407

Figure 13: Solder (cu-plated steel connectors)

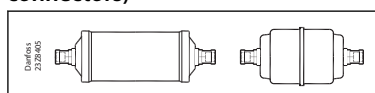


Table 10: Type DMB Solder (cu-plated steel connectors)

Type	Conn.	Multi pack		Industrial pack		Conn.	Multi pack	
	[in.]	Qty.	Code no.	Qty.	Code no.	[mm]	Qty.	Code no.
DMB 082s	1/4	24	023Z2079	–	–	6	24	023Z1996
DMB 083s	3/8	24	023Z2078	16	023Z2091	10	24	023Z1995
DMB 084s	1/2	24	023Z2077	16	023Z2090	12	24	023Z1993
DMB 163s	3/8	12	023Z2082	12	023Z2094	10	12	023Z1992
DMB 164s	1/2	12	023Z2081	12	023Z2093	12	12	023Z1991
DMB 165s	5/8	12	023Z2080	12	023Z2092	–	–	–
DMB 303s	3/8	8	023Z1481	–	–	–	–	–
DMB 304s	1/2	8	023Z1479	–	–	12	8	023Z1451
DMB 305s	5/8	8	023Z1478	8	023Z1487	–	–	–
DMB 307s	7/8	8	023Z1477	8	023Z1498	–	–	–
DMB 309s	1 1/8	–	–	8	023Z1493	–	–	–

Hermetic bi-flow filter drier, Type DMB and DCB

Table 11: Type DCB Solder (cu-plated steel connectors)

Type	Conn.	Multi pack		Industrial pack		Conn.	Multi pack	
	[in.]	Qty.	Code no.	Qty.	Code no.	[mm]	Qty.	Code no.
DCB 082s	1/4	24	023Z1999	-	-	-	-	-
DCB 083s	3/8	24	023Z1998	-	-	10	24	023Z1994
DCB 084s	1/2	24	023Z1997	-	-	-	-	-
DCB 163s	3/8	12	023Z2076	-	-	-	-	-
DCB 164s	1/2	12	023Z2075	-	-	12	12	023Z1099
DCB 165s	5/8	12	023Z2074	12	023Z2089	-	-	-
DCB 304s	1/2	8	023Z1470	-	-	-	-	-
DCB 305s	5/8	8	023Z1469	-	-	-	-	-
DCB 307s	7/8	8	023Z1468	-	-	-	-	-

Figure 14: Solder (pure copper)

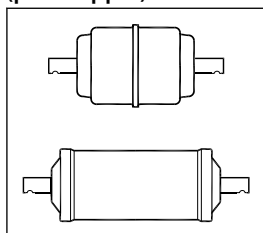


Table 12: DMB solder (copper connectors)

Type	Conn.	Multipack		Industrial pack		Conn.	Multipack	
	in.	qty.	Code no.	qty.	Code no.	mm	qty.	Code no.
DMB054s	1/2	24	023Z2088	-	-	-	-	-
DMB055s	5/8	24	023Z2098	-	-	-	-	-
DMB 082s	1/4	24	023Z1093	-	-	-	-	-
DMB 083s	3/8	24	023Z1091	16	023Z2085	-	-	-
DMB 084s	1/2	24	023Z1090	-	-	-	-	-
DMB 163s	3/8	12	023Z1098	12	023Z2087	10	24	023Z1091
DMB 164s	1/2	12	023Z1096	-	-	12	-	-
DMB 165s	5/8	12	023Z1094	12	023Z2086	16	12	023Z1094
DMB 304s	1/2	8	023Z1449	-	-	12	-	-
DMB 305s	5/8	8	023Z1448	-	-	16	8	023Z1448
DMB 307s	7/8	8	023Z1447	-	-	22	8	023Z1447
DMB 607s	7/8	-	-	6	023Z1654	-	-	-
DMB 609s	1 1/8	-	-	6	023Z1653	-	-	-

Table 13: DCB solder (copper connectors)

Type	Conn.	Multipack		Industrial pack		Conn.	Multipack	
	in.	qty.	Code no.	qty.	Code no.	mm	qty.	Code no.
DCB 083s	3/8	24	023Z1086	-	-	-	-	-
DCB 163s	3/8	12	023Z2097	-	-	-	-	-
DCB 164s	1/2	12	023Z1089	-	-	-	-	-
DCB 165s	5/8	12	023Z1088	-	-	16	12	023Z1088
DCB 304s	1/2	8	023Z1440	-	-	-	-	-
DCB 305s	5/8	8	023Z1439	-	-	16	8	023Z1439
DCB 307s	7/8	8	023Z1438	-	-	22	8	023Z1438
DCB 607s	7/8	-	-	6	023Z1652	-	-	-
DCB 609s	1 1/8	-	-	6	023Z1651	-	-	-

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

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Document name	Document type	Document topic	Approval authority
SA 6398	UL Certificate	Mechanical Safety Certificate	UL
023Z9601.AF	Manufacturer's Declaration	ATEX/PED/RoHS	Danfoss
023Z9610.AA	Manufacturer's Declaration	China RoHS	Danfoss
RU Д-ДК.АИ08.В.00828_19	EAC Declaration	Machinery & Equipment	EAC

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