Data sheet



Oil separator

OUB

Oil seperator type OUB is for use in all refrigeration plants

Description

Oil separator type OUB is for use in all refrigeration plants where the compressor lubricating oil must be returned directly to the compressor oil sump under all operating conditions.
In this way lubricating oil from the compressor is prevented from circulating with the refrigerant in the refrigeration system itself.

Features & benefits

- Ensures oil return to compressor oil sump. Prevents compressor breakdown caused by lack of lubrication. Increases compressor operating life
- High efficiency due to the interaction of reduced flow velocity, change of flow direction for oil concentration, collection of separated oil at high temperatures, and automatic oil return to the crankcase
- Protects against liquid hammer in the compressor
- Better utilisation of condenser and evaporator capacity (no oil-gas collection)
- Pulsation and noise damping on the high-pressure side of system
- OUB 1 may be used in the following EX range:
  Category 3 (Zone 2)

Ordering

Product code numbers

Figure: OUB 1 / OUB 4

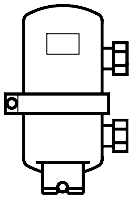


Table: OUB 1 / OUB 4

Type	Connection			Rated plant capacity [kW]					Code no. for OUB + unions (straightway)
	[in]	[mm]	Version	R22	R134a	R404A	R507	R407C	
OUB 1	⅜	10	Flare	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0132
	⅜	–	Solder	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0140
	½	12	Flare	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0134
	½	–	Solder	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0142
	⅝	16	Flare	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0136
	⅝	16	Solder	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0144
	Without connection unions								040B0010
OUB 4	⅝	16	Flare	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0256
	⅝	16	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0266
	¾	–	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0268
	⅞	–	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0270
	1 ⅛	–	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0274
	Without connection unions								040B0040

Figure: OUB 1s

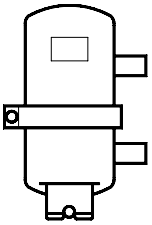


Table: OUB 1s

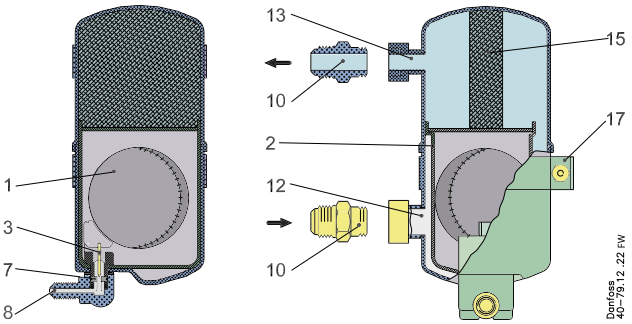
Type	Connection		Rated plant capacity [kW]	Code no. for OUB + unions (straightway)
	[mm]	Version	R22	
OUB1s[1]	10	Solder	3.1	040B0023
OUB1s[2]	10	Solder	3.1	040B0029

[1] ¼ inch flare connection to oil return line

[2] 6 mm ODF solder connection to oil return line

Functions

Figure: OUB 1 / OUB 4



1	Float
2	Oil container
3	Float needle
7	Orifice
8	Return oil connection (¼ inch / 6 mm), flare/solder
10	Connection nipple
12	Inlet connection refrigerant vapour
13	Outlet connection refrigerant vapour
15	Oil concentrator
17	Fixing strap

The very effective function of the OUB is due to the interaction of the following:

- Velocity and change of flow direction of the incoming mixture of oil and refrigerant
- Oil concentration, separation, and filtration
- Storage of separated oil at high temperatures, thus preventing absorption of the refrigerant.

Refrigerant vapour is led through the inlet connection (12). The oil contained in the vapour is separated as a result of the change in velocity and direction through the oil concentrator (15) which at the same time also acts as an oil filter.
When the superheated refrigerant vapour flows around the oil container (2) some of the superheat is given off. In this way the oil container reaches a constant high temperature, and the separated oil is stored in a warm state, i.e. with as low a refrigerant content as possible. Thus, the refrigerant is prevented from flowing to the crankcase where it could cause violent boiling.
The float (1) opens the needle valve (3) depending on the amount of oil, whereupon the condensing pressure forces the oil back to the crankcase therefore ensuring automatic oil return.

Product details

General data

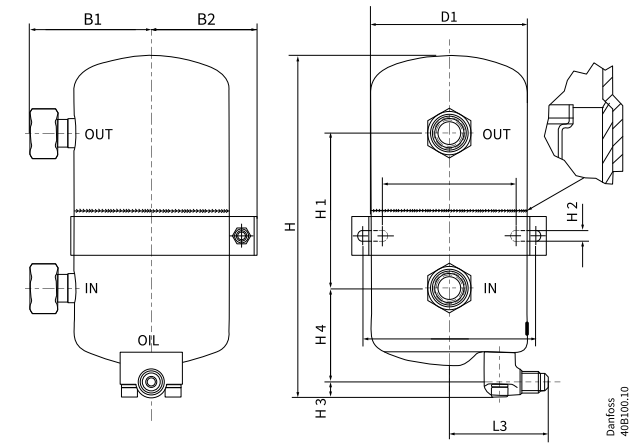
Table: For type OUB

Features	Specifications
Max. working pressure	PS/MWP = 28 bar
Max. test pressure	P_e = 40 bar
Temperature of medium	-40 – 120 °C
Net volume	OUB 1: 0.52 l
	OUB 4: 2.46 l
Oil reservoir	OUB 1: 0.1 l
	OUB 4: 0.5 l
Recommended tightening torque of unions	OUB 1: 40 Nm
	OUB 4: 90 Nm

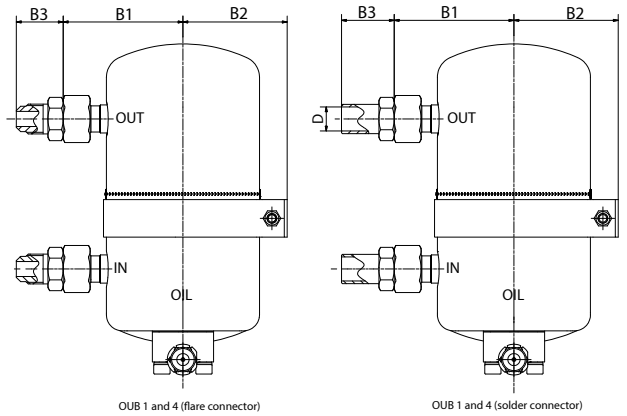
For complete list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of technical data.

Dimensions

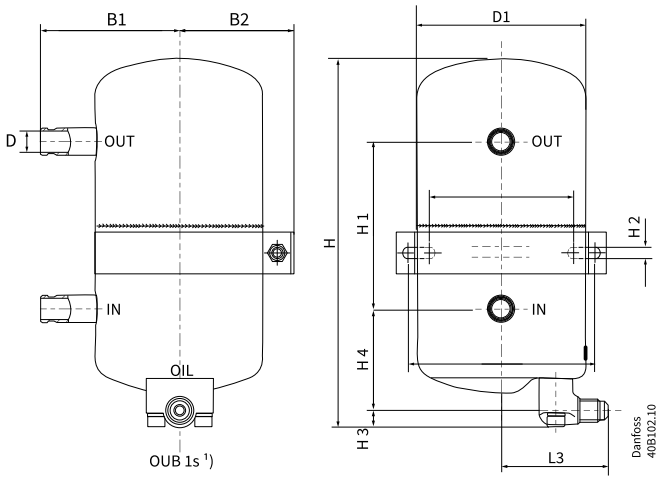
OUB 1 / OUB 4 (without connection unions)



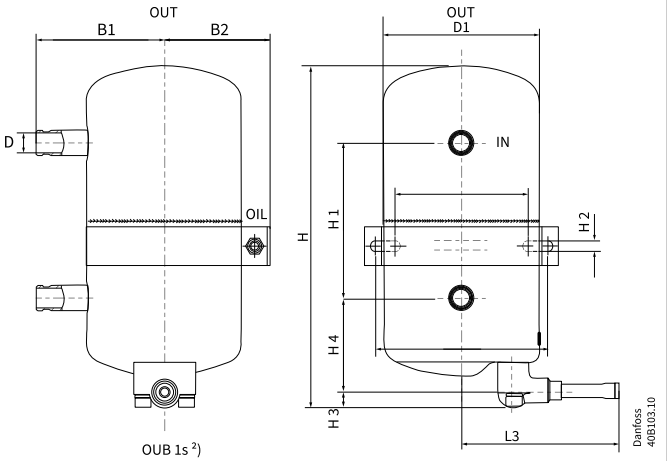
OUB 1 / OUB 4 (flare & solder connection)



Flare connection to oil return line



Solder connection to oil return line



1) OUB 1s ¼ inch flare connection to oil return line

2) OUB 1s 6 mm ODF solder connection to oil return line

Connections

Table: Flare connection

Type	Flare connection		H	H_1	H_2	H_3	H_4	L_1	L_2	L_3	B_1	B_2	B_3	$øD_1$	Net weight
	[in]	[mm]													
OUB 1	⅜	10	177	80	5.5	9	49	69	89	50	60	55	30	81	1.2
	½	12	177	80	5.5	9	49	69	89	50	60	55	31	81	1.3
	⅝	16	177	80	5.5	9	49	69	89	50	60	55	38	81	1.4
OUB 4	⅝	16	263	126	8.5	9	67	111	143	72	94	85	44	131	4.6
	¾	16	263	126	8.5	9	67	111	143	72	94	85	49	131	4.7
	1	25	263	126	8.5	9	67	111	143	72	94	85	51	131	4.8

Table: Solder connection

Type	Solder connection		H	H_1	H_2	H_3	H_4	L_1	L_2	L_3	B_1	B_2	B_3	$øD_1$	øD	Net weight
	[in]	[mm]														
OUB 1	⅜	10	177	80	5.5	9	49	69	89	50	60	55	29	81	9.6	1.2
	½	12	177	80	5.5	9	49	69	89	50	60	55	31	81	12.8	1.2
	⅝	16	177	80	5.5	9	49	69	89	50	60	55	42	81	16.0	1.3
OUB 1s	–	10	177	80	5.5	9	49	69	89	81	65	55	–	81	10.0	1.2
	–	10	177	80	5.5	9	49	69	89	50	65	55	–	81	10.0	1.2
OUB 4	⅝	16	263	126	8.5	9	67	111	143	72	94	85	40	131	16.0	4.3
	¾	18	263	126	8.5	9	67	111	143	72	94	85	45	131	19.1	4.3
	⅞	22	263	126	8.5	9	67	111	143	72	94	85	45	131	22.3	4.3
	1	25	263	126	8.5	9	67	111	143	72	94	85	45	131	25.5	4.3
	1 ⅛	28	263	126	8.5	9	67	111	143	72	94	85	47	131	28.7	4.3

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.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Mechanical Safety Certificate	UL SA3736	UL - Underwriters Laboratories inc.	
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Manufacturer's Declaration	Danfoss MD 034R9541.AA	Danfoss	China RoHS
Manufacturer's Declaration	Danfoss MD 040B0625.AB	Danfoss	PED, Pressure
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.07-22	LLC CDC EURO TYSK - Ukraine	Pressure
UA Declaration	Danfoss UA 2023-01-10 Filters PL01	Danfoss	PED, Pressure

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