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DECEMBER 2017

# Conventional breather

## Order sheet



# Conventional breather

## Application

Type	Features (available for standard version)									Options	
	Quantity of Oil (t) <sup>(a)</sup>	Silica gel Volume (dm <sup>3</sup> )	Silica gel Weight (Kg)	Corrosion protection: C4 Moderate salinity (ISO 12944)	Hydraulic closing	Mechanical closing	Polycarbonate tube	Flange connection	Female connection	Corrosion protection: C5 Off Shore (ISO 12944)	Glass tube
E11	0÷4	0.25	0.2	■	-	■	■	-	■	-	-
1	0÷8	0.46	0.37	■	■	■	■	-	■	●	●
2	0÷8	0.95	0.76	■	■	■	■	■	■	●	●
3	8÷20	2.75	2.2	■	■	■	■	■	■	●	●
4	8÷20	6.5	5.2	■	■	■	■	■	■	●	●
5	20÷60	13.3	10.5	■	■	■	■	■	■	●	●
6	20÷60	19	15.2	■	■	■	■	■	■	●	●
7	>60	32	25.6	■	■	-	■	■	-	●	●
8	>60	58	46.3	■	■	-	■	■	-	●	●

(a) The oil quantities assigned to size classes are oriented on normal European ambient condition as given in EN50216-1, Table 1. The values are intended to give guidance to the user: The proper choice must take into consideration the real environmental conditions, the thermal cycles due to the service conditions of the transformer and the maintenance cycle.

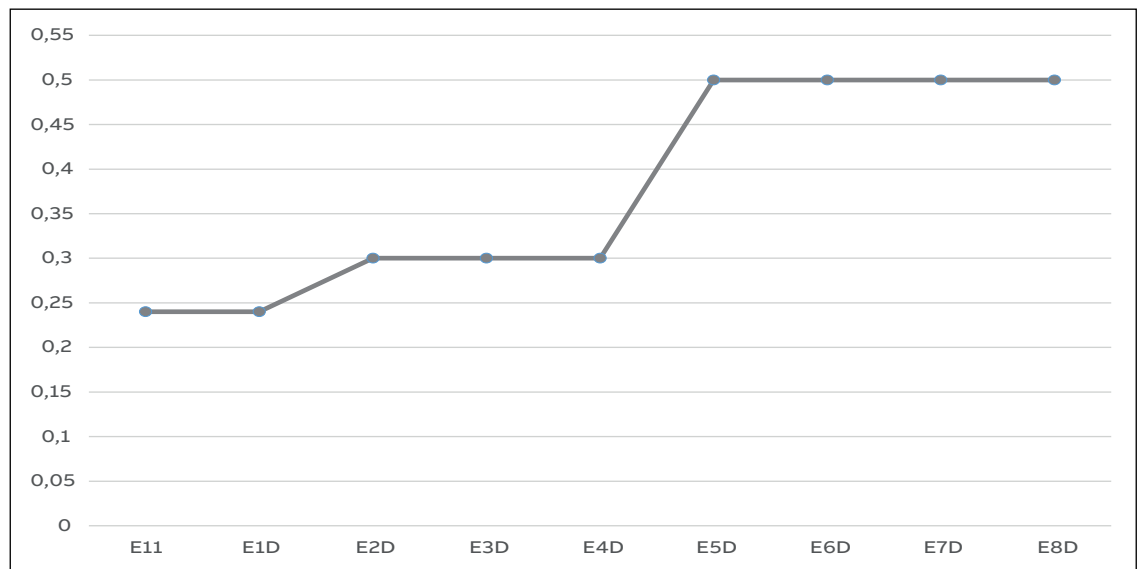


# Conventional breather

## Technical data

Technical data	
<b>Material</b>	All the external part are resistant to transformer oils, salt fog and UV rays
<b>Ambient temperature</b>	-40 to 80°C / -40 to 176°F (4)
<b>Adding flange for fixing</b>	Standard in the lower part for the types 7 and 8
<b>Desiccant</b>	Colored, non-poisonous silica gel; amount according application table above (The color change from orange to green absorbing humidity)
<b>Protection</b>	Stainless steel pipe protection against accidental blows, with opening that allow visual inspection on the salt
<b>Pressure Load Loss of air through the dehumidifier</b>	0.003 Kg /cm <sup>2</sup> for inlet air, 0.005 Kg/cm <sup>2</sup> for outlet air
<b>Dehumidifier flow capacity (hydraulic type)</b>	See graph 1
<b>Equilibrium capacity for water vapour at 25°C and given relative humidity</b>	See table 1

Dehumidifier hydraulic type - Max flow rate (dm<sup>3</sup>/sec)



Graph 1

Equilibrium capacity for water vapor at 25°C and given relative humidity	
10% R.H.	6.4 w.t.%
20% R.H.	10.7 w.t.%
40% R.H.	22.7 w.t.%
60% R.H.	33.3 w.t.%
80% R.H.	36.3 w.t.%

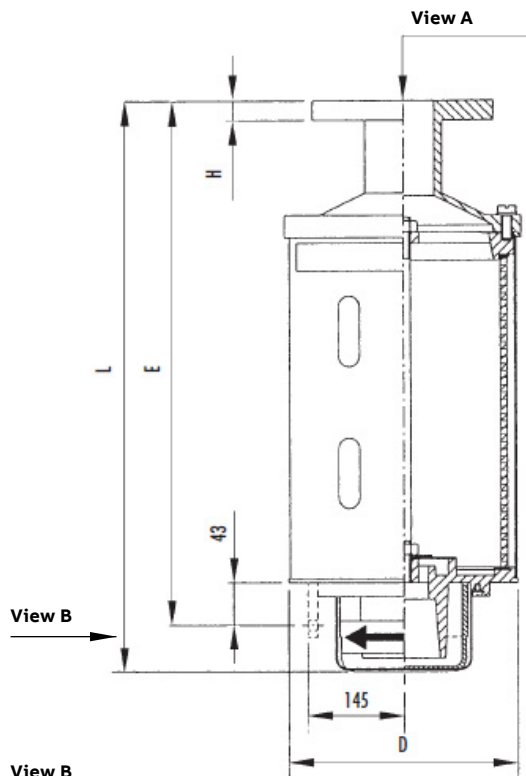
Table 1

# Conventional breather

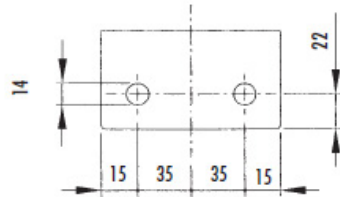
## Dimensions

### Type DA - DB

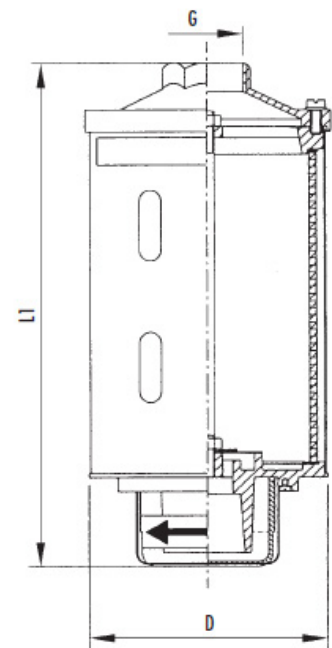
Type DA



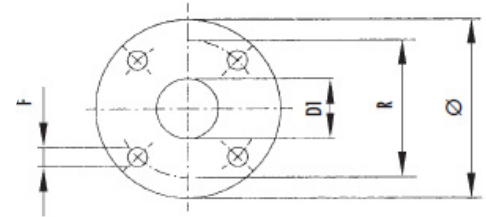
View B  
(Bracket available for types 7-8)



Type DB



View A



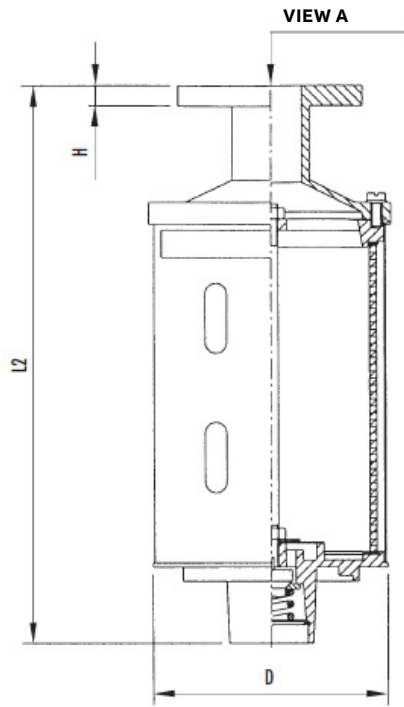
Type	L2 Tol.±5 mm	L3 Tol.±5 mm	D1 mm	H mm	Ø mm	R mm	F mm	G UNI-ISO228	E mm	D Tol.±5 mm	DA Kg	DB Kg
2	265	210	30	12	100	75	12	G1 <sup>2</sup>	-	140	3	2.7
3	360	310	44	14	130	100	14	G1 <sup>2</sup> ½	-	175	5.4	5
4	610	560	44	14	130	100	14	G1 <sup>2</sup> ½	-	175	9.4	8.8
5	675	625	57	15	140	110	14	G2 <sup>2</sup>	-	220	16.7	16.5
6	895	845	57	15	140	110	14	G2 <sup>2</sup>	-	220	22.5	22.2
7	840	-	57	15	140	110	14	-	728	330	40.6	-
8	1225	-	57	15	140	110	14	-	1113	330	65.3	-

# Conventional breather

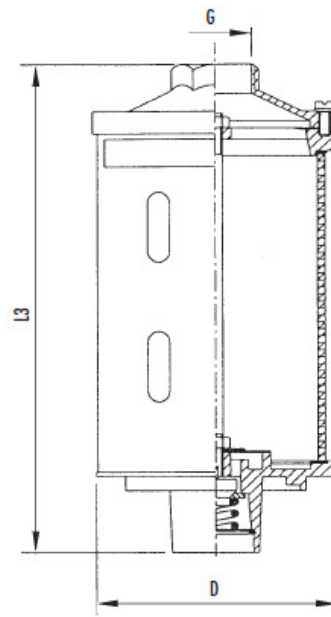
## Dimensions

**Type MA - MB**

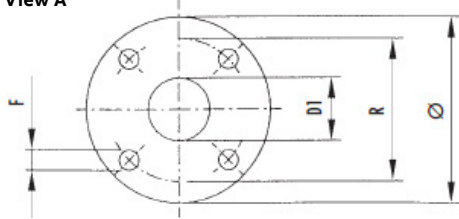
Type MA



Type MB



View A



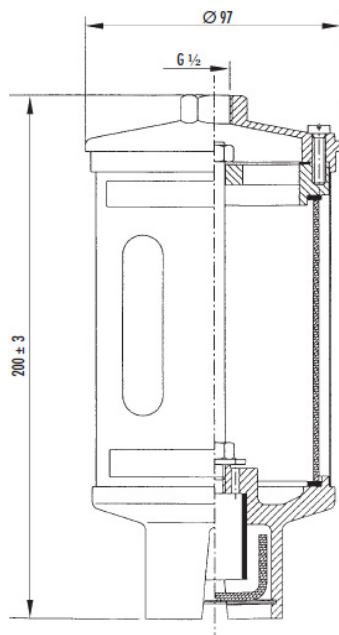
Type	L2 Tol.±5 mm	L3 Tol.±5 mm	D1 mm	H mm	Ø mm	R mm	F mm	G UNI-ISO228	D Tol.±5 mm	DA Kg	DB Kg
2	260	210	30	12	100	75	12	G1"	140	2.7	2.5
3	350	300	44	14	130	100	14	G1" ½	175	5.2	5
4	600	550	44	14	130	100	14	G1" ½	175	8	7.8
5	660	615	57	15	140	110	14	G2"	220	16.5	16.2
6	880	835	57	15	140	110	14	G2"	220	22.5	22.2

# Conventional breather

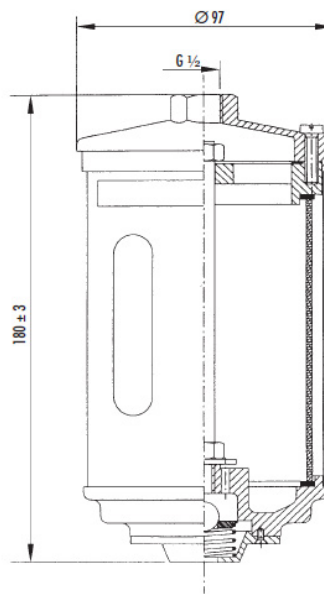
## Dimensions

### Type 1 DB - 1 MB

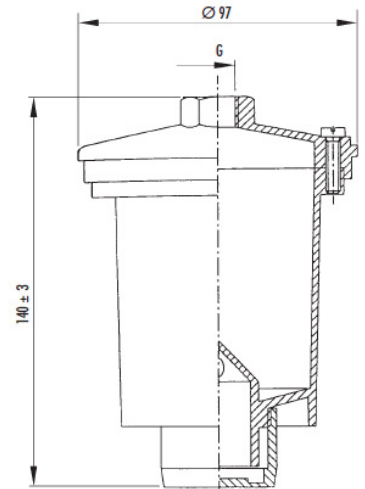
Type 1 DB



Type 1 MB



### Type E11 (a)



### Type 1 DB - 1 MB

ABB code	Type	Silica gel (dm <sup>3</sup> )	Weight (Kg)
1EM01DB000	EM1DB	0.5	1.15
1EM01MB000	EM1MB	0.5	1.15
1EC01DB000	EC1DB	0.5	1.3
1EC01MB000	EC1MB	0.5	1.3

### Type E11

ABB code	Type	Silica gel (dm <sup>3</sup> )	G – UNI-ISO 228	Weight (Kg)
1EM1100000	E11	0.25	G 3/8 <sup>2</sup>	0.4
1EM1100001	E11	0.25	G 1/2 <sup>2</sup>	0.4

(a) E11 is a dehumidifier with its top made of painted aluminum while the rest of the container is made of cellulose triacetate (commercial name: Cellidor)

# Conventional breather

## Order specification sheet

Date	
Rev.	
Customer reference	

Protection pipe material	
	Glass (for critical environmental, as desert, ...)
	Polycarbonate, E11

Model	
	E11, E1,5 (distribution application)
	All the others

Size	Quantity of oil (ton)
Type 1 - E11	0÷8
Type 2	0÷8
Type 3	8÷20
Type 4	8÷20
Type 5	20÷60
Type 6	20÷60
Type 7	>60
Type 8	>60

Bottom Closing type	Reference
Hydraulic (oil filter)	Fig. 1
Mechanic	Fig. 2
Special design	In agreement with customer demand
None	-
Type 8	>60

Connection	Reference
With EN Flange	Fig. 3
With female thread	Fig. 4

Corrosion withstand class	
	C4 acc. to ISO 12944 (Standard)
	C5-M acc. to ISO 12944 (Not paintable)

Color	
RAL 7032	Standard
	Special

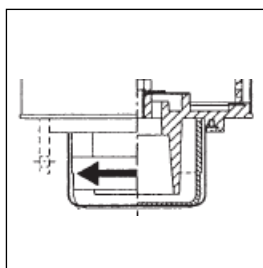


Fig. 1

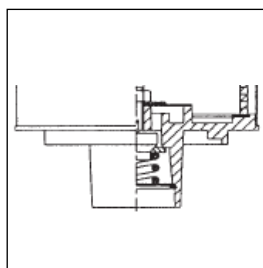


Fig. 2

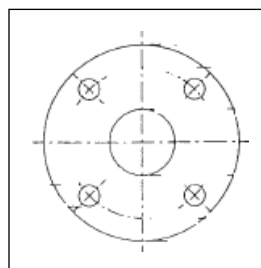


Fig. 3

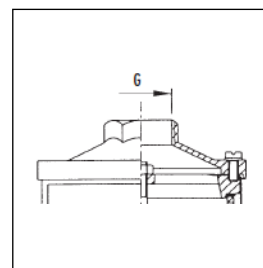


Fig. 4