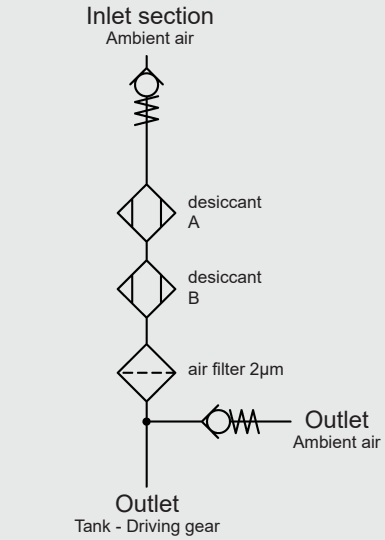
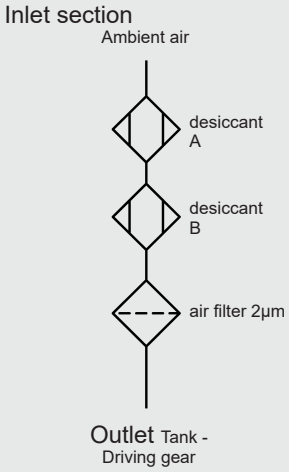
BDE
Breather dryer

Symbol: BDE with valves



Symbol: BDE without valves



1. SIZES

BDE 400 BDE 1000

2. TECHNICAL DATA

Filter specifications	
Temperature range	-30 °C to +100 °C Storage temperature: -10 °C to +30 °C
Material of filter housing	Plastic (PA, PC and POM)
Material of filter cartridge	Combination of 2 different desiccants
Material of air filter element	phenolic resin impregnated paper

3. GENERAL DESCRIPTION

3.1 FILTER HOUSING

Design

The special feature of the breather dryers BDE is that they have two separate chambers. This means that two desiccants can be used, and this combination leads to greater total water absorption (two-stage dewatering).

As an option, and as a special protection of the desiccant, four valves are built into the bottom of the unit so that during system shutdown the drying agents will not become saturated. The bypass valves still prevent air leaking from the tank/ driving gear from flowing back over the desiccant. Escaping oil mist can, for example, reduce the BDE's water absorption.

Description

In hydraulic and lubrication systems, water ingress into the tank is a familiar problem. System operators are constantly faced with high breakdown and maintenance costs that can be traced back to water in the system. This is because water, even in its dissolved state, causes accelerated degradation of the additive components by hydrolysis. These reactions cause the oil to lose its desired characteristics and to age more rapidly. The depletion of the additives also leads to increased oxidation in the base fluid.
Water also has serious and adverse effects on the operating system components, damaging them by corrosion and hydrogen embrittlement.

3.2 FILTER MEDIUM

The built-in pleated air filter element (absolute filtration of particles > 2 µm) provides the filter with a very high contamination retention capacity (26g). In order to ensure reliable function, the entire cartridge must be replaced.

When the filter is due to be changed, the colour changes from dark red to light orange.

3.3 COMPATIBILITY WITH OPERATING FLUIDS (ISO 2943)

The filter cartridge actively prevents contamination particles and humidity from entering the tank. Compatible with mineral oils and bio oils as well as diesel.

The new BDE is not suitable as a breather for tanks containing highly flammable liquids (e.g. fuel, solvents, etc...)!

3.4 SEALS

NBR (= Perbunan)

3.5 SPECIAL DESIGNS AND ACCESSORIES

on request

3.6 SPARE PARTS

See Original Spare Parts List

3.7 CERTIFICATES AND APPROVALS

on request

3.8 CHANGING INTERVALS

When the filter is due to be changed, the colour changes reliably from dark red to light orange.

4. MODEL CODE

4.1 FILTER ASSEMBLY

BDE 400 G 2 W 1 . X /-RV0.003

Filter type
BDE

Size of filter
400, 1000

Type and size of connection
F Flange (to DIN 24557) G
Thread
N Thread NPT
M Thread metric

Filtration rating in µm
2 2 µm absolute

Type of clogging indicator
W without port, no clogging indicator
UBM vacuum indicator

Type code

Type code	Thread connection G	Thread connection N	Thread connection M	Flange connection F
1	G1	NPT 1"	M42x2	T2
2	G 3/4	NPT 2"	–	–

Modification number
X the latest version is always supplied

Supplementary details
ELF with filler strainer (only for connection type F = flange)
RV0.003 bypass/protection valve with 0.003 bar rated pressure

4.2 REPLACEMENT CARTRIDGE

BDE 400 X 2 W 0 . X

Filter type
BDE

Size
400, 1000

Connection type
X replacement cartridge

Filtration rating
2 2 µm absolute

Type of clogging indicator
W without port, no clogging indicator
UBM vacuum indicator

Type code
0 replacement cartridge

Modification number
X the latest version is always supplied

5. FILTER CALCULATION

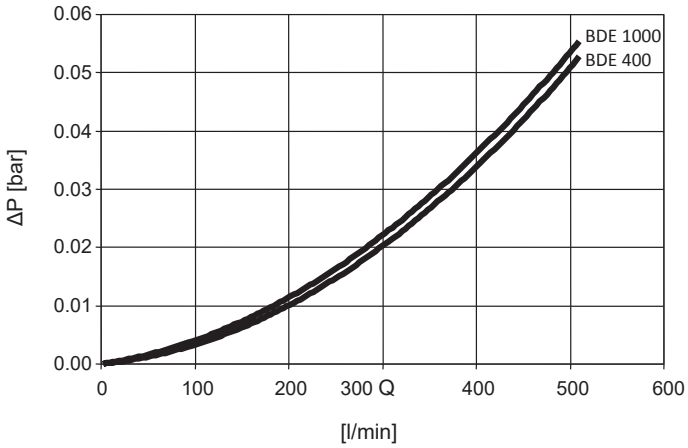
5.1 SIZING GUIDELINES

The rate at which contamination enters a hydraulic system can be considerably reduced by using efficient tank breather filtration.

CAUTION:

Incorrectly sized tank breather filters can place additional strain on the system and reduce the service life of hydraulic filter elements.

Δp-Q performance curve:



5.2 SIZING / AIR FLOW RATE

The following table indicates the size of BDE filters for gearbox lubrication in wind power plants (according to size in megawatts):

	≤ 1 MW	1-3 MW	≥ 3 MW
Standard conditions	400	400	1000
Longer service life/ service intervals	400	1000	2x1000
Very humid climate	400	1000	2x1000

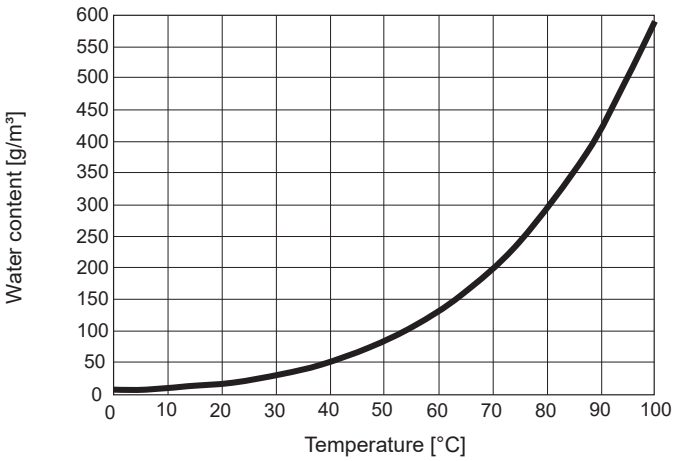
Additional information on sizing criteria:

Size	Optimum air flow rate * [l air / min]	Max. drying capacity for average humidity [m³ air]	Max. drying capacity for high humidity [m³ air]
400	20	25	15
1000	35	42	25

Size	For hydraulic tanks		max. tank size with stat. venting, e.g. gears
	max. suction rate	max. tank size	
400	150 lpm	600 l	1000 l
1000	180 lpm	1000 l	2000 l

* Air flow rate with the highest drying efficiency

Saturation content:

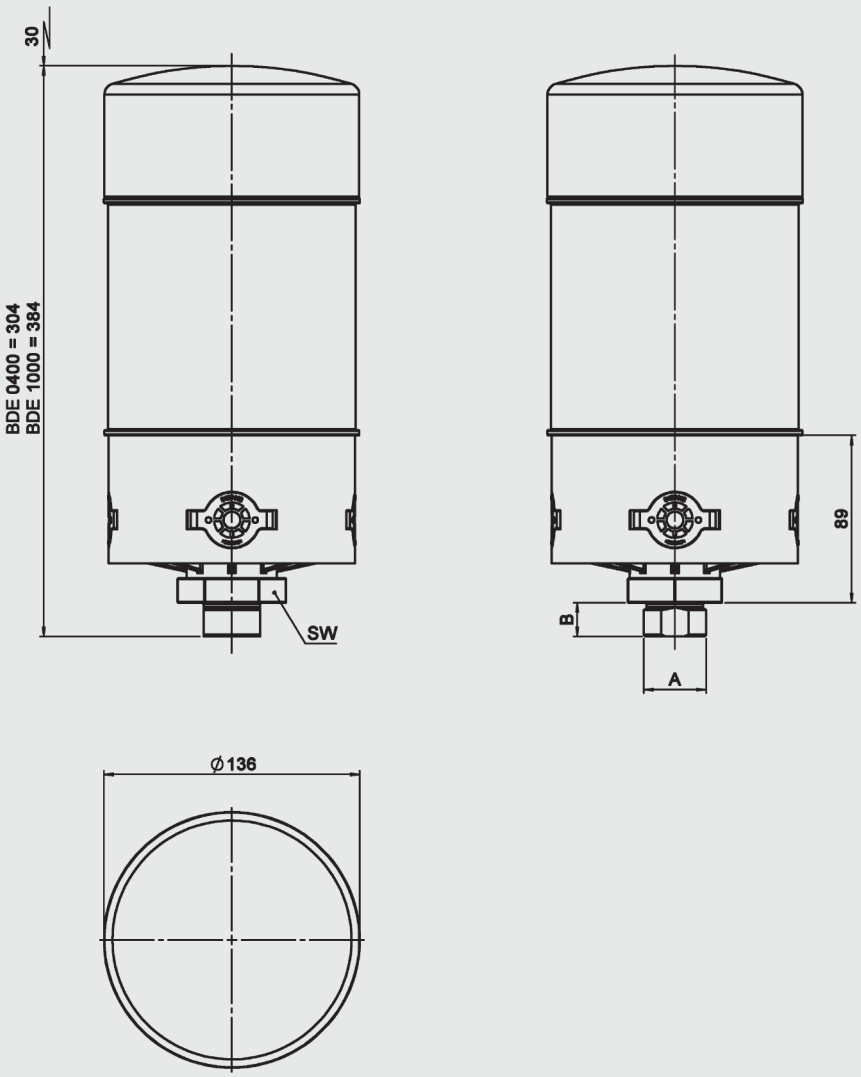


5.3 WATER RETENTION CAPACITY

Size	Maximum water retention capacity
400	0.50 l
1000	0.75 l

6. DIMENSIONS

6.1 DIMENSIONS AND CONNECTIONS



Connection	Thread length B [mm]	AF width SW [mm]
G 1"	18	50
G 3/4"	18	50
M42 x 2	18	50
NPT 1"	18	50
NPT 2"	24	65
Flange adapter DIN24557/Pt 2	20	50

Type	Weight [kg]
BDE 400	2.3
BDE 1000	3.0

NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications and/or operating conditions not described please contact the relevant technical department.

Subject to technical modifications.