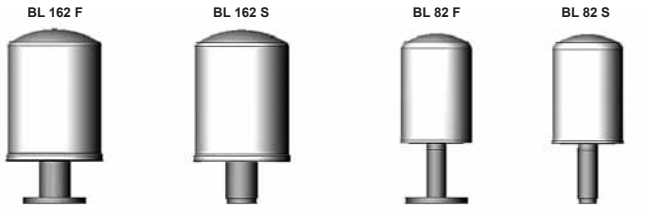
Tank Breather Filter with Spin-On Filter Cartridge BL

up to 1800 l/min



1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Construction

The filters consist of a spin-on filter can which screws onto a connection tube which is fitted to the oil tank.

The connection can either be a flanged or weld version.

1.2 FILTER ELEMENTS

Contamination retention capacities in g

BL	10 µm	20 µm
82	67.6	99.4
162	192.0	201.3

The filter elements are made from phenolic resin impregnated paper and cannot therefore be cleaned.

1.3 FILTER SPECIFICATIONS

Temperature range	-30 °C to +100 °C
Material of connection tube	Steel
Material of spin-on can	Sheet steel
Type of clogging indicator	VMF (pressure gauge)
Type of clogging indicator	0.6 bar (K pressure gauge)

1.4 SEALS

Perbunan (= NBR)
Cardboard on the mounting flange

1.5 SPECIAL MODELS AND ACCESSORIES

- With connection for a clogging indicator
- With filler adapter

1.6 SPARE PARTS

See Original Spare Parts List

1.7 CERTIFICATES AND APPROVALS

On request

1.8 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

The standard models are suitable for use with mineral and lubrication oils. For fire-resistant and biodegradable oils, see tables:

Fire-resistant fluids

BL	HFA	HFC	HFD-R
82	●	●	–
162	●	●	–

● contact our Technical Sales Department
– not suitable

- HFA oil in water emulsion (H_2O content ≥ 80%)
- HFC water polyglycol solution (H_2O content 35-55%)
- HFD-R synthetic, water-free phosphate ester

Biodegradable fluids

BF	HTG	HE	HPG PAG	HPG PRG
82, 162	+	+	●	●

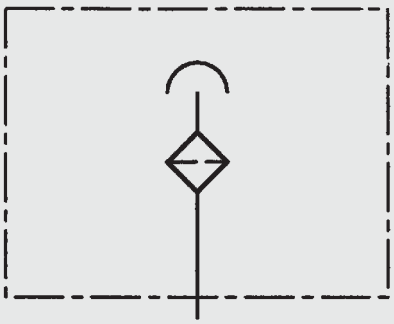
\+ suitable for all
● contact our Technical Sales Department

- HTG vegetable oil based hydraulic fluids
- HE ester-based synthetic hydraulic fluids
- HPG polyglycol-based synthetic hydraulic fluids
- PAG sub-group HPG: polyalkylene glycol
- PEG sub-group HPG: polyethylene glycol

1.9 CHANGING INTERVALS

The filter elements or filters must be replaced as frequently as the fluid filters, but at least every 12 months.

Symbol



2. MODEL CODE (also order example)

BL P 162 S 10 W 1 . X /-FA12

2.1 COMPLETE FILTER

Filter type
BL

Filter material of element
P Paper
BN Betamicron® (for BL 82: only 20 µm available)

Size of filter or element
BL: 82, 162

Type and size of connection

Type	Connection	Filter size	
		82	162
F	Flange connection	●	●
S	Weld connection	●	●

Filtration rating in µm
P 10 absolute = 3µm in air
BN 10 = 1 µm absolute in air
20 = 2 µm absolute in air

Type of clogging indicator
W without port, no clogging indicator
K pressure gauge, measurement range -1 to +0.6 bar

Type code
1 for BL 82
2 for BL 162

Modification number
X the latest version is always supplied

Supplementary details
FA12 with filler adapter G ½
FA34 with filler adapter G ¾
FA1 with filler adapter G 1
only for BL 162

2.2 REPLACEMENT ELEMENT

0080 MG 010 P

Size
0080 only BL 82
0160 only BL 162

Type
MA only BL BN 162...
MU only BL P 162...
MG only BL .. 82...

Filtration rating in µm
P : 010
BN : 010, 020 (for BL 82: only 20 µm available)

Filter material
P, BN

2.3 REPLACEMENT CLOGGING INDICATOR

VMF 0.6 K . X

Type of indicator
VMF pressure gauge

Pressure setting
0.6 -1 to +0.6 bar

Type of clogging indicator
K (see Point 2.1)

Modification number
X the latest version is always supplied

3. FILTER CALCULATION / SIZING

3.1 SINGLE PASS FILTRATION PERFORMANCE DATA FOR AIR FILTER ELEMENTS

The following separation values were established under real-life simulated conditions.

This means that the selected velocity of the flow against the filter mesh-pack was 20 cm/s and the contamination added was 40 mg/m³ of ISO MTD test dust.

Filtration rating	Retention value d...	For particle size	Filter material
10 µm	d 80	0.25 µm	BN
	d 100	0.84 µm	
20 µm	d 80	0.36 µm	
	d 100	1.21 µm	
10 µm	d 80	1.49 µm	P
	d 100	9.56 µm	

The d 80 value refers to the particle size which is filtered out at a rate of 80% during the retention test. The particle size determined by this method is called the nominal filtration rating of the air filter. The d 100 value therefore refers to the particle size which is filtered out at a rate of 100% during the single pass test. The particle size determined by this method is called the absolute filtration rating of the air filter.

Table of average dust concentrations in real life:

Urban regions with a low level of industry	3-7 mg/m³ air
General mechanical engineering	9-23 mg/m³ air
Construction industry (wheeled vehicles)	8-35 mg/m³ air
Construction industry (tracked vehicles)	35-100 mg/m³ air
Heavy industry	50-70 mg/m³ air

3.2 DIFFERENTIAL PRESSURE ACROSS BREATHER FILTER

The differential pressure (with clean element) for the various filter sizes is shown in the graphs under Point 3.4.

3.3 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.

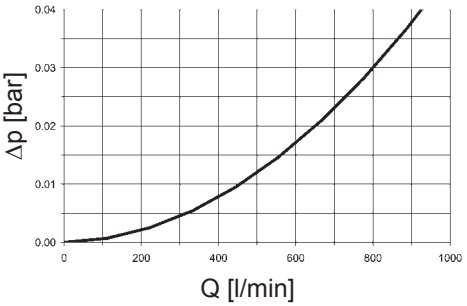
For optimum sizing the following should therefore be observed:

- Filtration rating of breather filter ≤ filtration rating of hydraulic filter
- Only use breather filters with an absolute retention rate (d100 ≤ x µm; x = given filtration rating)
- Max. permitted initial pressure drop: 0.01 bar (with a clean filter element and at calculated air flow)
- Determining the calculated air flow:
  Q_A = f5 x Q_p
  Q_A = calculated air flow in l_N/min
  f5 = factor for operating conditions
  Q_p = max. flow rate of the hydraulic pump in l/min

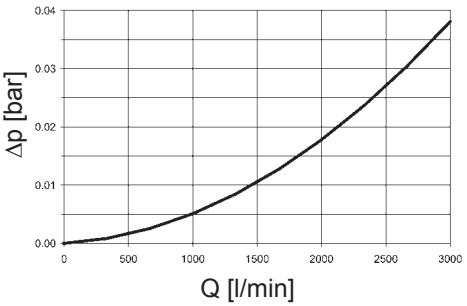
Ambient conditions	Factor f5
Low dust concentration; filter fitted with clogging indicator; continuous monitoring of the filter	1-2
Average dust concentration; filter without clogging indicator; intermittent monitoring of the filter	3-6
High dust concentration; filter without clogging indicator; infrequent or no monitoring of the filter	7-10

3.4 AIR FLOW RATE

BL 82

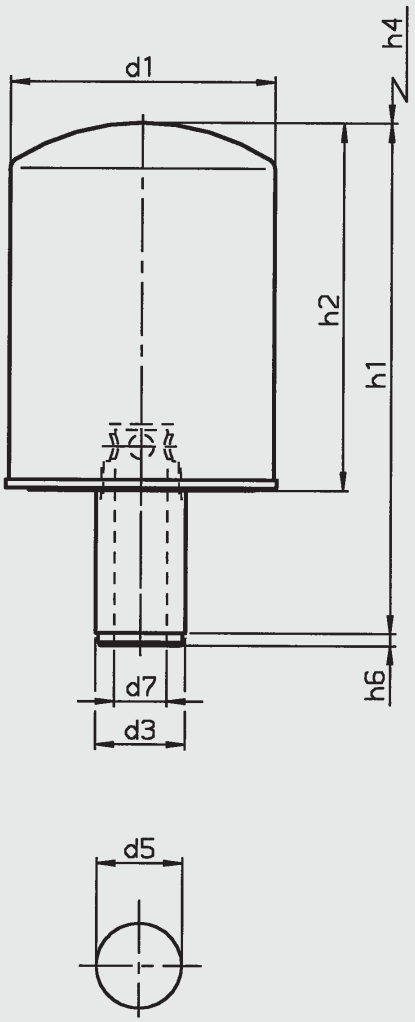


BL 162



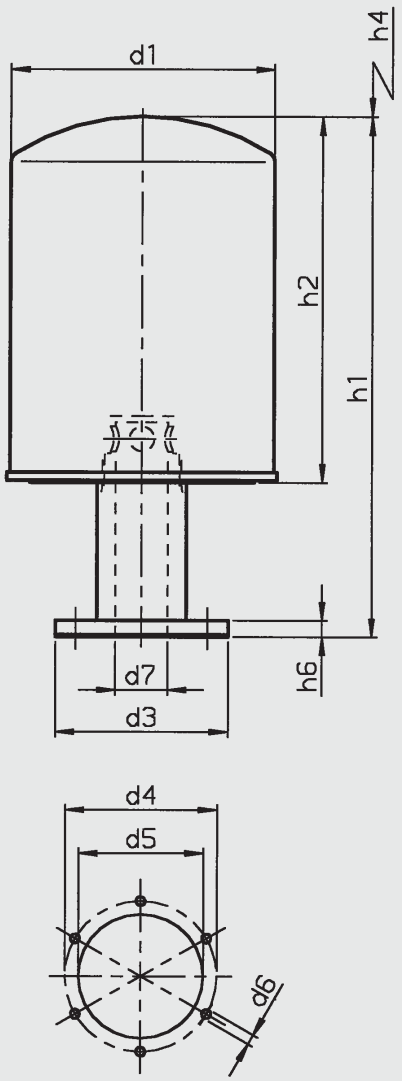
4. DIMENSIONS

BL 82 S..., BL 162 S...



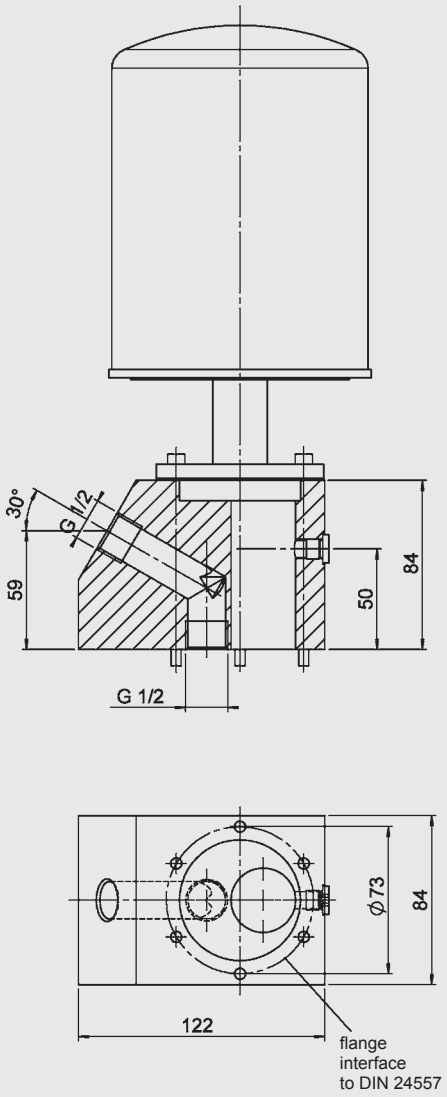
	BL 82 S...	BL 162 S...
d1	98	127
d3	27	43
d5	25	41
d7	16	25
h1	186	245
h2	142	175
h4	90	90
h6	6	6
Weight	0.95 kg	1.75 kg

BL 82 F..., BL 162 F...



	BL 82 F...	BL 162 F...
d1	98	127
d3	80	80
d4	73	73
d5	60	60
d6	M5	M5
d7	16	25
h1	204	260
h2	142	175
h4	90	90
h6	7	7
Weight	1.30 kg	2.10 kg

5. FILLER ADAPTER



These filler adapters are available in the following threaded connections:

- Adapter FA12
  Connection: G ½
  (Part No.: 00318597)
- Adapter FA34
  Connection: G ¾
  (Part No.: 01282563)
- Adapter FA1
  Connection: G 1
  (Part No.: 01274065)

NOTE

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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