

A close-up photograph of a compressor filter assembly. The image shows a white, circular metal flange with several bolt holes. Inside the flange, a black, pleated filter element is visible. A green rectangular overlay is positioned in the center of the image, containing the text "MANN+HUMMEL" and "Filters for compressors" in white. The background is a soft, out-of-focus grey.

MANN+HUMMEL
Filters for
compressors



Compressed air, as a flexible, easy-to-handle energy source, is indispensable in modern production processes. Almost all familiar industrial products are manufactured, packaged or transported using compressed air and therefore compressors.



YOUR SATISFACTION IS IMPORTANT TO US!

The type of filter selection and determination is based on certain requirements, which may differ in individual cases. If you are not satisfied with the performance of your compressor, please contact your MANN+HUMMEL partner.



WE MEET YOUR INDIVIDUAL NEEDS!

Individual requirements can be covered by an extensive product range. If this does not meet the requirements, MANN+HUMMEL can offer individual concepts based on proven technology.



WE CONTINUOUSLY FURTHER DEVELOP THE PRODUCT RANGE!

For this reason, we expressly reserve the right to make changes to our products and delivery program. Information regarding changes and availability can be obtained from your MANN+HUMMEL contact.

MANN+HUMMEL

Filters for Compressors

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Filters for compressors

Product overview



AIR/OIL SEPARATORS

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Application	Oil-injecting screw-type and sliding-vane compressors
Installation site	in pressure reservoir
Residual oil content	<3 mg/m ³ _(n)
Operating temperature	Long-term: 100°C Short-term: +120°C
Pressure drop for a given nominal flow rate	0.17 bar
Available nominal flow rates	0.8 – 76 m ³ _(n) /min
Advantages	■ Process reliability through high-quality media ■ Low oil consumption through low residual oil content ■ Thoroughly tried and tested and reliable ■ Space-saving achieved through compact design



SPIN-ON SEPARATORS

PAGE 17

Application	Oil-injecting screw-type and sliding-vane compressors
Installation site	Vertically in pressure reservoir
Residual oil content	<3 mg/m ³ _(n)
Operating temperature	Long-term: 100°C Short-term: +120°C
Pressure drop for a given nominal flow rate	Type-specific / specification in relevant description
Available nominal flow rates	0.1 – 6.5 m ³ _(n) /min
Advantages	■ Process reliability through high-quality media ■ Easy and time-saving installation and removal ■ Lower maintenance costs* ■ Lower oil consumption through lower residual oil content
Accessories	Screw-on connectors and heads with connections for oil extraction

* Compared to conventional air/oil separators

Filters for compressors

Product overview



OIL FILTERS **PAGE 26**

Application	Oil-lubricated or oil-cooled compressors
Operating temperature	up to 120°C
Max. operating pressure	14 - 35 bar
Available nominal flow rates	50 - 210 l/min
Advantages	■ Process reliability through high-quality media ■ Easy, space-saving fitting and removal ■ Thoroughly tried and tested and reliable
Accessories	Heads, service switches, service indicators



AIR CLEANERS **PAGE 40**

Application	Compressors
Operating temperature	Long-term: -40°C to +80°C Short-term: +100°C
Available nominal flow rates	0.15 - 45 m ³ (n)/min
Advantages	■ High power density ■ Compact design ■ Long service life
Accessories	Hoses, elbows, service switches, service indicators, and rain caps

The principle of a filtration chain in a compressor can be found on page 92

Filters for compressors

Configuration and selection

HOW TO SELECT YOUR FILTER:

- 1 Find the right column for your vessel pressure
- 2 Find the right range for your FAD or similar
- 3 Ensure compliance with the limit pressures under load variation in operation
- 4 All filters listed to the right of this are suitable for your compressor

AIR/OIL SEPARATORS – filter selection based on the free air delivery (FAD) of your compressor

Vessel pressure 5 [bar _g]				Vessel pressure 7 [bar _g]				Vessel pressure 9 [bar _g]				Vessel pressure 11 [bar _g]				Order No.
FAD5 [m ³ /min]		Limiting pressure [bar _g]		FAD7 [m ³ /min]		Limiting pressure [bar _g]		FAD9 [m ³ /min]		Limit pressure [bar _g]		FAD11 [m ³ /min]		Limiting pressure [bar _g]		
min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
0.6	1.1	3.7	10.9	0.8	1.5	5.5	14.8	1.0	1.9	7.2	18.8	1.2	2.3	8.9	22.7	LE 3004 x
0.7	1.3	4.0	11.5	0.9	1.7	5.6	15.1	1.1	2.1	7.1	18.6	1.4	2.5	8.7	24.0	LE 4007 x
1.0	1.8	3.8	11.3	1.3	2.4	5.4	15.0	1.7	3.0	7.0	19.9	2.0	3.6	8.6	23.6	LE 5004
1.0	1.8	3.8	11.3	1.3	2.4	5.4	15.0	1.7	3.0	7.0	19.9	2.0	3.6	8.6	23.6	LE 5006
1.0	1.8	3.8	11.2	1.3	2.4	5.4	14.9	1.7	3.1	7.3	19.8	2.0	3.7	8.8	23.5	LE 6004
1.5	2.8	3.9	11.1	2.0	3.7	5.5	15.1	2.5	4.6	7.0	19.1	3.0	5.6	8.8	23.1	LE 7004 x
1.6	2.9	3.9	11.5	2.1	3.8	5.4	15.4	2.6	4.8	7.1	19.3	3.1	5.8	8.8	23.2	LE 7001 x
1.7	3.1	3.9	11.4	2.2	4.1	5.5	15.0	2.8	5.1	7.1	19.4	3.4	6.2	8.8	23.7	LE 8003 x
1.7	3.1	3.9	11.4	2.2	4.1	5.5	15.0	2.8	5.1	7.1	19.4	3.4	6.2	8.8	23.7	LE 8004 x
2.0	3.6	3.9	11.5	2.6	4.8	5.5	15.3	3.3	6.0	7.2	19.6	3.9	7.2	8.8	23.4	LE 9003 x
2.0	3.6	3.9	11.5	2.6	4.8	5.5	15.3	3.3	6.0	7.2	19.6	3.9	7.2	8.8	23.4	LE 9020 x
2.1	3.8	3.9	11.5	2.7	5.0	5.5	15.1	3.4	6.3	7.1	19.2	4.1	7.5	8.7	23.4	LE 9001 x
2.3	4.2	3.9	11.3	3.0	5.6	5.5	15.1	3.8	7.0	7.1	19.3	4.6	8.4	8.8	23.6	LE 10 001
2.6	4.8	3.9	11.1	3.5	6.4	5.5	15.3	4.4	8.0	7.1	19.5	5.3	9.6	8.7	23.7	LE 12 001 x
3.0	5.4	3.8	11.4	4.0	7.3	5.5	15.5	4.9	9.1	7.2	19.2	5.9	10.9	8.8	23.3	LE 13 001 x
3.0	5.5	3.9	11.3	4.0	7.3	5.5	15.4	5.0	9.1	7.1	19.5	6.0	11.0	8.8	23.6	LE 13 012 x
3.1	5.7	3.9	11.2	4.1	7.6	5.5	15.2	5.2	9.5	7.1	19.5	6.2	11.4	8.8	23.4	LE 13 007 x
3.9	7.1	3.9	11.3	5.2	9.5	5.5	15.4	6.5	11.8	7.1	19.6	7.7	14.2	8.8	23.3	LE 16 008
4.0	7.3	3.9	11.4	5.3	9.7	5.5	15.4	6.6	12.1	7.1	19.4	7.9	14.5	8.7	23.4	LE 16 009
4.1	7.4	3.8	11.4	5.4	9.9	5.5	15.3	6.8	12.4	7.1	19.5	8.1	14.9	8.8	23.4	LE 17 011 x
4.1	7.4	3.8	11.4	5.4	9.9	5.5	15.3	6.8	12.4	7.1	19.5	8.1	14.9	8.8	23.4	LE 17 006 x
4.2	7.7	3.9	11.3	5.6	10.2	5.5	15.4	7.0	12.8	7.1	19.5	8.4	15.4	8.8	23.6	LE 17 008 x
5.0	9.2	3.9	11.1	6.7	12.3	5.5	15.3	8.4	15.4	7.1	19.4	10.1	18.5	8.8	23.5	LE 20 001
5.1	9.4	3.9	11.2	6.8	12.6	5.5	15.2	8.6	15.7	7.1	19.5	10.3	18.8	8.7	23.5	LE 21 001 x
5.4	9.9	3.9	11.3	7.2	13.2	5.5	15.4	9.0	16.5	7.1	19.4	10.8	19.8	8.8	23.5	LE 22 008 x
5.7	10.5	3.9	11.2	7.6	14.0	5.5	15.3	9.5	17.4	7.1	19.4	11.4	20.9	8.7	23.4	LE 23 002 x
6.1	11.2	3.9	11.2	8.1	14.9	5.5	15.3	10.2	18.6	7.1	19.5	12.2	22.4	8.8	23.5	LE 24 002 x
6.9	12.6	3.9	11.3	9.1	16.8	5.5	15.2	11.4	20.9	7.1	19.4	13.7	25.1	8.7	23.5	LE 27 006 x
7.2	13.2	3.9	11.3	9.6	17.6	5.5	15.3	12.0	22.0	7.1	19.4	14.4	26.4	8.8	23.5	LE 28 002 x
7.2	13.2	3.9	11.3	9.6	17.6	5.5	15.3	12.0	22.0	7.1	19.4	14.4	26.4	8.8	23.5	LE 28 003 x
7.5	13.8	3.9	11.2	10.0	18.3	5.5	15.3	12.5	22.9	7.1	19.4	15.0	27.5	8.8	23.5	LE 29 005 x
7.5	13.8	3.9	11.2	10.0	18.3	5.5	15.3	12.5	22.9	7.1	19.4	15.0	27.5	8.8	23.5	LE 29 001 x
7.8	14.2	3.9	11.3	10.4	19.0	5.5	15.4	12.9	23.7	7.1	19.3	15.5	28.5	8.8	23.4	LE 30 005 x
7.9	14.6	3.9	11.2	10.6	19.4	5.5	15.3	13.2	24.3	7.1	19.3	15.9	29.1	8.7	23.5	LE 31 001 x
8.3	15.3	3.9	11.2	11.1	20.4	5.5	15.3	13.9	25.5	7.1	19.4	16.7	30.5	8.7	23.5	LE 32 004
8.7	15.9	3.9	11.3	11.6	21.2	5.5	15.3	14.5	26.5	7.1	19.4	17.4	31.9	8.8	23.5	LE 33 001 x
8.7	15.9	3.9	11.2	11.6	21.3	5.5	15.3	14.5	26.6	7.1	19.4	17.4	31.9	8.8	23.5	LE 33 003 x
9.2	16.8	3.9	11.3	12.2	22.4	5.5	15.3	15.3	28.0	7.1	19.5	18.3	33.6	8.8	23.5	LE 35 004 x
10.0	18.4	3.9	11.2	13.4	24.5	5.5	15.4	16.7	30.6	7.1	19.4	20.0	36.8	8.8	23.4	LE 38 004 x
10.1	18.4	3.9	11.3	13.4	24.6	5.5	15.3	16.8	30.7	7.1	19.5	20.1	36.9	8.8	23.5	LE 39 007
11.6	21.2	3.9	11.3	15.4	28.3	5.5	15.3	19.3	35.4	7.1	19.4	23.2	42.5	8.8	23.5	LE 44 001 x
11.6	21.2	3.9	11.3	15.4	28.3	5.5	15.3	19.3	35.4	7.1	19.4	23.2	42.5	8.8	23.5	LE 44 002
12.0	22.1	3.9	11.2	16.1	29.4	5.5	15.4	20.1	36.8	7.1	19.4	24.1	44.1	8.7	23.5	LE 46 001 x
12.4	22.7	3.9	11.3	16.5	30.3	5.5	15.3	20.6	37.9	7.1	19.4	24.8	45.4	8.8	23.5	LE 47 002 x
12.7	23.2	3.9	11.3	16.9	31.0	5.5	15.3	21.1	38.7	7.1	19.4	25.4	46.5	8.8	23.5	LE 48 007 x
12.7	23.2	3.9	11.3	16.9	31.0	5.5	15.3	21.1	38.7	7.1	19.4	25.4	46.5	8.8	23.5	LE 48 003
13.7	25.2	3.9	11.2	18.3	33.6	5.5	15.3	22.9	42.0	7.1	19.4	27.5	50.4	8.8	23.5	LE 51 001 x
15.3	28.1	3.9	11.2	20.4	37.5	5.5	15.3	25.6	46.8	7.1	19.4	30.7	56.2	8.8	23.5	LE 57 002 x
15.4	28.2	3.9	11.3	20.5	37.5	5.5	15.3	25.6	46.9	7.1	19.4	30.7	56.3	8.8	23.5	LE 57 004 x
16.3	29.8	3.9	11.3	21.7	39.7	5.5	15.3	27.1	49.7	7.1	19.4	32.5	59.6	8.8	23.5	LE 61 001
17.1	31.4	3.9	11.2	22.8	41.8	5.5	15.3	28.5	52.3	7.1	19.4	34.2	62.8	8.8	23.5	LE 64 001 x
17.6	32.3	3.9	11.2	23.5	43.1	5.5	15.3	29.4	53.9	7.1	19.4	35.3	64.7	8.8	23.5	LE 66 002 x
18.0	33.0	3.9	11.3	24.0	44.0	5.5	15.3	30.0	54.9	7.1	19.4	36.0	65.9	8.8	23.5	LE 66 004 x
20.6	37.8	3.9	11.2	27.5	50.4	5.5	15.3	34.4	63.0	7.1	19.4	41.3	75.7	8.8	23.5	LE 76 002 x
21.2	38.9	3.9	11.2	28.3	51.9	5.5	15.3	35.4	64.8	7.1	19.4	42.4	77.8	8.8	23.5	LE 78 002 x
24.6	45.0	3.9	11.3	32.7	60.0	5.5	15.3	40.9	75.0	7.1	19.4	49.1	90.0	8.8	23.5	LE 90 001 x
28.2	51.8	3.9	11.2	37.7	69.0	5.5	15.3	47.1	86.3	7.1	19.4	56.5	103.5	8.8	23.5	LE 104 001
31.1	57.0	3.9	11.2	41.5	76.0	5.5	15.3	51.8	95.0	7.1	19.4	62.2	114	8.8	23.5	LE 114 001

Filters for compressors

Configuration and selection

SPIN-ON SEPARATORS – separator selection based on the pressure [bar_g] in the pressure vessel

Vessel pressure 5 [bar _g]		Vessel pressure 7 [bar _g]		Vessel pressure 9 [bar _g]		Vessel pressure 11 [bar _g]		Order No.
FAD5 [m ³ /min]	Limiting pressure [bar _g]	FAD7 [m ³ /min]	Limiting pressure [bar _g]	FAD9 [m ³ /min]	Limiting pressure [bar _g]	FAD11 [m ³ /min]	Limiting pressure [bar _g]	
min	max	min	max	min	max	min	max	
0.2	0.8	2.7	20.0	0.3	1.0	3.5	20.0	LB 719/2
0.2	0.8	2.8	20.0	0.3	1.1	4.0	20.0	LB 719/20 StarBox
0.4	1.5	2.1	20.0	0.5	2.0	3.2	20.0	LB 962/2
0.4	1.7	2.1	20.0	0.6	2.2	3.1	20.0	LB 962/20 StarBox
0.5	2.3	3.4	20.0	0.8	3.0	4.9	20.0	LB 1374/2
0.6	2.5	3.4	20.0	0.8	3.3	4.8	20.0	LB 1374/20 StarBox
0.8	3.0	3.1	14.0	1.0	4.0	4.5	14.0	LB 11 102/2
1.0	4.1	2.9	20.0	1.4	5.5	4.3	20.0	LB 13 145/3
1.1	4.5	2.8	20.0	1.5	6.0	4.1	20.0	LB 13 145/20 StarBox
0.6	2.7	3.4	18	0.8	3.6	4.8	18	LB 1374/30 StarBox ²
1.1	4.8	2.8	18	1.5	6.5	4.1	18	LB 13 145/30 StarBox ²

OIL FILTERS – filter selection based on the pressure [bar_g] in the pressure vessel

Nom. flow rate [l/min] [gpm]	Max. pressure [bar _g] [psi]	Max. FAD ¹⁾ [m ³ /min]	Max. compressor performance ¹⁾ [kW]	Order No.
Standard filter filter fineness according to ISO 16889 [μm (c)], 50% = 14 / 99% = 38, service life approx. 2,000 h				
50 (13.21)	25 (363)	7	41	WD 940/2
65 (17.17)	14 (203)	9	54	W 950/31
75 (19.82)	14 (203)	10	62	W 962/14
90 (23.78)	25 (363)	12	74	WD 962/8
128 (33.82)	14 (203)	18	106	W 11 102/16
180 (47.56)	20 (290)	25	149	WD 13 145/4
Long life filter filter fineness according to ISO 16889 [μm (c)], 50% = 4 / 99% = 10, service life approx. 4,000 h				
65 (17.17)	25 (363)	9	54	WD 962/21
100 (26.42)	20 (290)	14	83	WD 1374/6
205 (54.16)	20 (290)	28	169	WD 13 145/14
High-pressure filter filter fineness according to ISO 16889 [μm (c)], 50% = 4 / 99% = 11, service life approx. 4,000 h				
70 (18.49)	35 (508)	10	58	WH 945/2
100 (26.42)	35 (508)	14	83	WH 980/1

1) The figures for max. FAD and compressor performance are to be understood as guidance values. The requirements of the manufacturer of the pressure stage apply or, if necessary, the suitable oil volume for the whole system has to be observed.

NOTES ON INTEGRATION OF AIR/OIL SEPARATORS IN THE PRESSURE VESSEL

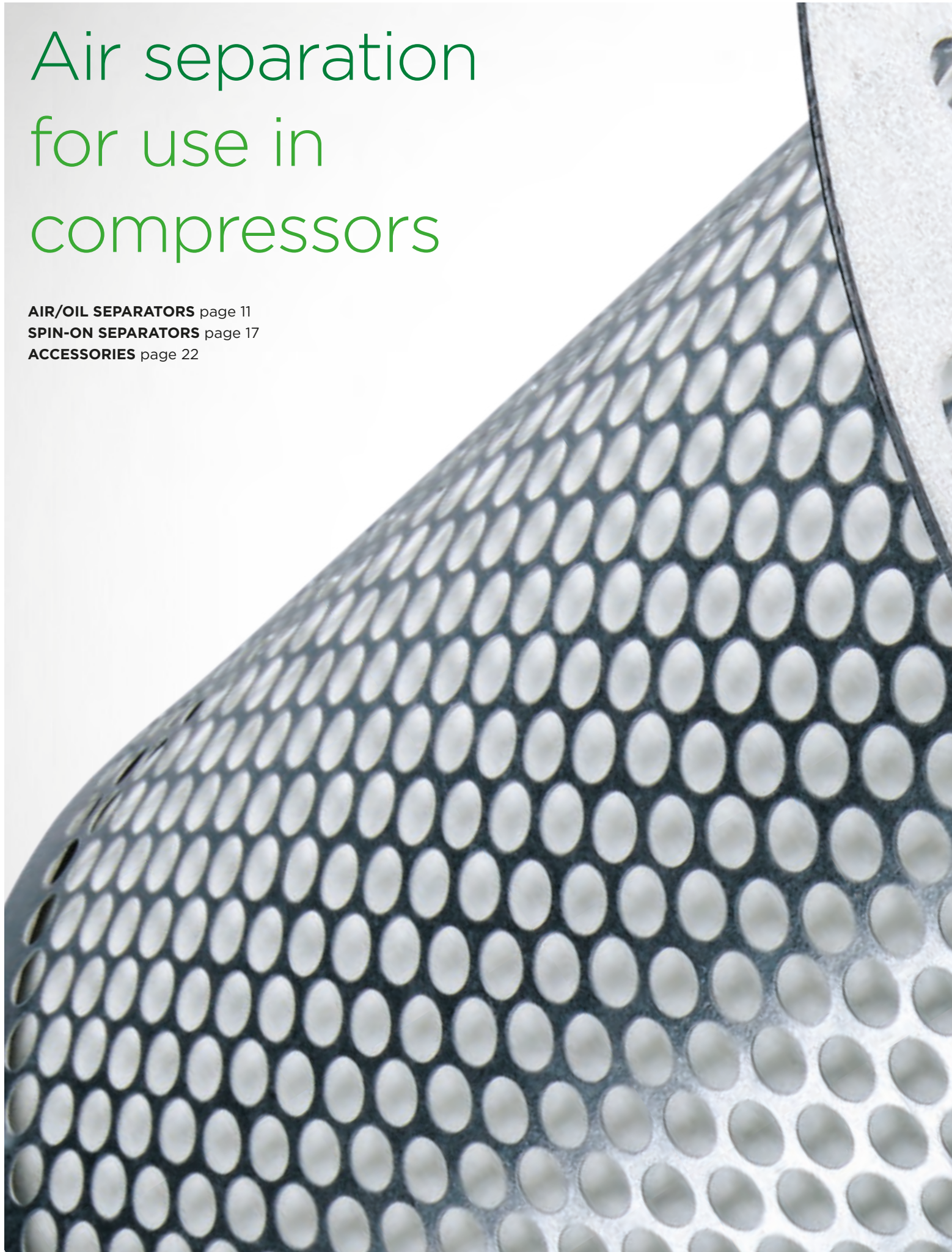
- Maximum oil content of the compressed air approx. < 5 g/m³(n)
- Minimum distance of element base to oil level > 0.5 diameter of the element
- No direct flow to the element (integration of a shield is recommended)
- Observe specified permissible functional areas
 - Flow rate (pressure and temperature-dependent)
 - Minimum pressure
 - Maximum pressure
 - Adequate dimensioning of the oil return line (scavenge line)

Air separation for use in compressors

AIR/OIL SEPARATORS page 11

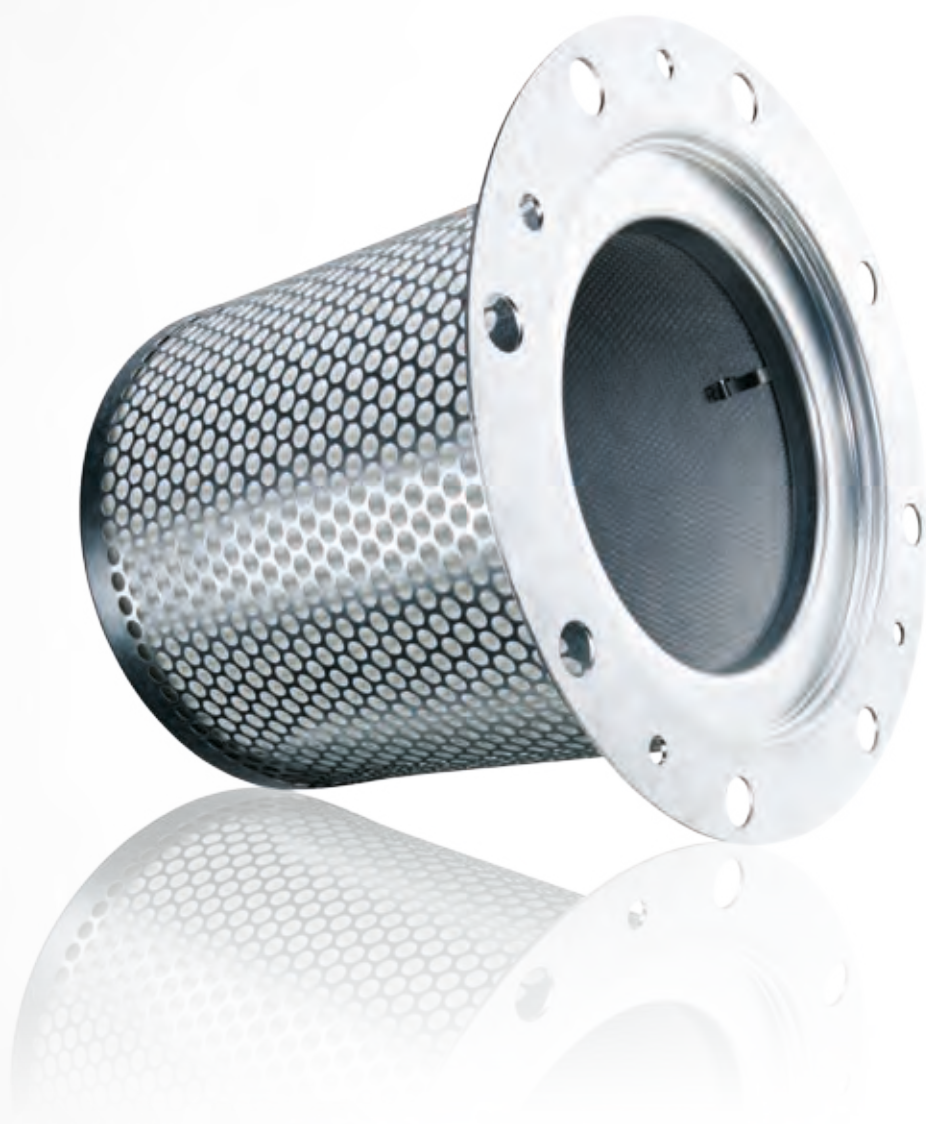
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ACCESSORIES page 22





The explanation of the "coalescence principle" can be found on page 92



Air/Oil Separation for use in compressors Air/Oil Separators

Through integration of air/oil separators in the compressor pressure vessel, the best separating performance across the elements can be achieved at the lowest possible pressure drop. MANN+HUMMEL air/oil separators elements feature a highly developed separation technology. This increases the power density and thus reduces the size compared to conventional elements.

ADVANTAGES

- Minimization of compressor oil loss
- High separation rate over the service life
- Low residual oil content
- Low pressure drop
- Compact design
- Metallic parts are connected to one another to prevent electrostatic charging

TECHNICAL DATA

- Operating temperature¹⁾:
max. 100°C, short-term: max. 120°C
- Tested with standard oils for compressors (ISO VG46)²⁾
- Pressure drop (500 h): < 0.3 bar
- Residual oil content (500 h): < 3 mg/m³_(n)
- Service life: 500 h up to 4,000 h (depending on operating conditions)



OPERATING TEMPERATURE¹⁾

Long-term: max. 100°C

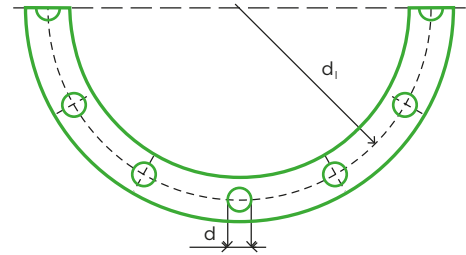
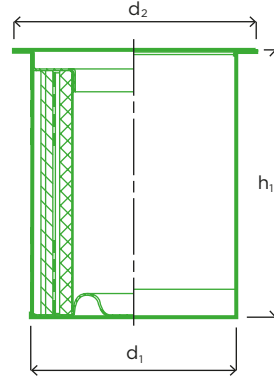
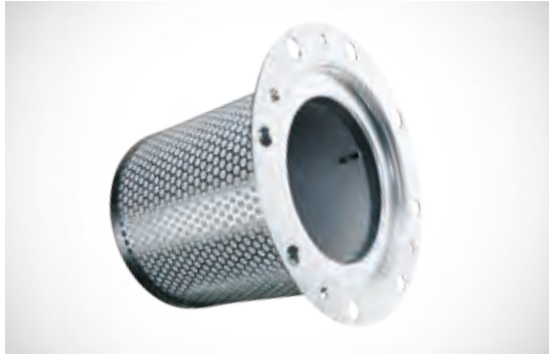
Short-term: max. 120°C

1) Short-term: Dwell time at the short-term temperature of not more than 10 min. The distance between 2 short-term peaks must be at least 0.5 h. After approx. 300 peaks have been reached, we recommend changing the seal and filter.
2) Validation is required for the use of strongly deviating oils.

Notes on integration in the pressure vessel can be found on page 7

Air/Oil Separators

Technical data

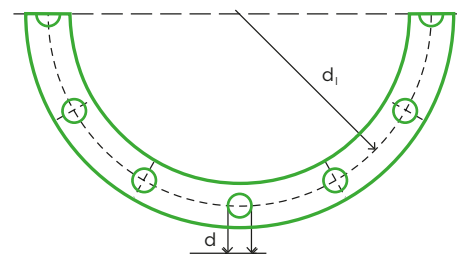
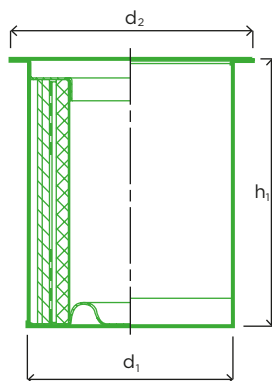
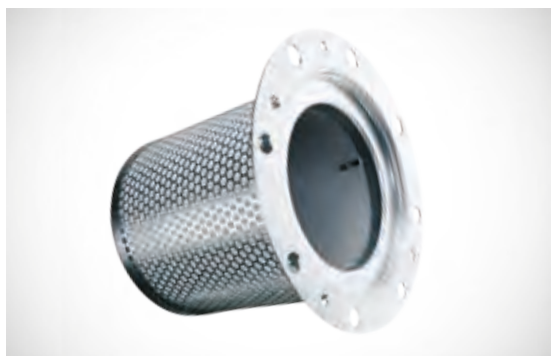


ORDER NUMBERS AND DIMENSIONS

Order No.	Dimensions in mm <i>(dimensions in inches)</i>						Technical features
	d ₁	d ₂	h ₁	d _i	d	Number of holes	Fleece preseparator
LE 3004 x	135 (5.31)	160 (6.30)	65 (2.56)	-	-	-	-
LE 4007 x	100 (3.94)	128 (5.04)	110 (4.35)	-	-	-	X
LE 5004	100 (3.94)	175 (6.89)	150 (5.91)	150 (5.91)	14 (0.55)	8	-
LE 5006	100 (3.94)	142 (5.59)	150 (5.91)	-	-	-	-
LE 6004	100 (3.94)	128 (5.04)	170 (6.69)	-	-	-	-
LE 7004 x	135 (5.31)	170 (6.69)	160 (6.30)	-	-	-	-
LE 7001 x	135 (5.31)	215 (8.46)	165 (6.50)	-	-	-	X
LE 8003 x	135 (5.31)	220 (8.66)	175 (6.89)	192 (7.56)	13.5 (0.53)	6	-
LE 8004 x	135 (5.31)	170 (6.69)	175 (6.89)	-	-	-	-
LE 9003 x	135 (5.31)	215 (8.46)	200 (7.87)	-	-	-	X
LE 9020 x	135 (5.31)	170 (6.69)	200 (7.87)	-	-	-	-
LE 9001 x	170 (6.69)	245 (9.65)	165 (6.50)	210 (8.27)	17 (0.67)	8	-
LE 10 001	135 (5.31)	165 (6.50)	230 (9.06)	-	-	-	X
LE 12 001 x	220 (8.66)	274 (10.79)	274 (10.79)	-	-	-	-
LE 13 001 x	135 (5.31)	182 (7.17)	293 (11.54)	-	-	-	-
LE 13 012 x	170 (6.69)	200 (7.87)	230 (9.06)	-	-	-	-
LE 13 007 x	135 (5.31)	178 (7.01)	305 (12.01)	-	-	-	-
LE 16 008	160 (6.30)	200 (7.87)	310 (12.20)	-	-	-	-
LE 16 009	220 (8.66)	274 (10.79)	230 (9.06)	-	-	-	X

Air/Oil separators

Technical data

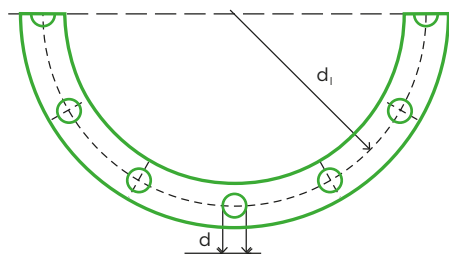
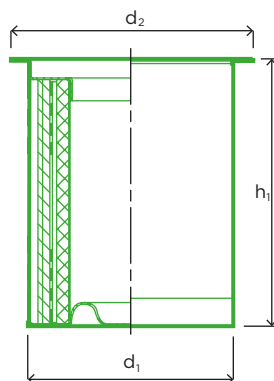
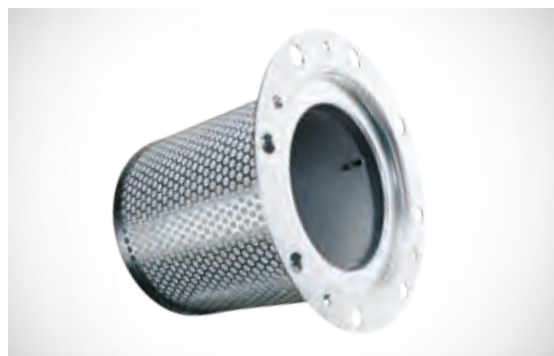


ORDER NUMBERS AND DIMENSIONS

Order No.	Dimensions in mm (<i>dimensions in inches</i>)						Technical features
	d ₁	d ₂	h ₁	d _i	d	Number of holes	Fleece preseparator
LE 17 011 x	170 (6.69)	200 (7.87)	305 (12.01)	-	-	-	-
LE 17 006 x	170 (6.69)	200 (7.87)	305 (12.01)	-	-	-	X
LE 17 008 x	170 (6.69)	245 (9.65)	314 (12.36)	210 (8.27)	17 (0.67)	8	-
LE 20 001	275 (10.83)	328 (12.91)	230 (9.06)	-	-	-	-
LE 21 001 x	170 (6.69)	200 (7.87)	380 (14.96)	-	-	-	-
LE 22 008 x	220 (8.66)	290 (11.42)	305 (12.01)	-	-	-	X
LE 23 002 x	170 (6.69)	245 (9.65)	420 (16.54)	210 (8.27)	17 (0.67)	8	-
LE 24 002 x	170 (6.69)	245 (9.65)	447 (17.60)	210 (8.27)	17 (0.67)	8	-
LE 27 006 x	275 (10.83)	328 (12.91)	305 (12.01)	-	-	-	X
LE 28 002 x	220 (8.66)	290 (11.42)	400 (15.75)	-	-	-	X
LE 28 003 x	220 (8.66)	274 (10.79)	400 (15.75)	-	-	-	-
LE 29 005 x	300 (11.81)	355 (13.98)	305 (12.01)	-	-	-	-
LE 29 001 x	300 (11.81)	348 (13.70)	305 (12.01)	-	-	-	-
LE 30 005 x	300 (11.81)	343 (13.50)	315 (12.40)	-	-	-	-
LE 31 001 x	275 (10.83)	328 (12.91)	350 (13.78)	-	-	-	-
LE 32 004	220 (8.66)	290 (11.42)	460 (18.11)	-	-	-	-
LE 33 001 x	300 (11.81)	400 (15.75)	350 (13.78)	350 (13.78)	26 (1.02)	12	-
LE 33 003 x	300 (11.81)	355 (13.98)	350 (13.78)	-	-	-	-
LE 35 004 x	275 (10.83)	328 (12.91)	400 (15.75)	-	-	-	-
LE 38 004 x	300 (11.81)	350 (13.78)	400 (15.75)	-	-	-	-

Air/Oil Separators

Technical data



ORDER NUMBERS AND DIMENSIONS

Order No.	Dimensions in mm (dimensions in inches)						Technical features
	d ₁	d ₂	h ₁	d _i	d	Number of holes	Fleece preseparator
LE 39 007	350 (13.78)	439 (17.28)	350 (13.78)	-	-	-	-
LE 44 001 x	275 (10.83)	360 (14.17)	500 (19.69)	-	-	-	-
LE 44 002	275 (10.83)	328 (12.91)	500 (19.69)	-	-	-	-
LE 46 001 x	393 (15.47)	440 (17.32)	370 (14.57)	-	-	-	-
LE 47 002 x	400 (15.75)	434 (17.09)	370 (14.57)	-	-	-	-
LE 48 007 x	300 (11.81)	355 (13.98)	500 (19.69)	-	-	-	-
LE 48 003	300 (11.81)	355 (13.98)	500 (19.69)	-	-	-	-
LE 51 001 x	300 (11.81)	355 (13.98)	540 (21.26)	-	-	-	-
LE 57 002 x	300 (11.81)	355 (13.98)	600 (23.62)	-	-	-	-
LE 57 004 x	300 (11.81)	355 (13.98)	600 (23.62)	-	-	-	-
LE 61 001	400 (15.75)	434 (17.09)	480 (18.90)	-	-	-	-
LE 64 001 x	393 (15.47)	440 (17.32)	515 (20.28)	-	-	-	-
LE 66 002 x	400 (15.75)	434 (17.09)	520 (20.47)	-	-	-	-
LE 66 004 x	300 (11.81)	355 (13.98)	700 (27.56)	-	-	-	-
LE 76 002 x	300 (11.81)	355 (13.98)	800 (31.50)	-	-	-	-
LE 78 002 x	400 (15.75)	434 (17.09)	620 (24.41)	-	-	-	-
LE 90 001 x	475 (18.70)	540 (21.26)	600 (23.62)	-	-	-	X
LE 104 001	400 (15.75)	450 (17.72)	820 (32.28)	-	-	-	X
LE 114 001	400 (15.75)	450 (17.72)	900 (35.43)	-	-	-	X





Air/Oil Separation for use in compressors Spin-On Separators

DESIGN

- Robust metal housing with integrated separator filter element
- A undetachable seal fitted into the cover ensures reliable sealing under all operating conditions
- Square seal: NBR

ADVANTAGES

- Easy integration
- Service friendly
- Low pressure drop
- Low residual oil content
- High separation rate
- High power density
- Metallic parts are connected to one another to prevent electrostatic charging

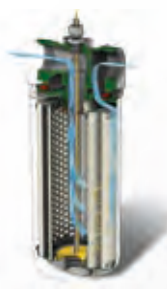
FEATURES

- Large matched range of filter heads
- Suitable connector
- FKM replaceable seals

TECHNICAL DATA

- Operating temperature¹⁾:
max. 100°C, short-term: max. 120°C
- Tested with standard oils for compressors (ISO VG46)²⁾
- Pressure drop (500 h): < 0.3 bar
- Residual oil content (500 h): < 3 mg/m³_(n)
- Service life: 3,000 h
(depending on operating conditions)
- Further information through maintenance instructions and labeling

THREAD ON TOP SIDE



THREAD ON UNDERSIDE



OPERATING TEMPERATURE¹⁾

Long-term: max. 100°C
Short-term: max. 120°C

1) The residual oil content in the compressed air may be subject to regulation depending on the application. If necessary, the compressed air must be prepared using suitable filters. 2) Validation is required for the use of strongly deviating oils.

Spin-On Separators

LB boxes

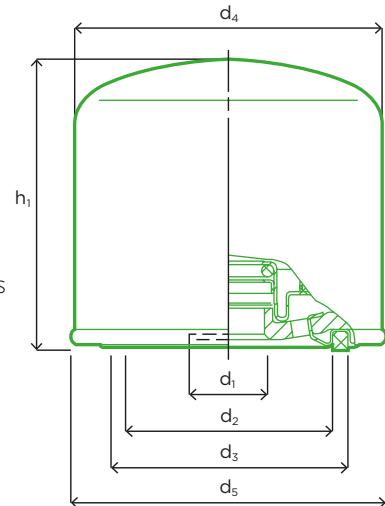


ADVANTAGES

- Extensively tried and tested on the market
- Technically robust
- Attractively priced solution
- Attractive price/performance ratio
- Easy maintenance with short downtimes

TECHNICAL DATA

- Residual oil content¹⁾: max. 3 mg/m³_(n)
- Initial pressure drop¹⁾: 0.35 bar
- Max. operating pressure: 20 bar (14 bar) (refer to labeling)
- Service life: max. 2,000 h / 1 bar Δp



PERMISSIBLE OPERATING TEMPERATURES²⁾

Long-term²⁾: -20°C to +100°C
Short-term³⁾: +120°C

ORDER NUMBERS AND DIMENSIONS

Order No.	Nominal flow rate ⁴⁾ [m ³ _(n) /min] [cfm]	Dimensions in mm (<i>dimensions in inches</i>)						Max. operating pressure	
		d ₁	d ₂	d ₃	d ₄	d ₅	h ₁	[bar]	[MPa]
LB 719/2	1.0 [35.3]	M 22x1.5	62 (2.44)	71 (2.80)	76 (2.99)	80 (3.15)	127 (5.00)	20	2.0
LB 962/2	2.0 [70.7]	M 24x1.5	62 (2.44)	71 (2.80)	93 (3.66)	96 (3.78)	212 (8.35)	20	2.0
LB 1374/2	3.0 [106.0]	M 39x1.5	100 (3.94)	111 (4.37)	136 (5.35)	140 (5.51)	177 (6.97)	20	2.0
LB 11 102/2	4.0 [141.3]	M 32x1.5	93 (3.66)	104 (4.09)	108 (4.25)	110 (4.33)	260 (10.24)	14	1.4
LB 13 145/3	5.5 [194.3]	M 39x1.5	100 (3.94)	111 (4.37)	136 (5.43)	140 (5.51)	302 (11.89)	20	2.0

ACCESSORIES

Suitable for	Connector (page 24)	Filter heads (page 23)			FKM seals (page 25)
		Single	Double	Triple	
LB 719/2	21 024 15 981	-	-	-	49 999 98 013
LB 962/2	21 027 15 991	-	-	-	49 999 98 013
LB 1374/2	21 042 15 991	67 700 31 801	67 730 31 861	67 750 31 971	49 999 98 014
LB 11 102/2	21 036 15 991	-	-	-	-
LB 13 145/3	21 042 15 991	67 700 31 801	67 730 31 861	67 750 31 971	49 999 98 014

1) At nominal load and 7 bar overpressure. Inadequate precleaning can impair this value. 2) Operating temperatures relate to the entire spin-on separator system.

3) Short-term: Dwell time at the short-term temperature of not more than 10 min. The distance between 2 short-term peaks must be at least 0.5 h. After approx. 300 peaks have been reached, we recommend changing the seal and filter. 4) Nominal flow rate according to DIN 1945 at 7 bar [0.7 MPa] operating overpressure

Spin-On Separators

StarBox

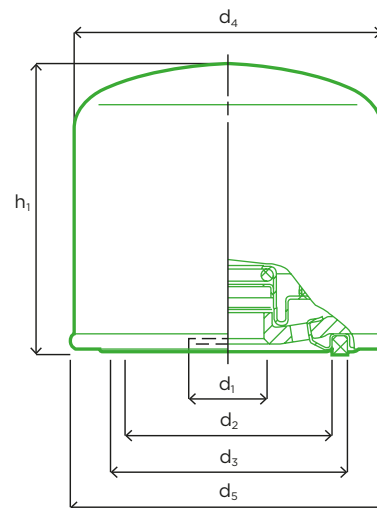


ADVANTAGES

- Special high-performance wrap
- Increased nominal flow rate
- Reduced differential pressure (energy efficiency)
- Increased power density
- Attractive price/performance ratio
- Easy maintenance with short downtimes

TECHNICAL DATA

- Residual oil content¹⁾: max. 1–3 mg/m³_(n)
- Initial pressure drop²⁾: 0.3 bar
- Max. operating pressure: 20 bar (14 bar) (refer to labeling)
- Service life: approx. 2,500 h / 1 bar Δp



PERMISSIBLE OPERATING TEMPERATURES³⁾

Long-term³⁾: -20°C to +100°C
Short-term³⁾: +120°C

ORDER NUMBERS AND DIMENSIONS

Order No.	Nominal flow rate ⁴⁾ [m ³ _(n) /min] [cfm]	Dimensions in mm (dimensions in inches)						Max. operating pressure	
		d ₁	d ₂	d ₃	d ₄	d ₅	h ₁	[bar]	[MPa]
LB 719/20	1.1 [38.8]	M 22x1.5	62 (2.44)	71 (2.80)	76 (2.99)	80 (3.15)	127 (5.00)	20	2.0
LB 962/20	2.2 [77.7]	M 24x1.5	62 (2.44)	71 (2.80)	93 (3.66)	96 (3.78)	212 (8.35)	20	2.0
LB 1374/20	3.3 [116.5]	M 39x1.5	100 (3.94)	111 (4.37)	136 (5.35)	140 (5.51)	177 (6.97)	20	2.0
LB 11 102/20	4.4 [155.3]	M 32x1.5	93 (3.66)	104 (4.09)	108 (4.25)	110 (4.33)	260 (10.24)	14	1.4
LB 13 145/20	6.0 [211.8]	M 39x1.5	100 (3.94)	111 (4.37)	136 (5.43)	140 (5.51)	302 (11.89)	20	2.0

ACCESSORIES

Suitable for	Connector (page 24)	Filter heads (page 23)			FKM seals (page 25)
		Single	Double	Triple	
LB 719/20	21 024 15 981	-	-	-	49 999 98 013
LB 962/20	21 027 15 991	-	-	-	49 999 98 013
LB 1374/20	21 042 15 991	67 700 31 801	67 730 31 861	67 750 31 971	49 999 98 014
LB 11 102/20	21 036 15 991	-	-	-	-
LB 13 145/20	21 042 15 991	67 700 31 801	67 730 31 861	67 750 31 971	49 999 98 014

1) At nominal load and 7 bar overpressure. Inadequate precleaning can impair this value. 2) Operating temperatures relate to the entire spin-on separator system.

3) Short-term: Dwell time at the short-term temperature of not more than 10 min. The distance between 2 short-term peaks must be at least 0.5 h. After approx. 300 peaks have been reached, we recommend changing the seal and filter. 4) Nominal flow rate according to DIN 1945 at 7 bar [0.7 MPa] operating overpressure 5) Compared with conventional Air/Oil separation boxes

Spin-on separators

StarBox²

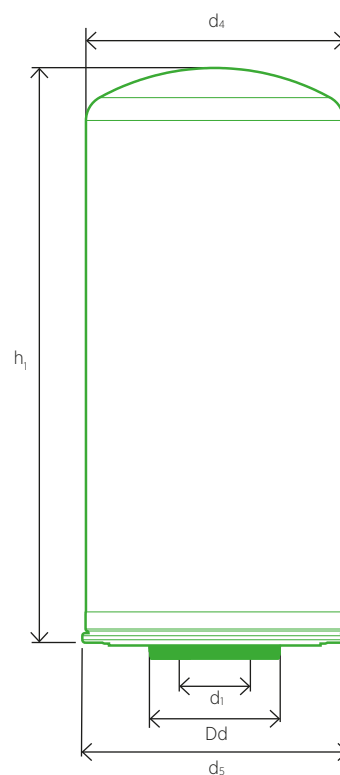


ADVANTAGES

- Flow optimized
- Energy and cost saving
- Up to 25 % reduction in pressure drop
- 20 % higher FAD for comparable size
- Large FAD range, ideal for use on compressors with variable drive speed

TECHNICAL DATA

- Residual oil content¹⁾: 1-3 mg/m³_(n)
- Initial pressure drop¹⁾: 0.27 bar
- Max. operating pressure: 18 bar
- Service life: approx. 3,000 h / 1 bar Δp



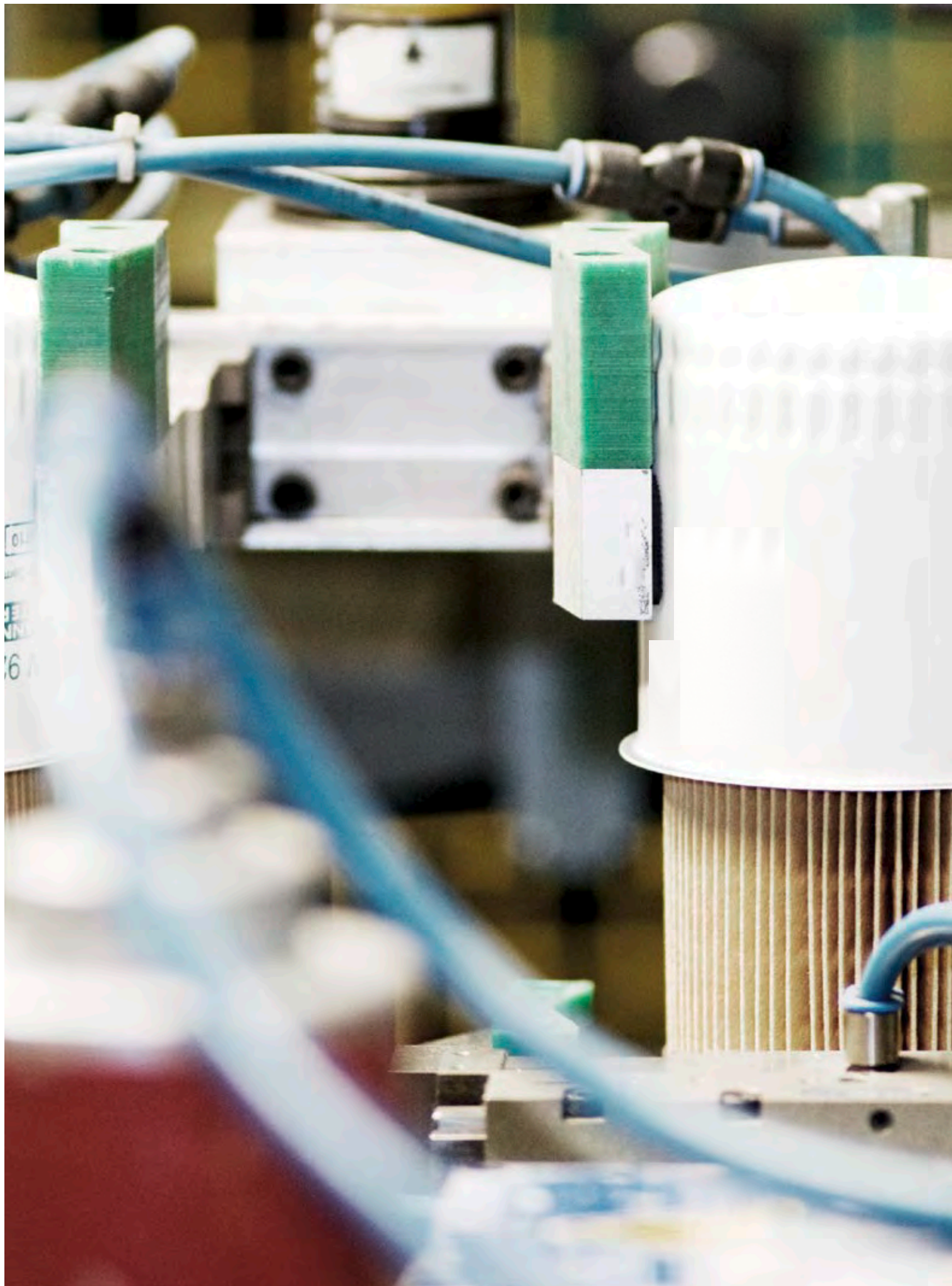
ORDER NUMBERS AND DIMENSIONS

Order No.	Nominal flow rate ⁴⁾ [m ³ _(n) /min] [cfm]	Dimensions in mm				h ₁	Max. operating overpressure	
		d ₁	Dd	d ₄	d ₅		[bar]	[MPa]
LB 1374/30	3.6 [127.1]	M 39x1.5	96	138	140	177	18	1.8
LB 13 145/30	6.5 [229.5]	M 39x1.5	96	138	140	302	18	1.8



IN ADDITION, WE OFFER YOU:

- Individual branding with your customer logo
- Technical service and training for your employees
- Samples for technical validation
- Proven MANN+HUMMEL quality



Accessories for Spin-On Separators Filter heads



ADVANTAGES

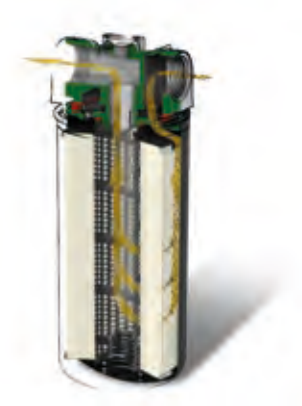
- Selection of various filter heads
- Easy installation, integration and reliable maintenance

FEATURES

- Return of separated oil to the compressor
- Return line integrated in the head
(not in scope of delivery)

TECHNICAL NOTES

- The lowest specified maximum operating pressure
(head or separator) must not be exceeded
- Observe the arrow direction on the filter head



Accessories for Spin-On Separators Filter heads

FIG. 1

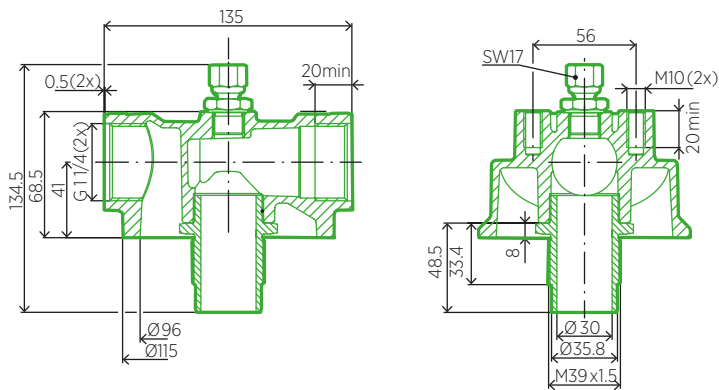


FIG. 2

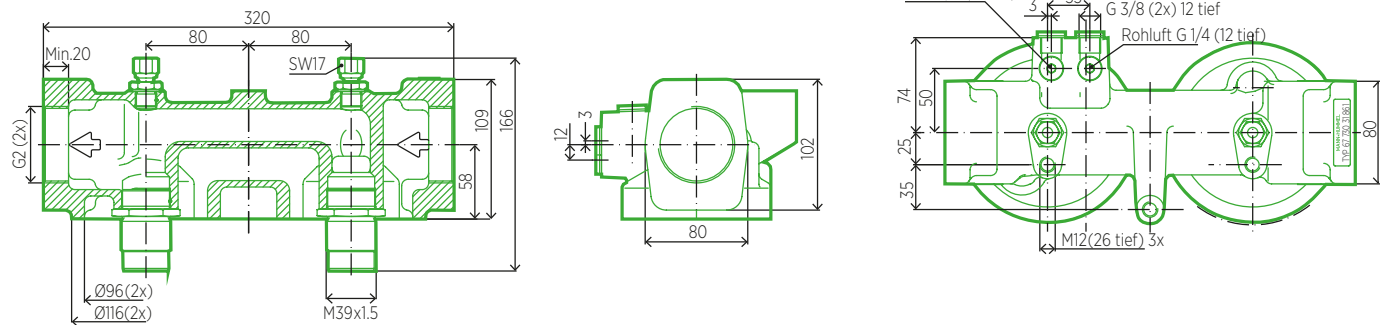
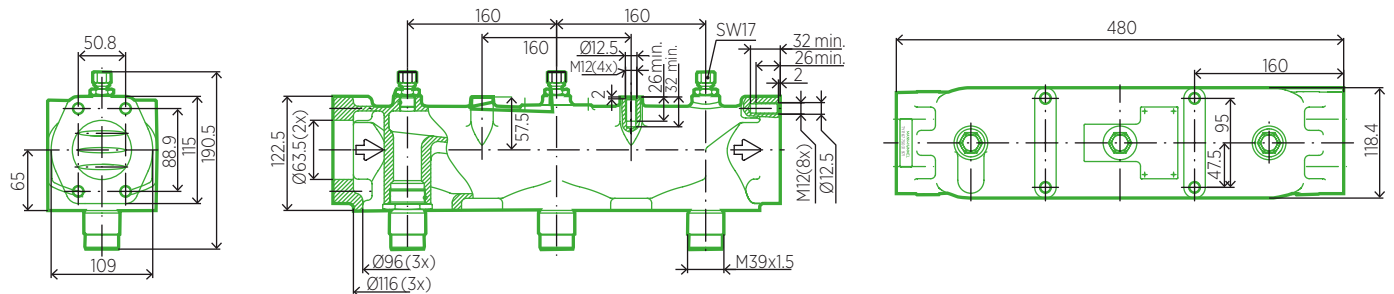


FIG. 3



ORDER NUMBERS

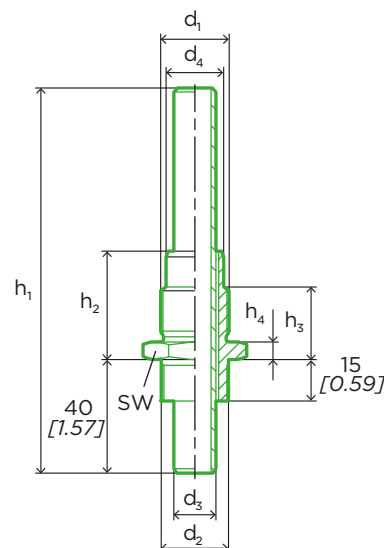
Order No.	Name	Figure	Suitable for LB box / StarBox	Max. operating overpressure	
				[bar]	[MPa]
67 700 31 801	Single	1	LB 13	20	2.0
67 730 31 861	Double	2			
67 750 31 971	Triple	3			

Accessories for Spin-On Separators Screw-on connector



ADVANTAGES

- Divided removal of separated oil and de-oiled air
- Integration in customer-specific heads in vertical version possible



ORDER NUMBERS AND DIMENSIONS

Order No.	Suitable for LB box / StarBox	Dimensions in mm (<i>dimensions in inches</i>)								
		d ₁	d ₂	d ₃	d ₄	h ₁	h ₂	h ₃	h ₄	SW
21 024 15 981	LB 719/2	M 22x1.5	M 24x1.5	14	19.2	135	38	25.4	6	27
	LB 719/20			(0.55)	(0.76)	(5.31)	(1.50)	(1.00)	(0.24)	(1.06)
21 027 15 991	LB 950/20	M 24x1.5	M 27x1.5	15	19.8	135	38	25.4	6	32
	LB 962/2			(0.59)	(0.74)	(5.31)	(1.50)	(1.00)	(0.24)	(1.26)
	LB 962/20									
21 036 15 991	LB 11 102/2	M 32x1.5	M 36x1.5	22	28.1	155	41.5	27.4	6	41
	LB 11 102/20			(0.87)	(1.11)	(6.10)	(1.63)	(1.08)	(0.24)	(1.61)
21 042 15 991	LB 13 145/3	M 39x1.5	M 42x1.5	30	35.8	175	47.5	34.4	7	46
	LB 13 145/20			(1.18)	(1.41)	(6.89)	(1.87)	(1.35)	(0.28)	(1.81)

Accessories for Spin-On Separators Replacement seals



ADVANTAGES

- Replacement for standard seals made from NBR
- For long-term or repeated exceeding of 100°C oil temperature

TECHNICAL DATA

- Material: FKM
- Packaging unit of 20 replacement seals

INSTALLATION: REPLACING THE SEAL

- Pull the existing seal out of the holder on the underside of the Spin-On Separator
- Replace with the replacement seal
- Note: This should fully engage in the retaining slot



PERMISSIBLE OPERATING TEMPERATURES¹⁾

Long-term²⁾: -20°C to +100°C

Short-term²⁾: +120°C

Observe minimum temperature!

ORDER NUMBERS AND DIMENSIONS

Order No.	Name	Suitable for LB box / StarBox
49 999 98 013	Service kit size 7+9	LB 7 + LB 9
49 999 98 014	Service kit size 13	LB 13

1) Operating temperatures relate to the entire Spin-On Separator system. 2) Short-term: Dwell time at the short-term temperature of not more than 10 min. The distance between 2 short-term peaks must be at least 0.5 h. After approx. 300 peaks have been reached, we recommend changing the seal and filter.

Oil filters for use in compressors

STANDARD OIL FILTERS page 30

LONG LIFE OIL FILTERS page 31

HIGH-PRESSURE OIL FILTERS page 31

ACCESSORIES page 32





Oil filters for use in compressors

DESIGN

- Robust metal housing with integrated filter element
- Can be equipped with different modular components, such as special filter medium, bypass valve etc.
- Admission of liquid to be filtered through the concentric inlet openings in the cover
- Outlet of cleaned liquid at the central connection
- A undetachable seal fitted into the cover ensures reliable sealing to the outside under all operating conditions

QUALITY 1: STANDARD OIL FILTER

- Cellulose medium
- Service life approx. 2,000 h
- Attractive price/performance ratio

QUALITY 2: LONG LIFE OIL FILTER

- Reliability under stringent requirements
- Glass fiber medium
- Resistance to aggressive compressor oils with high separation performance
- Service life approx. 4,000 h
- Improved pulsation resistance

QUALITY 2: HIGH-PRESSURE OIL FILTER

- Applications at maximum operating pressure of 34.5 bar_(g)
- Service life approx. 4,000 h

ADVANTAGES

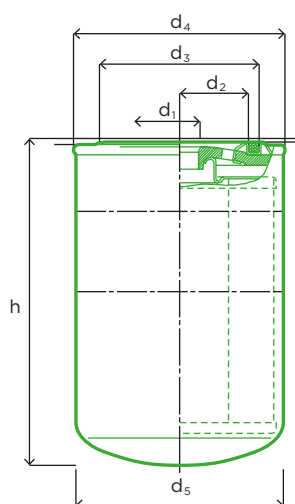
- Tried and tested in operation
- Robust design
- Efficient separation and high dirt holding capacity at low pressure drop
- Undetachable seals

FEATURES

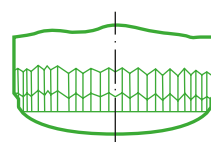
- Compressor-specific material and design
- Bypass valves with clearly defined opening characteristic
- Available with various filter media

Standard oil filters

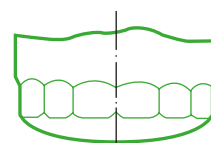
Technical data



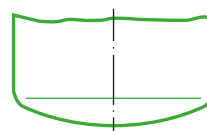
DESIGN B



DESIGN C



DESIGN E



ORDER NUMBERS AND DIMENSIONS

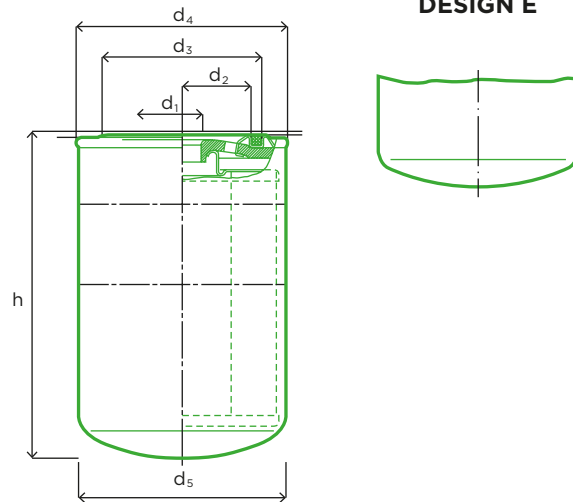
Order No.	Nominal flow rate [l/min] [gpm]	Dimensions in mm (dimensions in inches)						Bypass valve		Permissible operating pressure		Design
		d ₁	d ₂	d ₃	d ₄	d ₅	h	[bar]	[MPa]	[bar]	[MPa]	
WD 940/2	50 [13]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	144 (5.67)	2.5	0.25	25	2.5	E
W 950/31	60 [16]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	170 (6.69)	2.0	0.2	14	1.4	B
WD 962/8	75 [20]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	210 (8.27)	2.5	0.25	25	2.5	E
W 962/14	75 [20]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	210 (8.27)	2.5	0.25	14	1.4	B
W 11 102/16	100 [26]	1 1/8"-16 UNF	93 (3.66)	104 (4.09)	110 (4.33)	108 (4.25)	260 (10.24)	2.5	0.25	14	1.4	C
WD 13 145/4	180 [48]	1 1/2"-16 UN	100 (3.94)	111 (4.37)	140 (5.51)	136 (5.35)	302 (11.89)	2.5	0.25	20	2.0	E

ACCESSORIES

Use for Order No.	Filter heads (page 33-35)				FKM seals (page 39)
	Single	Double	Triple	Switchable	
WD 940/2	67 506 31 143 67 506 31 535	67 512 31 851	-	-	49 999 98 013
W 950/31	67 506 31 143 67 506 31 535	67 512 31 851	-	67 506 31 551	49 999 98 013
WD 962/8	67 506 31 143 67 506 31 535	67 512 31 851	-	67 506 31 551	49 999 98 013
W 962/14	67 506 31 143 67 506 31 535	67 512 31 851	-	67 506 31 551	49 999 98 013
W 11 102/16	-	67 625 31 935	-	67 612 31 791	-
WD 13 145/4	67 700 31 934	67 730 31 129	67 750 31 991	-	49 999 98 014

Long life/high-pressure oil filters

Technical data



LONG LIFE

Order No.	Nominal flow rate [l/min] [gpm]	Dimensions in mm (dimensions in inches)						Bypass valve		Permissible operating pressure		Design
		d ₁	d ₂	d ₃	d ₄	d ₅	h	[bar]	[MPa]	[bar]	[MPa]	
WD 962/21	65 [17]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	210 (8.27)	2.5	0.25	25	2.5	E
WD 1374/6	95 [25]	1½"-16 UN	100 (3.94)	111 (4.37)	140 (5.51)	136 (5.35)	177 (6.97)	2.5	0.25	20	2.0	E
WD 13 145/14	210 [56]	1½"-16 UN	100 (3.94)	111 (4.37)	140 (5.51)	136 (5.35)	302 (11.89)	2.5	0.25	20	2.0	E

LONG LIFE ACCESSORIES

Use for Order No.	Filter heads (page 33-35)				FKM seals (page 39)
	Single	Double	Triple	Switchable	
WD 962/21	67 506 31 143 67 506 31 535	67 512 31 851	-	-	49 999 98 013
WD 1374/6 WD 13 145/14	67 700 31 934	67 730 31 129	67 750 31 991	-	49 999 98 014

HIGH PRESSURE

Order No.	Nominal flow rate [l/min] [gpm]	Dimensions in mm (dimensions in inches)						Bypass valve	Permissible operating pressure		Design
		d ₁	d ₂	d ₃	d ₄	d ₅	h		[bar]	[MPa]	
WH 945/2	70 [19]	1 3/8"- 12 UNF	-	-	97 (3.82)	94.2 (3.71)	152 (5.98)	-	34.5	3.45	E
WH 980/1	100 [26]	1 3/8"- 12 UNF	-	-	97 (3.82)	94.2 (3.71)	240 (9.45)	-	34.5	3.45	E

Filter fineness according to ISO 16889 [μm (c)], 50% = 4 / 99% = 11, service life approx. 4,000 h. Actual operating conditions can shorten filter service life.

Accessories for oil filters

Filter heads



ADVANTAGES

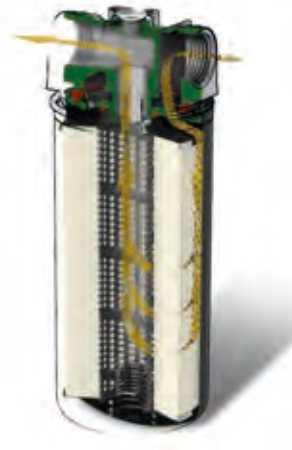
- Easy integration of oil filters in a compressor
- Easy installation and maintenance of oil filters

FEATURES

- Multiple heads for higher flow rates possible
- Switchable filter heads for reliable maintenance in operation (depressurized changing, caution: pressure increase in the system must be taken into account in the design)

NOTES

- Observe specified lowest operating pressure
- The arrow direction must be observed.



Accessories for oil filters

Filter heads

FIG. 1

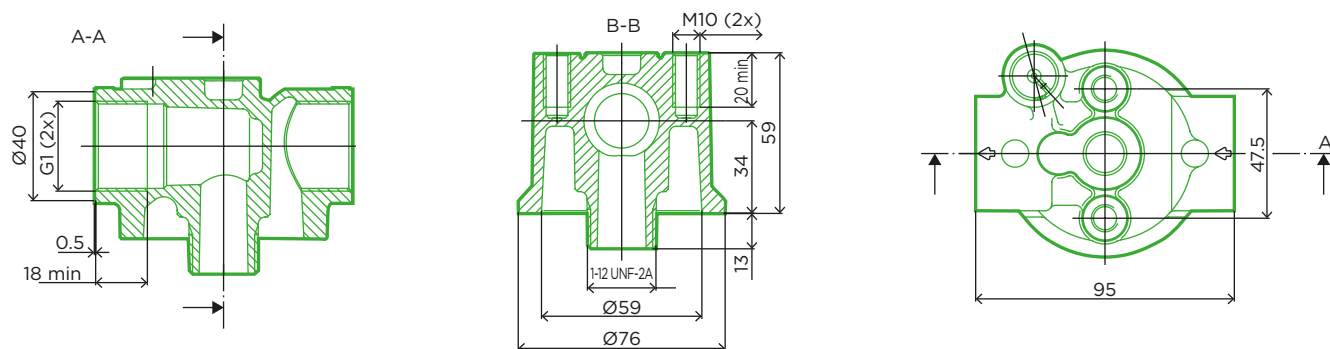


FIG. 2

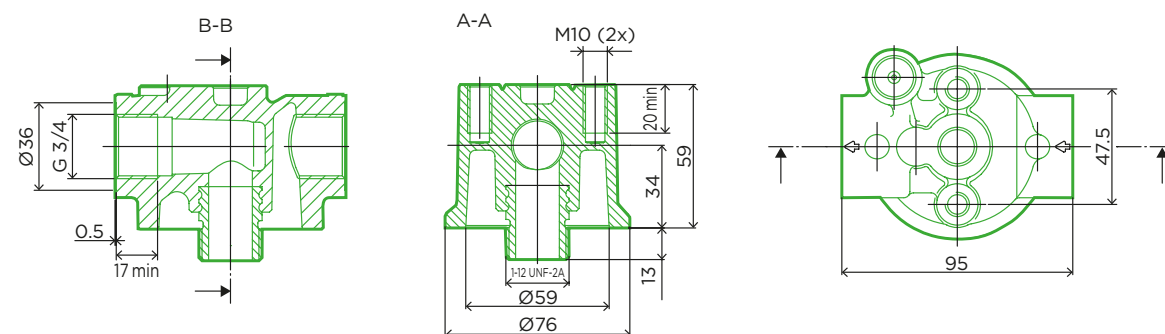
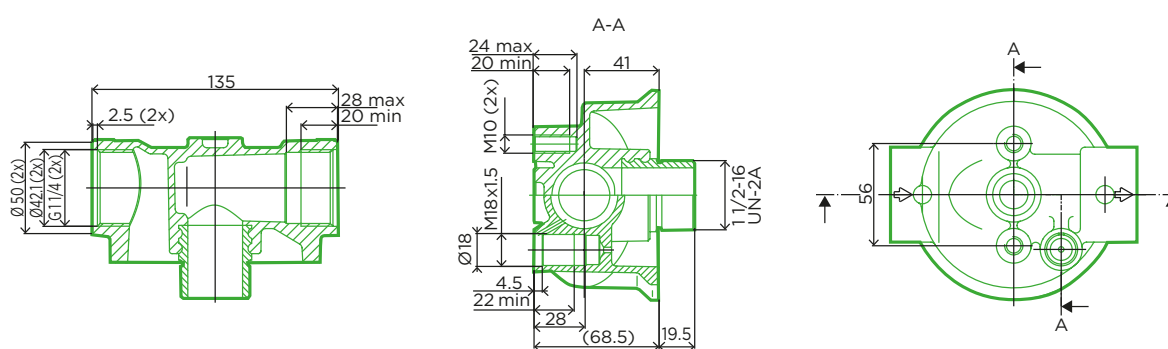


FIG. 3



ORDER NUMBERS AND DIMENSIONS

Order No.	Name	Figure	Suitable oil filter	Max. operating overpressure		Filter thread	Line connection	Service switch
				[bar]	[MPa]			
67 506 31 143	Single	1	W / WD 7 W / WD 9	14	1.4	1-12 UNF-2A	G 1	-
67 506 31 535	Single	2	W / WD 7 W / WD 9	25	2.5	1-12 UNF-2A	G 3/4	-
67 700 31 934	Single	3	W / WD 13	20	2,0	1½-16 UN-2A	G 1 ¼	required ¹⁾

1) Filter head can only be used with service switch.

Accessories for oil filters

Double filter heads

FIG. 1

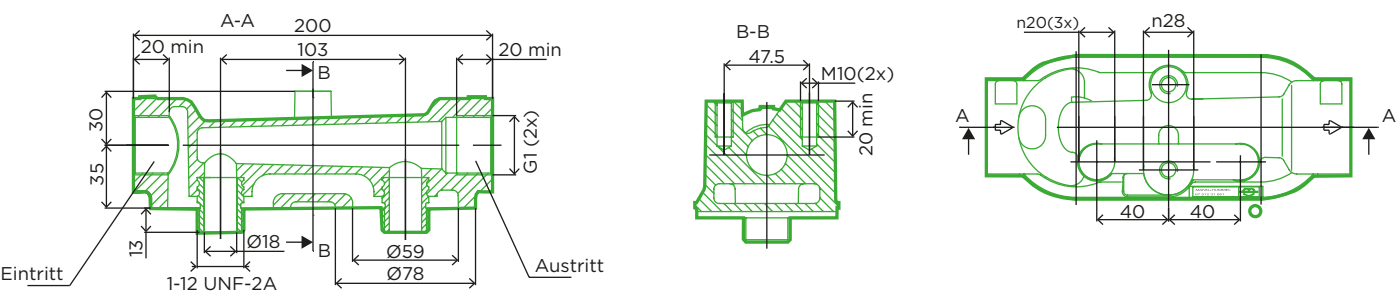


FIG. 2

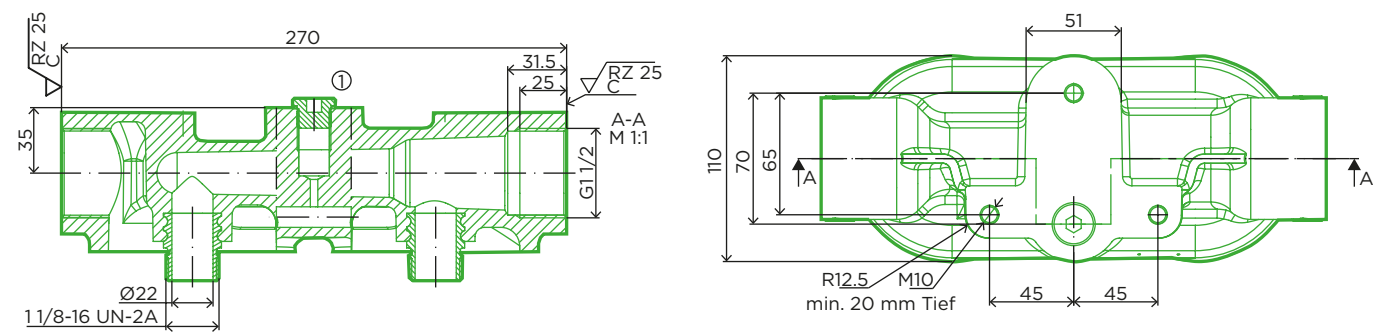
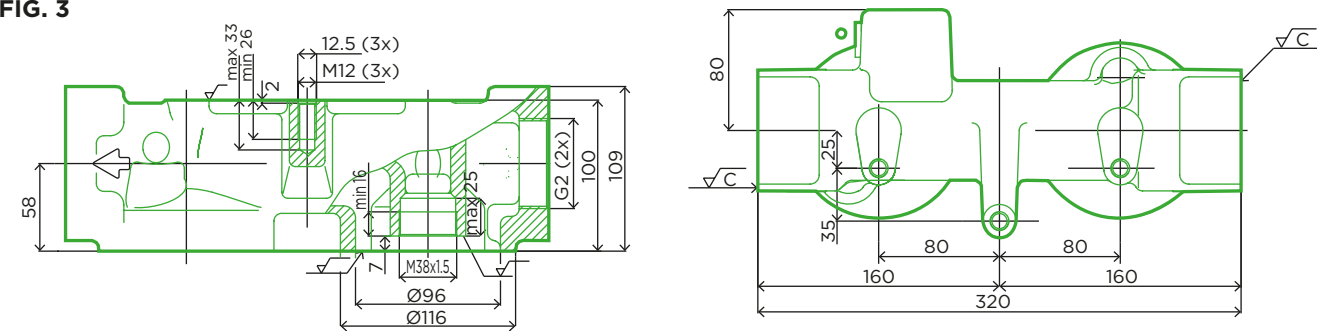


FIG. 3



ORDER NUMBERS AND DIMENSIONS

Order No.	Name	Figure	Suitable oil filter	Max. operating overpressure		Filter thread	Line connection	Service switch
				[bar]	[MPa]			
67 512 31 851	Double	1	W / WD 7 W / WD 9	25	2.5	1-12 UNF-2A	G 1	-
67 625 31 935	Double	2	W / WD 11	15	1.5	1 1/8-16 UN-2A	G 1 1/2	possible
67 730 31 129	Double	3	W / WD 13	20	2.0	M 38x1.5 (internal) ¹⁾	G 1 1/4	possible

1) Use with connector 21 039 15 101.

Accessories for oil filters

Triple and switchable filter heads

FIG. 1

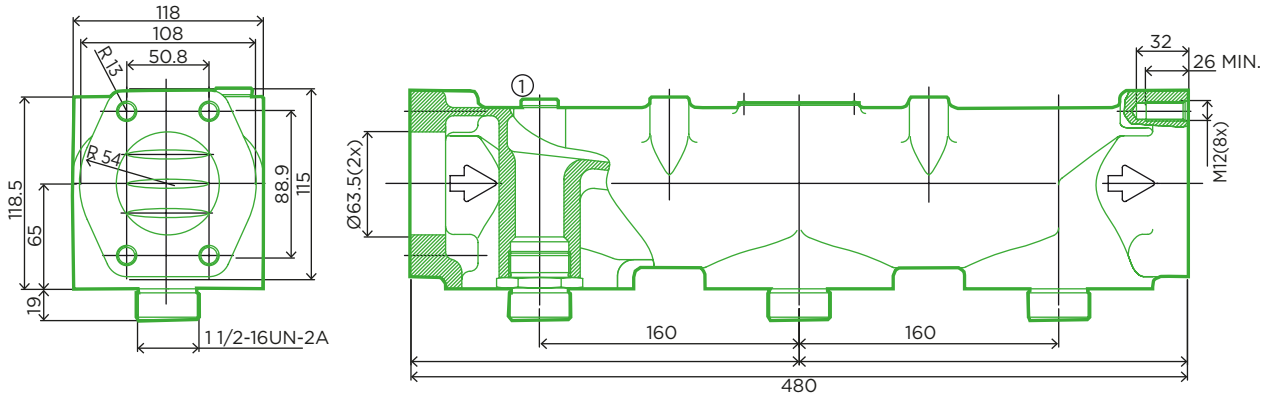


FIG. 2

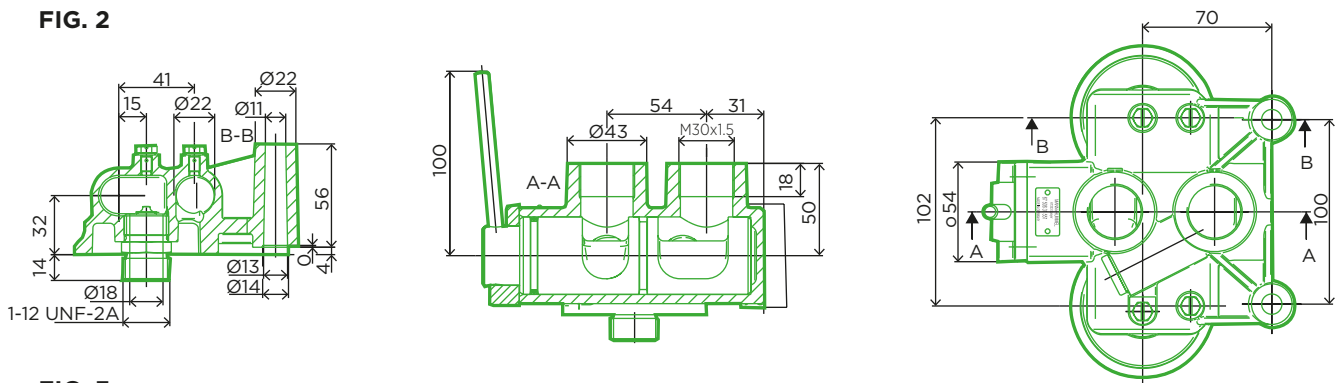
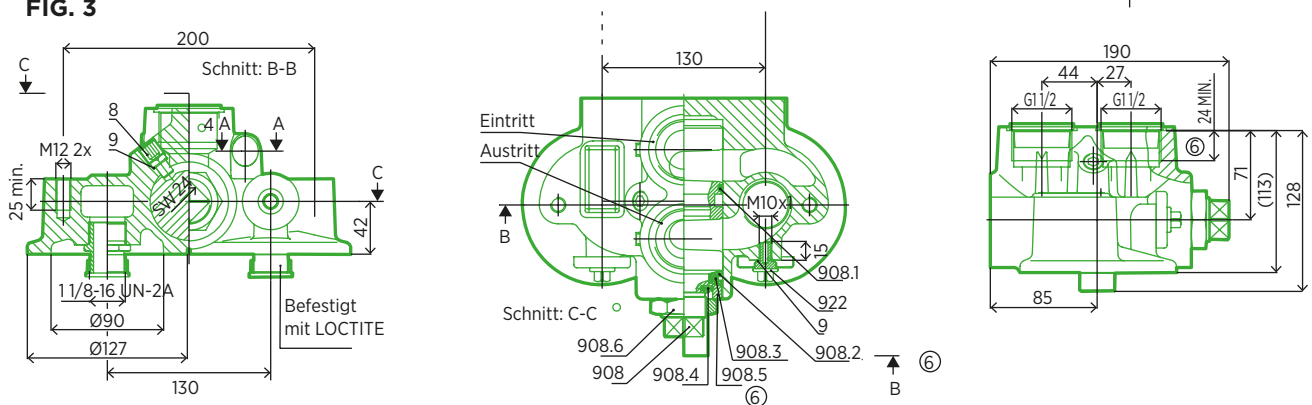


FIG. 3



ORDER NUMBERS AND DIMENSIONS

Order No.	Name	Figure	Suitable oil filter	Max. operating overpressure		Filter thread	Line connection	Service switch
				[bar]	[MPa]			
67 750 31 991	Triple	1	W / WD 13	20	2.0	1½-16 UN-2A	Flange	possible
67 506 31 551	Switch	2	W / WD 7 W / WD 9	25	2.5	1-12 UNF-2A	M 30x1.5	possible
67 612 31 791	Switch	3	W / WD 11	10	1.0	1-12 UNF-2A	M 30x1.5	possible

Accessories for oil filters

Visual service indicator



ADVANTAGES

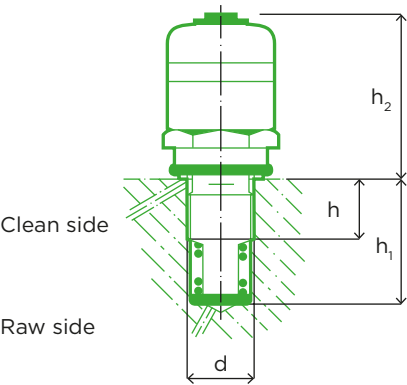
- Indicates the time for maintenance



PERMISSIBLE OPERATING
TEMPERATURE
120°C

FEATURES

- Service signal as red ring in the window



ORDER NUMBERS AND DIMENSIONS

Order No.	Dimensions in mm <i>(dimensions in inches)</i>				Max. pressure [bar]	Switching point [bar]	Suitable for
	d	h	h ₁	h ₂			
59 020 79 201	M 18x1.5	22 (0.87)	36 (1.42)	46 (1.81)	25	1.0	67 700 31 934 67 625 31 935 67 730 31 129 67 750 31 991 67 506 31 551 67 612 31 791
59 020 79 208	M 18x1.5	22 (0.87)	36 (1.42)	46 (1.81)	25	1.4	
59 020 79 202	M 18x1.5	22 (0.87)	36 (1.42)	46 (1.81)	25	1.8	

Accessories for oil filters

Service switches



ADVANTAGES

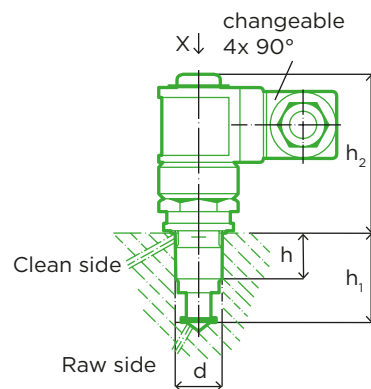
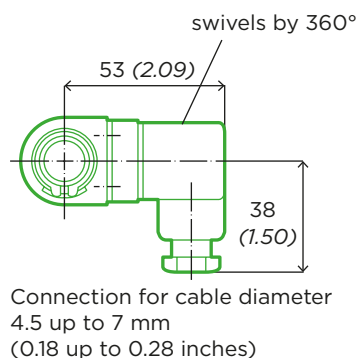
- Indicates the time for maintenance via a high-quality electromagnetic switch (reed switch)
- Service signal for indicator. e.g. light or buzzer

TECHNICAL DATA

- Switching type preset in delivery condition (see below). Adaptable through replugging by customer.
- Switching capacity: max. 12 W / 18 VA
- Starting current: max 0.8 A
- Protection class: IP65



VIEW X



ORDER NUMBERS AND DIMENSIONS

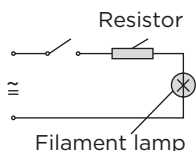
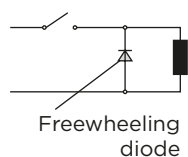
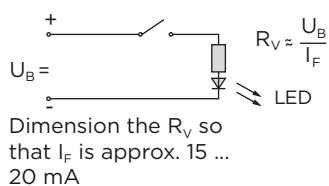
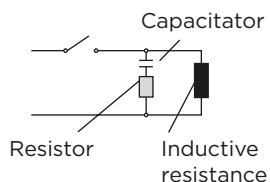
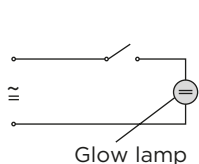
Order No.	Dimensions in mm (dimensions in inches)				Max. pressure [bar]	Switching point [bar]	Switch type	Suitable for
	d	h	h ₁	h ₂				
59 010 79 206	M 18x1.5	22 (0.87)	36 (1.42)	62.5 (2.46)	25	0.8	NC	67 700 31 934 67 625 31 935 67 730 31 129 67 750 31 991 67 506 31 551 67 612 31 791
59 010 79 201	M 18x1.5	22 (0.87)	36 (1.42)	62.5 (2.46)	25	1.0	NO	
59 010 79 208	M 18x1.5	22 (0.87)	36 (1.42)	62.5 (2.46)	25	1.4	NO	
59 010 79 202	M 18x1.5	22 (0.87)	36 (1.42)	62.5 (2.46)	25	1.8	NO	

Accessories for oil filters

Service switches

INSTRUCTIONS FOR THE ELECTRICAL CONNECTION OF THE SERVICE SWITCH (WITH REED SWITCH)

- For electric/visual indicator: use of a glow lamp or LED (direct switching without spark quenching device possible)
- Adaptation of the lamp bulbs (high starting current) and series resistor to the maximum switch load during switching on.
- For full protection against overloading, observe the maximum switch load when selecting the series resistor (if the lamp bulb resistance is not taken into account, it will burn with undervoltage)
- To prevent damage due to voltage peaks (inductive loading):
 - AC current: RC combination parallel to relay or protection coil
 - DC current: Freewheeling diode (e.g. diode 1 N 4007) in non-conducting direction



NOTE

Observe the instructions of the relevant protection device or relay manufacturer when dimensioning the spark arrester. The maximum switch load (see rating plate) must not be exceeded in either case.

Accessories for oil filters

Replacement seals



ADVANTAGES

- Replacement for standard seals made from NBR
- For long-term or repeated exceeding of 100°C oil temperature

TECHNICAL DATA

- Material: FKM
- Packaging unit of 20 replacement seals

INSTALLATION: REPLACING THE SEAL

- Pull the existing seal out of the holder on the underside of the spin-on separator
- Replace with the replacement seal
- Note: This should fully engage in the retaining slot



PERMISSIBLE OPERATING TEMPERATURES¹⁾

Long-term²⁾: -20°C to +100°C

Short-term²⁾: +120°C

Observe minimum temperature!

ORDER NUMBERS

Order No.	Name	Suitable for filter type
49 999 98 013	Service kit size 7+9	W / WD 7 W / WD 9
49 999 98 014	Service kit size 13	W / WD 13

1) Operating temperatures relate to the entire spin-on separator system. 2) Short-term: Dwell time at the short-term temperature of not more than 10 min. The distance between 2 short-term peaks must be at least 0.5 h. After approx. 300 peaks have been reached, we recommend changing the seal and filter.

Air cleaners for use in compressors

IGORON page 43

ENTARON page 49

EUROPICLON page 53

NLG page 59

PICOLINO page 65

PICOLIGHT page 71

ACCESSORIES page 75







Air cleaners for use in compressors The IQORON series

ADVANTAGES

- High installation space flexibility in tight spaces
- Maximum service life
- Environment-friendly elements
- Cleanable precleaner
- Fast installation
- Compact design
- Service friendly
- Service switch/indicator can be attached to housing
- Protection of outlet side when servicing the main element
- Simple tube system

FEATURES

- CompacPleat filter element (metal-free) with large filter surfaces
- Secondary flat element with reinforcement (metal-free)
- Integrated fastening via through holes and/or threaded bushings
- Intake scoop for flexible adaptation
- Highly efficient multi-cyclone block

IQORON-S

Single-stage filter

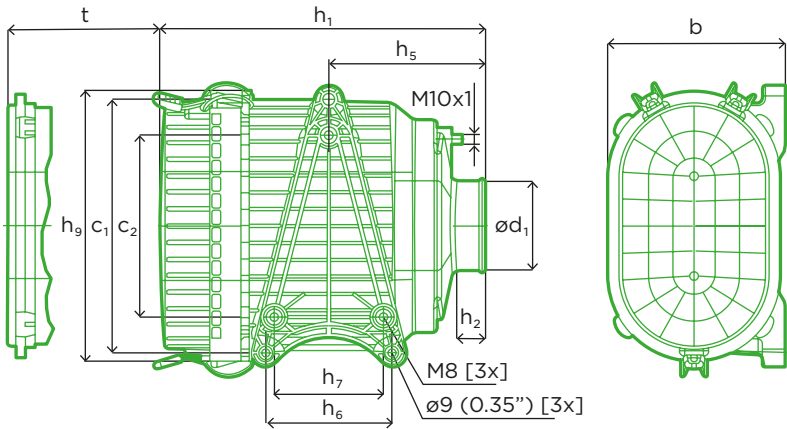


ADVANTAGES

- Ideal for very low pressure drops
- For compressors, engines and mobile compressors in low-dust environments
- Simple conversion to IQORON-V:
replacement of raw-air grid
with precleaner

1 Filter housing (identical to IQORON-V); 2 Intake grid

FIG. 1



ORDER NO.

Size	Nominal flow rate [m³/min]	Figure	Order No.		Replacement filter element		Weight [kg]
			Without secondary element	With secondary element	Order No. Main element	Order No. Secondary element	
IQORON-S 7	4 - 10	1	45 270 75 912	45 270 75 910	C 26 270	CF 2125/1	2.7

DIMENSIONS

Size	Dimensions in mm (dimensions in inches)										
	b	c ₁	c ₂	d ₁	h ₁	h ₂	h ₅	h ₆	h ₇	h ₉	t
IQORON-S 7	176.4 (6.95)	250 (9.84)	180 (7.09)	89.1 (3.51)	324 (12.76)	30 (1.18)	155 (6.10)	125 (4.92)	108 (4.25)	267,9 (10.55)	105 (4.13)

IQORON-V

Two-stage filter



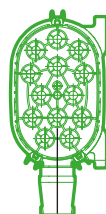
ADVANTAGES

- Ideal for high-dust environments, e.g. mobile compressors
- Excellent separation performance
- Easy cleaning of preseparator

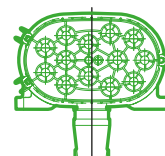
FEATURES

- Cyclone preseparator
- Vertical or horizontal installation possible through position of dust discharge valve (max. 15° deviation of dust valve to the vertical)

VERTICAL INSTALLATION
FIG. 1



HORIZONTAL INSTALLATION
FIG. 2



- 1 Housing made from glass-fiber-reinforced plastic with integrated fastening points (M8 threaded bushings – optional M10 or UNC 3/8"-16 – and through holes for M8 screws) 2 Cyclone preseparator 3 Fasteners for axial element removal without hinge 4 Dust discharge valve

ORDER NO.

Size	Nominal flow rate [m³/min]	Figure	Order No.		Replacement filter element		Weight [kg]
			Without secondary element	With secondary element	Order No. Main element	Order No. Secondary element	
IQORON-V 7	4 - 7	1	45 270 95 912	45 270 95 910	C 26 270	CF 2125/1	3.1
		2	45 270 95 913	45 270 95 911			
		3	45 402 95 914	45 402 95 910 ¹⁾			
IQORON-V 9	5 - 9	4	45 402 95 915	45 402 95 911	C 30 400/1	CF 2631	4.8
		3	45 402 95 916	45 402 95 912			
		4	45 402 95 917	45 402 95 913 ²⁾			
IQORON-V 14	7 - 14	1	-	45 580 95 910	C 34 540	CF 2944	6
		2	-	45 580 95 911			

1) Cover and dust-discharge valve on same side 2) Left cover

Technical data

FIG. 1

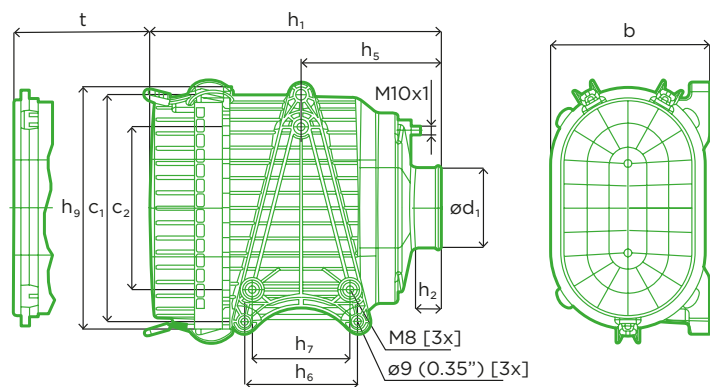


FIG. 4

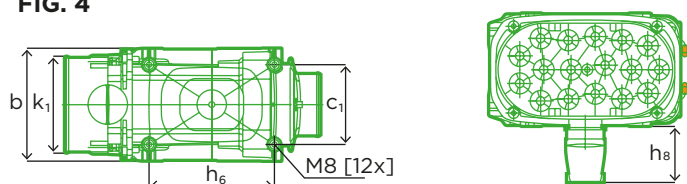
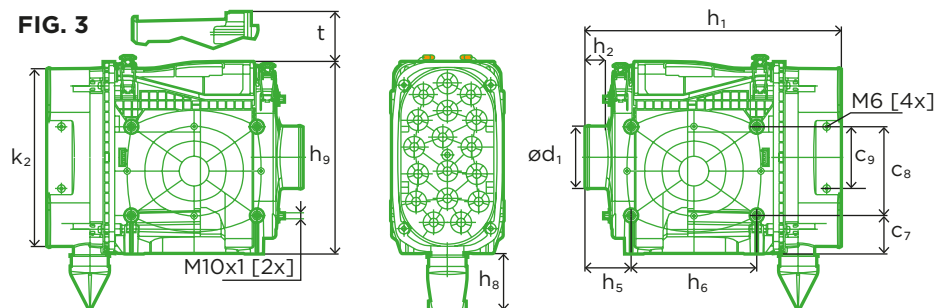


FIG. 3



DIMENSIONS

Size	Dimensions in mm <i>(dimensions in inches)</i>								
	b	c ₁	c ₂	c ₇	c ₈	c ₉	d ₁	h ₁	h ₂
IGORON-V 7 ¹⁾	176.4 (6.95)	250 (9.84)	180 (7.09)	–	–	–	89.1 (3.51)	378 (14.88)	30 (1.18)
IGORON-V 9	185 (7.28)	130 (5.12)	–	63 (2.84)	145 (5.71)	100 (3.94)	102 (4.02)	418.8 (16.49)	34 (1.34)
IGORON-V 14	220.3 (8.67)	145 (5.71)	–	78.15 (3.08)	145 (5.71)	100 (3.94)	127 (5.00)	435.7 (17.15)	34 (1.34)

Size	Dimensions in mm <i>(dimensions in inches)</i>								
	h ₅	h ₆	h ₇	h ₈		h ₉	k ₁	k ₂	t
				Fig. 3	Fig. 4				
IQORON-V 7 ^b	155 (6.10)	125 (4.92)	108 (4.25)	86.1 (3.39)	88.5 (3.48)	268.8 (10.58)	153 (6.02)	245.4 (9.66)	50 (1.97)
IQORON-V 9	75.3 (2.97)	205 (8.07)	-	91.1 (3.59)	91.5 (3.60)	314.9 (12.40)	157.2 (6.19)	289.7 (11.41)	210.1 (8.27)
IQORON-V 14	78.2 (3.08)	205 (8.07)	-	89.67 (3.53)	86 (3.39)	346.29 (13.63)	190 (7.48)	316.3 (12.45)	218.7 (8.61)

1) see Fig. 1





Air cleaners for use in compressors The ENTARON series

With the new ENTARON XD series, MANN+HUMMEL has set new standards for two-stage air cleaners. It combines the best characteristics of the successful and proven EUROPICLON and NLG series with a whole host of new smart ideas. This has made the ENTARON XD the new reference class among two-stage air cleaners with lateral raw-air inlet.

ADVANTAGES

- Ideal for high-dust applications
- Precleaning efficiency of over 85 % (class benchmark)
- Additional external precleaner is superfluous
- Highest flexibility under the most stringent requirements
- Cost-effective
- Corrosion-free and robust housing
- Highest operational reliability
- Environment-friendly disposal
- Problem-free flexibility at installation locations
- Fast initial installation in vehicle
- Simple, tool-free element replacement

FEATURES

- Variable modular system with standard parts
- Three-part design with special welding
- Robust design with new, reliable sealing system
- Metal-free filter elements (completely incinerable)
- Various connection positions possible
- The MANN+HUMMEL glue string (GST) for stabilization of the pleat peaks
- Permanently installed safety elements
- Reinforcement of clean-air outlet with metal ring
- Standard connection for service switch or indicator
- Color-coded fasteners with snap-in noses
- Thread inserts integrated in the housing (optional)

TECHNICAL DATA

- Housing made from glass-fiber-reinforced plastic and FEM-optimized stiffening ribs
- Robust, plastic central tube in filter element
- Integrated fastenings: 4x through bushing for M10 screw (optional: 4x M10, M8 or UNC 3/8"-16 threaded bushing)
- New, high-quality filter medium
- Tightening torque for hose clamps of up to 5 Nm

ENTARON XD/MD

Technical data

ORDER NUMBERS

Size	Nominal flow rate [m³/min]	Connection position	Figure	Order No.		Replacement filter element		Weight [kg]
				Without secondary element	With secondary element	Order No. Main element	Order No. Secondary element	
ENTARON XD 14	7 - 14	left	1	45 526 92 950	45 526 92 910	C 21 600	CF 1280	5.0
			2	45 526 92 951	45 526 92 911			
			3	45 526 92 952	45 526 92 912			
		right	4	45 527 92 950	45 527 92 910			
			5	45 527 92 951	45 527 92 911			
			6	45 527 92 952	45 527 92 912			
ENTARON XD 17	9 - 17	left	1	45 625 92 950	45 625 92 910	C 23 800	CF 1350	6.3
			2	45 625 92 951	45 625 92 911			
			3	45 625 92 952	45 625 92 912			
		right	4	45 626 92 950	45 626 92 910			
			5	45 626 92 951	45 626 92 911			
			6	45 626 92 952	45 626 92 912			
ENTARON XD 21 ¹⁾	11 - 21	left	1	45 722 92 950	45 722 92 910	C 25 900	CF 1470	7.3
			2	45 722 92 951	45 722 92 911			
			3	45 722 92 952	45 722 92 912			
		right	4	45 723 92 950	45 723 92 910			
			5	45 723 92 951	45 723 92 911			
			6	45 723 92 952	45 723 92 912			
ENTARON XD 21-24 ¹⁾	11 - 21	left	1	45 722 92 980	45 722 92 960	C 25 1020	CF 1480	7.9
			2	45 722 92 981	45 722 92 961			
			3	45 722 92 982	45 722 92 962			
		right	4	45 723 92 980	45 723 92 960			
			5	45 723 92 981	45 723 92 961			
			6	45 723 92 982	45 723 92 962			
ENTARON XD 28 ¹⁾	14 - 28	left	1	45 920 92 950	45 920 92 910	C 28 1300	CF 1750	9.6
			2	45 920 92 951	45 920 92 911			
			3	45 920 92 952	45 920 92 912			
		right	4	45 921 92 950	45 921 92 910			
			5	45 921 92 951	45 921 92 911			
			6	45 921 92 952	45 921 92 912			
ENTARON XD 28-32 ¹⁾	14 - 28	left	1	45 920 92 980	45 920 92 960	C 28 1460	CF 1760	10.1
			2	45 920 92 981	45 920 92 961			
			3	45 920 92 982	45 920 92 962			
		right	4	45 921 92 980	45 921 92 960			
			5	45 921 92 981	45 921 92 961			
			6	45 921 92 982	45 921 92 962			
ENTARON XD 40	20 - 40	right - 12 h	-	45 930 92 950	45 930 92 910	C 35 2260	CF 21 160	18
		right - 3 h	-	45 930 92 951	45 930 92 911			
		right - 6 h	-	45 930 92 953	45 930 92 913			
		right - 9 h	-	45 930 92 952	45 930 92 912			
		left - 12 h	-	45 931 92 950	45 931 92 910			
		left - 3 h	-	45 931 92 951	45 931 92 911			
		left - 6 h	-	45 931 92 953	45 931 92 913			
		left - 9 h	-	45 931 92 952	45 931 92 912			
ENTARON MD 40	20 - 40	12 h	-	45 932 72 980	45 932 72 960	C 38 306		18
		3 h	-	45 932 72 981	45 932 72 961			
		9 h	-	45 932 72 982	45 932 72 962			

1) Succeeding generation to EUROPICLON 700 and EUROPICLON 800

ENTARON XD/MD

Technical data

FIG. 1/4*

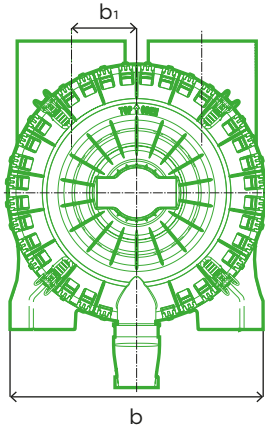


FIG. 2/5*

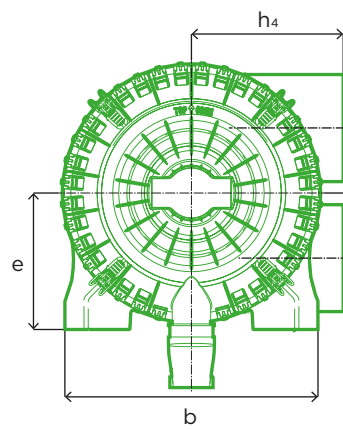
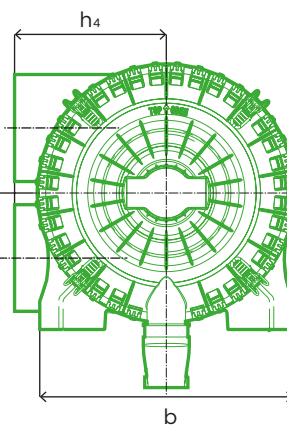


FIG. 3/6*

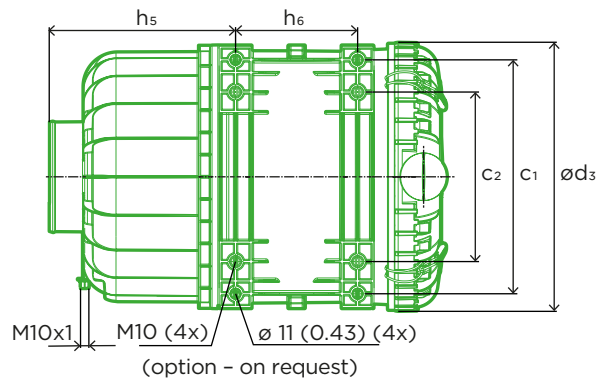
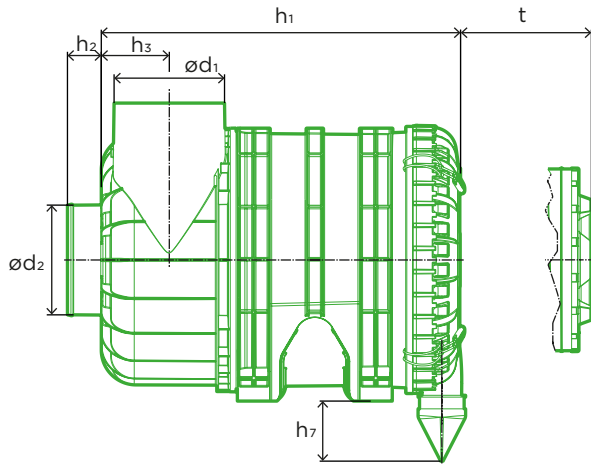


**EXTERNAL PRECLEANING
AVAILABLE AS ACCESSORY**

DualSpinXT

Order No.: 48 030 75 910

Nominal flow rate: 20–40 m³/min



DIMENSIONS

Size	Dimensions in mm (dimensions in inches)															
	b	b ₁	c ₁	c ₂	d ₁	d ₂	d ₃	e	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	h ₇	t
ENTARON XD 14	300 (11.82)	79 (3.11)	263.3 (10.37)	175.3 (6.90)	130 (5.20)	110 (4.33)	305.7 (12.04)	159.7 (6.29)	422.9 (16.65)	45 (1.77)	72.8 (2.87)	186.5 (7.34)	218.4 (8.60)	136.8 (5.39)	85.8 (3.38)	362 (14.25)
ENTARON XD 17	328.2 (12.92)	90.1 (3.55)	291.8 (11.92)	203.8 (8.03)	130 (5.20)	130 (5.20)	335.1 (13.19)	173.7 (6.84)	474.8 (18.70)	45 (1.77)	80.3 (3.16)	198 (7.80)	235.8 (9.29)	169.9 (6.69)	90.4 (3.56)	408 (16.06)
ENTARON XD 21	357.8 (14.09)	92 (3.62)	320 (12.60)	232 (9.13)	150 (5.91)	150 (5.91)	368.9 (14.52)	193 (7.60)	491 (19.33)	45 (1.77)	90 (3.54)	215 (8.46)	254 (10)	167 (6.58)	82.1 (3.23)	426 (16.77)
ENTARON XD 21-24	357.8 (14.09)	92 (3.62)	320 (12.60)	232 (9.13)	150 (5.91)	150 (5.91)	368.9 (14.52)	193 (7.60)	546 (21.50)	45 (1.77)	90 (3.54)	215 (8.46)	254 (10)	221.8 (8.73)	82.1 (3.23)	480 (18.90)
ENTARON XD 28	388 (12.28)	96 (3.78)	354 (13.94)	266 (10.47)	180 (7.09)	180 (7.09)	398 (15.63)	208 (8.19)	572 (22.48)	45 (1.77)	105 (4.13)	245 (9.65)	283 (11.14)	220 (8.66)	80.7 (3.18)	505 (19.88)
ENTARON XD 28-32	388 (12.28)	96 (3.78)	354 (13.54)	266 (10.47)	180 (7.09)	180 (7.09)	398 (15.63)	208 (8.19)	638 (25.12)	45 (1.77)	105 (4.13)	245 (9.65)	283 (11.14)	285 (11.22)	80.7 (3.18)	573 (22.56)
ENTARON XD 40	477	125.7	439	351	210	203	486.1	248	638.4	65	116.1	295.5	331.6	239.1	218	650
ENTARON MD 40	477	-	439	351	250	203	486.1	248	638.4	65	395.3	290	331.6	239.1	-	650

* Mirror-inverted arrangement of raw-air connection



Air cleaners for use in compressors The EUROPICLON series

EUROPICLON from MANN+HUMMEL is characterized by high dust capacity and low pressure drop. These characteristics have made the EUROPICLON a proven intake filter for all machines and devices used in applications with medium to heavy dust loads. These include construction and agricultural machinery, mobile compressors and harvesters.

ADVANTAGES

- Long filter service life
- High dust capacity and filter stability
- Highly cost-effective
- Corrosion-free housing
- Simple, tool-free element replacement
- Highest operational reliability
- Environment-friendly filter elements
- Cost-saving disposal
- Problem-free adaptation to various machines
- Patented filter elements
- Up to 432 filter positions possible
- Flexible filter housing closure
- Secondary element ensures large safety reserve at low pressure drop
- Secure seating of secondary element in the housing prevents unintended removal

FEATURES

- Integrated precleaning
- Secondary element with MANN+HUMMEL synthetic fabric
- Modular system with extensive accessories
- Housing made from impact-resistant polypropylene
- Elements with proven radial seal
- Metal-free filter elements (completely incinerable)
- Flexible holder system for rotation in 5°-steps
- Up to 6 detent positions (axial) depending on size
- Metal catches cover recesses
- Radial filter sealing to housing
- Reliable pleat reinforcement in filter element



PERMISSIBLE OPERATING TEMPERATURE

Long-term: -40°C to +80°C
Short-term: +100°C

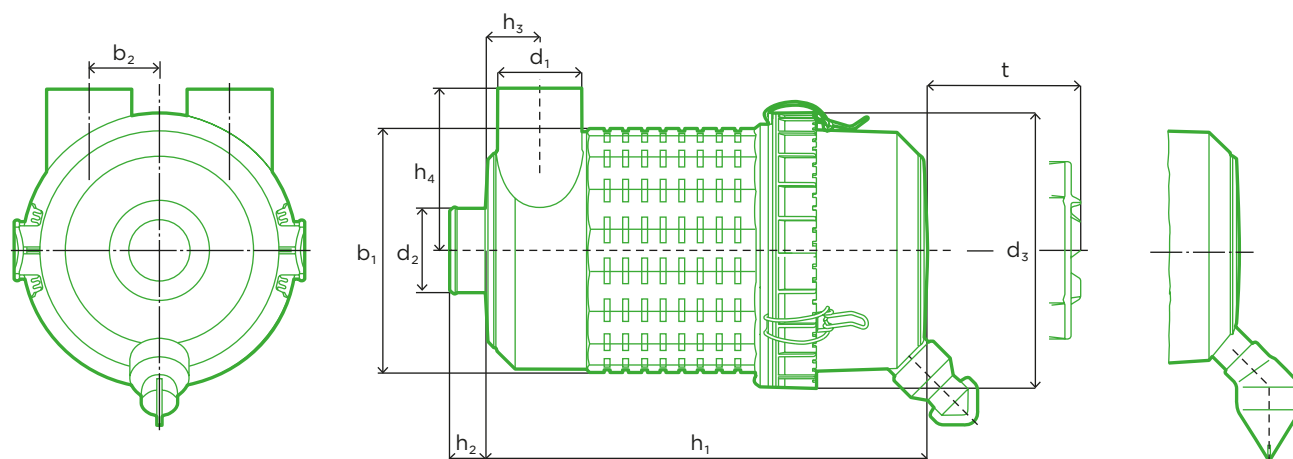
EUROPICLON 100 – 600

Technical data

FIG. 1*

1A

1B



ORDER NUMBERS AND DIMENSIONS

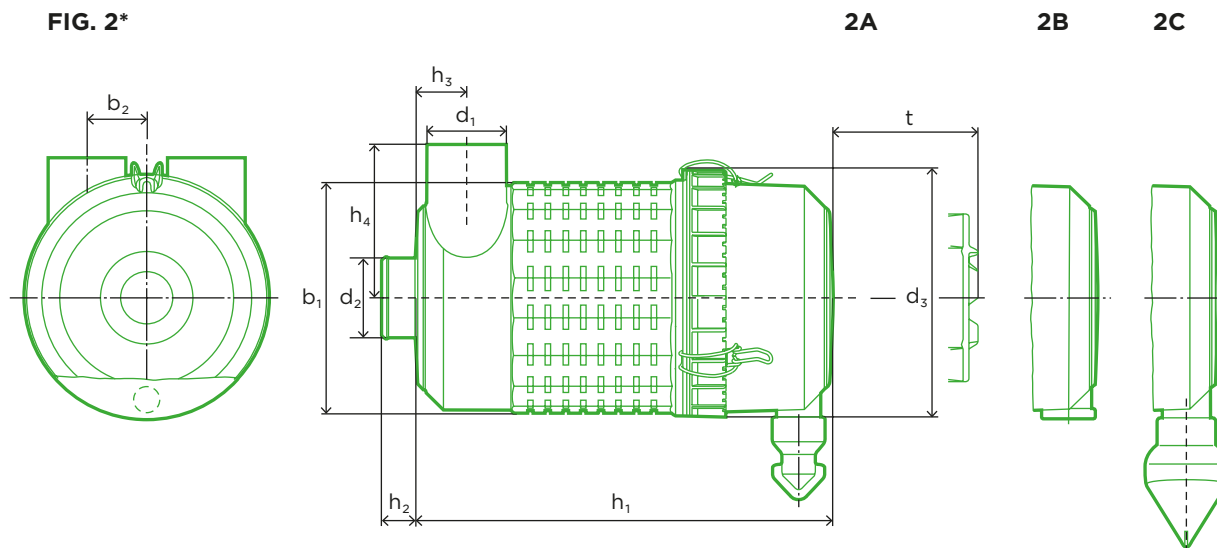
Size	Order No.		Figure	Nominal flow rate [m³/min]	Replacement filter element		Weight [kg]
	Without secondary element	With secondary element			Order No. Main element	Order No. Secondary element	
EUROPICLON 100	45 100 92 910	45 100 92 911	1a	1 - 3	C 11 100	CF 100	0.9
	45 100 92 940	45 100 92 941	1b				
EUROPICLON 200	45 200 92 910	45 200 92 911	2a	2 - 4.5	C 14 200	CF 200	1.7
	45 200 92 920	45 200 92 921	2b				
	45 200 92 940	45 200 92 941	2c				
EUROPICLON 300	45 300 92 910	45 300 92 911	2a	3 - 6	C 15 300	CF 300	2.1
	45 300 92 920	45 300 92 921	2b				
	45 300 92 940	45 300 92 941	2c				
EUROPICLON 400	45 400 92 910	45 400 92 911	2a	4 - 8	C 16 400	CF 400	3.0
	45 400 92 920	45 400 92 921	2b				
	45 400 92 940	45 400 92 941	2c				
EUROPICLON 500	45 500 92 910	45 500 92 911	2a	6 - 12	C 20 500	CF 500	3.8
	45 500 92 920	45 500 92 921	2b				
	45 500 92 940	45 500 92 941	2c				
EUROPICLON 600	45 600 92 910	45 600 92 911	2a	7,5 - 15	C 23 610	CF 610	5.0
	45 600 92 920	45 600 92 921	2b				
	45 600 92 940	45 600 92 941	2c				

* Mirror-inverted arrangement of raw-air connection on request

EUROPICLON 100 – 600

Technical data

FIG. 2*



ORDER NUMBERS AND DIMENSIONS

Order No.		Figure	Dimensions in mm (dimensions in inches)									
Without secondary element	With secondary element		b ₁	b ₂	d ₁	d ₂	d ₃	h ₁	h ₂	h ₃	h ₄	t
45 100 92 910	45 100 92 911	1a	158	45	54	50	188	260	27	38	104	237
		1b	(6.22)	(1.77)	(2.12)	(1.97)	(7.40)	(10.24)	(1.06)	(1.50)	(4.09)	(9.39)
45 200 92 910	45 200 92 911	2a										
45 200 92 920	45 200 92 921	2b	173	48	62	60	198	327	27	42	112	304
		2c	(6.81)	(1.89)	(2.44)	(2.36)	(7.80)	(12.87)	(1.06)	(1.65)	(4.41)	(11.97)
45 300 92 910	45 300 92 911	2a										
45 300 92 920	45 300 92 921	2b	203	59	70	70	228	367	30	45	135	344
		2c	(7.99)	(2.32)	(2.76)	(2.76)	(8.98)	(14.45)	(1.18)	(1.77)	(5.32)	(13.54)
45 400 92 910	45 400 92 911	2a										
45 400 92 920	45 400 92 921	2b	223	63	82	80	248	383	32	52	144	359
		2c	(8.78)	(2.48)	(3.23)	(3.15)	(9.76)	(15.08)	(1.26)	(2.05)	(5.67)	(14.13)
45 500 92 910	45 500 92 911	2a										
45 500 92 920	45 500 92 921	2b	264	73	102	100	288	408	37	62	174	384
		2c	(10.39)	(2.87)	(4.02)	(3.94)	(11.34)	(16.06)	(1.46)	(2.44)	(6.85)	(15.12)
45 600 92 910	45 600 92 911	2a										
45 600 92 920	45 600 92 921	2b	295	87	110	110	323	414	27	65	190	384
		2c	(11.61)	(3.43)	(4.33)	(4.33)	(12.72)	(16.30)	(1.06)	(2.56)	(7.48)	(15.12)

* Mirror-inverted arrangement of raw-air connection on request

EUROPICLON 50



ADVANTAGES

- Reliable
- Robust, corrosion-free housing
- Space-saving and tool-free filter element replacement
- Particularly low pressure drop in operation
- Particularly cost-effective with long service life
- High filter separation efficiency of over 99.95 %
- High dust capacity
- Maximizes service life with comprehensive engine protection

FEATURES

- Extension of EUROPICLON series up to approx. 12 kW
- Rotating clean air connection with integrated connection for service indicator or switch
- Clean air connection optionally as straight connection or 90° elbow (2 versions for avoiding suspended installation)
- Wire clamp fasteners for easy installation
- Filter main element: radial seal made from PUR foam
- Filter secondary element: special fleece
- Secondary element provides protection during filter servicing and in case of damage to the main filter
- Supporting plastic central tube
- Special pleat reinforcement
- 45 % more filter surface compared with competitor products
- Seal and element disks are manufactured from special elastomers in a single work operation

EUROPICLON 50

Technical data

FIG. 1
90° ELBOW

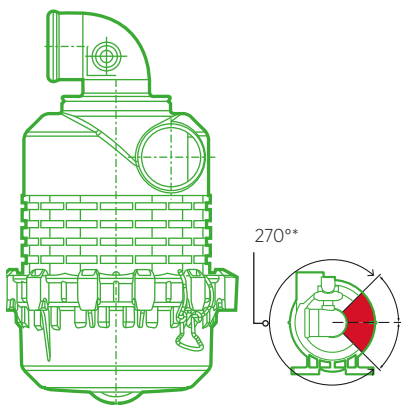


FIG. 2
CONNECTION

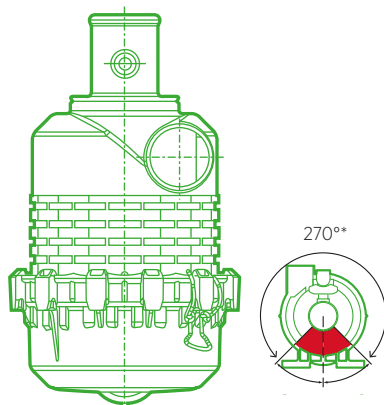


FIG. 3
90° ELBOW

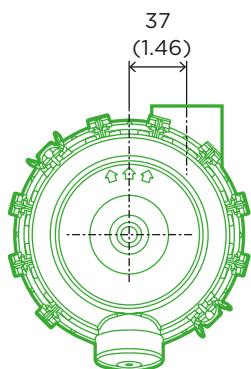
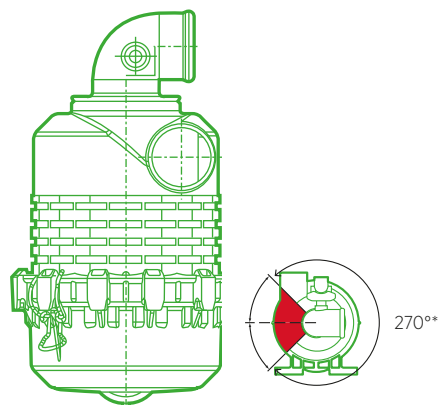


FIG. 4

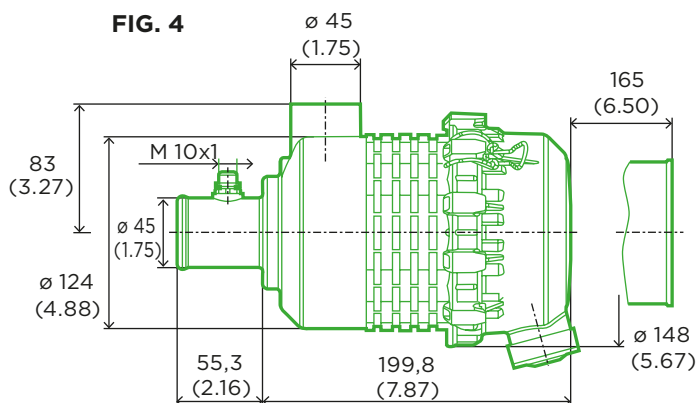
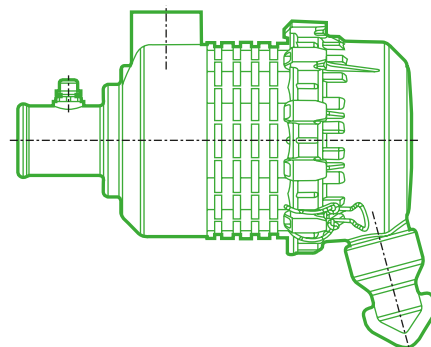


FIG. 5



ORDER NUMBERS AND DIMENSIONS

Order No. ¹⁾		Clean air connection version Figure	Dust discharge version Figure	Nominal flow rate [m³/min]	Replacement filter element		Weight [kg]
Without secondary element	With secondary element				Order No. Main element	Order No. Secondary element	
45 058 92 910	45 058 92 911	1	5	0.8 - 2	C 10 050	CF 50	0.7
45 058 92 920	45 058 92 921	1	4				
45 050 92 910	45 050 92 911	2	5	0.8 - 2	C 10 050	CF 50	0.7
45 050 92 920	45 050 92 921	2	4				
45 059 92 910	45 059 92 911	3	5	0.8 - 2	C 10 050	CF 50	0.7
45 059 92 920	45 059 92 921	3	4				

1) These order numbers are currently not available in Canada, the USA and Mexico. If you are interested in these products, please contact your MANN+HUMMEL partner directly. They can provide information on suitable alternatives.

* Avoid red area during installation



Air cleaners for use in compressors The NLG series

With the NLG series, MANN+HUMMEL has developed a flexible and cost-effective solution for wide-ranging applications in the area of intake air filtration.

ADVANTAGES

- Maximum flexibility
- Cost-effective filter system
- Tool-free element replacement
- Particularly long service life
- Ideal for the harshest dust conditions
- The Piclon version is ideal for medium to harsh dust conditions
- Fully incinerable and environment-friendly
- Cost-saving disposal
- Problem-free adaptation to various machines
- Fast initial installation in vehicle

FEATURES

- Variable modular system
- Modular design
- Simple, tool-free element replacement
- Robust, corrosion-free housing made from fiber-reinforced plastic
- The Piclon version with integrated dust precleaner
- As combination filter with DualSpin precleaner
- Metal-free filter elements
- Variable connection positions
- Integrated thread inserts
- Patented filter elements

NLG Pico version

single-stage filters

Technical data



ADVANTAGES

- Ideal for low-dust applications
- Low pressure drop
- Application examples:
commercial vehicles (HGV),
buses, mobile cranes,
compressors, stationary
engines, power generators,
marine applications

FEATURES

- Without integrated
dust precleaner
- Housing made from
glass-fiber-reinforced plastic
- Raw-air connection
- Pico filter element
- Secondary element (optional)
- Water discharge valve
on the bowl

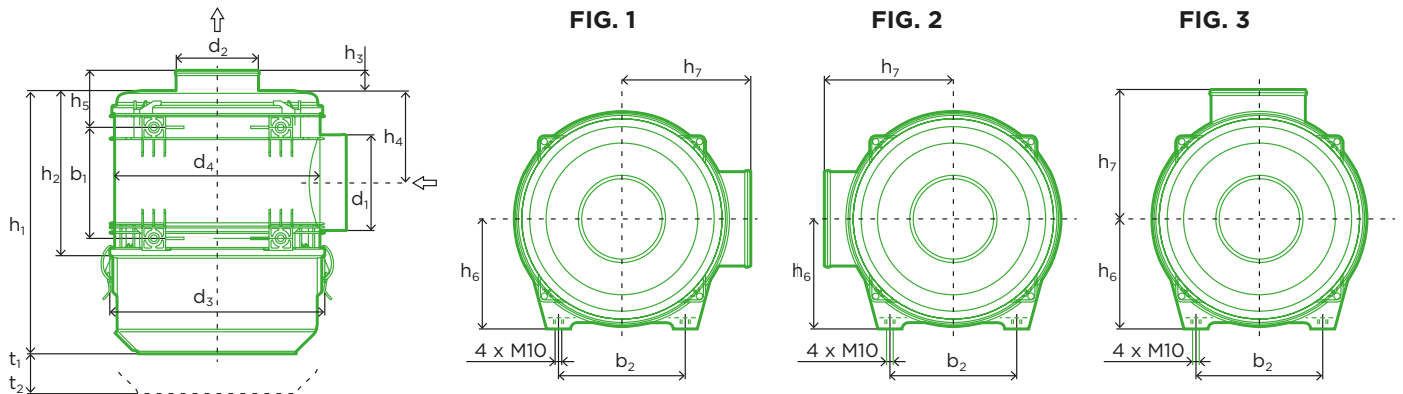
ORDER NUMBERS

Size	Order No.		Figure	Nominal flow rate [m³/min]	Replacement filter element		Weight [kg]
	Without secondary element	With secondary element			Order No. Main element	Order No. Secondary element	
NLG 15-12	44 513 85 901	44 513 85 950	1	10 – 18	C 23 513	CF 1240	3.3
	44 513 85 902	44 513 85 951	2				
	44 513 85 900	44 513 85 952	3				
NLG 15-15	44 632 85 905	44 632 85 951	1	10 – 18	C 23 632/1	CF 1250	3.6
	44 632 85 906	44 632 85 952	2				
	44 632 85 900	44 632 85 950	3				
NLG 15-18	44 750 85 903	44 750 85 951	1	10 – 18	C 23 750	CF 1260	4.3
	44 750 85 904	44 750 85 950	2				
	44 750 85 901	44 750 85 952	3				
NLG 21-18	44 742 85 905	44 742 85 950	1	12 – 24	C 25 740	CF 1420	4.3
	44 742 85 906	44 742 85 952	2				
	44 742 85 904	44 742 85 953	3				
NLG 21-21	44 860 85 908	44 860 85 952	1	12 – 24	C 25 860/5	CF 1430	4.6
	44 860 85 909	44 860 85 953	2				
	44 860 85 900	44 860 85 951	3				
NLG 21-24	44 860 85 911	44 860 85 954	1	12 – 24	C 25 990	CF 1440	5.1
	44 860 85 912	44 860 85 950	2				
	44 860 85 904	44 860 85 955	3				
NLG 28-24	44 920 85 926	44 920 85 950	1	18 – 30	C 27 1020	CF 1631	5.2
	44 920 85 927	44 920 85 955	2				
	44 920 85 916	44 920 85 956	3				
NLG 28-28	44 920 85 915	44 920 85 954	1	18 – 30	C 27 1170	CF 1640	5.6
	44 920 85 914	44 920 85 957	2				
	44 920 85 904	44 920 85 952	3				
NLG 28-32	44 920 85 928	44 920 85 958	1	18 – 30	C 27 1320/2	CF 1650	6.3
	44 920 85 924	44 920 85 951	2				
	44 920 85 918	44 920 85 959	3				
NLG 37-32	44 930 85 912	44 930 85 950	1	25 – 45	C 30 1330	CF 1820	6.4
	44 930 85 913	44 930 85 956	2				
	44 930 85 902	44 930 85 957	3				
NLG 37-37	44 930 85 908	44 930 85 958	1	25 – 45	C 30 1530	CF 1830	7.4
	44 930 85 909	44 930 85 959	2				
	44 930 85 900	44 930 85 951	3				
NLG 37-42	44 930 85 914	44 930 85 955	1	25 – 45	C 30 1730	CF 1840	7.9
	44 930 85 915	44 930 85 952	2				
	44 930 85 901	44 930 85 954	3				

NLG Pico version

single-stage filters

Technical data



NLG PICO VERSION with connection dimension $d_1 = 250$ mm

Size	Order No.		Figure	Nominal flow rate [m ³ /min]	Replacement filter element		Weight [kg]
	Without secondary element	With secondary element			Order No. Main element	Order No. Secondary element	
NLG 37-37	-	44 930 85 953 ¹⁾	1	25 - 45	C 30 1530	CF 1830	8.3
NLG 37-42	-	44 930 85 960 ¹⁾	1	25 - 45	C 30 1730	CF 1840	8.7
NLG 37-42	-	44 930 85 974 ²⁾	2	25 - 45	C 33 2200	CF 1840	9.4
NLG 37-42	-	44 930 85 975 ²⁾	1	25 - 45	C 33 2200	CF 1840	9.4

1) Pleat height 48 mm 2) Pleat height 60 mm

DIMENSIONS

Group	Size	Dimensions in mm <i>(dimensions in inches)</i>														t ₁ ¹⁾	t ₂ ²⁾
		d ₁	d ₂	d ₃	d ₄	b ₁	b ₂	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	h ₇			
15	NLG 15-12							305 <i>(12.01)</i>								273 <i>(10.75)</i>	
	NLG 15-15	130 <i>(5.12)</i>	110 <i>(4.33)</i>	299 <i>(11.77)</i>	285 <i>(11.22)</i>	140 <i>(5.51)</i>	200 <i>(7.87)</i>	360 <i>(14.17)</i>	228 <i>(8.98)</i>	33 <i>(1.30)</i>	120 <i>(4.72)</i>	91 <i>(3.59)</i>	153 <i>(6.02)</i>	182 <i>(7.17)</i>	230 <i>(9.06)</i>	328 <i>(12.91)</i>	
	NLG 15-18							415 <i>(16.34)</i>								383 <i>(15.08)</i>	
	NLG 21-18							365 <i>(14.37)</i>								332 <i>(13.07)</i>	
21	NLG 21-21	150 <i>(5.91)</i>	130 <i>(5.12)</i>	339 <i>(13.35)</i>	323 <i>(12.72)</i>	175 <i>(6.89)</i>	200 <i>(7.87)</i>	415 <i>(16.34)</i>	260 <i>(10.24)</i>	33 <i>(1.30)</i>	145.5 <i>(5.73)</i>	91 <i>(3.59)</i>	173 <i>(6.81)</i>	203 <i>(7.99)</i>	260 <i>(10.24)</i>	382 <i>(15.04)</i>	
	NLG 21-24							465 <i>(18.31)</i>								432 <i>(17.01)</i>	
	NLG 28-24							427 <i>(16.81)</i>								395 <i>(15.55)</i>	
28	NLG 28-28	180 <i>(7.09)</i>	150 <i>(5.91)</i>	365 <i>(14.37)</i>	349 <i>(13.74)</i>	210 <i>(8.27)</i>	200 <i>(7.87)</i>	480 <i>(18.90)</i>	295 <i>(11.61)</i>	33 <i>(1.30)</i>	163 <i>(6.42)</i>	91 <i>(3.59)</i>	185 <i>(7.28)</i>	215 <i>(8.46)</i>	296 <i>(11.65)</i>	448 <i>(17.64)</i>	
	NLG 28-32							533 <i>(20.98)</i>								501 <i>(19.72)</i>	
	NLG 37-32							498 <i>(19.61)</i>								465 <i>(18.31)</i>	
37	NLG 37-37	210 <i>(8.27)</i>	180 <i>(7.09)</i>	407 <i>(16.02)</i>	393 <i>(15.47)</i>	245 <i>(9.65)</i>	240 <i>(9.45)</i>	563 <i>(22.17)</i>	363 <i>(14.29)</i>	33 <i>(1.30)</i>	188 <i>(7.40)</i>	91 <i>(3.59)</i>	207 <i>(8.15)</i>	237 <i>(9.33)</i>	364 <i>(14.33)</i>	530 <i>(20.87)</i>	
	NLG 37-42							628 <i>(24.72)</i>								595 <i>(23.43)</i>	

1) Removal height without secondary element 2) Removal height with secondary element

NLG Piclon version

two-stage filters

Technical data



ADVANTAGES

- Ideal for medium to harsh dust conditions
- Application examples: construction and agricultural machinery, all typical Pico applications with increased service-life requirements
- Low pressure drop
- Efficiency of over 75 %
- Quick and easy extension of Pico possible

FEATURES

- Two-stage version of NLG
- Integrated dust precleaner
- Identical housing and connection dimensions as Pico
- Housing made from glass-fiber-reinforced plastic
- Piclon filter element
- Secondary element (optional)
- Water discharge valve on the bowl

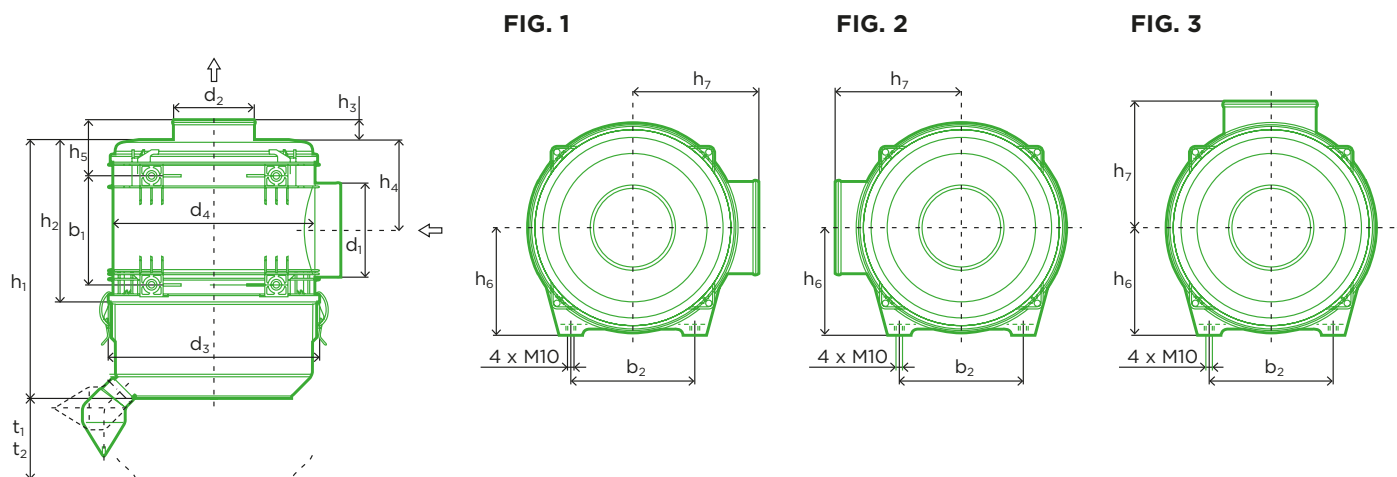
ORDER NUMBERS

Size	Order No.		Figure	Nominal flow rate [m³/min]	Replacement filter element		Weight [kg]
	Without secondary element	With secondary element			Order No. Main element	Order No. Secondary element	
NLG 15-15	44 526 92 900	44 526 92 951	1	10 – 15	C 22 526/1	CF 1250	3.6
	44 526 92 901	44 526 92 952	2				
	44 526 92 902	44 526 92 950	3				
NLG 15-18	44 625 92 901	44 625 92 951	1	10 – 15	C 22 625	CF 1260	4.3
	44 625 92 902	44 625 92 952	2				
	44 625 92 900	44 625 92 950	3				
NLG 21-21	44 722 92 905	44 722 92 954	1	15 – 21	C 24 745/1	CF 1430	4.6
	44 722 92 906	44 722 92 953	2				
	44 722 92 904	44 722 92 950	3				
NLG 21-24	44 722 92 907	44 722 92 956	1	15 – 21	C 24 820	CF 1440	5.1
	44 722 92 908	44 722 92 957	2				
	44 722 92 903	44 722 92 951	3				
NLG 28-28	44 920 92 906	44 920 92 956	1	20 – 28	C 26 980	CF 1640	5.6
	44 920 92 907	44 920 92 954	2				
	44 920 92 902	44 920 92 950	3				
NLG 28-32	44 920 92 908	44 920 92 957	1	20 – 28	C 26 1100	CF 1650	6.3
	44 920 92 909	44 920 92 958	2				
	44 920 92 903	44 920 92 951	3				
NLG 37-37	44 930 92 902	44 930 92 950	1	25 – 40	C 28 1275	CF 1830	7.4
	44 930 92 903	44 930 92 953	2				
	44 930 92 900	44 930 92 951	3				
NLG 37-42	44 930 92 904	44 930 92 954	1	25 – 40	C 28 1440	CF 1840	7.9
	44 930 92 905	44 930 92 955	2				
	44 930 92 901	44 930 92 952	3				

NLG Piclon version

two-stage filters

Technical data



DIMENSIONS

Group	Size	Dimensions in mm <i>(dimensions in inches)</i>														
		d ₁	d ₂	d ₃	d ₄	b ₁	b ₂	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	h ₇	t ₁ ¹⁾	t ₂ ²⁾
15	NLG 15-15	130	110	299	285	140	200	360 (14.17)	228	33	120	91	153	182	230	328 (12.91)
	NLG 15-18	(5.12)	(4.33)	(11.77)	(11.22)	(5.51)	(7.87)	415 (16.34)	(8.98)	(1.30)	(4.72)	(3.59)	(6.02)	(7.17)	(9.06)	383 (15.08)
21	NLG 21-21	150	130	339	323	175	200	415 (16.34)	260	33	145,5	91	173	203	260	382 (15.04)
	NLG 21-24	(5.91)	(5.12)	(13.35)	(12.72)	(6.89)	(7.87)	465 (18.31)	(10.24)	(1.30)	(5.73)	(3.59)	(6.81)	(7.99)	(10.24)	432 (17.01)
28	NLG 28-28	180	150	365	349	210	200	480 (18.90)	295	33	163	91	185	215	296	448 (17.64)
	NLG 28-32	(7.09)	(5.91)	(14.37)	(13.74)	(8.27)	(7.87)	533 (20.98)	(11.61)	(1.30)	(6.42)	(3.59)	(7.28)	(8.46)	(11.65)	501 (19.72)
37	NLG 37-37	210	180	407	393	245	240	563 (22.17)	363	33	188	91	207	237	364	530 (20.87)
	NLG 37-42	(8.27)	(7.09)	(16.02)	(15.47)	(9.65)	(9.45)	628 (24.72)	(14.29)	(1.30)	(7.40)	(3.59)	(8.15)	(9.33)	(14.33)	595 (23.43)

1) Removal height without secondary element 2) Removal height with secondary element



Air cleaners for use in compressors The Picolino series

The Picolino series from MANN+HUMMEL offers outstanding filter properties in a compact installation space as well as great flexibility. For optimal adaptation to different applications and uses, the Picolino series filters are available with different connections.

APPLICATIONS

The Picolino series filters are suitable, for example, as

- Silencer filters for low-noise air intake e.g. in small piston compressors
- Air intake filters for small engines (lawnmowers, emergency power generators etc.)
- Ventilation and extraction filters for transmissions and liquid tanks

ADVANTAGES

- Maximum flexibility
- High dust capacity
- Variable modular system
- Fast implementation of customized filter solutions
- Cost-effective filter system through combination of standard parts
- Simple, tool-free element replacement
- Environment-friendly disposal

FEATURES

- Different connection types available
- Metal-free filter elements (completely incinerable)
- Robust, corrosion-free housing through use of glass-fiber-reinforced plastic
- Special MANN+HUMMEL filter medium
- Filter element with radial seal through elastomer end caps (patent-protected)
- Reliable pleat reinforcement
- Cr(VI)-free
- Temperature resistant up to +120°C (short-term)
- High-temperature-resistant material available for adapter upon request

Picolino intake filters

Ventilation and extraction filters

Technical data

FIG. 1

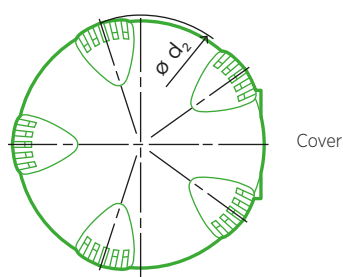
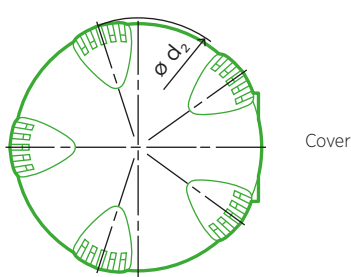


FIG. 2



ORDER NUMBERS AND DIMENSIONS

Order No.	Figure	Nominal flow rate [m ³ /min] ¹⁾	Dimensions in mm (<i>dimensions in inches</i>)							Order No. Main element
			d ₁	d ₂	e ₁	h ₁	h ₂	l	t	
44 010 72 996	2	0.25	G ½ ³⁾	58 (2.28)	14 (0.55)	61 (2.40)	34 (1.34)	27 (1.06)	30 (1.18)	C 410
44 010 72 997	2	0.2	G 3/8 ³⁾	58 (2.28)	11 (0.43)	61 (2.40)	34 (1.34)	27 (1.06)	30 (1.18)	C 410
44 010 72 999	2	0.2	M 18x1.5 ²⁾	58 (2.28)	10 (0.39)	61 (2.40)	34 (1.34)	27 (1.06)	30 (1.18)	C 410
44 010 77 999	1	0.25	35 (1.38)	58 (2.28)	23 (0.91)	73 (2.87)	64 (2.52)	27 (1.06)	30 (1.18)	C 410
44 020 72 996	2	0.25	G ½ ³⁾	68 (2.68)	14 (0.55)	62 (2.44)	34 (1.34)	31 (1.22)	30 (1.18)	C 420
44 020 72 997	2	0.25	G 3/8 ³⁾	68 (2.68)	11 (0.43)	62 (2.44)	34 (1.34)	31 (1.22)	30 (1.18)	C 420
44 020 72 999	2	0.2	M 18x1.5 ²⁾	68 (2.68)	11 (0.43)	62 (2.44)	34 (1.34)	31 (1.22)	30 (1.18)	C 420
44 020 77 999	1	0.25	35 (1.38)	68 (2.68)	23 (0.91)	74 (2.91)	46 (1.81)	31 (1.22)	30 (1.18)	C 420
44 030 72 999	2	0.8	G ¾ ³⁾	102 (4.02)	15 (0.59)	94 (3.70)	45 (1.77)	48 (1.89)	68 (2.68)	C 630
44 030 77 997	1	1.2	40 (1.57)	102 (4.02)	25 (0.98)	116 (4.57)	67 (2.64)	48 (1.89)	68 (2.68)	C 630
44 030 77 998	1	1.2	30 (1.18)	102 (4.02)	23 (0.91)	116 (4.57)	67 (2.64)	48 (1.89)	68 (2.68)	C 630
44 030 77 999	1	0.7	20 (0.79)	102 (4.02)	23 (0.91)	116 (4.57)	67 (2.64)	48 (1.89)	68 (2.68)	C 630

1) Nominal flow rate at 15 mbar flow resistance. Flow value dependent on cross-section of the clean air connection 2) External thread 3) Internal thread

Picolino intake filters

Ventilation and extraction filters

Technical data

FIG. 1

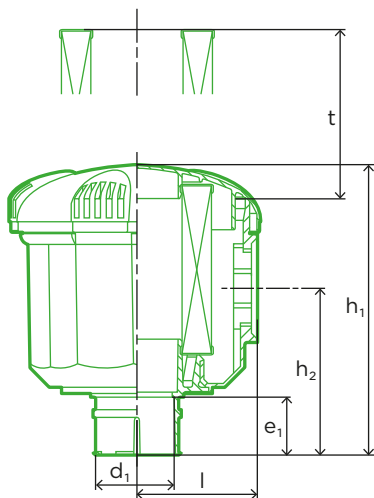
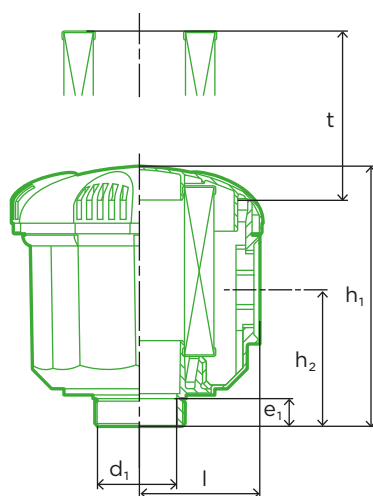


FIG. 2



ORDER NUMBERS AND DIMENSIONS

Order No.	Figure	Nominal flow rate [m ³ /min] ¹⁾	Dimensions in mm (dimensions in inches)							Order No. Main element
			d_1	d_2	e_1	h_1	h_2	l	t	
44 040 72 999	2	2.1	G 1¼ ³⁾	145 (5.71)	19 (0.75)	131 (5.16)	71 (2.80)	69 (2.72)	79 (3.11)	C 1140
44 040 77 996	1	3.0	71 (2.8)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	69 (2.72)	79 (3.11)	C 1140
44 040 77 997	1	2.8	60 (2.36)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	69 (2.72)	79 (3.11)	C 1140
44 040 77 998	1	2.6	52 (2.05)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	69 (2.72)	79 (3.11)	C 1140
44 040 77 999	1	2.1	40 (1.57)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	69 (2.72)	79 (3.11)	C 1140
44 050 72 999	2	2.3	G 1¼ ³⁾	181 (7.13)	19 (0.75)	188 (7.40)	112 (4.41)	86 (3.39)	135 (5.32)	C 1250
44 050 77 996	1	3.5	71 (2.8)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	86 (3.39)	135 (5.32)	C 1250
44 050 77 997	1	3.4	60 (2.36)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	86 (3.39)	135 (5.32)	C 1250
44 050 77 998	1	3.1	52 (2.05)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	86 (3.39)	135 (5.32)	C 1250
44 050 77 999	1	2.3	40 (1.57)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	86 (3.39)	135 (5.32)	C 1250

1) Nominal flow rate at 15 mbar flow resistance. Flow value dependent on cross-section of the clean air connection 2) External thread 3) Internal thread

Picolino silencer filters

Technical data

FIG. 1

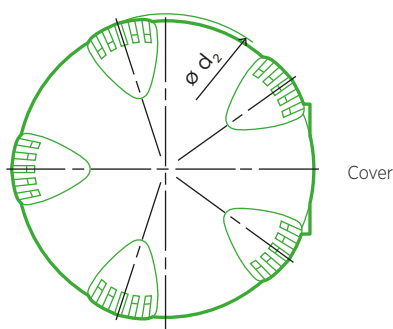
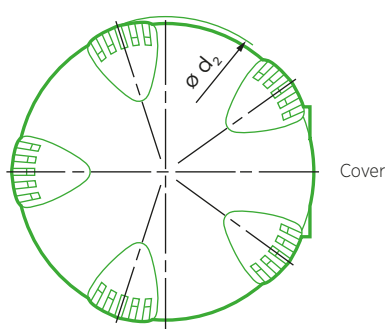


FIG. 2



ORDER NUMBERS AND DIMENSIONS

Order No.	Figure	Nominal flow rate [m ³ /min] ¹⁾	Dimensions in mm (dimensions in inches)							Order No. Main element
			d ₁	d ₂	e ₁	h ₁	h ₂	l	t	
44 010 82 996	2	0.15	G ½ ³⁾	58 (2.28)	14 (0.55)	61 (2.40)	34 (1.34)	56 (2.20)	30 (1.18)	C 410
44 010 82 997	2	0.15	G ¾ ³⁾	58 (2.28)	11 (0.43)	61 (2.40)	34 (1.34)	56 (2.20)	30 (1.18)	C 410
44 010 82 999	2	0.15	M 18x1.5 ²⁾	58 (2.28)	10 (0.39)	61 (2.40)	34 (1.34)	56 (2.20)	30 (1.18)	C 410
44 010 87 999	1	0.15	35 (1.38)	58 (2.28)	23 (0.91)	73 (2.87)	46 (1.81)	56 (2.20)	30 (1.18)	C 410
44 020 82 996	2	0.15	G ½ ³⁾	68 (2.68)	14 (0.55)	62 (2.44)	34 (1.34)	60 (2.36)	30 (1.18)	C 420
44 020 82 997	2	0.15	G ¾ ³⁾	68 (2.68)	11 (0.43)	62 (2.44)	34 (1.34)	60 (2.36)	30 (1.18)	C 420
44 020 82 999	2	0.15	M 18x1.5 ²⁾	68 (2.68)	10 (0.39)	62 (2.44)	34 (1.34)	60 (2.36)	30 (1.18)	C 420
44 020 87 999	1	0.15	35 (1.38)	68 (2.68)	23 (0.91)	74 (2.91)	46 (1.81)	60 (2.36)	30 (1.18)	C 420
44 030 82 999	2	0.6	G ¾ ³⁾	102 (4.02)	15 (0.59)	94 (3.70)	45 (1.77)	95 (3.74)	68 (2.68)	C 630
44 030 87 997	1	0.8	40 (1.57)	102 (4.02)	25 (0.98)	116 (4.57)	67 (2.64)	95 (3.74)	68 (2.68)	C 630
44 030 87 998	1	0.8	30 (1.18)	102 (4.02)	23 (0.91)	116 (4.57)	67 (2.64)	95 (3.74)	68 (2.68)	C 630
44 030 87 999	1	0.5	20 (0.79)	102 (4.02)	23 (0.91)	116 (4.57)	67 (2.64)	95 (3.74)	68 (2.68)	C 630

1) Nominal flow rate at 15 mbar flow resistance. Flow value dependent on cross-section of the clean air connection 2) External thread 3) Internal thread

Picolino silencer filters

Technical data

FIG. 1

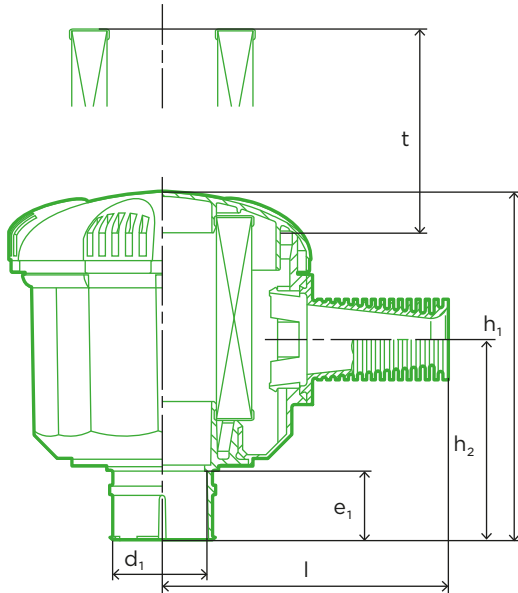
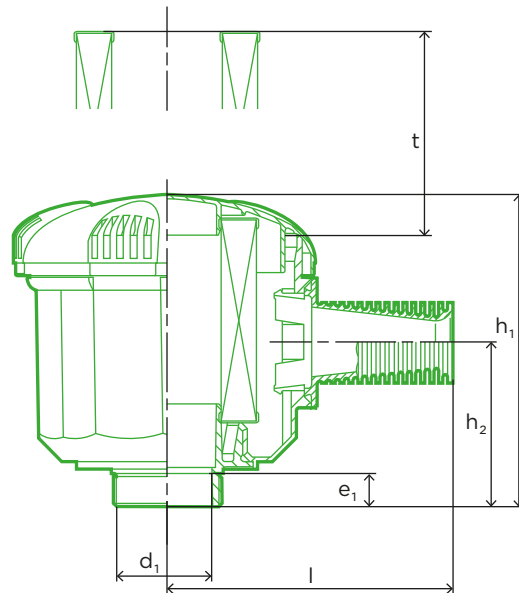


FIG. 2



ORDER NUMBERS AND DIMENSIONS

Order No.	Figure	Nominal flow rate [m ³ /min] ¹⁾	Dimensions in mm (dimensions in inches)							Order No. Main element
			d ₁	d ₂	e ₁	h ₁	h ₂	l	t	
44 040 82 999	2	1.7	G 1¼ ³⁾	145 (5.71)	19 (0.75)	131 (5.16)	71 (2.80)	79 (3.11)	79 (3.11)	C 1140
44 040 87 996	1	2.0	71 (2.8)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	79 (3.11)	79 (3.11)	C 1140
44 040 87 997	1	2.0	60 (2.36)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	116 (4.57)	79 (3.11)	C 1140
44 040 87 998	1	1.9	52 (2.05)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	116 (4.57)	79 (3.11)	C 1140
44 040 87 999	1	1.6	40 (1.57)	145 (5.71)	25 (0.98)	136 (5.35)	76 (2.99)	116 (4.57)	79 (3.11)	C 1140
44 050 82 999	2	2.0	G 1¼ ³⁾	181 (7.13)	19 (0.75)	188 (7.40)	112 (4.41)	133 (5.24)	135 (5.32)	C 1250
44 050 87 996	1	2.8	71 (2.8)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	133 (5.24)	135 (5.32)	C 1250
44 050 87 997	1	2.8	60 (2.36)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	133 (5.24)	135 (5.32)	C 1250
44 050 87 998	1	2.5	52 (2.05)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	133 (5.24)	135 (5.32)	C 1250
44 050 87 999	1	2.0	40 (1.57)	181 (7.13)	25 (0.98)	193 (7.60)	117 (4.61)	133 (5.24)	135 (5.32)	C 1250

1) Nominal flow rate at 15 mbar flow resistance. Flow value dependent on cross-section of the clean air connection. 2) External thread 3) Internal thread



Air cleaners for use in compressors The Picolight series

The metal-free air cleaners of the MANN+HUMMEL Picolight series are characterized by a particularly weight-optimized and compact design. We recommend use of this filter in particular for stationary low-dust applications such as generators, compressors, marine engines etc.

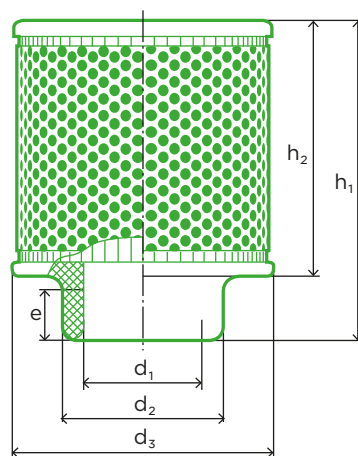
ADVANTAGES

- Ideal for moisture-proof and encapsulated installation spaces
- Low pressure drop
- Particularly cost-effective
- Compact design
- Excellent filtration performance
- Maximum separation efficiency

FEATURES

- Metal-free design
- Cr(VI)-free
- Flow rate range from 1 to 100 m³/min
- Tightening strap required for installing the filter

Picolight single-stage air cleaner without housing



ORDER NUMBERS AND DIMENSIONS

Order No.	Nominal flow rate ¹⁾ [m ³ /min]	Dimensions in mm (dimensions in inches)						Weight [kg]	Tightening strap
		d ₁	d ₂	d ₃	h ₁	h ₂	e		
C 1131	3.3	50 (1.97)	65 (2.56)	110 (4.33)	120 (4.72)	95 (3.74)	20 (0.79)	0.16	02 018 01 709
C 1368	6.8	76 (2.99)	90 (3.54)	130 (5.12)	150 (5.91)	125 (4.92)	20 (0.79)	0.24	02 018 01 712
C 17 100	7.7	76 (2.99)	90 (3.54)	160 (6.30)	165 (6.50)	140 (5.51)	25 (0.98)	0.38	02 018 01 712
C 23 174	12.5	100 (3.94)	120 (4.72)	230 (9.06)	156 (6.14)	120 (4.72)	30 (1.18)	0.68	02 018 01 715
C 31 1195	40	198 (7.8)	208.5 (8.21)	318 (12.52)	444 (17.48)	400 (15.75)	40 (1.57)	3.3	02 018 01 724
C 31 1195/1	40	198 (7.8)	208.5 (8.21)	318 (12.52)	444 (17.48)	400 (15.75)	40 (1.57)	3.2	02 018 01 724
C 43 1090/1	80	250 (9.84)	260 (10.24)	425 (16.73)	404 (15.91)	335 (13.19)	80 (3.15)	5.6	02 018 01 728

1) Nominal flow rate at 10 mbar flow resistance.





Air cleaners for use in compressors Accessories

The functionality of the intake air cleaner for combustion engines and compressors must be ensured, even under difficult operating conditions. This is only possible if the air cleaner and accessories are optimally matched.

Rain caps – page 76

- Protection against water ingress
- Protection against coarse dirt

Air connecting parts – page 78

- Secure connection of the air cleaner to the engine or compressor

Service switches / display – page 84

- Electric display of the service deadline

Service indicators – page 87

- Visual display of the service deadline

EUROPICLON Holders – page 88

ADVANTAGES

- Complete accessory range
- Specially developed for and on MANN+HUMMEL filters
- High reliability
- Long life

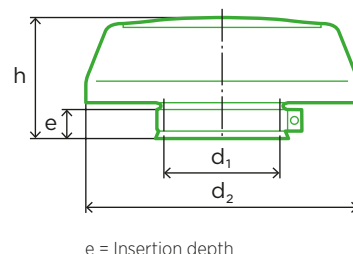
Accessories for air cleaners

Rain caps – design A



ADVANTAGES

- Protection against moisture ingress into the air cleaner through rain, snow, spray, etc.
- Protection against coarse contamination
- Protection of the main element
- Extension of the maintenance interval



ORDER NUMBERS AND DIMENSIONS

Order No.	Suitable for			Dimensions in mm (dimensions in inches)				Weight [kg]
	EUROPICLON	NLG	ENTARON XD	d ₁	d ₂	e	h	
39 014 67 910 ¹⁾	45 050 ...	-	-	45 (1.77)	150 (5.91)	22 (0.87)	63 (2.48)	0.11
39 020 67 910 ¹⁾	45 100 ...	-	-	54 (2.13)	150 (5.91)	22 (0.87)	63 (2.48)	0.11
39 028 67 910 ¹⁾	45 200 ...	-	-	62 (2.44)	150 (5.91)	22 (0.87)	63 (2.48)	0.11
39 040 67 910 ¹⁾	45 300 ...	-	-	68 (2.68)	200 (7.87)	30 (1.18)	85 (3.35)	0.23
39 056 67 910 ¹⁾	45 400 ...	-	-	82 (3.23)	200 (7.87)	30 (1.18)	85 (3.35)	0.23
39 080 67 910 ¹⁾	45 500 ...	-	-	102 (4.02)	270 (10.63)	40 (1.57)	115 (4.53)	0.44
39 100 67 910 ¹⁾	45 600 ...	-	-	110 (4.33)	270 (10.63)	40 (1.57)	115 (4.53)	0.44
39 160 67 910 ¹⁾	-	NLG 15 - ...	XD 14/17	132 (5.20)	360 (14.17)	50 (1.97)	150 (5.91)	0.90
39 190 67 910 ¹⁾	-	NLG 21 - ...	XD 21	150 (5.91)	360 (14.17)	50 (1.97)	150 (5.91)	0.90
39 220 67 910 ¹⁾	-	NLG 28 - ...	XD 28	180 (7.09)	405 (15.94)	33 (1.30)	128 (5.04)	0.95
39 370 67 910 ¹⁾	-	NLG 37 - ...	-	210 (8.27)	535 (21.06)	42 (1.56)	126 (4.96)	1.80

1) Plastic design, Cr(VI)-free

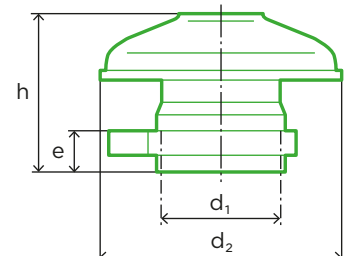
Accessories for air cleaners

Rain caps – design B



ADVANTAGES

- Protection against moisture ingress into the air cleaner through rain, snow, spray, etc.
- Protection against coarse contamination
- Protection of the main element
- Extension of the maintenance interval



e = Insertion depth

ORDER NUMBERS AND DIMENSIONS

Order No.	Suitable for			Dimensions in mm <i>(dimensions in inches)</i>				Weight [kg]
	EUROPICLON	NLG	ENTARON XD	d ₁	d ₂	e	h	
39 014 67 900 ¹⁾	45 050 ...	-	-	45 (1.77)	92 (3.62)	22 (0.87)	53 (2.09)	0.07
39 020 67 900 ¹⁾	45 100 ...	-	-	54 (2.13)	110 (4.33)	22 (0.87)	53 (2.09)	0.08
39 028 67 900 ¹⁾	45 200 ...	-	-	62 (2.44)	124 (4.88)	22 (0.87)	56 (2.20)	0.11
39 040 67 900 ¹⁾	45 300 ...	-	-	68 (2.68)	145 (5.71)	22 (0.87)	63 (2.48)	0.12
39 056 67 900 ¹⁾	45 400 ...	-	-	82 (3.23)	172 (6.77)	22 (0.87)	64 (2.52)	0.15
39 080 67 900 ¹⁾	45 500 ...	-	-	102 (4.02)	203 (7.99)	35 (1.38)	90 (3.54)	0.18

1) Plastic design, Cr(VI)-free



NOTE ON INSTALLATION

The rain caps are simply fitted onto the raw air connection of the air cleaner or on the intake point of the raw air line and fastened by means of the supplied tightening strap.

Accessories for air cleaners

Air connecting parts

90° ELBOWS



**OPERATING
TEMPERATURE**
-40°C to +100°C

Order No.	Figure	Dimensions in mm (dimensions in inches)					Connection for
		b	c	d _i	d _a	e	
39 100 25 999	1	57	-	50	55	25	-
39 100 25 979	2	(2.24)	33 (1.30)	(1.97)	(2.17)	(0.98)	M 10x1
39 200 25 999	1	62	-	60	65	25	-
39 200 25 979	2	(2.44)	38 (1.50)	(2.36)	(2.56)	(0.98)	M 10x1
39 300 25 999	1	72	-	70	75	28	-
39 300 25 979	2	(2.83)	43 (1.69)	(2.76)	(2.95)	(1.10)	M 10x1
39 400 25 999	1	77	-	80	85	30	-
39 400 25 979	2	(3.03)	48 (1.89)	(3.15)	(3.35)	(1.18)	M 10x1
39 215 25 999	1	77	-	89	94	25	-
		(3.03)		(3.5)	(3.7)	(0.99)	
39 500 25 999	1	92	-	100	105	35	-
39 500 25 979	2	(3.62)	58 (2.28)	(3.94)	(4.13)	(1.38)	M 10x1
39 600 25 999	1	89	-	110	119	27	-
39 600 25 979	2	(3.50)	63 (2.48)	(4.33)	(4.69)	(1.06)	M 10x1
39 700 25 999	1	98.5	-	130	135	27	-
39 700 25 979	2	(3.88)	75 (2.95)	(5.12)	(5.32)	(1.06)	M 10x1
39 800 25 999	1	108.5	-	150	155	27	-
39 800 25 979	2	(4.27)	83 (3.27)	(5.91)	(6.10)	(1.06)	M 10x1
39 930 25 999	1	170	-	180	196	30	-
39 930 25 979	2	(6.69)	98.5 (3.88)	(7.08)	(7.71)	(1.18)	M 10x1

FIG. 1

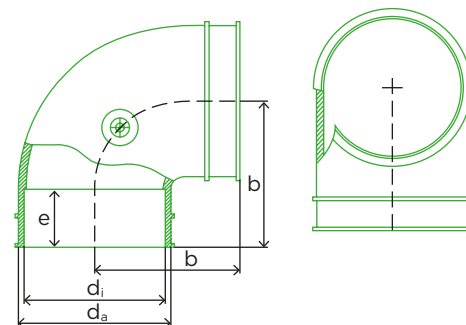
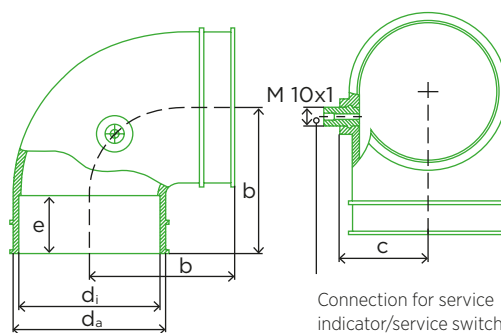


FIG. 2



Accessories for air cleaners

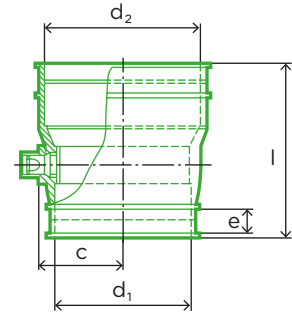
Air connecting parts

REDUCER CONNECTIONS

Order No.	Dimensions in mm (dimensions in inches)				
	c	d ₁	d ₂	e	l
39 300 27 949	43 (1.69)	70 (2.76)	80 (3.15)	13.5 (0.53)	89.5 (3.52)
39 300 27 959	43 (1.69)	60 (2.36)	70 (2.76)	13.5 (0.53)	85.5 (3.37)
39 300 27 969	43 (1.69)	50 (1.97)	70 (2.76)	13.5 (0.53)	85.5 (3.37)



**OPERATING
TEMPERATURE**
-40°C to +100°C



STRAIGHT CONNECTIONS

Order No.	Figure	Dimensions in mm (dimensions in inches)					Connection for
		c	d _i	d _a	e	l	
39 100 27 999	1	-	50 (1.97)	55 (2.17)	25 (0.98)	68 (2.68)	-
39 100 27 979	2	33 (1.30)	-	-	-	-	M 10x1
39 200 27 999	1	-	60 (2.36)	65 (2.56)	25 (0.98)	68 (2.68)	-
39 200 27 979	2	38 (1.50)	-	-	-	-	M 10x1
39 300 27 999	1	-	70 (2.76)	75 (2.95)	28 (1.10)	75 (2.95)	-
39 300 27 979	2	43 (1.69)	-	-	-	-	M 10x1
39 400 27 999	1	-	80 (3.15)	85 (3.35)	30 (1.18)	78 (3.07)	-
39 400 27 979	2	48 (1.89)	-	-	-	-	M 10x1
39 215 27 999	1	-	89 (3.5)	94 (3.7)	25 (0.98)	70 (2.76)	-
39 500 27 999	1	-	100 (3.94)	105 (4.13)	35 (1.38)	88 (3.46)	-
39 500 27 979	2	58 (2.28)	-	-	-	-	M 10x1
39 600 27 999	1	-	110 (4.33)	119 (4.69)	27 (1.06)	72 (2.83)	-
39 600 27 979	2	63 (2.48)	-	-	-	-	M 10x1
39 700 27 999	1	-	130 (5.12)	135 (5.32)	27 (1.06)	72 (2.83)	-
39 700 27 979	2	75 (2.95)	-	-	-	-	M 10x1
39 800 27 999	1	-	150 (5.91)	155 (6.10)	27 (1.06)	72 (2.83)	-
39 800 27 979	2	83 (3.28)	-	-	-	-	M 10x1
39 930 27 999	1	-	180 (7.09)	195 (7.68)	45 (1.77)	140 (5.51)	-
39 930 27 979	2	109.5 (4.31)	-	-	-	-	M 10x1

FIG. 1

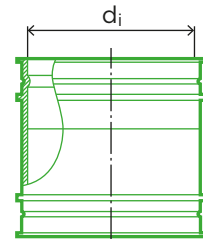
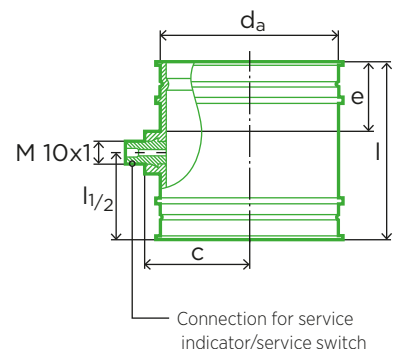


FIG. 2

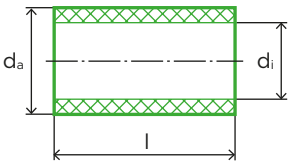


**OPERATING
TEMPERATURE**
-40°C to +100°C

Accessories for air cleaners

Air connecting parts

RUBBER CONNECTORS



MATERIAL

Rubber (NBR, 60±5 Shore)
with fabric lining



**OPERATING
TEMPERATURE**

-30°C to +100°C

Order No.	Dimensions in mm <i>(dimensions in inches)</i>		
	d _i	d _a	l
39 000 27 198	60 (2.36)	74 (2.91)	150 (5.91)
39 000 27 197	70 (2.76)	84 (3.31)	150 (5.91)
39 000 27 252	70 (2.76)	84 (3.31)	80 (3.15)
39 000 27 196	80 (3.15)	96 (3.78)	150 (5.91)
39 000 27 195	90 (3.54)	106 (4.17)	150 (5.91)
39 000 27 104	100 (3.94)	116 (4.57)	100 (3.94)
39 000 27 194	100 (3.94)	118 (4.65)	150 (5.91)
39 000 27 193	110 (4.33)	126 (4.96)	150 (5.91)
39 000 27 359	110 (4.33)	128 (5.04)	75 (2.95)
39 000 27 188	130 (5.12)	148 (5.83)	100 (3.94)
39 000 27 192	130 (5.12)	148 (5.83)	150 (5.91)
39 000 27 297	130 (5.12)	148 (5.83)	65 (2.56)
39 000 27 183	150 (5.91)	166 (6.54)	150 (5.91)
39 223 27 111	150 (5.91)	168 (6.61)	100 (3.94)
39 000 27 182	180 (7.09)	198 (7.80)	150 (5.91)
39 000 27 345	200 (7.87)	218 (8.58)	200 (7.87)
39 000 27 306	210 (8.27)	228 (8.98)	200 (7.87)

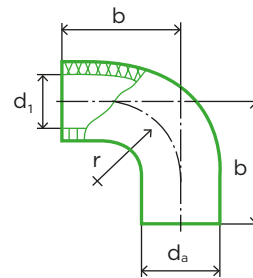
Accessories for air cleaners

Air connecting parts

RUBBER 90° ELBOWS

Order No.	Figure	Dimensions in mm (dimensions in inches)			
		b	d ₁	d _a	r
39 000 25 280	1	115 (4.53)	52 (2.05)	60 (2.36)	75 (2.95)
39 000 25 264	1	115 (4.53)	60 (2.36)	68 (2.68)	75 (2.95)
39 000 25 263	1	140 (5.51)	70 (2.76)	79 (3.11)	90 (3.54)
39 000 25 262	1	140 (5.51)	80 (3.15)	90 (3.54)	95 (3.74)
39 000 25 258	2	205 (8.07)	100 (3.94)	110 (4.33)	155 (6.10)
39 000 25 265	2	215 (8.46)	110 (4.33)	120 (4.72)	165 (6.50)
39 000 25 266	2	265 (10.43)	130 (5.12)	140 (5.51)	210 (8.27)
39 000 25 267	2	300 (11.81)	150 (5.91)	160 (6.30)	245 (9.65)
39 000 25 270	2	355 (13.98)	200 (7.87)	210 (8.27)	300 (11.81)

FIG. 1

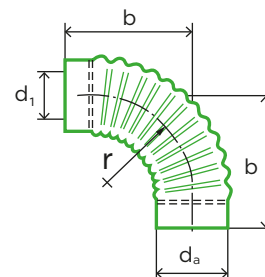


MATERIAL
Rubber
(NBR, 60±5 Shore)



OPERATING TEMPERATURE
-25°C to +100°C

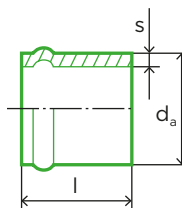
WITH FABRIC INSERT
FIG. 2



COUPLINGS MADE FROM SHEET STEEL

Order No.	Figure	Dimensions in mm (dimensions in inches)		
		d _a	l	s
39 000 25 177	3	52 (2.05)	50 (1.97)	0.75 (0.03)
39 000 25 167	3	62 (2.44)	65 (2.56)	1,0 (0.04)
39 000 25 164	3	70 (2.76)	50 (1.97)	1,0 (0.04)
39 000 25 168	3	82 (3.23)	50 (1.97)	1,0 (0.04)
39 000 25 165	3	92 (3.62)	50 (1.97)	1,0 (0.04)
39 000 25 175	3	102 (4.02)	50 (1.97)	1,0 (0.04)
39 000 25 176	3	110 (4.33)	50 (1.97)	1,0 (0.04)
39 000 25 174	3	132 (5.20)	50 (1.97)	1,0 (0.04)
39 000 25 184	3	150 (5.91)	90 (3.54)	1,0 (0.04)
39 000 25 185	3	180 (7.09)	90 (3.54)	1,0 (0.04)

FIG. 3



MATERIAL
sheet steel,
painted black

Accessories for air cleaners

Air connecting parts

CONNECTION PIPES MADE FROM SHEET STEEL



INTERMEDIATE PIPES, only for raw air intake

Order No.	Figure	Dimensions in mm <i>(dimensions in inches)</i>			
		d _i	d _a	e	l
31 056 25 821	4	82.2 (3.24)	82 (3.23)	80 (3.15)	245 (9.65)
31 080 25 731	4	102.2 (4.02)	102 (4.02)	80 (3.15)	250 (9.84)
39 100 25 991	4	110.2 (4.34)	110 (4.33)	110 (4.33)	200 (7.87)
31 160 25 771	4	132.2 (5.20)	132 (5.20)	110 (4.33)	400 (15.75)

FIG. 4

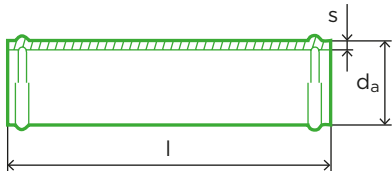


MATERIAL
sheet steel,
painted black

PIPES

Order No.	Figure	Dimensions in mm <i>(dimensions in inches)</i>		
		d _a	l	s
39 000 25 172	5	42 (1.65)	500 (19.69)	0.75 (0.03)
39 000 25 173	5	82 (3.23)	500 (19.69)	0.75 (0.03)
39 000 25 158	5	92 (3.62)	500 (19.69)	0.75 (0.03)
39 000 25 183	5	102 (4.02)	500 (19.69)	0.75 (0.03)
39 000 25 166	5	110 (4.33)	500 (19.69)	0.75 (0.03)
39 000 25 157	5	132 (5.20)	500 (19.69)	0.75 (0.03)
39 000 25 155	5	150 (5.91)	500 (19.69)	0.75 (0.03)

FIG. 5



MATERIAL
sheet steel,
painted black

Accessories for air cleaners

Air connecting parts

METAL ELBOW PIPES

Order No.	Figure	Dimensions in mm (dimensions in inches)				
		a	b	d _a	r	s
39 000 25 188	1	60 (2.36)	60 (2.36)	52 (2.05)	40 (1.57)	0.75 (0.03)
31 034 25 442	1	95 (3.74)	95 (3.74)	62 (2.44)	60 (2.36)	0.75 (0.03)
39 000 25 152	1	70 (2.76)	70 (2.76)	70 (2.76)	60 (2.36)	1.0 (0.04)
39 000 25 207	2	100 (3.94)	100 (3.94)	70 (2.76)	60 (2.36)	1.0 (0.04)
39 000 25 956	2	110 (4.33)	110 (4.33)	80 (3.15)	55 (2.17)	1.0 (0.04)
39 000 25 148	1	61 (2.40)	61 (2.40)	82 (3.23)	55 (2.17)	1.0 (0.04)
39 000 25 153	1	80 (3.15)	67 (2.64)	90 (3.54)	60 (2.36)	1.0 (0.04)
39 000 25 273	1	80 (3.15)	80 (3.15)	100 (3.94)	65 (2.56)	1.0 (0.04)
39 000 25 124	2	110 (4.33)	110 (4.33)	100 (3.94)	65 (2.56)	1.0 (0.04)
39 000 25 146	1	90 (3.54)	90 (3.54)	110 (4.33)	85 (3.35)	1.0 (0.04)
39 000 25 192	2	110 (4.33)	110 (4.33)	110 (4.33)	85 (3.35)	1.0 (0.04)
39 000 25 198	2	125 (4.92)	125 (4.92)	110 (4.33)	85 (3.35)	1.0 (0.04)
39 000 25 147	1	120 (4.72)	120 (4.72)	130 (5.12)	95 (3.74)	1.0 (0.04)
39 000 25 224	2	140 (5.51)	140 (5.51)	130 (5.12)	95 (3.74)	1.0 (0.04)
39 000 25 142	1	180 (7.09)	180 (7.09)	150 (5.91)	110 (4.33)	1.0 (0.04)
39 000 25 333	2	180 (7.09)	180 (7.09)	150 (5.91)	110 (4.33)	1.0 (0.04)

FIG. 1

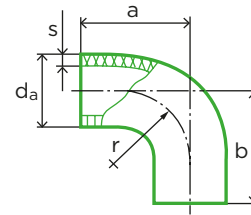
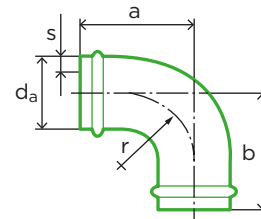


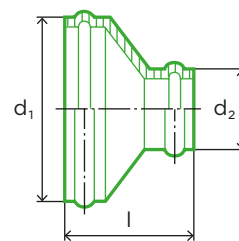
FIG. 2



MATERIAL
sheet steel,
painted black

ADAPTER PIECES

Order No.	Dimensions in mm (dimensions in inches)		
	d ₁	d ₂	l
39 000 25 621	70 (2.76)	40 (1.57)	65 (2.56)
39 000 25 622	70 (2.76)	60 (2.36)	56 (2.20)
39 000 25 631	80 (3.15)	50 (1.97)	65 (2.56)
39 000 25 431	82 (3.23)	70 (2.76)	56 (2.20)
39 000 25 461	100 (3.94)	70 (2.76)	75 (2.95)
31 080 25 511	102 (4.02)	80 (3.15)	76 (2.99)
39 000 25 295	110 (4.33)	80 (3.15)	75 (2.95)
39 000 25 193	110 (4.33)	100 (3.94)	70 (2.76)
39 000 25 105	132 (5.20)	102 (4.02)	71 (2.80)
39 000 25 253	132 (5.20)	110 (4.33)	76 (2.99)
39 000 25 325	150 (5.91)	130 (5.12)	86 (3.39)
39 000 25 145	180 (7.09)	150 (5.91)	95 (3.74)
39 000 25 327	200 (7.87)	150 (5.91)	105 (4.13)



MATERIAL
sheet steel,
painted black

Accessories for air cleaners

Electronic service indicator



ADVANTAGES

- Display of the continuous differential pressure increase during operation
- Enables scheduled filter servicing and safety
- Reduction of operating costs, risks and downtimes

TECHNICAL DATA

- Electric display of the service deadline
- Suitable for differential pressures of 0 – 100 mbar
- Suitable for air cleaner series: IQORON, IQORON-V, IQORON-S, ENTARON XD, EUROPICLON, NLG
- Using an adapter, it can be combined with all air cleaners available on the market

Order No.	Figure	
39 000 70 920	1	Service indicator, VST packaged, (kit: display, sensor, wiring harness, instructions), programmable for pressure increases of 50/65/80 mbar
39 000 70 910	2	Pressure sensor, VST packaged, with AMP-SEAL 16 connector (readout of output voltage through additional control unit, e.g. application on-board electronics)
26 013 98 100	3	Wiring harness, VST-packaged, suitable for AMPSEAL 16 connection with connection cable

TECHNICAL DATA

Measured variable	Vacuum or pressure (in relation to ambient pressure)
Measuring range for pressure measurement	0 - 100 mbar [0 - 10 kPa]
Medium	Air
Supply voltage	Normally 5 - 30 V DC; sensor can be operated with up to 30 V DC directly via the vehicle
Precision	± 2.5%
Output voltage	0.5 - 4.5 V DC
Overvoltage protection	45 V, flux voltage
Reverse polarity protection	36 V, faulty connection 16 V
Permissible operating temperature	-40°C to +125°C
Storage temperature	-40°C to +125°C
Vibration testing parameters	10 - 2,000 Hz at 10 g
Connection thread	M10x1, suitable for all MANN+HUMMEL air cleaners with suitable connection (adapters for other air cleaners available upon request)

FIG 1 - PROTECTION CLASS: IP50

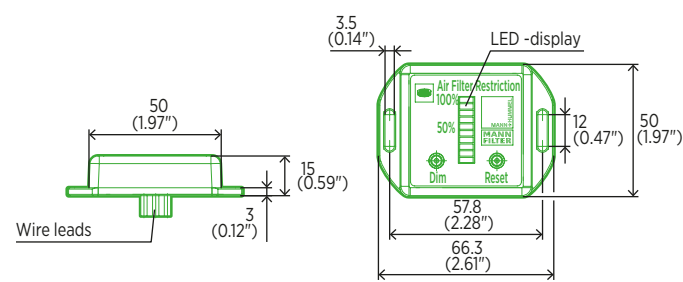


FIG 2 - PROTECTION CLASS: IP66

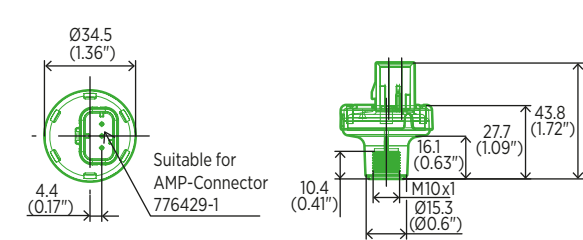
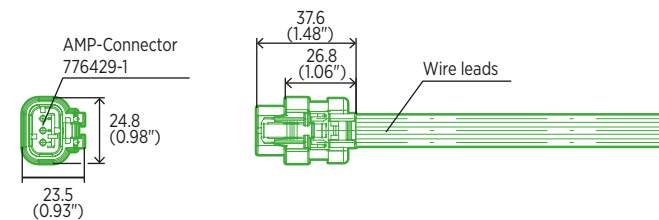


FIG 3 - PROTECTION CLASS: IP66



Accessories for air cleaners

Service switches

SERVICE SWITCHES WITH CONNECTION FOR BLADE TERMINALS (PROTECTION CLASS: IP21)



ADVANTAGES

- Permanent monitoring
- Resistant to dust and moisture
- Reduction of potential damage through unnecessary servicing
- No subsequent adjustment of the switching point necessary
- Component-tolerance-independent switching accuracy



TECHNICAL DATA

- Electronic signal when permissible differential pressure is reached (clean air connection to ambient atmosphere)
- Electronic signal processing possible
- Encapsulated contact insert
- Pressure-dependent (not path-dependent)
- Click-fit element (core)
- Contact-fire-resistant spring contacts
- Material: polyamide 6 GF 30
- Switching pressure (underpressure): 35 mbar – 80 mbar (3.5 kPa to 8.0 kPa)
- Max. switching capacity: 6W/24V DC (resistive load, $V_{max} = 24\text{ V}$, $I_{max} = 0.25\text{ A}$)
- Various connection threads and connector versions available (adapter from M 10x1 to 1/8"-27 NPT).

Service switches, internal thread M 10x1

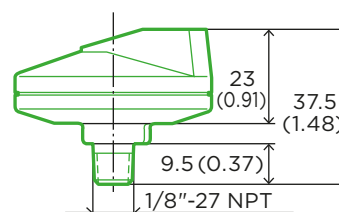
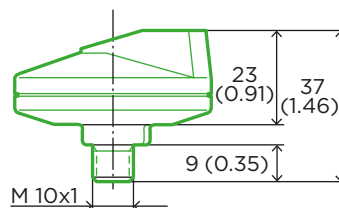
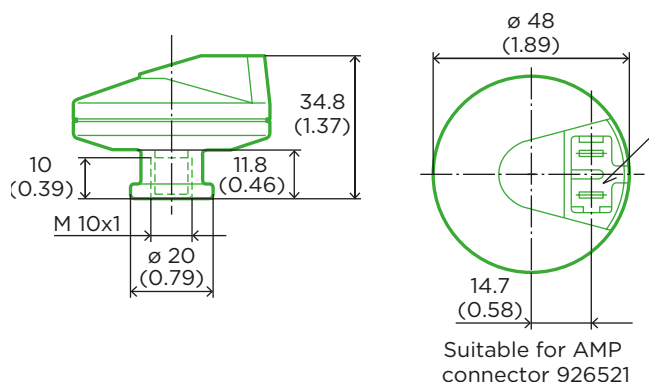
Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 902	35±3	3.5±0.3
39 050 70 902	50±3	5.0±0.3
39 055 70 902	55±3	5.5±0.3
39 060 70 902	60±3	6.0±0.3
39 065 70 902	65±3	6.5±0.3
39 070 70 902	70±4	7.0±0.4
39 080 70 902	80±4	8.0±0.4

Service switches, external thread M 10x1

Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 952	35±3	3.5±0.3
39 050 70 952	50±3	5.0±0.3
39 055 70 952	55±3	5.5±0.3
39 060 70 952	60±3	6.0±0.3
39 065 70 952	65±3	6.5±0.3
39 070 70 952	70±4	7.0±0.4
39 080 70 952	80±4	8.0±0.4

Service switches, external thread 1/8"-27 NPT

Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 962	35±3	3.5±0.3
39 050 70 962	50±3	5.0±0.3
39 055 70 962	55±3	5.5±0.3
39 060 70 962	60±3	6.0±0.3
39 065 70 962	65±3	6.5±0.3
39 080 70 962	80±4	8.0±0.4



NOTE

The service switch should not be installed suspended in order to prevent the ingress of any condensed water that may occur in the air line.

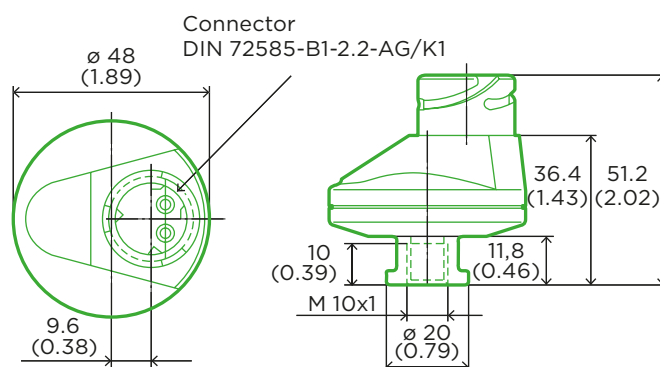
Accessories for air cleaners

Service switches

SERVICE SWITCHES FOR WATERPROOF ELECTRICAL CONNECTIONS (PROTECTION CLASS: IP65)

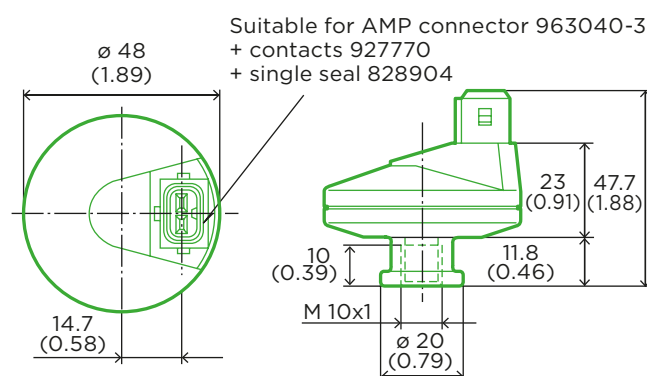
Service switches, internal thread M 10x1

Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 702	35±3	3.5±0.3
39 050 70 702	50±3	5.0±0.3
39 055 70 702	55±3	5.5±0.3
39 060 70 702	60±3	6.0±0.3
39 065 70 702	65±3	6.5±0.3
39 070 70 702	70±4	7.0±0.4
39 080 70 702	80±4	8.0±0.4



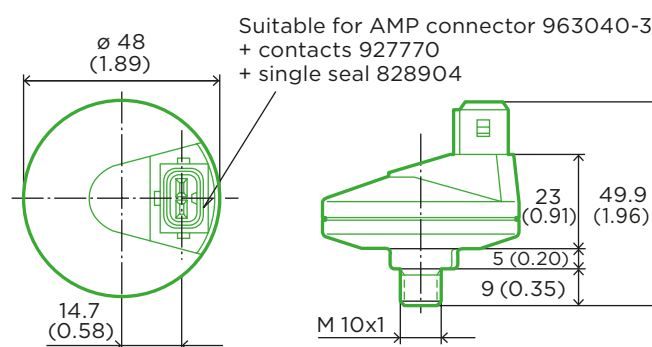
Service switches, internal thread M 10x1

Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 802	35±3	3.5±0.3
39 050 70 802	50±3	5.0±0.3
39 055 70 802	55±3	5.5±0.3
39 060 70 802	60±3	6.0±0.3
39 065 70 802	65±3	6.5±0.3
39 070 70 802	70±4	7.0±0.4
39 080 70 802	80±4	8.0±0.4



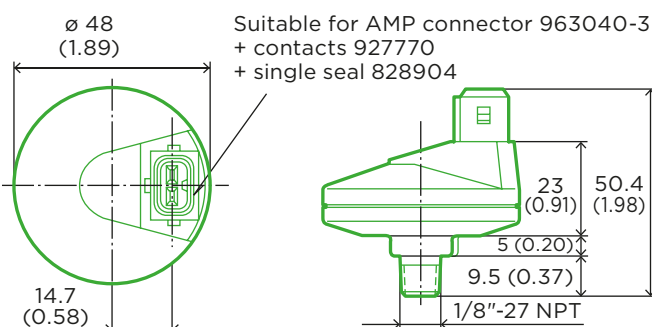
Service switches, external thread M 10x1

Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 852	35±3	3.5±0.3
39 050 70 852	50±3	5.0±0.3
39 055 70 852	55±3	5.5±0.3
39 060 70 852	60±3	6.0±0.3
39 065 70 852	65±3	6.5±0.3
39 080 70 852	80±4	8.0±0.4



Service switches, external thread 1/8"-27 NPT

Order No.	Switches at underpressure	
	[mbar]	[kPa]
39 035 70 862	35±3	3.5±0.3
39 050 70 862	50±3	5.0±0.3
39 055 70 862	55±3	5.5±0.3
39 060 70 862	60±3	6.0±0.3
39 065 70 862	65±3	6.5±0.3
39 080 70 862	80±4	8.0±0.4



Accessories for air cleaners

Service indicators

VISUAL SERVICE INDICATOR FOR DEGREE OF CONTAMINATION



Order No.	Engages at underpressure	
	[mbar]	[kPa]
39 035 70 911	35±3	3.5±0.3
39 050 70 911	50±4	5.0±0.4
39 050 70 931 ¹⁾	50±4	5.0±0.4
39 060 70 911	60±4	6.0±0.4
39 065 70 911	65±5	6.5±0.5
39 080 70 911	80±5	8.0±0.5
39 080 70 931 ¹⁾	80±5	8.0±0.5

1) Readable upright

ADVANTAGES

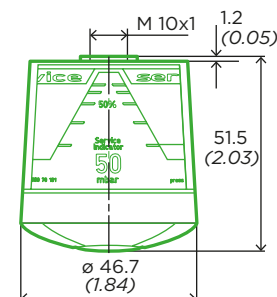
- Indication when the permissible differential pressure is reached (clean air connection to ambient atmosphere) or filter servicing is necessary
- Indication even when engine is switched off
- Insensitive to intake air pulsation
- False indication values are virtually excluded

FEATURES

- The yellow indicator plunger engages in 12 detent positions
- Triangular display field for remaining filter service life
- Filter service indication when the yellow plunger reaches the red area
- Resetting the indicator by pressing a button following servicing

TECHNICAL DATA

- Material: PC
- Switching pressure (underpressure): 35 mbar to 80 mbar (3.5 kPa to 8 kPa)



**PERMISSIBLE
OPERATING
TEMPERATURE**
-30°C to +100°C



SERVICE INDICATORS WITH ELBOW CONNECTION FLANGE



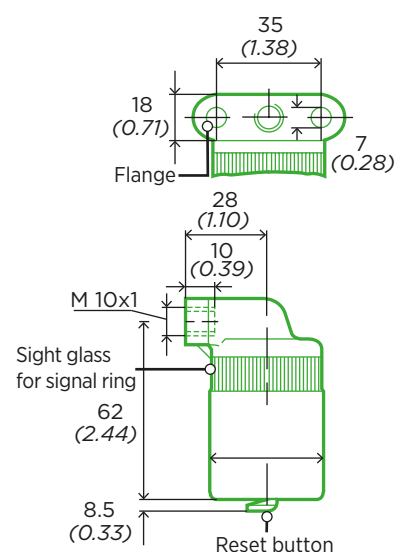
Order No.	Engages at underpressure	
	[mbar]	[kPa]
39 000 62 924	35±3	3.5±0.3
39 000 62 925	50±6	5.0±0.6
39 000 62 926	65±7	6.5±0.7
39 000 62 927	80±8	8.0±0.8

ADVANTAGES

- Virtually any installation situation implementable
- The red indicator plunger engages when reaching the maximum indication value, signaling the need for filter maintenance
- Resetting the indicator plunger by pressing a button following servicing

TECHNICAL DATA

- Material: PA
- Switching pressure (underpressure): 35 mbar to 80 mbar (3.5 kPa to 8 kPa)



**PERMISSIBLE
OPERATING
TEMPERATURE**
-40°C to +100°C



Accessories for EUROPICLON Holders



FIG. 1

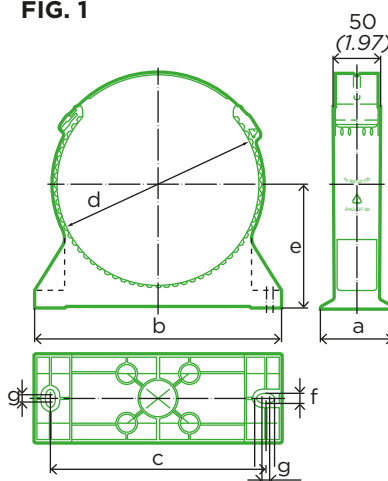
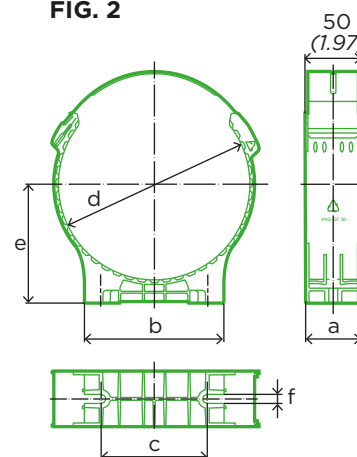


FIG. 2



ADVANTAGES

- Vibration-resistant filter seating
- High positioning flexibility

FEATURES

- 16 circumferential positions
- 2 detent positions (axial)

ORDER NUMBERS AND DIMENSIONS

Order No.	Suitable for EUROPICLON	Figure	Dimensions in mm <i>(dimensions in inches)</i>						
			a	b	c	d	e	f	g
39 050 40 959	45 05x 92 ...	1	40 (1.57)	137 (5.39)	116 (4.57)	122 (4.80)	85.7 (3.37)	9 (0.35)	-
39 100 40 999	45 100 92 ...	1	60 (2.36)	205 (8.07)	175 (6.89)	156 (6.14)	105 (4.13)	8.5 (0.33)	15.5 (0.61)
39 200 40 999	45 200 92 ...	1	80 (3.15)	220 (8.66)	190 (7.48)	171 (6.73)	110 (4.33)	8.5 (0.33)	15.5 (0.61)
39 300 40 999	45 300 92 ...	1	80 (3.15)	250 (9.84)	220 (8.66)	201 (7.91)	125 (4.92)	8.5 (0.33)	15.5 (0.61)
39 400 40 999	45 400 92 ...	1	80 (3.15)	270 (10.63)	240 (9.45)	221 (8.70)	135 (5.32)	8.5 (0.33)	15.5 (0.61)
39 500 40 999	45 500 92 ...	1	80 (3.15)	310 (12.20)	280 (11.02)	262 (10.32)	155 (6.10)	8.5 (0.33)	15.5 (0.61)
39 600 40 999	45 600 92 ...	1	80 (3.15)	345 (13.58)	315 (12.40)	296 (11.65)	173 (6.81)	8.5 (0.33)	15.5 (0.61)
39 100 40 989	45 100 92 ...	2	50 (1.97)	110 (4.33)	80 (3.15)	156 (6.14)	100 (3.94)	8.5 (0.33)	-
39 200 40 989	45 200 92 ...	2	50 (1.97)	125 (4.92)	95 (3.74)	171 (6.73)	106 (4.17)	8.5 (0.33)	-
39 300 40 989	45 300 92 ...	2	50 (1.97)	140 (5.51)	110 (4.33)	201 (7.91)	121 (4.76)	8.5 (0.33)	-
39 400 40 989	45 400 92 ...	2	50 (1.97)	157 (6.18)	127 (5.00)	221 (8.70)	132 (5.20)	8.5 (0.33)	-
39 500 40 989	45 500 92 ...	2	50 (1.97)	182 (7.17)	152 (5.98)	262 (10.32)	153 (6.02)	8.5 (0.33)	-
39 600 40 989	45 600 92 ...	2	50 (1.97)	182 (7.17)	152 (5.98)	296 (11.65)	173 (6.81)	8.5 (0.33)	-



Technical appendix

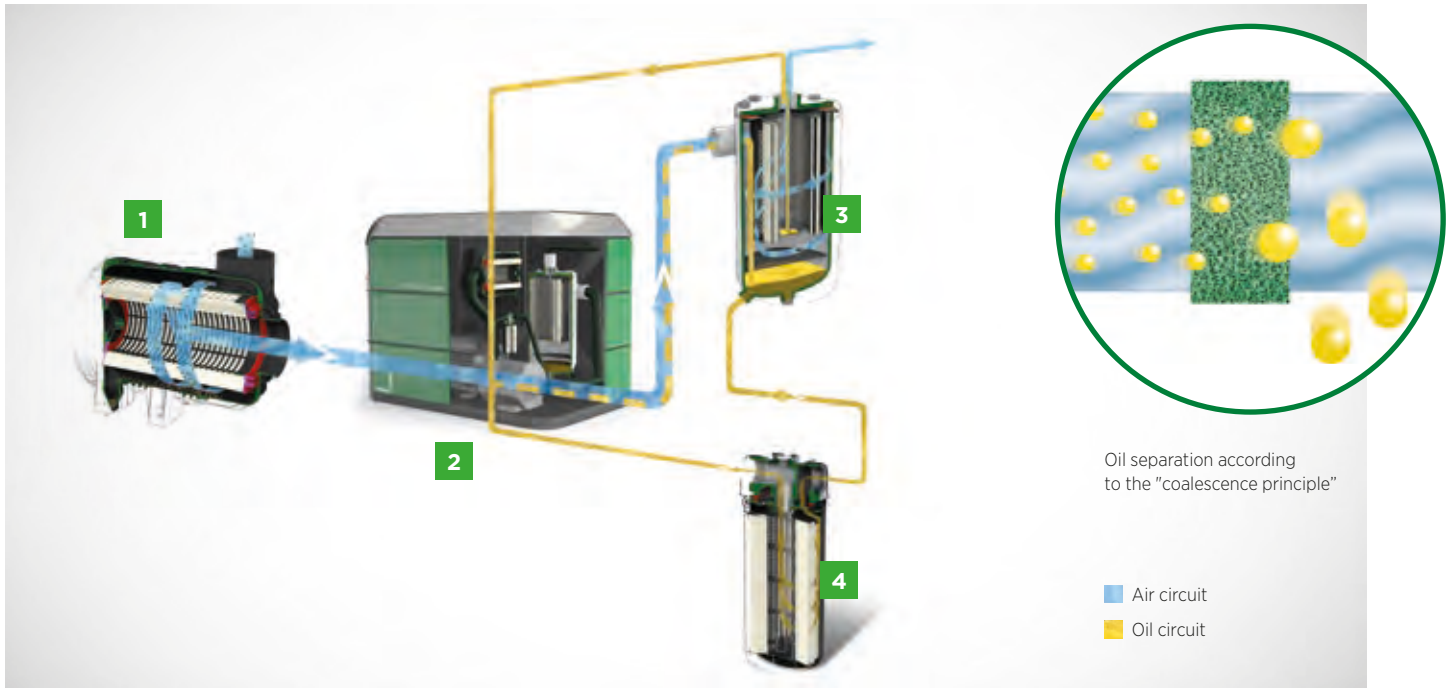
FILTRATION CHAIN IN THE COMPRESSOR page 92

FILTER LEXICON page 94

CONVERSION TABLES page 96



Filtration chain in the compressor



APPLICATION

- Oil-cooled screw compressors and superchargers

FILTRATION CHAIN

- The filtration chain protects the compressor against external soiling (dust in the ambient air) and promotes the maintenance of the thermal balance (oil circuit) and largely prevents the leakage of oil.

1 AIR CLEANER

- Modern air cleaner systems from MANN+HUMMEL protect downstream compressor components from the ingress of dust, abrasion particles and other particles, with a high separation rate and long service life.
- Two-stage filters can be used in the case of mobile compressors. Here, a large proportion of the dust is separated during a precleaning phase before the air flow reaches the filter element. This extends the element service life significantly.

2 COMPRESSOR STAGE AND PRESSURE VESSEL

- The heat generated during compression of the gas is dissipated via oil injection.

- The oil-containing compressed air is routed to a pressure vessel (tank). During ingress into the pressure vessel, precleaning is achieved by means of a tangential inlet, which significantly lowers the oil content of the compressed air.

- The oil is collected on the undersides of the pressure vessel and fed back into the compressor stage via the oil filter and an oil cooler by means of the pressure in the vessel.

3 AIR/OIL SEPARATOR OR SPIN-ON SEPARATOR

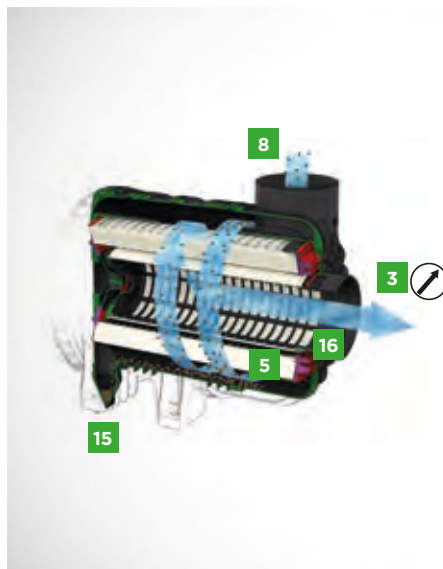
- The compressed air is separated almost completely from the residual oil via an air/oil separator (within the pressure vessel) or a spin-on separator (outside the pressure vessel) by utilizing the coalescence effect and is returned to the compressed air system.
- The separated oil is returned to the oil circuit by means of the overpressure.

4 OIL FILTER

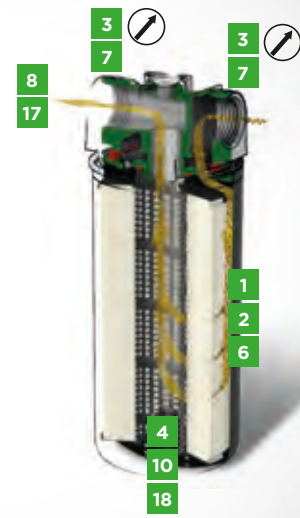
- The oil filter removes the oil degradation products and abrasion particles from the oil.
- The oil filter is equipped with a bypass valve which prevents the build-up of overpressure.



Filter lexicon



Air cleaner



Oil filter

SEPARATION EFFICIENCY η [%] (OIL FILTER)

Ratio between the dirt retained by the filter and the added dirt.

ABSOLUTE SEPARATION EFFICIENCY (OIL FILTER)

99 % of particles of the specified size are separated during a single filter pass. Example: 15 μm absolute: 99 % of size 15 μm particles are separated during a single filter pass ($\Rightarrow \beta_{15}=100$).

NOMINAL SEPARATION EFFICIENCY (OIL FILTER)

50 % of particles of the specified size are separated during a single filter pass. Example: 15 μm nominal: 50 % of size 15 μm particles are separated during a single filter pass ($\Rightarrow \beta_{15}=2$).

SEPARATION EFFICIENCY H [%] (AIR CLEANER)

Measurement and definition as per ISO 5011: Dust with a defined particle spectrum and defined concentration in the air is fed to the filter via a metering device. By far the largest part of this dust is separated by the filter. The separation efficiency of the filter is derived from the ratio between the separated mass of dust and the metered mass of dust. In the case of dry air cleaners, the separation efficiencies are generally above 99.95 %

β_x value

The beta value defines the ratio between the number of particles of a particular size

X upstream of the filter to the number of the particles of that size downstream of the filter. Conversion into separation efficiency: $\eta = (1-1/\beta) \times 100$.

1 BURST PRESSURE [bar]

Pressure at which failure of the filter structure can be expected.

2 OPERATING PRESSURE [bar]

Pressure for which the filter has been designed during continuous operation.

3 FLOW RESISTANCE Δp [mbar]

Measured variable as per ISO 5011 for the pressure drop of a filter. In the catalog, the underpressure downstream of the filter is always specified. (Significantly reduced pressure drop in the case of the StarBox and StarBox² series.)

4 BYPASS VALVE

Valve which, after reaching the opening pressure, enables the flow of oil to bypass the filter medium. It prevents impermissibly high pressure in the system and via the filter medium (e.g. in the case of pressure surges, start-up with cold oil or blockage of the filter medium).

SINGLE-STAGE FILTER

Features one main separation step and is ideal for low-dust operating conditions.

ELECTRICAL CONDUCTIVITY [S, 1/ Ω]

In MANN+HUMMEL air/oil separators, all the metallic parts are electrically connected to one another. This prevents

and dissipates electrostatic charging caused by air friction.

FLANGE SEALS

Critical area of electrical discharge capacity, which can have an insulating effect. Please note: Electrical contact to the pressure vessel and from there to the electrical system is present, e.g. through metal staples in the seals or electrically conductive seals.

5 MAIN ELEMENT

Air cleaner element made from pleated filter medium, via which filtration takes place. Its filter surface area determines the service life.

6 COLLAPSE PRESSURE [bar]

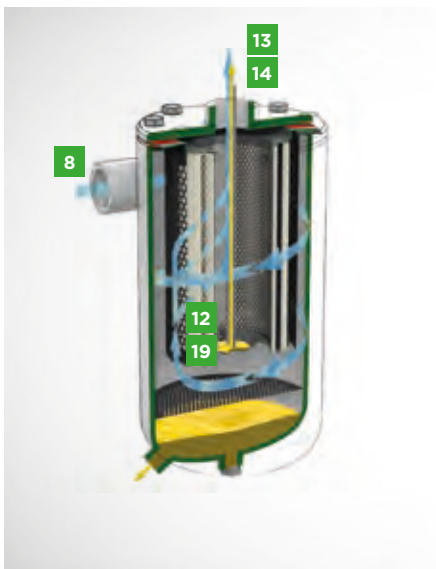
Failure of a filter element resulting from an excessive pressure difference across the element.

LABORATORY SERVICE LIFE [h]

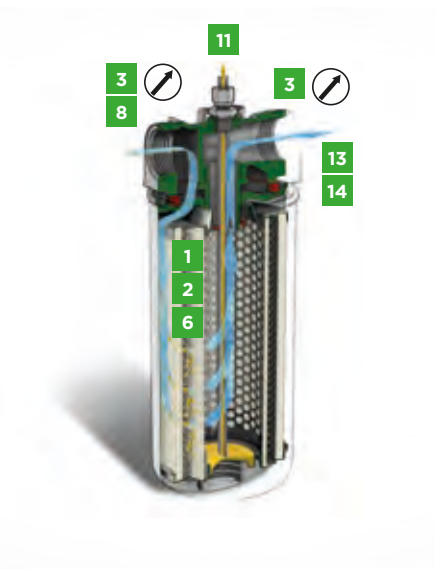
The time, determined during laboratory measurements (ISO 5011), within which an air cleaner loaded with dust and subjected to an air flow reaches a specified flow resistance. The test dust, dust concentration and volumetric flow must be defined.

LABORATORY DUST CAPACITY [g]

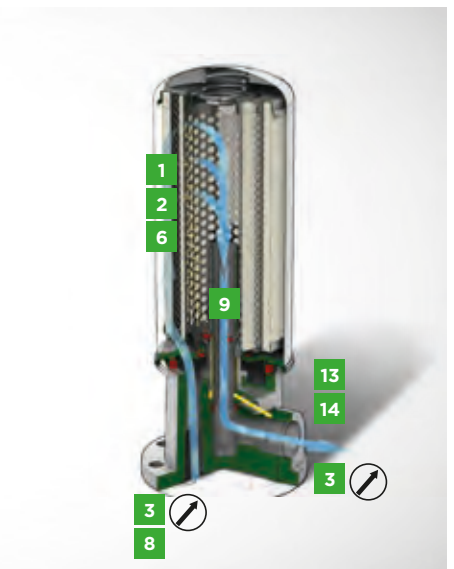
The determined added quantity of a defined test dust required to reach the service deadline during laboratory measurements.



Air/Oil separator



Spin-on filter with thread on the top



Spin-on filter with thread on the bottom

7 MULTIPASS TEST FOR OIL FILTERS

As per ISO 4548-12 or ISO 16 889: addition of defined dirt until the specified differential pressure across the filter element is reached. The result is the time characteristic of the separation efficiency per particle size.

8 NOMINAL FLOW RATE / FAD $\dot{V}$ [m³/min]

Nominal point for an air cleaner and the volumetric flow FAD (Free Air Delivery) aspirated via the air cleaner. There is a close correlation between this value and the geometric filter design data (nominal connection diameter, filter fineness) and the physical properties of the liquid being filtered (density, viscosity). Following compression, the relevant operating parameters (pressure and temperature) must also be specified.

9 CONNECTOR

Element via which the filtered air and the separated oil are removed, reliably and hermetically separated from one another.

10 OPENING PRESSURE [bar]

Pressure difference across the filter element at which the bypass valve opens. The valve opens proportionally to the pressure difference, normally 1.5 – 3.5 bar. (Compressor)

11 OIL RETURN LINE (SCAVENGE LINE)

Returns the separated oil back into the compressor oil circuit. This is connected to the intake side of the compressor screw

and it must be designed with sufficiently large dimensions because blockage or excessively small dimensions can lead to separator malfunctions.

12 Baffle Plate (Shield)

A high cylinder, which is positioned concentrically between the intake connection and the air/oil separator of the pressure vessel.

13 CLEAN AIR

Air flow downstream of the separator.

14 RESIDUAL OIL CONTENT [mg/m³]

Residual oil remaining in the clean air, normally approx. 3 mg/m³. (Significantly lower values in the case of the StarBox and StarBox² series.)

SERVICE LIFE [h]

The service life of a filter until the service deadline is reached in practical application.

15 DUST-DISCHARGE VALVE

A valve on the housing of two-stage oil filters, via which the pre-separated dust is removed from the filter housing.

16 SECONDARY ELEMENT

Additional air cleaner element downstream of the main element, which prevents the ingress of dust into the clean air line in the event of replacement or a defective main element.

TANGENTIAL INLET

Achieves precleaning via the cyclone effect.

17 VISCOSITY, DYNAMIC η [Pa·s]

Measure of the resistance to flow of the medium being filtered.

18 VISCOSITY, KINEMATIC ν [St]

Ratio between the dynamic viscosity of the medium and its density.

19 PRECLEANING

Important element for the functionality of the separator. Precleaning is usually achieved via turbulence generated with the aid of a tangential inlet and a baffle plate (shield). The oil content following precleaning should not exceed 5 g/m³. A different type of precleaning is possible in principle, provided the prerequisites are met. MANN+HUMMEL two-stage filters feature an integrated precleaning system (cyclone effect through tangential inlet on EUROPICLON or ENTARON XD) or cyclone cells (IQORON-V). The separation efficiency of the entire filter is determined in the same manner as with the single-stage filter. The higher the precleaning efficiency, the lower the dust concentration reaching the actual filter element. A higher precleaning efficiency enables a longer filter service life.

TWO-STAGE FILTER

Ideal for medium to high dust loads as this filter type also features a high performance precleaning system. Thanks to the performance of the precleaner, the main element is subjected to lower loads, increasing its service life.

Conversion tables

VOLUMETRIC FLOW m³/min → cfm

1 m ³ /min	=	35.3 cfm
1.7 m ³ /min	=	60.0 cfm
2 m ³ /min	=	70.6 cfm
3 m ³ /min	=	105.9 cfm
4 m ³ /min	=	141.3 cfm
4.5 m ³ /min	=	158.9 cfm
6 m ³ /min	=	211.9 cfm
8 m ³ /min	=	282.5 cfm
10 m ³ /min	=	353.1 cfm
12 m ³ /min	=	423.8 cfm
15 m ³ /min	=	529.7 cfm
18 m ³ /min	=	635.7 cfm
20 m ³ /min	=	706.3 cfm
21 m ³ /min	=	741.6 cfm
24 m ³ /min	=	847.6 cfm
25 m ³ /min	=	882.9 cfm
28 m ³ /min	=	988.8 cfm
32 m ³ /min	=	1130.1 cfm
37 m ³ /min	=	1306.6 cfm
40 m ³ /min	=	1412.6 cfm
42 m ³ /min	=	1483.2 cfm
50 m ³ /min	=	1765.7 cfm
60 m ³ /min	=	2118.9 cfm
80 m ³ /min	=	2825.2 cfm
100 m ³ /min	=	3531.5 cfm

VOLUMETRIC FLOW cfm → m³/min

25 cfm	=	0.7 m ³ /min
50 cfm	=	1.4 m ³ /min
75 cfm	=	2.1 m ³ /min
100 cfm	=	2.8 m ³ /min
150 cfm	=	4.2 m ³ /min
200 cfm	=	5.7 m ³ /min
250 cfm	=	7.1 m ³ /min
300 cfm	=	8.5 m ³ /min
350 cfm	=	9.9 m ³ /min
400 cfm	=	11.3 m ³ /min
450 cfm	=	12.7 m ³ /min
500 cfm	=	14.2 m ³ /min
550 cfm	=	15.6 m ³ /min
600 cfm	=	17.0 m ³ /min
650 cfm	=	18.4 m ³ /min
700 cfm	=	19.8 m ³ /min
750 cfm	=	21.2 m ³ /min
800 cfm	=	22.7 m ³ /min
850 cfm	=	24.1 m ³ /min
900 cfm	=	25.5 m ³ /min
950 cfm	=	26.9 m ³ /min
1000 cfm	=	28.3 m ³ /min
1500 cfm	=	42.5 m ³ /min
2000 cfm	=	56.6 m ³ /min
3000 cfm	=	85.0 m ³ /min

PRESSURE bar → psi

0.1 bar	=	1.45 psi
0.12 bar	=	1.74 psi
0.5 bar	=	7.25 psi
1 bar	=	14.5 psi
2 bar	=	29 psi
2.5 bar	=	36.25 psi
3 bar	=	43.5 psi
5 bar	=	72.5 psi
10 bar	=	145 psi
14 bar	=	203 psi
20 bar	=	290 psi
25 bar	=	362.5 psi
30 bar	=	435 psi
35 bar	=	507.5 psi
40 bar	=	580 psi
100 bar	=	1450 psi
200 bar	=	2900 psi
300 bar	=	4350 psi
400 bar	=	5800 psi

LENGTH mm → inch

10 mm	=	0.39 inch
20 mm	=	0.79 inch
30 mm	=	1.18 inch
40 mm	=	1.57 inch
50 mm	=	1.97 inch
60 mm	=	2.36 inch
70 mm	=	2.76 inch
80 mm	=	3.15 inch
90 mm	=	3.54 inch
100 mm	=	3.94 inch
150 mm	=	5.91 inch
200 mm	=	7.87 inch
250 mm	=	9.84 inch
300 mm	=	11.81 inch
350 mm	=	13.78 inch
400 mm	=	15.75 inch
450 mm	=	17.72 inch
500 mm	=	19.69 inch

TEMPERATURE °C → °F

-30°C	=	-22.0°F
-10°C	=	14.0°F
0°C	=	32.0°F
10°C	=	50.0°F
30°C	=	86.0°F
50°C	=	122.0°F
80°C	=	176.0°F
100°C	=	212.0°F
120°C	=	248.0°F





Further informational material

COMPRESSOR ANIMATION

DVD – Oder no.: 19 943 50 100

(multilingual)

CD-ROM – Oder no.: 19 943 50 200

(multilingual)

AIR CLEANERS-CATALOG

Order no. German: 19 941 10 100

Order no. English: 19 941 10 101

Further languages available upon request

LIQUID FILTERS-CATALOG

Order no. German: 19 942 10 100

Order no. English: 19 942 10 101

Further languages available upon request

COOLANT EXPANSION

TANKS-CATALOG

Order no. German: W9 944 10 100

Order no. English: W9 944 10 101

Further languages available upon request

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catalogues/](http://industrialfilters.mann-hummel.com/en/catalogues/)





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