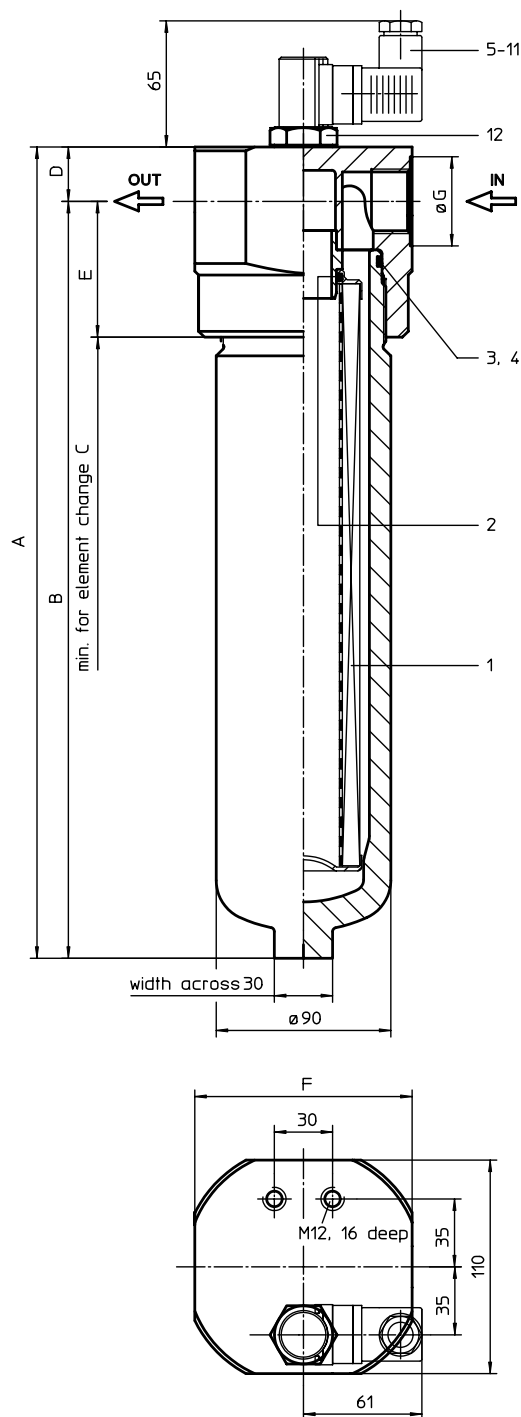


PRESSURE FILTER

Series ML 170 - 450 DN 25 - 40 PN 160

Sheet No.
1429 F



1. Type index:

1.1. Complete filter: (ordering example)

ML . 360. 10VG. HR. E. P. - . G. 5. - . - . AE

1	2	3	4	5	6	7	8	9	10	11	12
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- 1 **series:**
ML = in-line filter-medium pressure range
- 2 **nominal size:** 170, 240, 360, 450
- 3 **filter-material and filter-fineness:**
80 G = 80 μm , 40 G = 40 μm , 25 G = 25 μm
stainless steel wire mesh
25 VG = 20 $\mu\text{m}_{(c)}$, 16 VG = 15 $\mu\text{m}_{(c)}$, 10 VG = 10 $\mu\text{m}_{(c)}$,
6 VG = 7 $\mu\text{m}_{(c)}$, 3 VG = 5 $\mu\text{m}_{(c)}$ Interpor fleece (glass fibre)
- 4 **resistance of pressure difference for filter element:**
30 = Δp 30 bar
HR = Δp 160 bar (rupture strength Δp 250 bar)
- 5 **filter element design:**
E = single-end open
- 6 **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 **filter element specification:** (see catalog)
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601
- 8 **connection:**
G = thread connection according to ISO 228
- 9 **connection size:**
5 = G 1
7 = G 1 1/2
- 10 **filter housing specification:** (see catalog)
- = standard
IS06 = see sheet-no. 31605
- 11 **internal valve:**
- = without
S1 = with by-pass valve Δp 3,5 bar
S2 = with by-pass valve Δp 7,0 bar
R = reversing valve, $Q \leq 211,008$ l/min
- 12 **clogging indicator or clogging sensor:**
- = without
AOR = visual, see sheet-no. 1606
AOC = visual, see sheet-no. 1606
AE = visual-electrical, see sheet-no. 1615
VS1 = electrical, see sheet-no. 1617
VS2 = electrical, see sheet-no. 1618

2. Dimensions:

type	ML 170		ML 240		ML 360		ML 450	
connection	G1	G1 1/2	G1	G1 1/2	G1	G1 1/2	G1	G1 1/2
A	288	300	338	350	418	430	523	535
B	260	265	310	315	390	395	495	500
C	350	350	400	400	480	480	585	585
D	28	35	28	35	28	35	28	35
E	70	75	70	75	70	75	70	75
F	112	116	112	116	112	116	112	116
G	46	63,5	46	63,5	46	63,5	46	63,5
weight kg	7,5	7,9	8,5	8,9	10,1	10,5	13,1	13,5
volume tank	0,7 l	0,7 l	0,9 l	0,9 l	1,2 l	1,2 l	1,6 l	1,6 l

1.2. Filter element: (ordering example)

01E. 360. 10VG. HR. E. P. -

1	2	3	4	5	6	7
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- 1 **series:**
01E. = filter element according to INTERNORMEN factory specification
- 2 **nominal size:** 170, 240, 360, 450
- 3 - 7 see type index-complete filter

3. Spare parts:

item	qty.	designation	dimension				article-no.	
			ML 170	ML 240	ML 360	ML 450		
1	1	filter element	01E. 170	01E. 240	01E. 360	01E. 450		
2	1	O-ring	34 x 3,5				304338 (NBR)	304730 (FPM)
3	1	O-ring	75 x 3				302215 (NBR)	304729 (FPM)
4	1	support ring	81 x 2,6 x 1				304581	
5	1	clogging indicator visual	AOR or AOC				see sheet-no. 1606	
6	1	clogging indicator visual-electrical	AE				see sheet-no. 1615	
7	1	clogging sensor electrical	VS1				see sheet-no. 1617	
8	1	clogging sensor electrical	VS2				see sheet-no. 1618	
9	1	O-ring	15 x 1,5				315357 (NBR)	315427 (FPM)
10	1	O-ring	22 x 2				304708 (NBR)	304721 (FPM)
11	1	O-ring	14 x 2				304342 (NBR)	304722 (FPM)
12	1	screw plug	20913-4				309817	

item 12 execution only without clogging indicator or clogging sensor

4. Description:

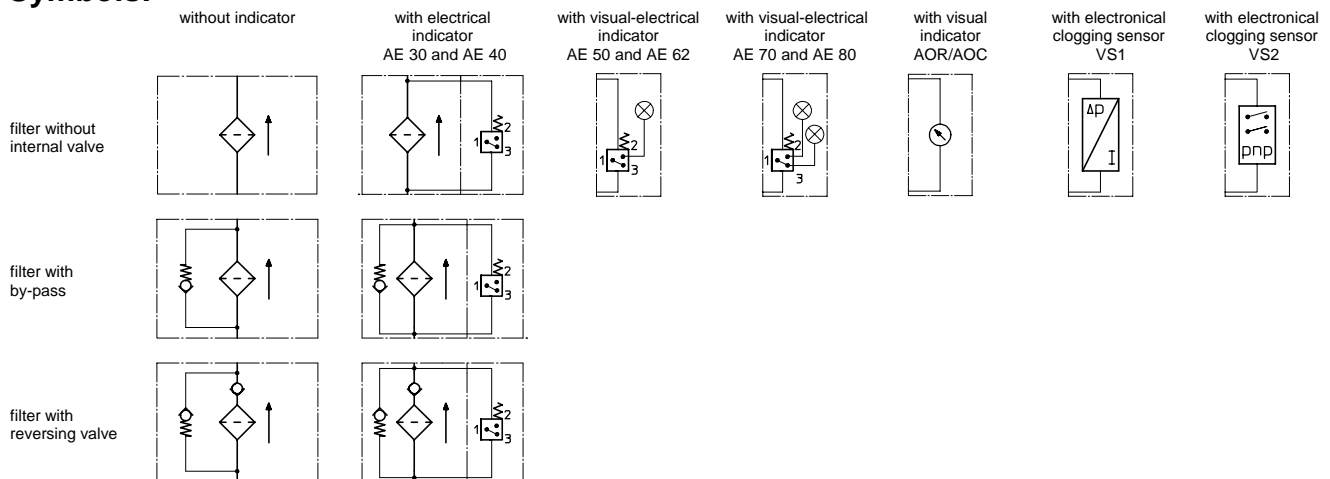
The pressure filters of the series ML 170-450 are suitable for a working pressure up to 160 bar. The pressure peaks are absorbed by a sufficient margin of safety. The ML-filter is in-line mounted. The filter element consists of star-shaped, pleated filter material which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to the inside. Filter elements are available down to 4 $\mu\text{m}_{(c)}$. INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life. INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils. INTERNORMEN-Filter elements are available up to a pressure difference resistance of Δp 160 bar and a rupture strength of Δp 250 bar. The internal valves are integrated into the centering pivot for the filter element. After reaching the opening pressure the by-pass valve causes that an unfiltered partial flow passes the filter. With the reverse valve a protection of the filter element is given when having a reverse flow inside the filter. The reverse flow will not be filtered.

5. Technical data:

temperature range:	-10°C to + 80°C (for a short time + 100°C)
operating medium:	mineral oil, other media on request
max. operating pressure:	160 bar
test pressure:	229 bar
connection system:	thread according to ISO 228
housing material:	Al; C-steel
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

6. Symbols:



7. Pressure drop flow curves: Precise flow rates see 'INT-Expert-System Filter' respectively Δp -curves ; depending on filter fineness and viscosity.

8. Test methods:

Filter elements are tested according to the following ISO standards:

ISO 2941	Verification of collapse/burst resistance
ISO 2942	Verification of fabrication integrity
ISO 2943	Verification of material compatibility with fluids
ISO 3723	Method for end load test
ISO 3724	Verification of flow fatigue characteristics
ISO 3968	Evaluation of pressure drop versus flow characteristics
ISO 16889	Multi-pass method for evaluating filtration performance