

Return Line Filter WKRF

Up to 15000L/min

Up to 25bar



WKRF

Return Line Filter

1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Construction

The filter housings are designed in accordance with international regulations. They consist of a filter housing and a threaded cover plate.

Standard equipment:

- bypass valve in the element.
- connection for a clogging indicator

1.2 FILTER ELEMENTS

WK-Hydraulic filter elements are validated and their quality is constantly monitored according to the following standards:

- ISO 2941, ISO 2942, ISO 2943
ISO 3724, ISO 3968, ISO 11170
ISO 16889

Number of filter elements

WKRF	Elements
60	1x0060R
110	1x0110R
160	1x0160R
240	1x0240R
330	1x0330R
660	1x0660R
950	1x0950R
1300	1x1300R
2500	3x0850R
4000	5x0850R
5200	4x1300R
6500	5x1300R
7800	6x1300R
15000	10x1300R

Filter elements are available with the following pressure stability values:

Glass fiber (ON):	20 bar
Paper (P/HC):	10 bar
Stainl. st. wire mesh (W/HC):	20 bar
Stainless steel fibre (V):	210 bar
BN4AM:	10 bar
AM:	10 bar



1.3 FILTER SPECIFICATIONS

Nominal pressure	WKRF 2500 to 15000: 10 bar WKRF 60 to 1300: 25 bar
Temperature range	-10 °C to +100 °C
Material of filter housing and cover plate	WKRF 60 - 1300 : Aluminium WKRF 2500 - 15000 : Welded steel
Type of clogging indicator	VR Connection thread G ½ (return line indicator up to 25 bar operating pressure)
Pressure setting of clogging indicator	2 bar (others on request)
Bypass cracking pressure	3 bar (others on request)

1.4 SEALS

NBR (=Perbunan)

1.5 INSTALLATION

Tank-top or inline filter.

1.6 SPECIAL MODELS AND ACCESSORIES

On request

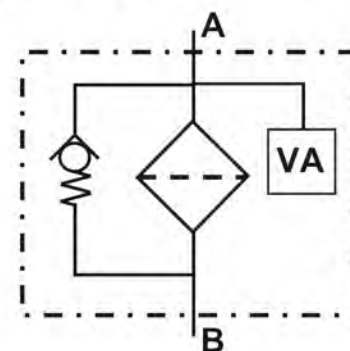
1.7 SPARE PARTS

See Original Spare Parts List

1.8 CERTIFICATES AND APPROVALS

On request

Symbol for hydraulic systems



VA = clogging indicator

2. MODEL CODE (also order example)

WKRF ON 330 D L 10 D 1 . X /-L24

2.1 COMPLETE FILTER

Filter type

WKRF

Filter material

ON Glass fiber P/HC Paper AM Absorbent glass fiber
V Stainless steel fibre W/HC Stainl. st. wire mesh

Size of filter or element

WKRF: 60, 110, 160, 240, 330, 660, 950, 1300, 2500, 4000, 5200, 6500, 7800, 15000

Operating pressure

B = 10 bar (WKRF 2500 to 15000)

D = 25 bar (WKRF 60 to 1300)

Type and size of connection

Type	Port	Filter size													
		60	110	160	240	330	660	950	1300	2500	4000	5200	6500	7800	15000
C	G ¾	•	•												
E	G 1¼			•	•										
G	G 2					•									
L	SAE DN 50 (2")					•									
N	SAE DN 80 (3")						•								
O	SAE DN 90 (3½")							•							
P	SAE DN 100 (4")								•						
R	DIN DN 100									•					
U	DIN DN 125									•					
V	DIN DN 150										•				
W	DIN DN 200											•			
X	DIN DN 250												•		
Y	DIN DN 300													•	

Filtration rating in µm

ON: 1, 3, 5, 10, 15, 20

P/HC: 10, 20

V: 3, 5, 10, 20

W/HC: 25, 50, 100, 200

AM:

40

Type of clogging indicator

Y plastic blanking plug in indicator port

A steel blanking plug in indicator port

B visual

C electrical

D visual and electrical

for other clogging indicators,
see brochure no. 7.050../..

Type code

1 standard connection (only WKRF 60 to 1300)

2 2500 to 15000: outlet for each filter element location spigot has threaded connection for pipe extension

3 2500 to 15000: common elbow outlet

Modification number

X the latest version is always supplied

Supplementary details

B cracking pressure of bypass (e.g. B6 = 6 bar)

KB without bypass valve

L... light with appropriate voltage (24V, 48V, 110V, 220V)

LED 2 light emitting diodes up to 24 Volt

only for clogging indicators
type D

2.2 REPLACEMENT ELEMENT

0330 R 010 ON /-V

Size

0060, 0110, 0160, 0240, 0330, 0660, 0950, 1300

Type

R

Filtration rating in µm

ON: 001, 003, 005, 010, 015, 020

P/HC: 010, 020

V: 003, 005, 010, 020

W/HC: 025, 050, 100, 200

AM: 040

Filter material

ON, V, W/HC, P/HC, AM

Supplementary details

V (for descriptions, see point 2.1)

3.2 Filter technical parameters

Size	Connection size	Filter element specification	Number of filter elements	Weight including element (kg)
30	G1/2	0030R---	1	0.4
60	G3/4	0060R---	1	0.9
110	G3/4	0110R---	1	1.1
160	G1 1/4	0160R---	1	1.8
240	G1 1/4	0240R---	1	2.2
330	G2	0330R---	1	4.1
	SAEDN 50 (2")			4.1
660	SAEDN 80 (3")	0660R---	1	20.0
950	SAEDN 90 (3 1/2")	0950R---	1	41.5
1300	SAEDN 100 (4")	1300R---	1	46.0
2500	DIN DN 100	0850R--	3	55.3
	DIN DN 125			58.3
4000	DIN DN 125	0850R---	5	97.3
	DIN DN 150			101.3
5200	DIN DN 125	1300R---	4	119.1
	DIN DN 150			126.1
6500	DIN DN 150	1300R---	5	175.1
	DIN DN 200			186.1
7800	DIN DN 200	1300R---	6	187.1
	DIN DN 250			202.1
15000	DIN DN 250	1300R---	10	329.1
	DIN DN 300			382.1

3. FILTER CALCULATION / SIZING

The total pressure drop of a filter at a certain flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

$$\Delta p_{\text{total}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}$$

$$\Delta p_{\text{housing}} = (\text{see Point 3.1})$$

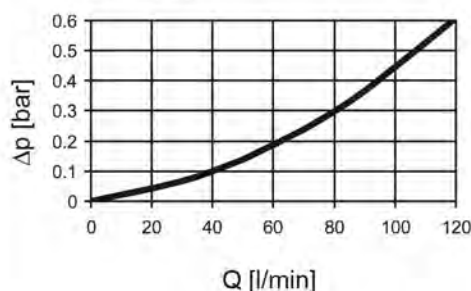
$$\Delta p_{\text{element}} = Q \cdot \frac{SK^*}{1000} \cdot \frac{\text{viscosity}}{30}$$

For ease of calculation, our Filter Sizing Program is available on request free of charge.

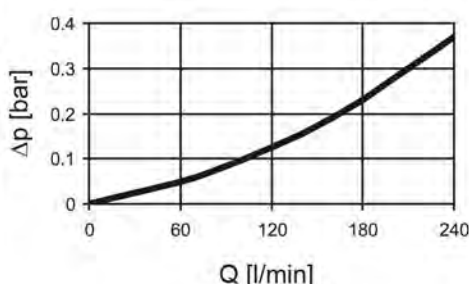
3.1 Δp -Q HOUSING CURVES BASED ON ISO 3968

The housing curves apply to mineral oil with a density of 0.86 kg/dm³ and a kinematic viscosity of 30 mm²/s. In this case, the differential pressure changes proportionally to the density.

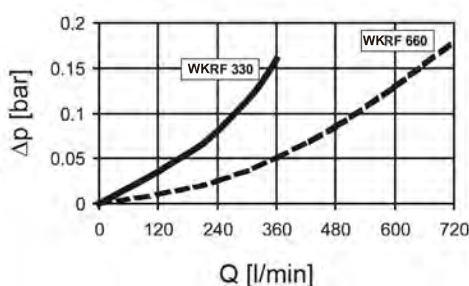
WKRF 60, 110



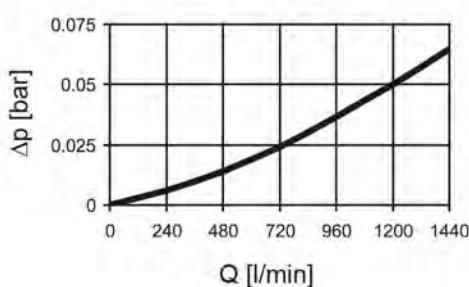
WKRF 160, 240



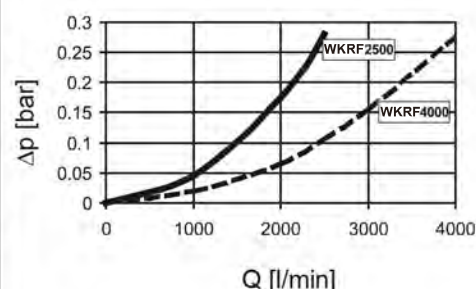
WKRF 330, 660



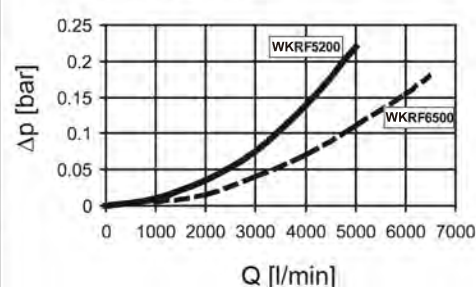
WKRF 950, 1300



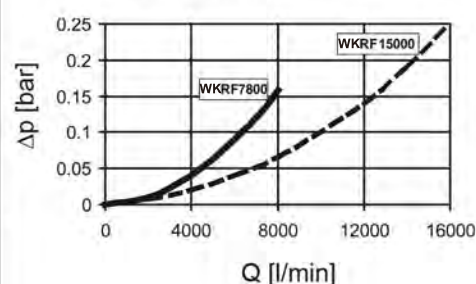
WKRF 2500, 4000



WKRF 5200, 6500

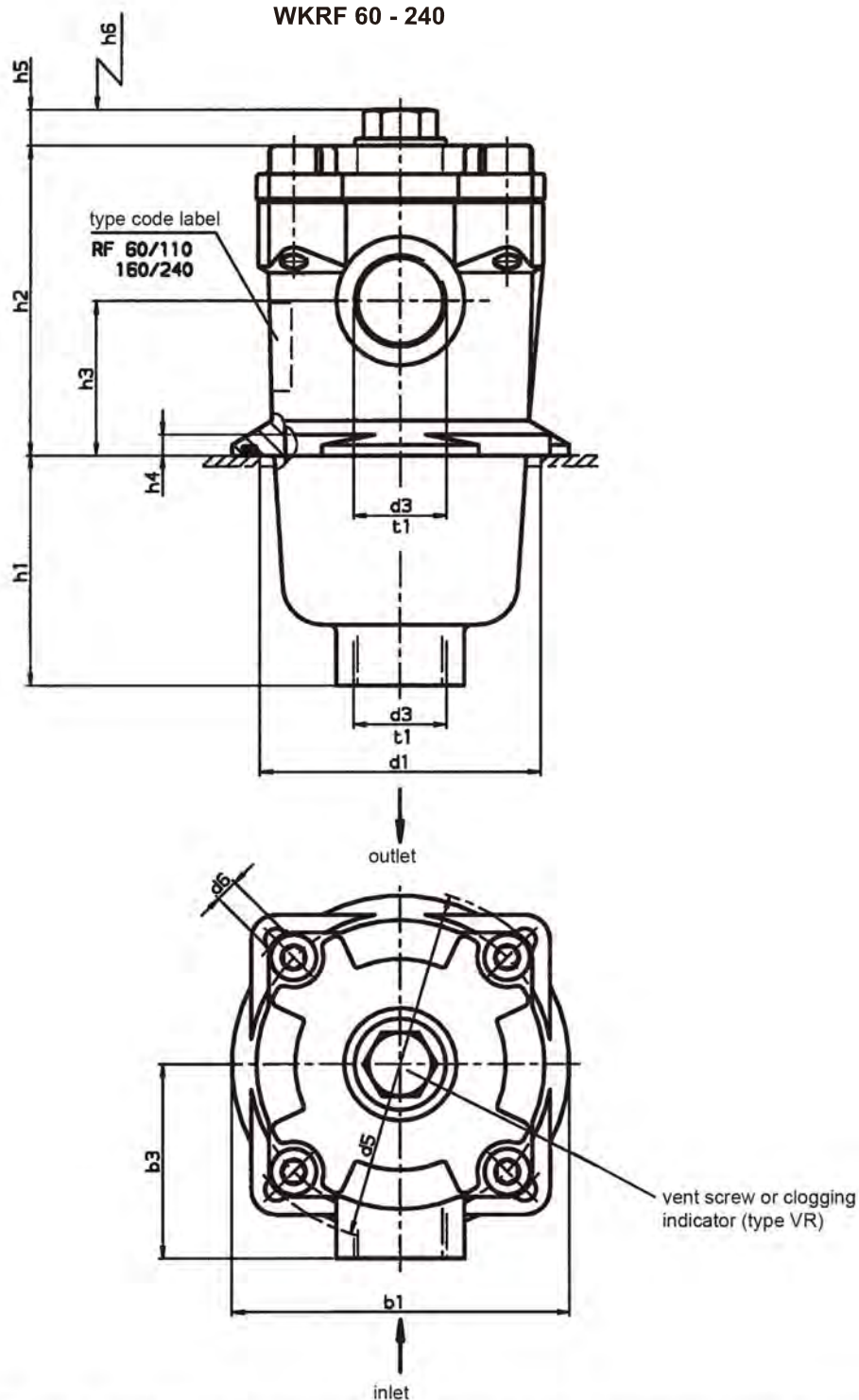


WKRF 7800, 15000



4. DIMENSIONS

WKRF 60 - 240

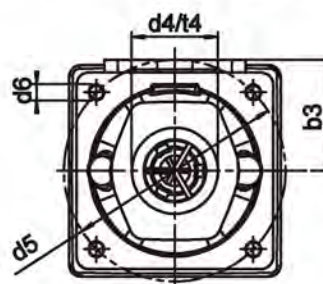
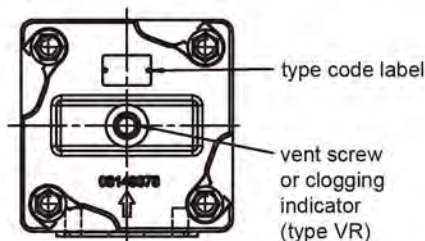
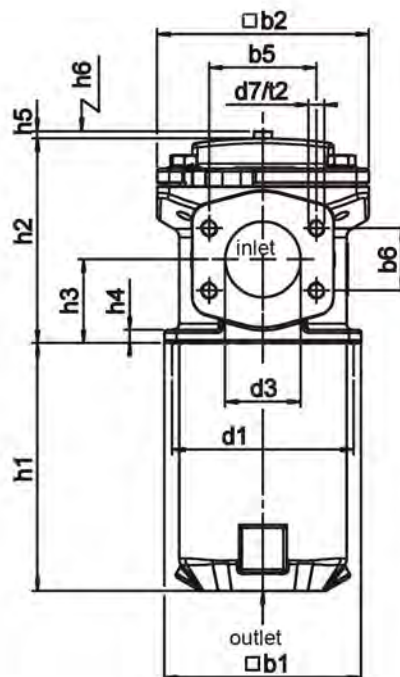
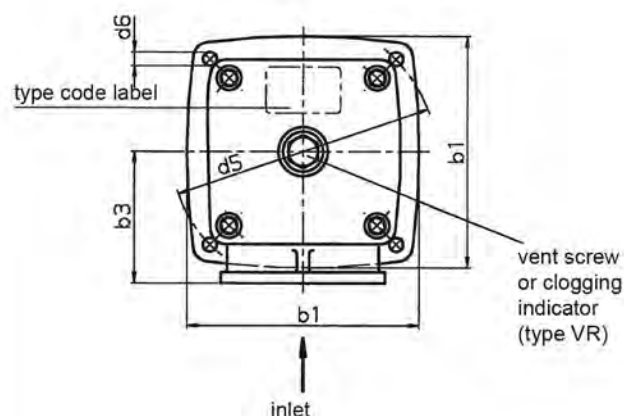
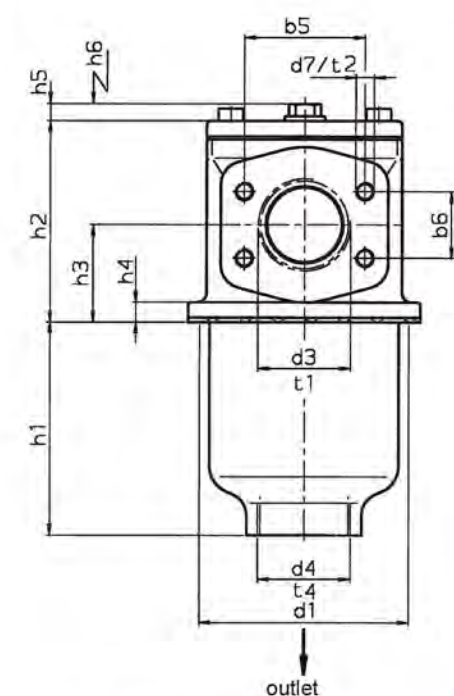
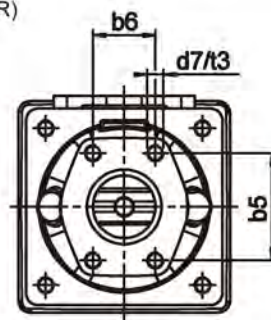


WKRF	b1	b3	d1	d3 ¹⁾	d5	d6 ²⁾	h1	h2	h3	h4	h5	h6	t1	t4	Weight including element [kg]	Volume of pressure chamber [l]
60	96	55	80	G ¾	100	M5	66	88	44	6	12	80	17	-	0.9	0.40
110	96	55	80	G ¾	100	M5	133	88	44	6	12	145	17	-	1.1	0.60
160	126	72	106	G 1¼	135	M6	89	108	54	6	12	120	20	-	1.8	1.00
240	126	72	106	G 1¼	135	M6	150	108	54	6	12	180	20	-	2.2	1.40

¹⁾ Threaded port to ISO 228 / ²⁾ Mounting hole for screw

WKRF 330

WKRF 660-1300

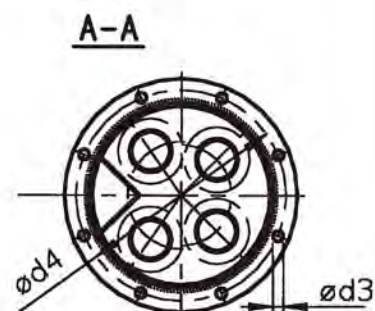
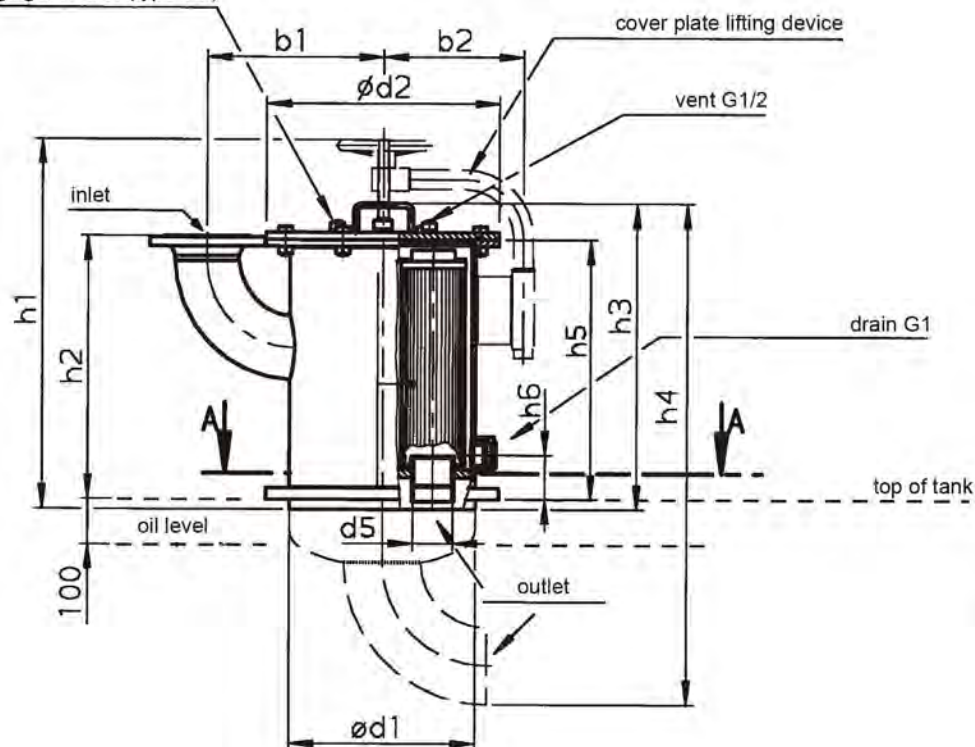
outlet: view
from below
WKRF 660 D Noutlet: view
from below
WKRF 950 D O
WKRF 1300 D P

WKRF	b1	b2	b3	b5	b6	d1	d3	d4	d5	d6 ¹⁾	d7	h1	h2	h3	h4	h5	h6	t1	t2	t3	t4	Weight including element [kg]	Volume of pressure chamber [l]
330	150	126	85	77.8	42.9	135	G2 SAE DN 50 (2")	G2	170	M8	M12	139	130	63	13	12	180	27	23	-	27	4.1	2.0
660	195	210	110	106.4	61.9	180	G3 SAE DN 80 (3")	G3 SAE DN 80 (3")	220	M12	M16	246	203	83	13	8	320	-	28	18	28	31.0	6.8
950	250	244	135	120.7	69.9	208	SAE DN 90 (3½")	SAE DN 90 (3½")	290	M16	M16	252.5	225	93	13	8	385	-	20	20	-	44.5	10.3
1300	250	244	145	130.2	77.8	208	SAE DN 100 (4")	SAE DN 100 (4")	290	M16	M16	330.5	269	121	13	8	485	-	20	20	-	52.5	13.5

Filter connection for SAE flanges to SAE-J 518c / 3000 PSI / ¹⁾ Mounting hole for screw

WKRF 2500-15000

clogging indicator (type VR)



dimension h4 on request!

WKRF	Flange connection	h1	h2	h3	h5	h6	b1	b2	d1	d2	d3	d4	d5	No. of cover plate screws	Weight including element [kg]	Volume of pressure chamber [l]
2500	DIN DN 100	732	578	590	496	84	395	240	273	360	18	320	G2	8	55.3	26.0
	DIN DN 125		505												58.3	29.0
4000	DIN DN 125	738	501	596	496	84	355	282	356	450	18	410	G2	12	97.3	44.0
	DIN DN 150		540												101.3	48.0
5200	DIN DN 125	812	576	670	571	84	382	308	406	510	23	460	G3	8	119.1	64.0
	DIN DN 150		615												126.1	68.0
6500	DIN DN 150	817	615	680	571	84	470	358	508	620	26	572	G3	8	175.1	98.0
	DIN DN 200		720												186.1	108.0
7800	DIN DN 200	817	720	680	571	84	535	358	508	620	26	572	G3	8	187.1	108.0
	DIN DN 250		800												202.1	126.0
15000	DIN DN 250	817	800	709	571	84	712	460	711	840	26	780	G3	12	329.1	224.0
	DIN DN 300		866												382.1	247.0

NOTE

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

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

Subject to technical modifications.

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