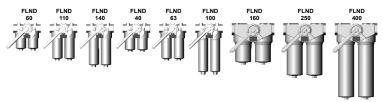


INTERNATIONAL



Change-Over Inline Filter FLND to DIN 24550*, up to 400 l/min,

up to 63 bar *Filter and filter elements also available with HYDAC dimensions



1. TECHNICAL **SPECIFICATIONS**

1.1 FILTER HOUSING Construction

The filter housings are designed in accordance with international regulations. They consist of a filter head with integral change-over valve and screw-in filter bowls. Standard equipment:

- ☐ without bypass valve
- Connection for a clogging indicator
- ☐ with drain screw (FLND 160 to 400)

1.2 FILTER ELEMENTS

Hydac 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

Contamination retention capacities in g

	Ве			
FLND	3 µm	5 µr	n 10 µm	20 µm
60	6.5		7.3 7.8	8.0
110	13.8	15.5	16.4	16.9
140	18.1 20).3	21.5	22.2
	Betami	cron®	(BN4HC)	
FLND	3 µm	6 µm	10 µm	25 µm
40	5.2 5.	6	6.3	7.0
63	9.2	9.9	11.1	12.8
100	15.4	16.5 1	8.6	20.6
160	27.5	29.3 3	3.1	36.7
250	46.0	49.0	55.2	61.3
400		1.3 91.4		101.5
	Betami	cron⊚ (B⊦	H4HC)	
FLND	3 µm	5 µm	10 µm	20 µm
60	4.6	4.5	5.0 5	7 12.4
110	10.1	9.9	10.9	
140	13.3	13.0	14.3	16.3
	Ве	tamicron	(BH4HC)	
FLND	3 µm	6 µm	10 µm	Biodeg
40	4.1	4.4	5.2	24568
				44.0

Filter elements are available with the following pressure stability Bæltæmicron® (BN4HC):

13.2

23.9

15.5

27.8

12.2

21.8

63.6

100

160

20 bar Betamicron® (BH4HC): 210 bar Wire mesh(W/HC, W): 20 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	25 bar (FLND 160 to 400) 63 bar (FLND 40 to 140) at nominal
Fatigue strength	pressure 106 load cycles from 0 to
	nominal pressure
Temperature range	-10 °C to +100 °C
Material of filter head	Aluminium
Material of filter bowl	Aluminium (FLND 100 and 140: steel)
Type of clogging indicator	VM (differential pressure indicator up to
,,	210 bar operating pressure)
Pressure setting of clogging indicator	5 bar (others on request)
Bypass cracking pressure (optional)	3 bar, 7 bar (others on request)

1.4 SEALS

NBR (= Perbunan)

1.5 MOUNTING

As inline filter

1.6 SPECIAL MODELS AND **ACCESSORIES**

- with bypass valve
- ☐ with oil drain plug (FLND 40 to 140 = SO184)
- seals in FPM, EPDM

1.7 SPARE PARTS

See Original Spare Parts List 1.8 **CERTIFICATES AND APPROVALS** On

1.9 COMPATIBILITY WITH **HYDRAULIC FLUIDS ISO 2943**

- ☐ Hydraulic oils H to HLPD DIN 51524 **DLubrication oils DIN 51517, API,** ACEA, DIN 51515, ISO 6743
- ☐ Compressor oils DIN 51506 1.10 IMPOR1

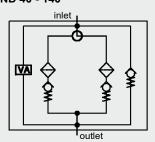
radable operating fluids VDMA25 µm 6.2 H<mark>ETG, HËES, HĔPG</mark>

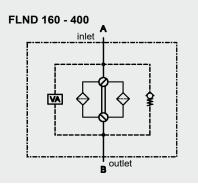
<mark>∄Nốn-f</mark>am operating fluids HFA, HFB, 18.9 HFC and HFD 33.8

Operating fluids with high water 59.0 98.3 content (>50% water content) on request Filter housing must be earthed

■ When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector

Symbol for hydraulic systems FLND 40 - 140





E 7.561.4/02.08



Filter	OMDI ETE	-		oi u c i	еха	mple	;)				'	FLND B					, , , 	· <u>/-L</u>
	OMPLETE	FILIER	<u> </u>															
FLND																		
	material of			".10		DI I/III	. D ((DI I									
W Stai	C Betamicro	l wirè me	sh [′]	HC,		BH/H() Beta	micror	ı® (BH₄	iHC)								
FLND:	of filter or 6 : 40, 60, 63	3, 100, 11		160, 2	50, 400	o												
	ating press 5 bar (FLND		400)															
F = 63	3 bar (FLND	0 40 to 14																
Type o D	of change-		valve ar	nd chac	·k valve		JD 40 t	· 140\	. coam	ent val	lve (FLND	160 to 4	00)		_			
_	and size of				N Vaive	(1 L1	10 70 1	140,	, segii	iciit va	IVC (I LIVD	100 10 4						
(🗓); po	orts availabl										_							
Type I	Port	Filter si																
			o <u>DIN 2</u> 110		1	DIN 24		160	250	100								
В	G ½	60 XX		140 X	40	63 1 X	X	160	250	400								
C	G 3/4	XX		X	X		X	\vdash			=							
D	G 1	Х	Х	Х	Х	X					=							
E	G 1¼								Х	Х								
F	G 1½		\/			.,	.,	X		X								
<u>I</u> K	DN 25* DN 38* X	X	Х	Х	X	X	X											
	flange , 300																	
Filtrat	tion rating	in µm -																
BN4H	C, BH4HČ:	: 3, 5, 10									6, 10, 25							
	, W: 25, 50				٧	v/HC t	o DIN 2	24550:	: 25, 50	0, 100,	200							
ype (of clogging stic blanking	g indicat	indicate	or port														
r pias A stee	el blanking p	g plug in olua in in	ndicator	nort														
B visu		g		اً ا														
C elec							g indica											
	ıal and elec		octrical	see	broch	ure no	. E 7.0	50/										
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1																		
Modifi																		
woull	ication nu	mber —																
X the I	latest versi	on is alw	ays sup	plied														
X the I Suppl	latest version	on is alw details -	-		- DO	E = 2	E her !	7 7	h or \	- d-4.	ila =ist-	ut les en -	را در د					
X the I SuppI B.	latest version	on is alw details - g pressui	-		e.g. B3.	.5 = 3.5	5 bar, f	37 = 7	bar); n	ıo detai	ils = withou	ıt bypas	s valv	e				
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X the I X the I Suppl B. EV L LED AV LZ BBO LZ CN L	latest versic lementary cracking air bleed light with 2 light e 2 indicator v 2 indicator v 2 indicator v 3 indicator v 4 indicator v 4 indicator v 5 indicator v 6 indicator v 7 indicator v 7 indicator v 8 indicator v 9 indicator v 10 indicator v	on is alw details - g g pressur d valve h approp mitting d with plug with plug with plug with plug with plug on, but with screw (FL FA and H IENT EL 3, 0100, 0 40 : 0040, 0 in µm — : 003, 00 50, 100, W/HC, details - tions, see ENT CLC pressure G others co	re of by riate voliodes u to AUE and pir to DIN to DIN g and p ith prog LND 40 FC emu EMEN 0110, 0 0063, 0 006	pass (e plass) (24V, 48 24V, 48 24V	ecificate o BMV LEDs LEDs to Dai strip	ov, 220 cion V and ((CNON (Daimle mler-C	OV) only in Opel sp MO sta er-Ben Chrysler	y for clidicator pecifical indard) iz standard pecifical indard) iz standar specifical indard pecifical indard pecifical indared pecifical	ogging rs Type ation (M dard) fication	and cold	start sup		ion 3				
X the I Suppl B. EV L LED AV LZ BN LZ CN LZ C	latest versiclementary cracking air bleed light with 2 light et 2 light et 2 indicator v 2 indicator v 3 indicator v 4 indicator v 5 indicator v 6 indicator v 7 indicator v 7 indicator v 8 indicator v 9 indicator v 9 indicator v 10	on is alw details - g pressure d valve with plug of, but wiscrew (FLFA and H IENT EL B, 0100, 0 to 040, 0	re of by riate voliodes u to AUE and pir to DIN to DIN g and p ith prog LND 40 FC emu EMEN 0110, 0 0063, 0 006	pass (e plass) (24V, 48 24V, 48 24V	ecificate o BMV LEDs LEDs to Dai strip	ov, 220 cion V and ((CNON (Daimle mler-C	OV) only in Opel sp MO sta er-Ben Chrysler	y for clidicator pecifical indard) iz standard pecifical indard) iz standar specifical indard pecifical indard pecifical indared pecifical	ogging rs Type ation (M dard) fication	and cold	start sup		ion 3				
X the I X the I Suppl B. Suppl B. L. L. LED AV LZ B. SO 184 V FPM W suit 2.2 Rt Size - D 0060 DN to Filtrat BN4H0 W/HC, Filtrat BN4H0 W/HC, Type - VM C 2.3 Rt Type C D (see Type C D (s	latest versic lementary cracking air bleed light with 2 light e 2 indicator v 2 indicator v 2 indicator v 3 indicator v 4 indicator v 4 indicator v 5 indicator v 6 indicator v 7 indicator v 7 indicator v 8 indicator v 9 indicator v 10 indicator v	on is alw details - g pressure d valve h approper mitting d with plug with p	re of by riate voliodes u to AUE and pir to DIN to DIN g and p ith prog LND 40 FC emu EMEN 0110, 0 0063, 0 006	pass (e plass) (24V, 48 24V, 48 24V	ecificate o BMV LEDs LEDs to Dai strip	ov, 220 cion V and ((CNON (Daimle mler-C	OV) only in Opel sp MO sta er-Ben Chrysler	y for clidicator pecifical indard) iz standard pecifical indard) iz standar specifical indard pecifical indard pecifical indared pecifical	ogging rs Type ation (M dard) fication	and cold	start sup		ion 3				
X the I X the I X the I Suppl B. B. EV L LED AV LZ BE CON LZ DB C LZ DB C LZ BE CON	latest versic lementary cracking air bleet light with 2 light et 2 indicator viz indic	on is alw details - g pressure g p pressure g details - g p p p p p p p p p p p p p p p p p p	re of by riate voliodes u to AUE and pir to DIN to DIN g and p th prog _ND 40 FC emu _EMEN	pass (e plage (2) plage (2) plage (2) plage (3) plage (4) plage (4	24V, 48 24V, 48 24V	ecificate o BMV LEDs LEDs to Dai strip	ov, 220 cion V and ((CNON (Daimle mler-C	OV) only in Opel sp MO sta er-Ben Chrysler	y for clidicator pecifical indard) iz standard pecifical indard) iz standar specifical indard pecifical indard pecifical indared pecifical	ogging rs Type ation (M dard) fication	and cold	start sup		ion 3				



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 element Δp and is calculated as follows:

 Δ ptotal = Δ phousing + Δ pelement $\Delta p_{\text{housing}} = \text{(see point 3.1)}$ $\Delta p = Q \cdot \underline{SK^* \cdot \text{viscosity}_{\text{element}}}$ 1000 30 (*see

point 3.2)

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

NEW: Sizing online at www.hydac.com

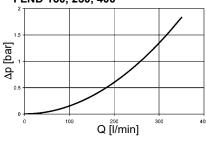
3.1 Ap-Q HOUSING GRAPHS BASED ON ISO 3968

The housing graphs 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.

FLND 40, 60, 63, 100, 110, 140



FLND 160, 250, 400

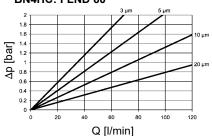


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

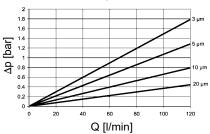
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm₂/s. The pressure drop changes proportionally to the change in viscosity.

FLND	D	ВН4НС			W/HC - W	DN BH4HC				
	3 µm	5 µm	10 µm	20 µm	_	3 µm	6 µm	10 µm	25 µm	
60	58.6 18	3.13122.62			0.757	-	-	-	-	
110	25.4	14.9	8.9	5.6	0.413	-	-	-	-	
140	19.9	11.3	8.1	4.3	0.324	-				
40					0.966	40.4	24.8 16	6.4	10,9	
63	-	-	-	-	0.540	29.0	18.2	11.7	7,6	
100	-	-		-	0.325	19.0 7.7	7 11.7		5,3	
160	-	-	-	-	0.168	8.0	5.1	3.8	2,5	
250	-	-	-	-	0.101	5.4	3.4	2.8	1,9	
400	-	-	-	-	0.068	3.4	2.1	1.7	1.1	

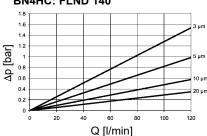
BN4HC: FLND 60



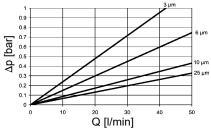
BN4HC: FLND 110



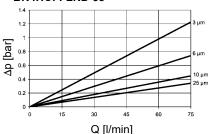
BN4HC: FLND 140



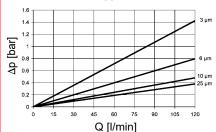
BN4HC: FLND 40

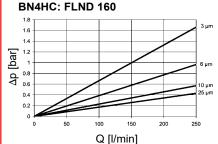


BN4HC: FLND 63

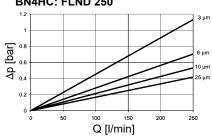


BN4HC: FLND 100

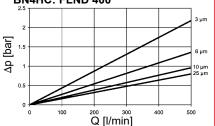




BN4HC: FLND 250



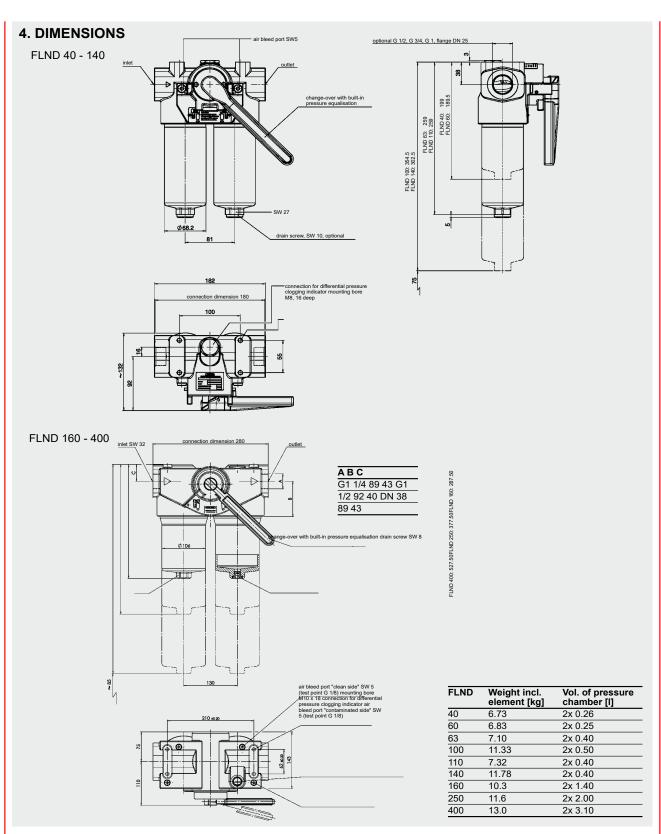
BN4HC: FLND 400



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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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