Duplex filter
with filter element according to DIN 24550

Type 63FLDKN0063 to 0250; 63FLDK0130, 0150

RE 51445
Edition: 2024-06
Replaces: 2021-04


HAD7934_12

- Size **according to DIN 24550**: 0063 to 0250
- Additional sizes: 0130, 0150
- Nominal pressure 63 bar *[913 psi]*
- Connection up to SAE 2" 3000 psi
- Operating temperature –10 °C to +100 °C *[14 °F to 212 °F]*

Features

Duplex filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils.
They are intended for installation into pipelines and allow for the exchange of the filter element without operational interruption.

They distinguish themselves by the following:

- Filters for inline installation, switchable
- Special highly efficient filter materials
- Filtration of very fine particles and high dirt holding capacity across a broad pressure differential range
- High collapse rating of the filter elements
- By default equipped with mechanical optical maintenance indicator with memory function
- Various, optional electronic switching elements, modular design
- Optional bypass valve integrated in the filter housing
- Measuring port as standard at the switch housing
- Gas-tight switch-over via ball valve
- Improved filtration through integrated cyclone flow path

Contents

Ordering code
Filter

01	02	03	04	05	06	07	08	09	10	10	10	10	10	10
63FLDK			**– 1X /**			–		–		–		–		

Series

01	Duplex filter 63 bar *[913 psi]*	**63FLDK**

Filter element

02	With filter element according to **DIN 24550**	**N**

Size

03	FLDKN...	**0063** **0100** **0160** **0250**
	FLDK...	**0130** **0150**

04	**Component series** 10 ... 19 (10 ... 19: Unchanged installation and connection dimensions)	**1X**

Filter rating in µm

05	**Nominal**	Stainless steel wire mesh, cleanable	**G10** **G25** **G40** **G60** **G100**
		Paper, not cleanable	**P10** **P25**
	Absolute (ISO 16889)	Glass fiber material, not cleanable	**PWR3** **PWR6** **PWR10** **PWR20**

Pressure differential

06	Max. permissible pressure differential of the filter element 30 bar *[435 psi]*, with bypass valve	**A00**
	Max. permissible pressure differential of the filter element 160 bar *[2320 psi]*, without bypass valve	**C00**

Maintenance indicator

07	Maintenance indicator, mech./optical, switching pressure 0.8 bar *[11.6 psi]* – bypass cracking pressure 3.5 bar *[51 psi]*	**V0,8**
	Maintenance indicator, mech./optical, switching pressure 1.5 bar *[21.8 psi]* – bypass cracking pressure 3.5 bar *[51 psi]*	**V1,5**
	Maintenance indicator, mech./optical, switching pressure 2.2 bar *[32 psi]* – bypass cracking pressure 3.5 bar *[51 psi]*	**V2,2**
	Maintenance indicator, mech./optical, switching pressure 5.0 bar *[72.5 psi]* – (only in connection with amending information "NB" or C element = without bypass)	**V5,0**

Seal

08	NBR seal	**M**
	FKM seal	**V**

Connection

09	**Frame size**	**0063-0100**	**0130-0150**	**0160-0250**		
	Connection					
	SAE 1"	●			SAE flange 3000 psi	**S4**
	SAE 1 1/2"		●	X		**S6**
	SAE 2"			●		**S8**
		● Standard connection X Alternative connection				

Ordering code
Filter

01	02	03	04	05	06	07	08	09	10	10	10	10	10	10
63FLDK			**– 1X /**			**–**		**–**		**–**		**–**		**–**		**–**		**–**		**–**		**–**	

Supplementary information

10	Pressure equalization line	**A**
	Bleed valve	**E**
	Optional floor mounting (standard = wall mounting)	**FB**
	Without bypass valve (only possible in connection with filter element version "A00") [1)]	**NB**
	Manufacturer's inspection certificate M according to DIN 55350 T18	**Z1**

1) **Attention:** If this option is selected and the switching signal of the maintenance indicator is not observed during operation, the filter element may collapse in case of pressure differentials of more than 30 bar *[435 psi]*.

Order example:
63FLDKN0100-1X/PWR3A00-V2,2-M-S4

Further versions (filter materials, ship classification GL or LRS, etc.) available at request.

Preferred types

63FLDK(N) preferred types, NBR seal, flow specifications for 30 mm²/s *[143 SUS]*
Duplex filter, filter rating 3 µm

Type	Flow in l/min *[US gpm]* with Δ*p* = 1 bar *[14.5 psi]* [1]	Material no. Filters				Material no. Replacement element
63FLDKN0063-1X/PWR3A00-V2,2-M-..	68 *[17.96]*	..S4	**R928053186**			**R928005853**
63FLDKN0100-1X/PWR3A00-V2,2-M-..	93 *[24.57]*	..S4	**R928053187**			**R928005871**
63FLDK0130-1X/PWR3A00-V2,2-M-..	146 *[38.57]*	..S6	**R928053188**			**R928037178**
63FLDK0150-1X/PWR3A00-V2,2-M-..	235 *[62.08]*	..S6	**R928053189**			**R928037181**
63FLDKN0160-1X/PWR3A00-V2,2-M-..	210 *[55.48]*	..S8	**R928053191**	..S6	**R928053190**	**R928005889**
63FLDKN0250-1X/PWR3A00-V2,2-M-..	291 *[76.87]*	..S8	**R928053192**	..S6	**R928053193**	**R928005925**

63FLDK(N) preferred types, NBR seal, flow specifications for 30 mm²/s *[143 SUS]*
Duplex filter, filter rating 6 µm

Type	Flow in l/min *[US gpm]* with Δ*p* = 1 bar *[14.5 psi]* [1]	Material no. Filters				Material no. Replacement element
63FLDKN0063-1X/PWR6A00-V2,2-M-..	75 *[19.81]*	..S4	**R928053194**			**R928005854**
63FLDKN0100-1X/PWR6A00-V2,2-M-..	102 *[26.95]*	..S4	**R928053195**			**R928005872**
63FLDK0130-1X/PWR6A00-V2,2-M-..	165 *[43.59]*	..S6	**R928053196**			**R928045104**
63FLDK0150-1X/PWR6A00-V2,2-M-..	230 *[60.76]*	..S6	**R928053197**			**R928037182**
63FLDKN0160-1X/PWR6A00-V2,2-M-..	220 *[58.12]*	..S8	**R928053199**	..S6	**R928053198**	**R928005890**
63FLDKN0250-1X/PWR6A00-V2,2-M-..	294 *[77.66]*	..S8	**R928053201**	..S6	**R928053200**	**R928005926**

63FLDK(N) preferred types, NBR seal, flow specifications for 30 mm²/s *[143 SUS]*
Duplex filter, filter rating 10 µm

Type	Flow in l/min *[US gpm]* with Δ*p* = 1 bar *[14.5 psi]* [1]	Material no. Filters				Material no. Replacement element
63FLDKN0063-1X/PWR10A00-V2,2-M-..	92 *[24.30]*	..S4	**R928044480**			**R928005855**
63FLDKN0100-1X/PWR10A00-V2,2-M-..	120 *[31.70]*	..S4	**R928044481**			**R928005873**
63FLDK0130-1X/PWR10A00-V2,2-M-..	220 *[58.12]*	..S6	**R928044482**			**R928037180**
63FLDK0150-1X/PWR10A00-V2,2-M-..	275 *[72.65]*	..S6	**R928044483**			**R928037183**
63FLDKN0160-1X/PWR10A00-V2,2-M-..	325 *[85.86]*	..S8	**R928044484**	..S6	**R928053263**	**R928005891**
63FLDKN0250-1X/PWR10A00-V2,2-M-..	440 *[116.24]*	..S8	**R928044485**	..S6	**R928053262**	**R928005927**

[1] Measured pressure differential across filter and measuring equipment according to ISO 3968. The measured pressure differential at the maintenance indicator is lower.

Ordering code
Accessories (dimensions in mm *[inch]*)

Electronic switching element for maintenance indicators

01		02		03
WE	**–**		**–**	

Maintenance indicator

01	Electronic switching element	**WE**

Type of signal

02	1 switching point	**1SP**
	2 switching points, 3 LED	**2SP**
	2 switching points, 3 LED and signal suppression up to 30 °C *[86 °F]*	**2SPSU**

Connector

03	Round plug-in connection M12x1, 4-pole	**M12x1**
	Rectangular plug-in connector, 2-pole, design A according to EN-175301-803	**EN175301-803**

Material numbers of the electronic switching elements

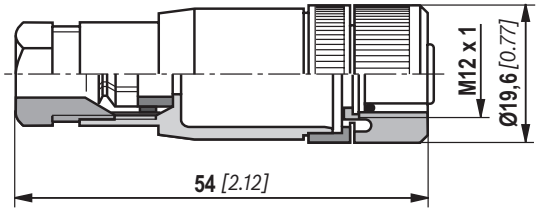
Material no.	Type	Signal	Switching points	Connector	LED
R928028409	WE-1SP-M12x1	Changeover	1	M12x1	Without
R928028410	WE-2SP-M12x1	Normally open (at 75 %) / normally closed contact (at 100 %)	2		3 pieces
R928028411	WE-2SPSU-M12x1				
R928036318	WE-1SP-EN175301-803	Normally closed contact	1	EN 175301-803	Without

Connection sockets according to IEC 60947-5-2

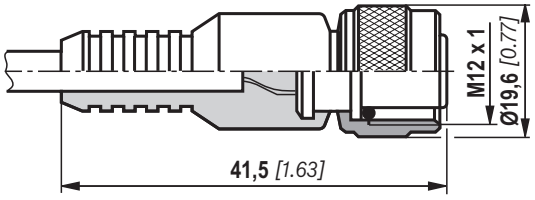
For electronic switching element with round plug-in connection M12x1

Connection socket suitable for K24 4-pole, M12x1 with screw connection, cable gland Pg9.

Material no. R900031155



Connection socket suitable for K24-3m 4-pole, M12x1 with integrated PVC cable, 3 m long.
Wire cross-section 4 x 0.34 mm²
Wire identification: 1 Brown **2** White
3 Blue **4** Black
Material no. R900064381



For more round plug-in connections and technical data refer to data sheet 08006.

Order example:
Duplex filter with mechanical optical maintenance indicator for $p_{Nominal}$ = 63 bar *[913 psi]* with bypass valve, size 0100, with filter element 3 µm and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

Filter:	**63FLDKN0100-1X/PWR3A00-V2,2-M-S4**	**Material no: R928053187**
Maintenance indicator:	**WE-1SP-M12x1**	**Material no: R928028409**
Connection socket:	**Connection socket suitable for K24 4-pole, M12x1**	**Material no. R900031155**

Filter design

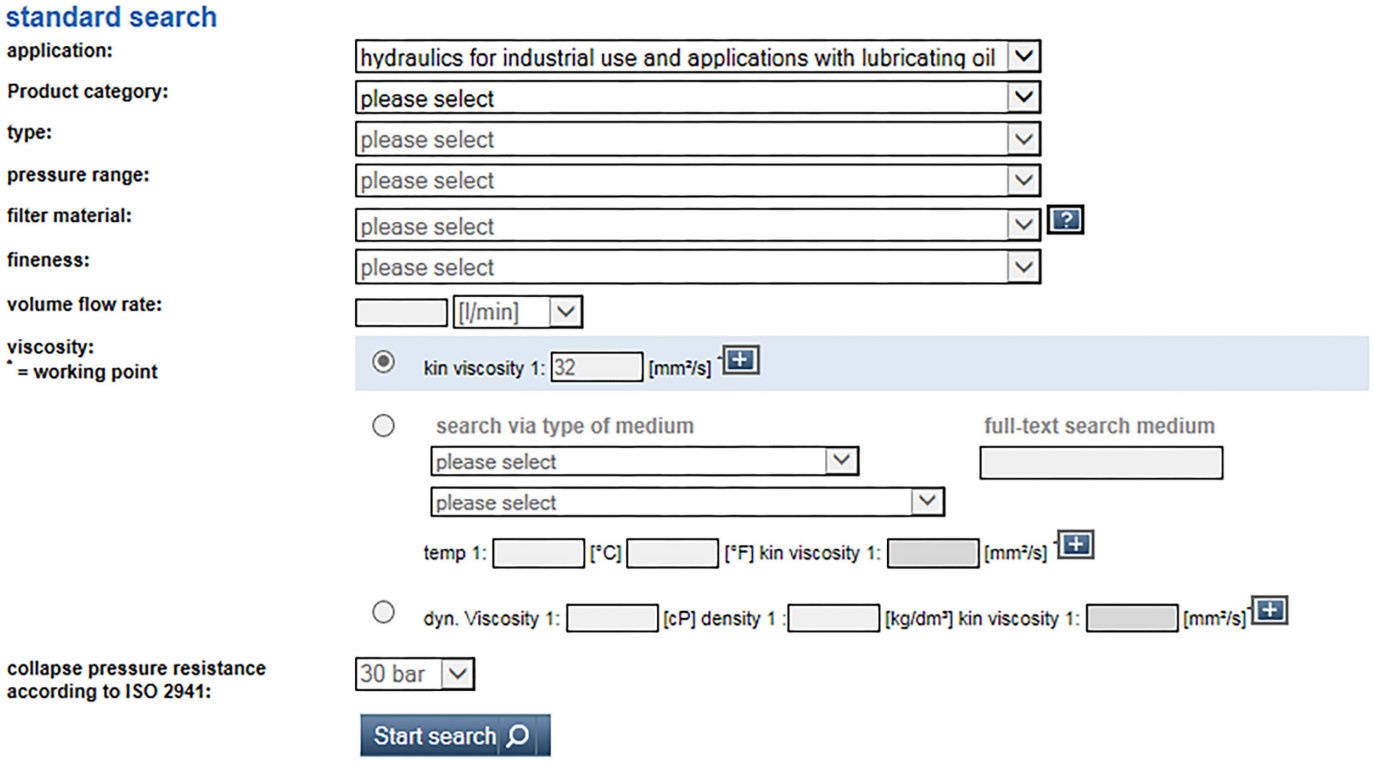
Filter size selection is made easy by using our online FilterSelect tool. The filter can be selected using basic paramters like, flow rates, system pressure, viscosities, etc.. The filter fineness is dependant on the required cleanliness level, application, type of contamination and environmental conditions.

The online tool is very user friendly with step-by-step guidelines.

A PDF file can be created of the selected filter, which contains all the stipulated parameters, including relevant part numbers of the selected filter and its spare parts.

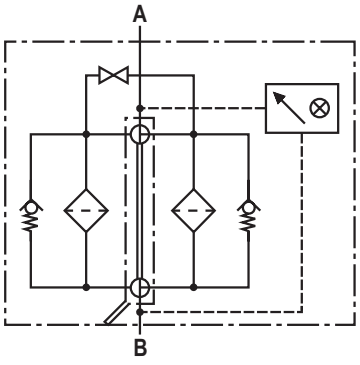
Link FilterSelect:
http://www.filterselect.de/

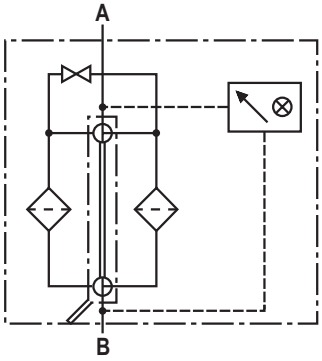
Other languages can be selected using the page navigation.



Symbols

Duplex filter
with bypass valve and mechanical indicator as well as optional pressure equalization line



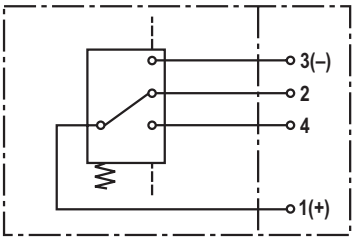


Pressure filter
without bypass valve and with mechanical indicator as well as optional pressure equalization line

Electronic switching element

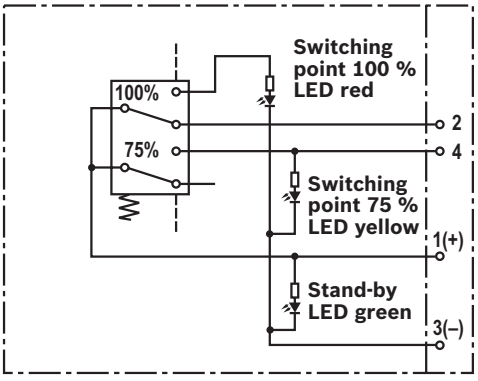
for maintenance indicator

Switching element **Connector**



WE-1SP-M12x1

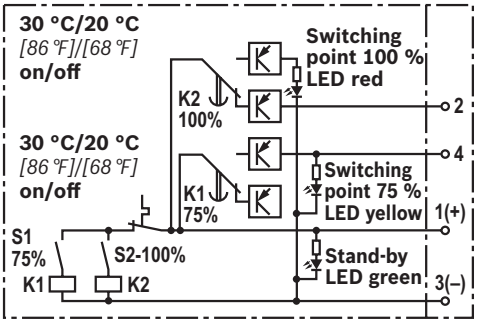
Switching element **Connector**



WE-2SP-M12x1

Circuit diagram drawn in plugged condition (operating state)

Switching element **Connector**



WE-2SPSU-M12x1

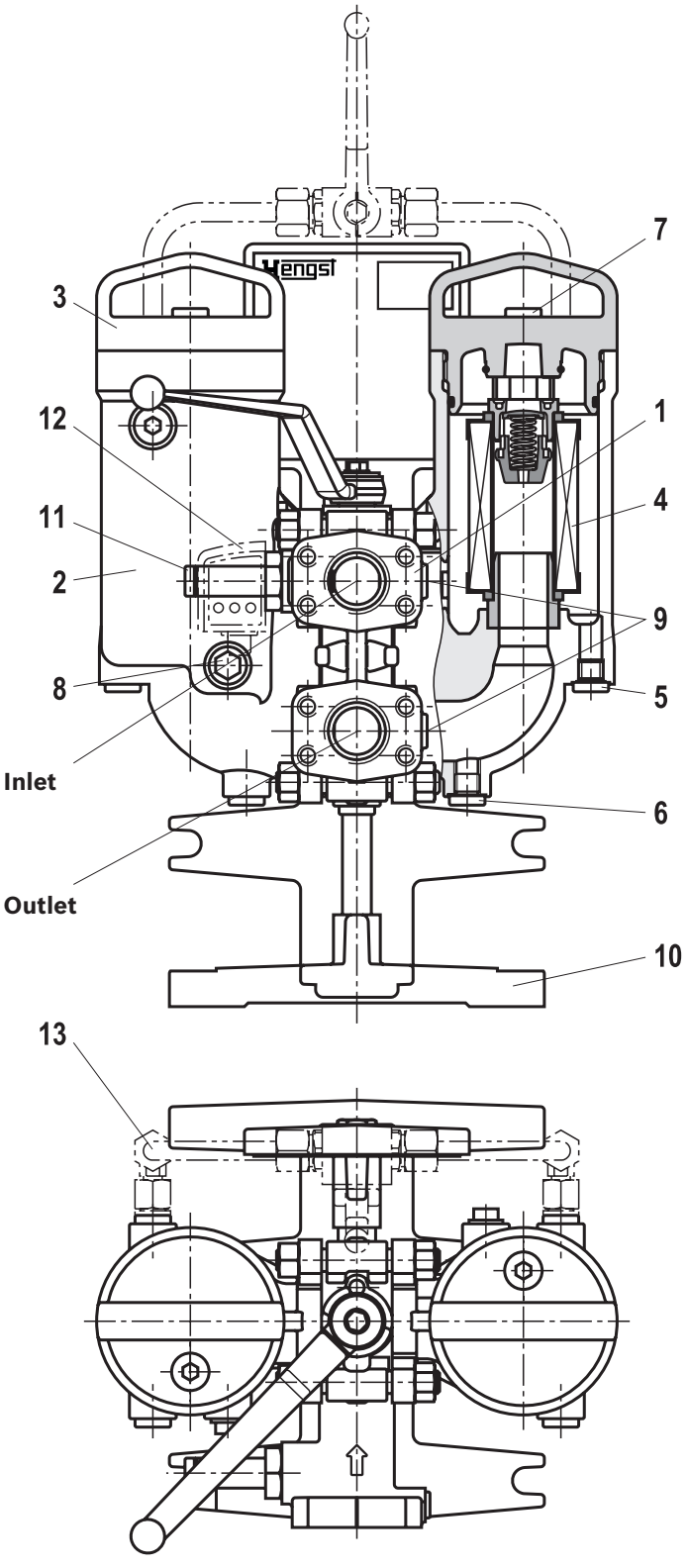
Circuit diagram drawn in plugged condition at temperature > 30 °C *[86°F]* **(operating state)**

Function, section

The 63FLDK(N) duplex filter is suitable for inline installation.
The duplex filter consists of two filter housings (2) with switch-over fitting (1), a threaded filter cover (3), filter element (4) as well as a mechanical optical maintenance indicator (11).
Via the inlet, the hydraulic fluid reaches the filter element (4) where it is cleaned. The dirt particles filtered out collect in the filter element (4) and in the filter housing (2). Via the outlet, the filtered fluid enters the hydraulic circuit.
By means of the switching lever, you can switch between the two filter housings without operational interruption.

The filter housing and all connection elements are designed so that pressure peaks - as they may e.g. occur in case of abrupt opening of large control valves due to the accelerated fluid quantity - can be securely absorbed.
One magnetic screw (8) is included in the standard equipment. The magnetic screw only collects magnetic contamination particles.

Via the threaded couplings (standard) and/or bleed valves – amending ordering code E (7) –, the filter side to be maintained can be bled. The measuring ports (9) at the side of the connection flange are drilled as standard and closed with threaded couplings.
As an option, the filter is available with a base – amending ordering code FB – (10). The optional pressure equalization line (13) serves to simplify the filling and bleeding in a filter element exchange. The pressure equalization line is necessary in order to prevent unwanted aeration.
By default, the filter is equipped with a mechanical optical maintenance indicator (11). The electronic switching element (12) which has to be ordered separately is attached over the mechanical optical maintenance indicator (11) and is secured in place by a circlip ring.
The electronic switching elements with 1 or 2 switching points are connected via a connection socket according to IEC-60947-5-2 or via a cable connection according to EN17301-803.



5 Draining dirt side
6 Draining clean side

☞ **WARNING!**
If the maintenance indicator warning is not adhered to, and the filter element is not changed on indication, the by-pass valve will open with the increase in differential pressure and part of the flow will be diverted passed the filter element, to the clean side without being filtered. Thus, effective filtration is no longer guaranteed.

Technical data

(For applications outside these parameters, please consult us!)

general					
Ambient temperature range		°C *[°F]*	–10 ... +65 *[14 ... 149]*; (shortly up to –30 *[–22]*)		
Installation position			Vertical		
Weight		Size	**0063**	**0100**	**0130**
		kg *[lbs]*	23 *[50.6]*	26 *[57.2]*	33 *[72.6]*
		Size	**0150**	**0160**	**0250**
		kg *[lbs]*	36 *[79.2]*	64 *[140.8]*	69 *[151.8]*
Volume		Size	**0063**	**0100**	**0130**
		l *[US gal]*	2 x 1.1 *2 x [0.29]*	2 x 1.6 *2 x [0.42]*	2 x 1.9 *2 x [0.5]*
		Size	**0150**	**0160**	**0250**
		l *[US gal]*	2 x 2.6 *2 x [0.69]*	2 x 3.3 *2 x [0.87]*	2 x 4.5 *2 x [1.19]*
Material	– Filter cover		Ductile Iron		
	– Filter housing		Ductile Iron		
	– Bypass valve		Aluminum / steel / POM		
	– Seals		NBR or FKM		
	– Optical maintenance indicator	V0.8, V1.5, V2.2	Aluminum		
		V5.0	Brass		
	– Electronic switching element		Plastic PA6		

hydraulic				
Maximum operating pressure		bar *[psi]*	63 *[913]*	
Hydraulic fluid temperature range		°C *[°F]*	–10 ... +100 *[+14 ... +212]*	
Minimum conductivity of the medium		pS/m	300	
Fatigue strength according to ISO 10771		Load cycles	> 10^6 at rated operating pressure	
Type of pressure measurement of the maintenance indicator			Pressure differential	
Assignment: Response pressure of the maintenance indicator / cracking pressure of the bypass valve			Response pressure of the maintenance indicator	Cracking pressure of the bypass valve
		bar *[psi]*	0.8 ± 0.15 *[11.6 ± 2.2]*	3.5 ± 0.35 *[50.8 ± 5.1]*
			1.5 ± 0.2 *[21.8 ± 2.9]*	3.5 ± 0.35 *[50.8 ± 5.1]*
			2.2 ± 0.3 *[31.9 ± 4.4]*	3.5 ± 0.35 *[50.8 ± 5.1]*
			5.0 ± 0.5 *[72.5 ± 7.3]*	Only possible without bypass valve

Technical data
(For applications outside these parameters, please consult us!)

electric (electronic switching element)					
Electrical connection		Round plug-in connection M12x1, 4-pole			Standard connection EN 175301-803
	Version	WE-1SP-M12x1	WE-2SP-M12x1	WE-2SPSU-M12x1	WE-1SP-EN175301-803
Contact load, direct voltage	$A_{max.}$	1			
Voltage range	$V_{max.}$	150 (AC/DC)	10 ... 30 (DC)		250 (AC)/200 (DC)
Max. switching power with resistive load	W	20			70
Switching type – 75 % signal		–	Normally open contact		–
– 100 % signal		Changeover	Normally closed contact		Normally closed contact
– 2SPSU				Signal interconnection at 30 °C *[86 °F]*, return switching at 20 °C *[68 °F]*	
Display via LEDs in the electronic switching element 2SP...			Stand-by (LED green); 75 % switching point (LED yellow) 100 % switching point (LED red)		
Protection class according to EN 60529		IP 67			IP 65
Ambient temperature range	°C *[°F]*	–25 ... +85 *[–13 ... +185]*			
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.					
Weight Electronic switching element: – with round plug-in connection M12x1	kg *[lbs]*	0.1 *[0.22]*			

Filter element				
Glass fiber material PWR...		Single-use element on the basis of inorganic fiber		
		Filtration ratio according to ISO 16889 up to Δp = 5 bar *[72.5 psi]*	Achievable oil cleanliness according to ISO 4406 *[SAE-AS 4059]*	
Particle separation	PWR20	$\beta_{20(c)} \geq 200$	19/16/12 ... 22/17/14	
	PWR10	$\beta_{10(c)} \geq 200$	17/14/10 ... 21/16/13	
	PWR6	$\beta_{6(c)} \geq 200$	15/12/10 ... 19/14/11	
	PWR3	$\beta_{5(c)} \geq 200$	13/10/8 ... 17/13/10	
Permissible pressure differential – A	bar *[psi]*	30 *[435]*		
– C	bar *[psi]*	160 *[2320]*		

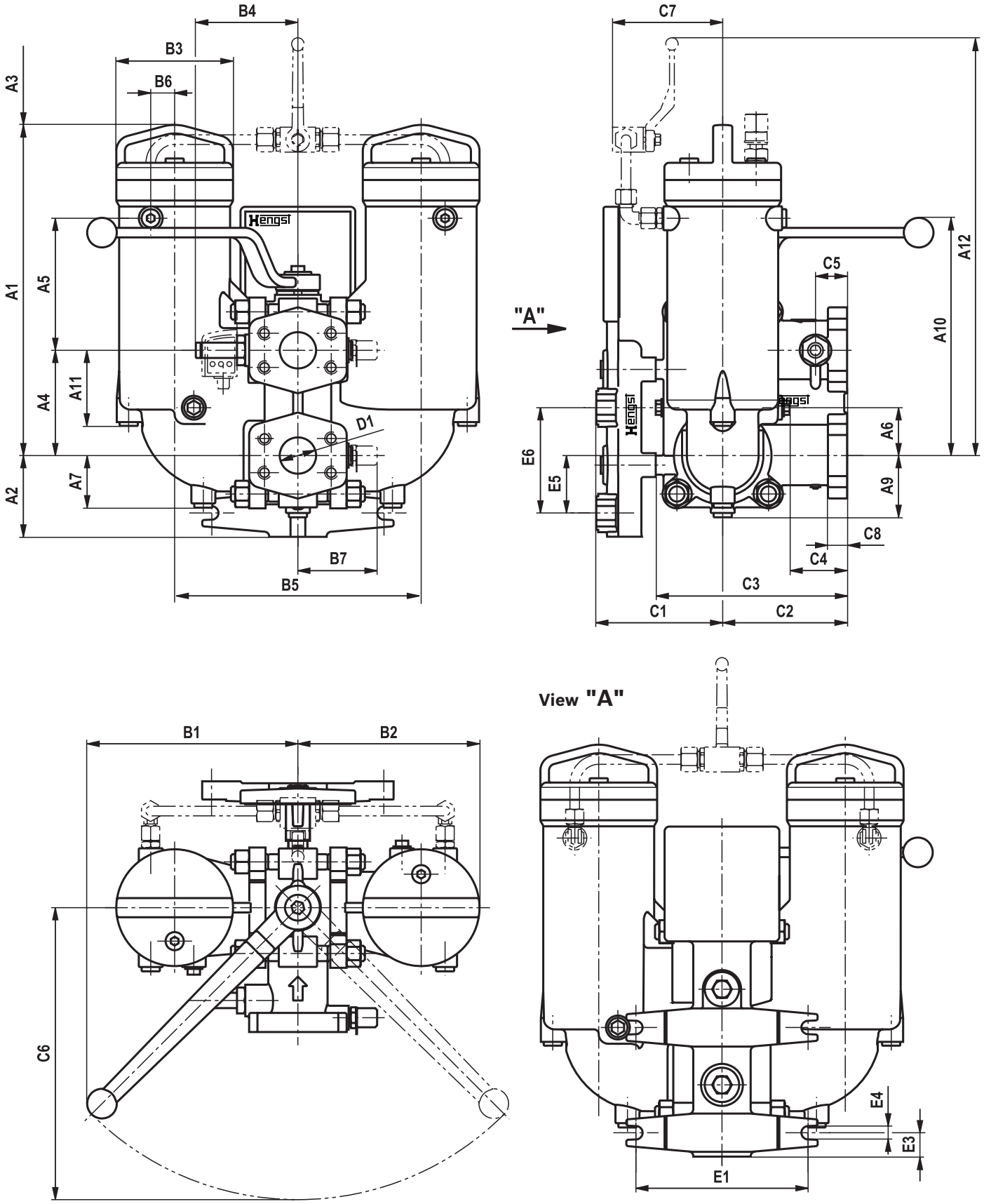
Compatibility with permitted hydraulic fluids

Hydraulic fluid		**Classification**	**Suitable sealing materials**	**Standards**
Mineral oil		HLP	NBR	DIN 51524
Bio-degradable	– insoluble in water	HETG	NBR	VDMA 24568
		HEES	FKM	
	– soluble in water	HEPG	FKM	VDMA 24568
Flame-resistant	– water-free	HFDU, HFDR	FKM	VDMA 24317
	– containing water	HFAS	NBR	DIN 24320
		HFAE	NBR	
		HFC	NBR	VDMA 24317

☞ **Important information on hydraulic fluids!**

- For more information and data on the use of other hydraulic fluids, please refer to data sheet 90220 or contact us.
- **Flame-resistant - containing water:** Due to possible chemical reactions with materials or surface coatings of machine and system components, the service life with these hydraulic fluids may be less than expected. Filter materials made of filter paper P... (cellulose) may not be used, filter elements with glass fiber material (HydroClean PWR... or wire mesh G) have to be used instead.
- **Bio-degradable:** If filter materials made of filter paper are used, the filter life may be shorter than expected due to material incompatibility and swelling.

Unit dimensions: Size 0063 ... size 0250 with wall mounting
(dimensions in mm *[inch]*)



Unit dimensions: Size 0063 ... size 0250 with wall mounting

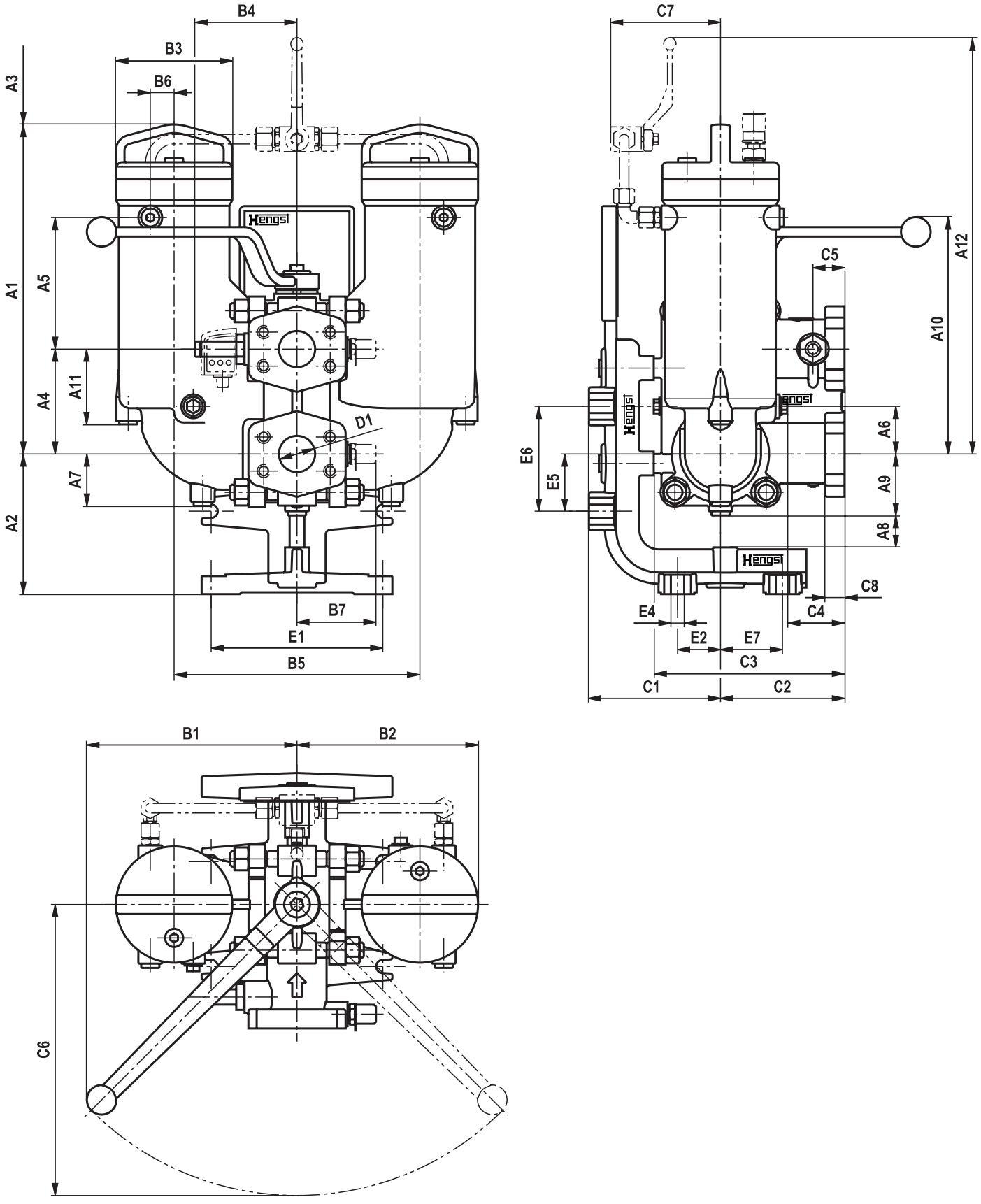
(dimensions in mm *[inch]*)

With wall mounting	Lengths / heights											
	A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**	**A11**	**A12**
63 FLDKN 0063	315 *[12.40]*	85 *[3.34]*	160 *[6.30]*	80 *[3.15]*	143 *[5.63]*	35 *[1.38]*	39,5 *[1.55]*	–	44,5 *[1.75]*	189 *[7.44]*	59 *[2.32]*	406,5 *[16.00]*
63 FLDKN 0100	405 *[15.94]*		*250 [9.84]*		233 *[9.17]*							496,5 *[19.55]*
63 FLDK 0130	346 *[13.62]*		*170 [6.69]*	110 *[4.33]*	138 *[5.43]*	50 *[1.97]*	54,5 *[2.15]*		64,5 *[2.53]*	249 *[9.80]*	79 *[3.11]*	436,5 *[17.18]*
63 FLDK 0150	436 *[17.17]*		*260 [10.24]*		228 *[8.98]*							526,5 *[20.73]*
63 FLDKN 0160	370 *[14.57]*		160 *[6.30]*		135 *[5.31]*							456,5 *[17.97]*
63 FLDKN 0250	460 *[18.11]*		250 *[9.84]*		225 *[8.86]*							546,5 *[21.52]*

With wall mounting	Widths							Depths							
	B1	**B2**	**ØB3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**
63 FLDKN 0063	120,5 *[4.74]*	139 *[5.47]*	100 *[3.94]*	92 *[3.62]*	178 *[7.00]*	20 *[0.79]*	66 *[2.60]*	112 *[4.40]*	110 *[4.33]*	160 *[6.30]*	50 *[1.97]*	29 *[1.14]*	168 *[6.61]*	105 *[4.13]*	16 *[0.62]*
63 FLDKN 0100															
63 FLDK 0130	220 *[8.66]*	190 *[7.48]*	122 *[4.80]*	107 *[4.21]*	258 *[10.15]*	25 *[0.98]*	115 *[4.53]*	132 *[5.19]*	130 *[5.12]*	200 *[7.87]*	60 *[2.36]*	33 *[1.30]*	305 *[12.01]*	115 *[4.53]*	20 *[0.79]*
63 FLDK 0150															
63 FLDKN 0160		226 *[8.90]*	155 *[6.10]*		288 *[11.33]*	30 *[1.18]*								130 *[5.12]*	
63 FLDKN 0250															

With wall mounting		Wall mounting					
	Port D1	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**
	S...						
63 FLDKN 0063	SAE 1“ 3000 psi	180 *[7.09]*	–	25 *[0.98]*	14 *[0.55]*	60 *[2.36]*	110 *[4.33]*
63 FLDKN 0100							
63 FLDK 0130	SAE 1 1/2“ 3000 psi						
63 FLDK 0150							
63 FLDKN 0160	SAE 2“ 3000 psi						
63 FLDKN 0250							

Unit dimensions: Size 0063 ... size 0250 with floor mounting
(dimensions in mm *[inch]*)



Unit dimensions: Size 0063 ... size 0250 with floor mounting

(dimensions in mm *[inch]*)

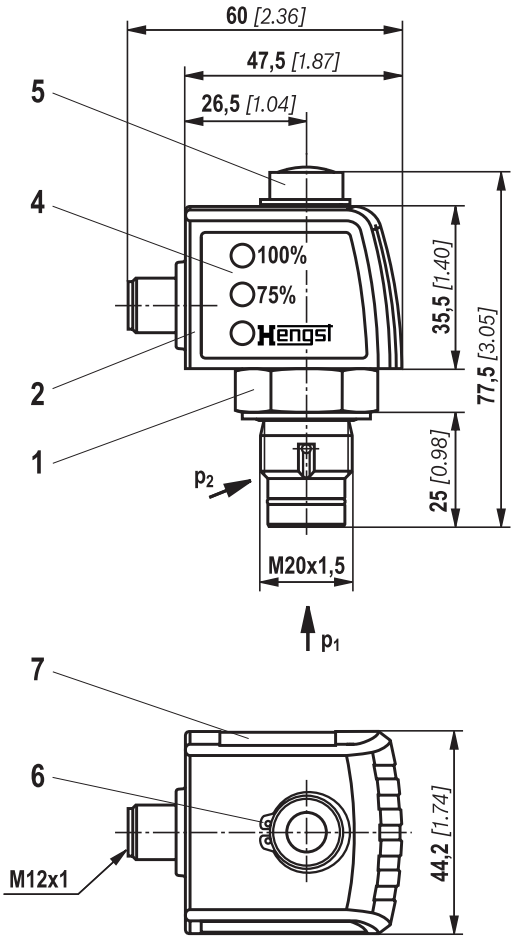
With foot mounting	Lengths / heights											
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
63 FLDKN 0063...-FB	315 *[12.40]*	147 *[5.79]*	160 *[6.30]*	80 *[3.15]*	143 *[5.63]*	35 *[1.38]*	39,5 *[1.55]*	53,5 *[2.11]*	44,5 *[1.75]*	189 *[7.44]*	59 *[2.32]*	406,5 *[16.00]*
63 FLDKN 0100...-FB	405 *[15.94]*		*250 [9.84]*		233 *[9.17]*							496,5 *[19.55]*
63 FLDK 0130...-FB	346 *[13.62]*		*170 [6.69]*	110 *[4.33]*	138 *[5.43]*	50 *[1.97]*	54,5 *[2.15]*	33,5 *[1.32]*	64,5 *[2.53]*	249 *[9.80]*	79 *[3.11]*	436,5 *[17.18]*
63 FLDK 0150...-FB	436 *[17.17]*		*260 [10.24]*		228 *[8.98]*							526,5 *[20.73]*
63 FLDKN 0160...-FB	370 *[14.57]*		160 *[6.30]*		135 *[5.31]*							456,5 *[17.97]*
63 FLDKN 0250...-FB	460 *[18.11]*		250 *[9.84]*		225 *[8.86]*							546,5 *[21.52]*

With foot mounting	Widths							Depths							
	B1	B2	ØB3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7	C8
63 FLDKN 0063...-FB	120,5 *[4.74]*	139 *[5.47]*	100 *[3.94]*	92 *[3.62]*	178 *[7.00]*	20 *[0.79]*	66 *[2.60]*	118 *[4.65]*	110 *[4.33]*	160 *[6.30]*	50 *[1.97]*	29 *[1.14]*	168 *[6.61]*	105 *[4.13]*	16 *[0.62]*
63 FLDKN 0100...-FB															
63 FLDK 0130...-FB	220 *[8.66]*	190 *[7.48]*	122 *[4.80]*	107 *[4.21]*	258 *[10.15]*	25 *[0.98]*	115 *[4.53]*	138 *[5.43]*	130 *[5.12]*	200 *[7.87]*	60 *[2.36]*	33 *[1.30]*	305 *[12.01]*	115 *[4.53]*	20 *[0.79]*
63 FLDK 0150...-FB															
63 FLDKN 0160...-FB		226 *[8.90]*	155 *[6.10]*		288 *[11.33]*	30 *[1.18]*								130 *[5.12]*	
63 FLDKN 0250...-FB															

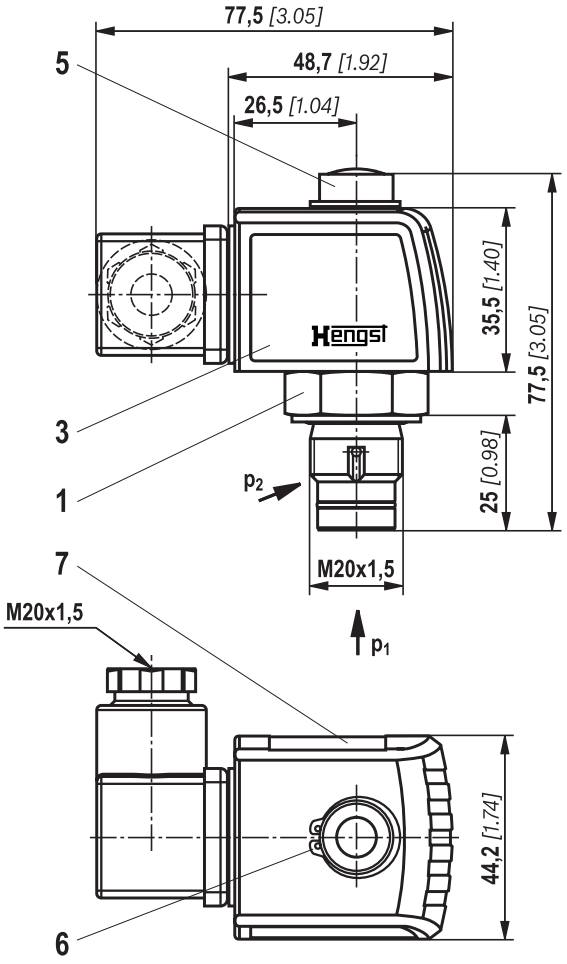
With foot mounting		Foot mounting						
	Port D1 S...	E1	E2	E3	E4	E5	E6	E7
63 FLDKN 0063...-FB	SAE 1“ 3000 psi	180 *[7.09]*	25 *[0.98]*	–	14 *[0.55]*	60 *[2.36]*	110 *[4.33]*	65 *[2.55]*
63 FLDKN 0100...-FB								
63 FLDK 0130...-FB	SAE 1 1/2“ 3000 psi		45 *[1.77]*					85 *[3.34]*
63 FLDK 0150...-FB								
63 FLDKN 0160...-FB	SAE 2“ 3000 psi							
63 FLDKN 0250...-FB								

Maintenance indicator
(dimensions in mm *[inch]*)

Pressure differential indicator with mounted switching element M12x1



Pressure differential indicator with mounted switching element EN-175301-803



1 Mechanical optical maintenance indicator;
Max. tightening torque $M_{A\,max}$ = 50 Nm *[36.88 lb-ft]*

2 Switching element with locking ring for electrical maintenance indicator (rotatable by 360°); round plug-in connection M12x1, 4-pole

3 Switching element with locking ring for electrical maintenance indicator (rotatable by 360°); rectangular plug-in connection EN175301-803

4 Housing with three LEDs: 24 V =
Green: Stand-by
Yellow: Switching point 75 %
Red: Switching point 100 %

5 Visual indicator with memory function

6 Locking ring DIN 471-16x1,
material no. R900003923

7 Name plate

☞ **Notices:**
Representation contains mechanical optical maintenance indicator (1) and electronic switching element (2).

Ordering code
Spare parts

Filter element

01	02	03		04		05		06
1.			**–**		**–**	**0**	**–**	

Filter element

01	Design	**1.**

Size

02	FLDKN...	**0063** **0100** **0160** **0250**
	FLDK...	**0130** **0150**

Filter rating in µm

03	**Nominal**	Stainless steel wire mesh, cleanable	**G10** **G25** **G40** **G60** **G100**
		Paper, not cleanable	**P10** **P25**
	Absolute (ISO 16889)	Glass fiber material, not cleanable	**PWR3** **PWR6** **PWR10** **PWR20**

Pressure differential

04	Maximum permissible pressure differential of the filter element 30 bar *[435 psi]*	**A00**
	Maximum permissible pressure differential of the filter element 160 bar *[2320 psi]*, without bypass valve	**C00**

Bypass valve

05	Without bypass valve	**0**

Seal

06	NBR seal	**M**
	FKM seal	**V**

Order example:
1.0100 PWR3-A00-0-M

For detailed information on Hengst filter elements please refer to data sheet 51420.

Preferred program replacement elements

	Filter material/material no.		
Filter element type	**PWR3**	**PWR6**	**PWR10**
1.0063 ...A00-0-M	**R928005853**	**R928005854**	**R928005855**
1.0100 ...A00-0-M	**R928005871**	**R928005872**	**R928005873**
1.0130 ...A00-0-M	**R928037178**	**R928045104**	**R928037180**
1.0150 ...A00-0-M	**R928037181**	**R928037182**	**R928037183**
1.0160 ...A00-0-M	**R928005889**	**R928005890**	**R928005891**
1.0250 ...A00-0-M	**R928005925**	**R928005926**	**R928005927**

Ordering code
Spare parts

Mechanical optical maintenance indicator

01	02		03		04		05		06
W	**O**	**–**	**D01**	**–**		**–**		**–**	

01	Maintenance indicator	**W**
02	Mechanical visual indicator	**O**
03	Design pressure differential M20x1.5	**D01**

Switching pressure

04	0.8 bar *[11.6 psi]*	**0.8**
	1.5 bar *[21.8 psi]*	**1.5**
	2.2 bar *[31.9 psi]*	**2.2**
	5.0 bar *[72.5 psi]*	**5.0**

Seal

05	NBR seal	**M**
	FKM seal	**V**

Max. nominal pressure

06	Switching pressure 0.8 bar *[11.6 psi]*, 160 bar *[2321 psi]*	**160**
	Switching pressure 1.5 bar *[21.8 psi]*, 160 bar *[2321 psi]*	**160**
	Switching pressure 2.2 bar *[31.9 psi]*, 160 bar *[2321 psi]*	**160**
	Switching pressure 5.0 bar *[72.5 psi]*, 450 bar *[6527 psi]*	**450**

Mechanical optical maintenance indicator	Material no.
WO-D01-0,8-M-160	**R928038779**
WO-D01-1,5-M-160	**R928038781**
WO-D01-2,2-M-160	**R901025312**
WO-D01-5,0-M-450	**R901025313**
WO-D01-0,8-V-160	**R928038778**
WO-D01-1,5-V-160	**R928038780**
WO-D01-2,2-V-160	**R901066233**
WO-D01-5,0-V-450	**R901066235**

Ordering code
Spare parts

Seal kit

01	02	03	04		05		
D	**63FLDK**		**–**	**1X**	**/**	**–**	

01	**Seal kit**	**D**

02	**Series**	**63FLDK**

Size

03	Size 0063-0100	**N0063-0100**
	Size 0130-0150	**0130-0150**
	Size 0160-0250	**N0160-0250**

04	**Component series** 10 ... 19 (10 ... 19: Unchanged installation and connection dimensions)	**1X**

Seal

05	NBR seal	**M**
	FKM seal	**V**

Seal kit	Material no.
D63FLDKN0063-0100-1X/-M	**R928053202**
D63FLDK=0130-0150-1X/-M	**R928053203**
D63FLDKN0160-0250-1X/-M	**R928053204**
D63FLDKN0063-0100-1X/-V	**R928053205**
D63FLDK0130-0150-1X/-V	**R928053206**
D63FLDKN0160-0250-1X/-V	**R928053207**

☞ **Notice:**
Seals of the switch-over are not included in the filter seal kit. In case of leakage at the switch-over, please contact the Hengst Service.

Assembly, commissioning, maintenance

Assembly

The max. operating pressure of the system must not exceed the max. permissible Do not exceed the operating pressure of the filter (see name plate).
In the assembly, you have to distinguish between floor mounting and wall mounting.
During assembly of the filter (see also chapter "Tightening torques"), the flow direction (direction arrows) and the required servicing height of the filter element (see chapter "Dimensions") are to be considered. The filter cover may be used as lifting point.
(See information on the name plate).
Proper function is only guaranteed in the installation position filter cover vertically upwards. The maintenance indicator must be arranged so it is easily viewed in operation.

Remove the plastic plugs in the filter inlet and outlet.

Ensure that the system is assembled without tension stress.

The optional electronic maintenance indicator is connected via the electronic switching element with 1 or 2 switching points, which is attached to the mechanical optical maintenance indicator and held by means of the locking ring.

Commissioning

Bring the switching lever into central position in order to fill both filter sides.

Start the system.

Bleed filter by opening the bleed screws or bleed valves, close when operating liquid begins to escape.
Switch the filter into the operating position; to do so, switch the switching lever to one of the two end positions.
(See information on the name plate).
The switch-over lever is on the filter side that is in operation.
Open the optional pressure equalization line.

Maintenance

- If at operating temperature, the red indicator pin extends out of the mechanical optical maintenance indicator and/or if the electronic switching element opens/closes the circuit, the filter element is contaminated and needs to be replaced or cleaned respectively.
- The material number of the corresponding replacement filter element is indicated on the name plate of the complete filter.
  It must correspond to with the material number on the filter element.
- The switch-over lever is on the filter side that is in operation. (See information on the name plate).
- Switch the filter over.
- Close the optional pressure equalization valve.
- Open the bleed screw or bleed valve at the decommissioned filter side in order to reduce the pressure.
- Via the drain screw, the oil on the dirt side can be drained.
- Unscrew the filter cover of the filter side that is not in operation.
- Remove the filter element from the spigot by rotating it slightly.
- Where appropriate, remove the magnetic screw and check it for magnetic residue.
- Clean the filter components, if necessary.
- Check the seals for damage and replace them, if necessary.
  For suitable seal kits refer to chapter "Spare parts".
- Filter elements made of wire mesh can be cleaned. For detailed cleaning instructions refer to data sheet 51420.
- Install the new or cleaned filter element on the spigot again by slightly rotating it.
- The filter is to be assembled in reverse order.
- The torque specifications ("Tightening torques" chapter) are to be observed.

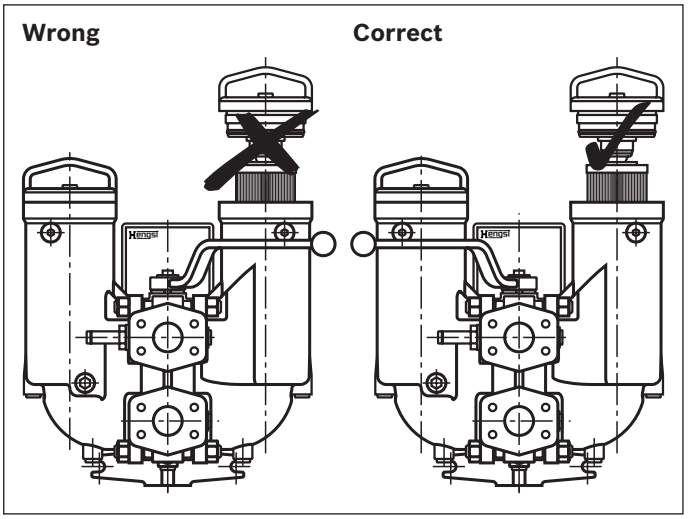
Moreover required for filters with pressure equalization line (optional)

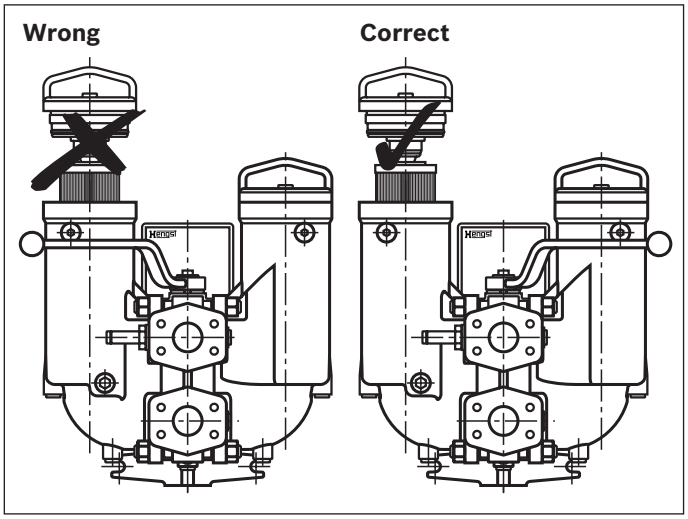
- To fill the maintained filter side, open the pressure equalization line.
- The filter is bled via the bleed screw or the bleed valve which is still open.
- After fluid escapes, close the bleed screw or the bleed valve again.
- Ensure correct position of the switch-over lever end position.
- The pressure equalization valve should remain open.

☞ **Notice:**
The switch over ball valve may only be disassembled by Hengst service personnel.

Assembly, commissioning, maintenance

Correct position of the switching lever during filter element exchange





☞ **WARNINGS!**

- Assemble and disassemble only with depressurized system! For the filter element exchange refer to "Maintenance".
- Tank is pressurized!
- All works at the filter only be trained specialists.
- Remove the filter cover only if it is depressurized!
- Do not exchange the optical/mechanical maintenance indicator while the filter is under pressure!
- Do not operate the switching lever and the optional pressure equalization valve during the filter element exchange.
- When disassembling the filter, it has to be ensured that the system is depressurized.
- Warranty is only guaranteed if original Hengst filter elements and spare parts are used.
- Warranty becomes void if the delivered item is changed by the ordering party or third parties or improperly mounted, installed, maintained, repaired, used or exposed to environmental condition that do not comply with the installation conditions.

Tightening torques
(dimensions in mm *[inch]*)

Wall mounting

Series 63...	FLDKN0063	FLDKN0100	FLDK0130	FLDK0150	FLDKN0160	FLDKN0250
Screw/tightening torque with μ_{total} = 0.14	M12 / 37 Nm ± 10 % [27 lb-ft +/- 10%]					
Quantity	4					
Recommended property class of screw	8.8					
Minimum screw-in depth	15 *[0.59]*					

Foot mounting

Series 63...	FLDKN0063	FLDKN0100	FLDK0130	FLDK0150	FLDKN0160	FLDKN0250
Screw/tightening torque with μ_{total} = 0.14	M12 / 37 Nm ± 10 % [27 lb-ft +/- 10%]					
Quantity	4					
Recommended property class of screw	8.8					
Minimum screw-in depth	15 *[0.59]*					

Filter cover and maintenance indicator

Series 63...	FLDKN0063	FLDKN0100	FLDK0130	FLDK0150	FLDKN0160	FLDKN0250
Filter cover (2 x 1 piece)	Screw in to stop					
Tightening torque optical/mechanical maintenance indicator	50 Nm max [37 lb-ft max]					
Tightening torque cubic connector screw switching element EN-175301-803	M3 / 0.5 Nm [0.4 lb-ft +/- 10%]					

Directives and standardization

Product validation

Hengst filters, the filter elements built into them and filter accessories are tested and quality-monitored according to different ISO test standards:

Pressure pulse test	ISO 10771:2015-08
Filtration performance test (multipass test)	ISO 16889:2022-01
Δ*p* (pressure loss) characteristic curves	ISO 3968:2017-07
Compatibility with hydraulic fluid	ISO 2943:1998-11
Collapse pressure test	ISO 2941:2009-04

The development, manufacture and assembly of Hengst industrial filters and Hengst filter elements is carried out within the framework of a certified quality management system in accordance with ISO 9001:2015.

Classification according to the Pressure Equipment Directive

The duplex filters for hydraulic applications according to 51445 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equipment Directive 97/23/EC (PED). However, based on the exception in article 1, section 3.6 of the PED, hydraulic filters are exempt from the PED if they are not classified higher than category I (guideline 1/19).
They do not receive a CE mark.

Use in explosive areas according to directive 94/9/EC (ATEX)

The duplex filters according to 51445 are not equipment or components in the sense of directive 94/9/EC and are not provided with a CE mark. It has been proven with the ignition risk analysis that these inline filters do not have own ignition sources acc. to DIN EN 13463-1:2009.

According to DIN EN 60079-11:2012, the electronic maintenance indicators WE-1SP-M12x1 and WE-1SP-EN175301-803 are simple, electronic operating equipment not having an own voltage source. This simple, electronic operating equipment may - according to DIN EN 60079-14:2012 - in intrinsically safe electric circuits (Ex ib) be used in systems without marking and certification.
The duplex filters and the electronic maintenance indicators described here can be used for the following explosive areas:

	Zone suitability	
Gas	1	2
Dust	21	22

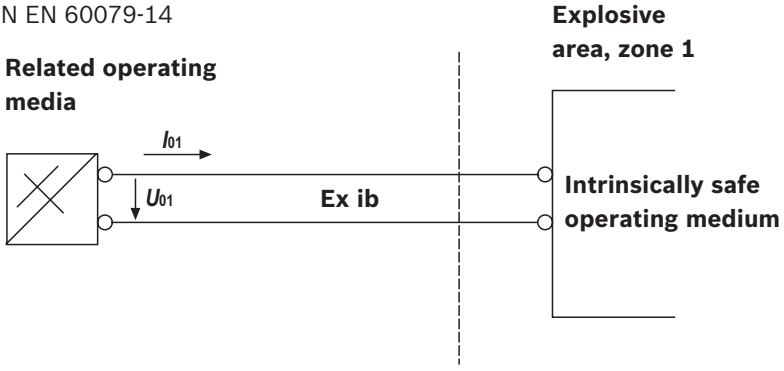
Directives and standardization

Complete filter with mech./opt. Maintenance indicator				
Use /assignment			**Gas 2G**	**Dust 2D**
Assignment			Ex II 2G c IIB TX	Ex II 2D c IIB TX
Conductivity of the medium	pS/m	Min	300	
Dust accumulation		Max	–	0.5 mm

Electronic switching element in the intrinsically safe electric circuit				
Use /assignment			**Gas 2G**	**Dust 2D**
Assignment			Ex II 2G Ex ib IIB T4 Gb	Ex II 2D Ex ib IIIC T100 °C Db
Adm. intrinsically safe electric circuits			Ex ib IIC, Ex ic IIC	Ex ib IIIC
Technical data			**Values only for intrinsically safe electric circuit**	
Switching voltage	Ui	Max	150 V AC/DC	
Switching current	Ii	Max	1.0 A	
Switching power	Pi	Max	1.3 W T4 T_{max} 40 °C	750 mW T_{max} 40 °C
		Max	1.0 W T4 T_{max} 80 °C	550 mW T_{max} 100 °C
Surface temperature [1)]		Max	–	100 °C
Inner capacity	Ci		Neglectable	
Inner inductivity	Li		Neglectable	
Dust accumulation		Max	–	0.5 mm

[1)] The temperature depends on the temperature of the medium in the filter and must not exceed the value specified here.

Possible circuit according to DIN EN 60079-14



⚠ WARNING!

- Explosion hazard due to high temperature!
  The temperature depends on the temperature of the medium in the hydraulic circuit and must not exceed the value specified here. Measures are to be taken so that in the explosive area, the max. permissible ignition temperature is not exceeded.
- When using the duplex filters according to 51445 in explosive areas, sufficient potential equalization has to be ensured. The filter is preferably to be grounded via the mounting screws.
  It has to be noted in this connection that paintings and oxidic protective layers are not electrically conductive.
- Maintenance only by specialists, instruction by the machine end-user acc. to DIRECTIVE 1999/92/EC appendix II, section 1.1
- During filter element exchanges, the packaging material is to be removed from the replacement element outside the explosive area
- Functional and safety warranty only applicable when using genuine Hengst spare parts

Use

Intended use
This filter consists of a filter housing, filter element and maintenance indicator, which serve as components in hydraulic machinery for the separation of dirt particles in terms of the EC Machinery Directive.

The filters are used under the following boundary conditions and limits:

- Only in systems with fluids of group 2, according to Pressure Equipment Directive 2014/68/EU.
- Only according to the application and environmental conditions in the section "Technical data".
- Only in compliance with the specified performance limits in the section "Technical data"; extended operational durability/load cycles upon request.
- Only with hydraulic fluids and the intended seals according to the section "Compatibility with hydraulic fluids"
- Use in potentially explosive areas according to the section "Directives and standardization".
- The notes regarding the operating modes according to the section "Assembly, commissioning, maintenance" must be observed.
- Compliance with application and environmental conditions according to the technical data.
- Compliance with the specified performance limits.
- Use in the original condition, without damage.
- Maintenance work, such as the replacement of seals, filter elements and optical indicators with original Hengst spare parts, is permissible. Repair work by the customer, particularly on pressurized components, is inadmissible.
- The filters are intended for professional use only and are not for private use.

Improper use
Any use deviating from the intended use is improper and not therefore admissibble.

Improper use of the filters includes:

- Incorrect storage
- Incorrect transport
- Lack of cleanliness during storage and assembly
- Incorrect installation
- Use of inappropriate/non-permissible hydraulic fluids
- Exceeding the specified maximum pressures and load cycles
- Operation outside the approved temperature range
- Installation and operation in an inadmissible device group or category
- Operation outside the specified limits for the operating voltage, see the section "Technical data"

Hengst Filtration GmbH does not assume any liability for damage caused by improper use. The user assumes responsibility for all risks surrounding improper use.

Environment and recycling

- The used filter element must be disposed of according to the country-specific statutory environmental protection regulations.
- At the end of the service life of the filter, the filter components can be recycled according to the country-specific statutory environmental protection regulations.

Notices

Hengst Filtration GmbH
Hardtwaldstr. 43
68775 Ketsch, Germany
Phone +49 (0) 62 02 / 6 03-0
hydraulicfilter@hengst.de
www.hengst.com