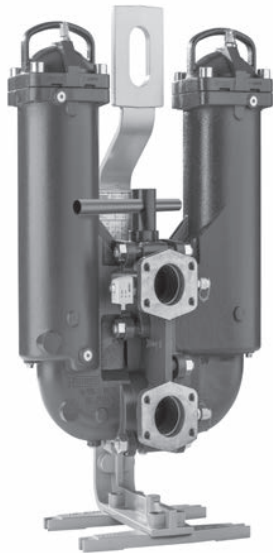


Duplex filter with filter element according to DIN 24550

Type 50/63FLDK(N)0400-2500

RE 51482

Edition: 2021-04



- ▶ Size according to DIN 24550: 0400 to 1000
- ▶ additional sizes: 2000, 2500
- ▶ Nominal pressure 50 bar [725 psi]; 63 bar [913 psi]
- ▶ Connection up to DN100
- ▶ Operating temperature -10 °C to $+100\text{ °C}$ [14 °F to 212 °F]

Features

Duplex filters are used in hydraulic systems for separating solid materials from fluids and lubricating oils, and are intended for installation in pipelines.

A filter element can be changed without any interruption to operations.

They have the following characteristics:

- ▶ Filters for inline installation, switchable
- ▶ Filtration support by means of cyclone-shaped flow path
- ▶ Highly efficient filter materials
- ▶ High collapse rating of the filter elements
- ▶ Equipped with mechanical/optical maintenance indicator with memory function by default
- ▶ Available as an option with different 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
- ▶ Pressure equalization line by default

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Ordering code

Filter

01	02	03	04	05	06	07	08	09	10	10	10
			- 1X /		A00 -		-		-		-

Series

01	Duplex filter 50 bar [725 psi]	50FLDK
	Duplex filter 63 bar [913 psi] (only for NG 0400 and 0630)	63FLDK

Filter element

02	with filter element according to DIN 24550	N
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Nominal size

03	FLDKN... (Filter element according to DIN 24550)	0400 0630 1000
	FLDK... (Filter element according to Hengst Standard)	2000 2500
04	Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions)	1X

Filter rating in µm

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

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 50 bar [870 psi], without bypass valve	T00

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 filter element design T00 = without bypass)	V5,0

Seal

08	NBR seal	M
	FKM seal	V

Port

09	Frame size	0400-0630	1000	2000-2500	SAE flange [please observe flange-specific maximum permissible pressures]		
	Port						
	SAE 2 1/2" 3000psi	●					S9
	SAE 3" 3000psi	X	●			S10	
	SAE 4" 3000psi		X	●		S12	
	DN100 PN63		X	X	DN100 PN63	D10/63	
	DN100 PN40		X	X	DN100 PN40	D12	
	<input checked="" type="checkbox"/> Standard port <input type="checkbox"/> Alternative connection possibility						

**Ordering code
Filter**

01	02	03	04	05	06	07	08	09	10	10	10
			- 1X /		A00	-	-	-	-	-	-

Supplementary information (several specifications possible)

10	Foot 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 the case of pressure differentials of more than 30 bar [435 psi].

Order example:

50FLDKN0400-1X/PWR10A00-V2,2-M-S9

Further versions are available on request.

Preferred types

50FLDK(N) flow specifications for 30 mm²/s [143 SUS]

Filter rating 3 µm

Type	Flow in l/min [US gpm] with $\Delta p = 0.5$ bar [7.5 psi]	Flow in l/min [US gpm] with $\Delta p = 0.3$ bar [4.5 psi]	Material no. filter	Material no. replacement element
50FLDKN0400-1X/PWR3A00-V2,2-M-S9	286 [75.6]	165 [43.6]	R928054919	R928005961
50FLDKN0630-1X/PWR3A00-V2,2-M-S9	420 [110.9]	285 [75.3]	R928054920	R928005997
50FLDKN1000-1X/PWR3A00-V2,2-M-S10	450 [118.9]	310 [81.9]	R928054921	R928006033
50FLDKN1000-1X/PWR3A00-V2,2-M-S12	455 [120.2]	312 [82.4]	R928060042	R928006033
50FLDK2000-1X/PWR3A00-V2,2-M-S12	775 [204.7]	550 [145.3]	R928054922	R928041312
50FLDK2500-1X/PWR3A00-V2,2-M-S12	865 [228.5]	635 [167.7]	R928054923	R928041314

50FLDK(N) flow specifications for 30 mm²/s [143 SUS]

Filter rating 10 µm

Type	Flow in l/min [US gpm] with $\Delta p = 0.5$ bar [7.5 psi]	Flow in l/min [US gpm] with $\Delta p = 0.3$ bar [4.5 psi]	Material no. filter	Material no. replacement element
50FLDKN0400-1X/PWR10A00-V2,2-M-S9	405 [107.0]	268 [70.8]	R928054360	R928005963
50FLDKN0630-1X/PWR10A00-V2,2-M-S9	548 [144.8]	375 [99.1]	R928054361	R928005999
50FLDKN1000-1X/PWR10A00-V2,2-M-S10	566 [149.5]	405 [107.0]	R928054362	R928006035
50FLDKN1000-1X/PWR10A00-V2,2-M-S12	566 [149.5]	405 [107.0]	R928060040	R928006035
50FLDK2000-1X/PWR10A00-V2,2-M-S12	910 [240.4]	673 [177.8]	R928054363	R928040797
50FLDK2500-1X/PWR10A00-V2,2-M-S12	980 [258.9]	740 [195.5]	R928054364	R928040800

50FLDK(N) flow specifications for 30 mm²/s [143 SUS]

Filter rating 20 µm

Type	Flow in l/min [US gpm] with $\Delta p = 0.5$ bar [7.5 psi]	Flow in l/min [US gpm] with $\Delta p = 0.3$ bar [4.5 psi]	Material no. filter	Material no. replacement element
50FLDKN0400-1X/PWR20A00-V2,2-M-S9	620 [163.8]	460 [121.5]	R928060048	R928005964
50FLDKN0630-1X/PWR20A00-V2,2-M-S9	710 [187.6]	545 [144.0]	R928060049	R928006000
50FLDKN1000-1X/PWR20A00-V2,2-M-S10	720 [190.2]	560 [147.9]	R928060050	R928006036
50FLDKN1000-1X/PWR20A00-V2,2-M-S12	720 [190.2]	560 [147.9]	R928058214	R928006036
50FLDK2000-1X/PWR20A00-V2,2-M-S12	1080 [285.3]	855 [225.9]	R928060046	R928041235
50FLDK2500-1X/PWR20A00-V2,2-M-S12	1110 [293.2]	895 [236.4]	R928060047	R928041237

50FLDK(N) flow specifications for 30 mm²/s [143 SUS]

Filter rating 25 µm

Type	Volumenstrom in l/min [US gpm] with $\Delta p = 0.5$ bar [7.5 psi]	Volumenstrom in l/min [US gpm] with $\Delta p = 0.3$ bar [4.5 psi]	Material no. filter	Material no. replacement element
50FLDKN0400-1X/G25A00-V2,2-M-S9	828 [218.7]	675 [178.3]	R928060068	R928005960
50FLDKN0630-1X/G25A00-V2,2-M-S9	840 [222.0]	685 [181.0]	R928060069	R928005996
50FLDKN1000-1X/G25A00-V2,2-M-S10	845 [223.2]	690 [182.3]	R928060070	R928006032
50FLDKN1000-1X/G25A00-V2,2-M-S12	845 [223.2]	690 [182.3]	R928058215	R928006032
50FLDK2000-1X/G25A00-V2,2-M-S12	1200 [317.0]	990 [261.5]	R928060066	R928056876
50FLDK2500-1X/G25A00-V2,2-M-S12	1200 [317.0]	990 [261.5]	R928060067	R928056877

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 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	none
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	none

Mating connectors (max. permissible voltage: 50 V)

for electronic switching element with round plug-in connection M12x1

Mating connector suitable for K24 4-pole, M12x1 with screw connection, cable gland Pg9.

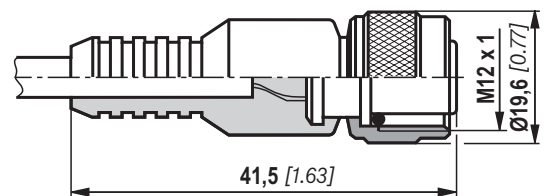
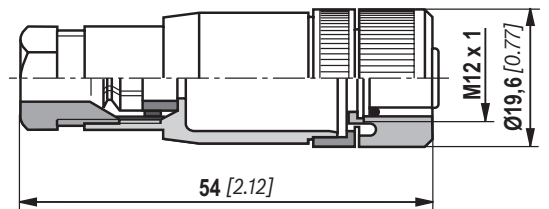
Material no. R900031155

Mating connector suitable for K24-3m 4-pole, M12x1 with potted-in PVC cable, 3 m long.

Line cross-section: 4 x 0.34 mm²
 Core marking: 1 brown 2 white
 3 blue 4 black

Material no. R900064381

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



Order example:

Duplex filter with mechanical/optical maintenance indicator for $p_{nom.} = 50 \text{ bar [725 psi]}$ with bypass valve, size 0400, with filter element 10 μm and electronic switching element M12x1 with 1 switching point.

Filter:	50FLDKN0400-1X/PWR10A00-V2,2-M-S9	Material no: R928054360
Maintenance indicator:	WE-1SP-M12x1	Material no: R928028409
Mating connector:	Mating connector suitable for K24 4-pole, M12x1	Material no: R900031155

Filter design

The straightforward selection of the filter size is possible using the FilterSelect online tool. The filter can be designed using the operating pressure, flow and fluid system parameters. The required filter rating is based on the application, the sensitivity to contamination of the components and the environmental conditions.

The program leads you through the menu on a step-by-step basis.

A documentation of the filter selection can finally be created in the form of a PDF file. This file contains the entered parameters, the designed filter with material number including spare parts, and the pressure loss curves.

Link FilterSelect:

<http://www.filterselect.de>

Other languages can be selected using the page navigation.

standard search

application: hydraulics for industrial use and applications with lubricating oil

Product category: please select

type: please select

pressure range: please select

filter material: please select

fineness: please select

volume flow rate: [l/min]

viscosity:
 * = working point

kin viscosity 1: [mm²/s]

search via type of medium full-text search medium
 please select
 please select

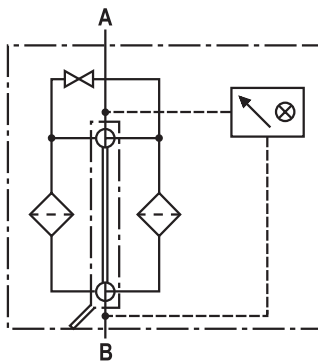
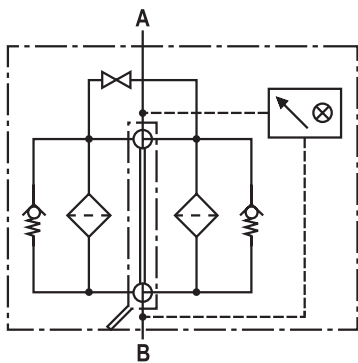
temp 1: [°C] [°F] kin viscosity 1: [mm²/s]

dyn. Viscosity 1: [cP] density 1: [kg/dm³] kin viscosity 1: [mm²/s]

collapse pressure resistance according to ISO 2941: 30 bar

Symbols

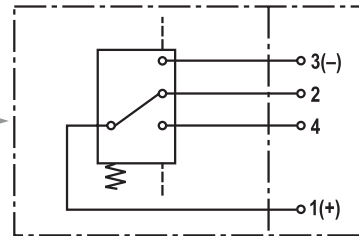
Duplex filter with bypass valve and mechanical indicator as well as pressure equalization line



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

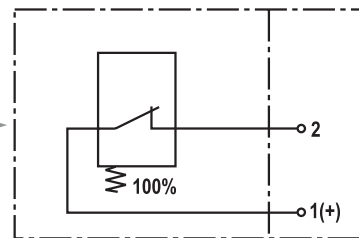
electronic switching element
for maintenance indicator

Switching element **Connector**



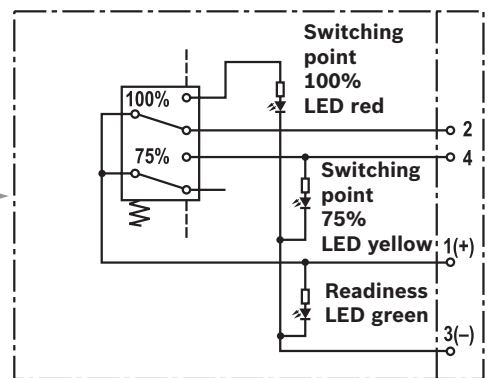
WE-1SP-M12x1

Switching element **Connector**



WE-1SP-EN175301-803

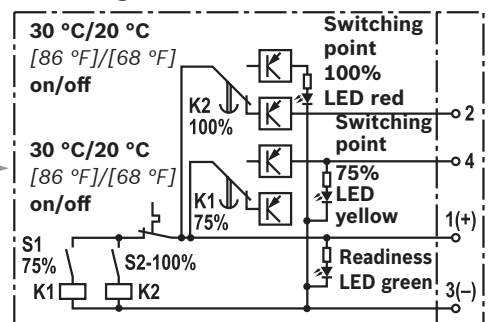
Switching element **Connector**



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 50FLDK(N) duplex filter is suitable for inline installation. It basically consists of two filter housings (2) with a switch-over fitting (1), a flange-mounted filter cover (3), a filter element (4) as well as a mechanical optical maintenance indicator (12).

From the size 2000, the filter housing is separated from the filter cover with an additional intermediate pipe (5). Via the inlet, the hydraulic fluid reaches the filter element (4) where it is cleaned. The dirt particles filtered out settle 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 pressure equalization line (14) serves to simplify the filling and bleeding in a filter element exchange.

The filter housing and all connection elements are designed so that pressure peaks - which may occur in the case of the abrupt opening of large control valves due to the accelerated fluid quantity - can be securely absorbed.

One solenoid screw (9) is included in the standard equipment. The sole purpose of the solenoid screw is to check for magnetic contamination particles.

Via the bleeding (threaded coupling) (8), the filter side to be maintained can be bled. The measuring ports (10) at the side of the connection flange are drilled as standard and closed with threaded couplings.

The filter is optionally available with a base - amending ordering code FB - (11).

By default, the filter is equipped with a mechanical optical maintenance indicator (12). The electronic switching element (13), which must be ordered separately, is attached to the mechanical optical maintenance indicator and held in place by means of the locking ring. The electronic switching elements with 1 or 2 switching points are connected via a mating connector according to IEC-60947-5-2 or via a cable connection according to EN17301-803.

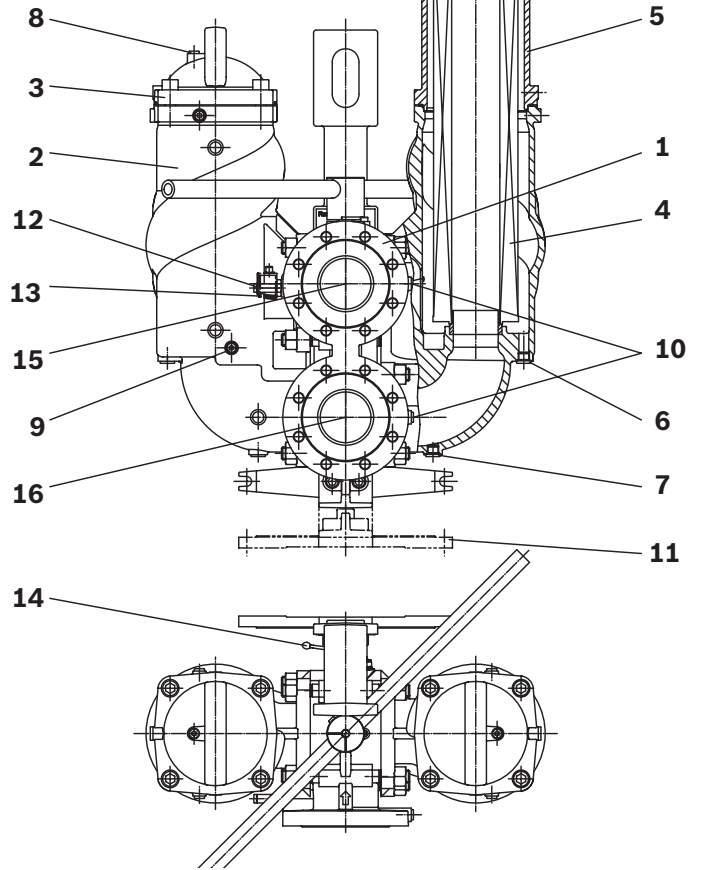
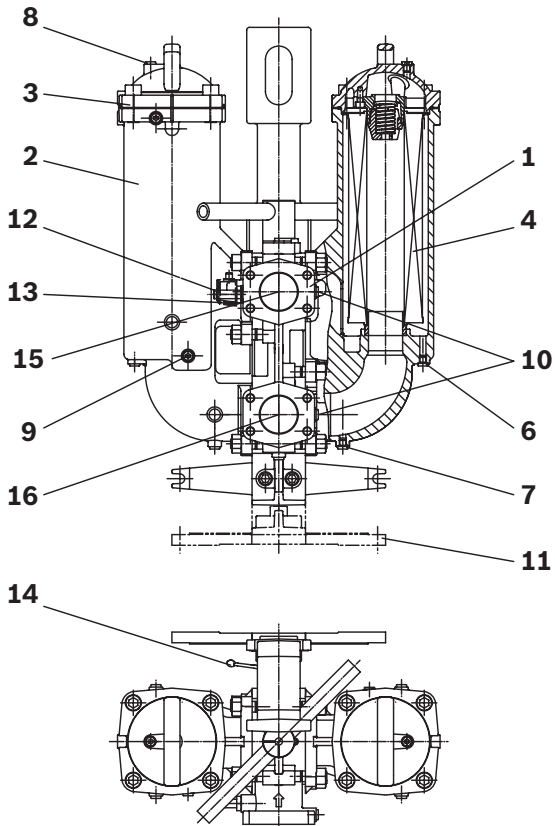
WARNING!

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.

DN 80:
50/63FLDKN 0400
50/63FLDKN 0630
50/63FLDKN 1000

DN 100:
50FLDKN 1000

DN 100:
50FLDK 2000
50FLDK 2500



- 6 Draining, dirt side
- 7 Draining, clean side
- 15 Inlet
- 16 Outlet

Technical data

(For use of the device outside the stated values, please ask us!)

general							
Ambient temperature range	°C [°F]	-10 ... +65 [14 ... 149]; (short-term, up to -30 [-22])					
Storage conditions	- Seal NBR	°C [°F] -40 ... +65 [-40 ... 149]; max. relative air humidity 65%					
	- Seal FKM	°C [°F] 0 ... +65 [32 ... 149]; max. relative air humidity 65%					
Installation position	vertical						
Weight filter ¹⁾	NG	0400-W	0400-FB	0630-W	0630-FB	1000-W DN80	1000-FB DN80
	kg [lbs]	117 [257.4]	120 [264]	132 [290.4]	135 [297]	152 [334.4]	155 [341]
	NG	1000-W DN100	1000-FB DN100	2000-W	2000-FB	2500-W	2500-FB
	kg [lbs]	157 [345.4]	160 [352]	266 [585.2]	269 [591.8]	282 [620.4]	285 [627]
Weight filter cover	NG	0400-W	0400-FB	0630-W	0630-FB	1000-W DN80	1000-FB DN80
	kg [lbs]	6.88 [15.1]		6.88 [15.1]		10.5 [23.2]	
	NG	1000-W DN100	1000-FB DN100	2000-W	2000-FB	2500-W	2500-FB
	kg [lbs]	10.5 [23.2]		10.5 [23.2]		18.6 [40.9]	
Volume	NG	0400-W	0400-FB	0630-W	0630-FB	1000-W DN80	1000-FB DN80
	l [US gal]	2 x 5.5 [1.45]		2 x 8.7 [2.29]		2 x 12.2 [3.22]	
	NG	1000-W DN100	1000-FB DN100	2000-W	2000-FB	2500-W	2500-FB
	l [US gal]	2 x 12.2 [3.22]		2 x 28.3 [7.47]		2 x 32.5 [8.58]	
Material	- Filter cover	GGG					
	- Filter housing	GGG					
	- 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]	50 [725]; for NG0400 and 0630 optional 63 bar [913]					
Hydraulic fluid temperature range	°C [°F]	-10 ... +100 [+14 ... +212]					
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	bar [psi]	Response pressure of the maintenance indicator			Cracking pressure of the bypass valve		
		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		

¹⁾ The information given for the sizes refers to the standard version with wall mounting. The optional foot mounting is labeled with -FB.

Technical data

(For application outside these values, 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
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	
	- 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 in order to protect the switching contacts.				
Weight electronic switching element	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 $\Delta p = 5$ bar [72.5 psi]		Achievable oil cleanliness according to ISO 4406 [SAE-AS 4059]
Particle separation	PWR20	$\beta_{20(c)} \geq 200$	$\beta_{21(c)} \geq 1000$	19/16/12 ... 22/17/14
	PWR10	$\beta_{10(c)} \geq 200$	$\beta_{11(c)} \geq 1000$	17/14/10 ... 21/16/13
	PWR6	$\beta_{6(c)} \geq 200$	$\beta_{8(c)} \geq 1000$	15/12/10 ... 19/14/11
	PWR3	$\beta_{5(c)} \geq 200$	$\beta_{6(c)} \geq 1000$	13/10/8 ... 17/13/10
permissible pressure differential	- A00	bar [psi]	30 [435]	
	- T00		50 [725]	

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
		HEES	FKM
Flame-resistant	- soluble in water	HEPG	FKM
	- water-free	HFDR, HFDR	FKM
- containing water	HFAS	NBR	VDMA 24317
	HFAE	NBR	DIN 24320
	HFC	NBR	VDMA 24317

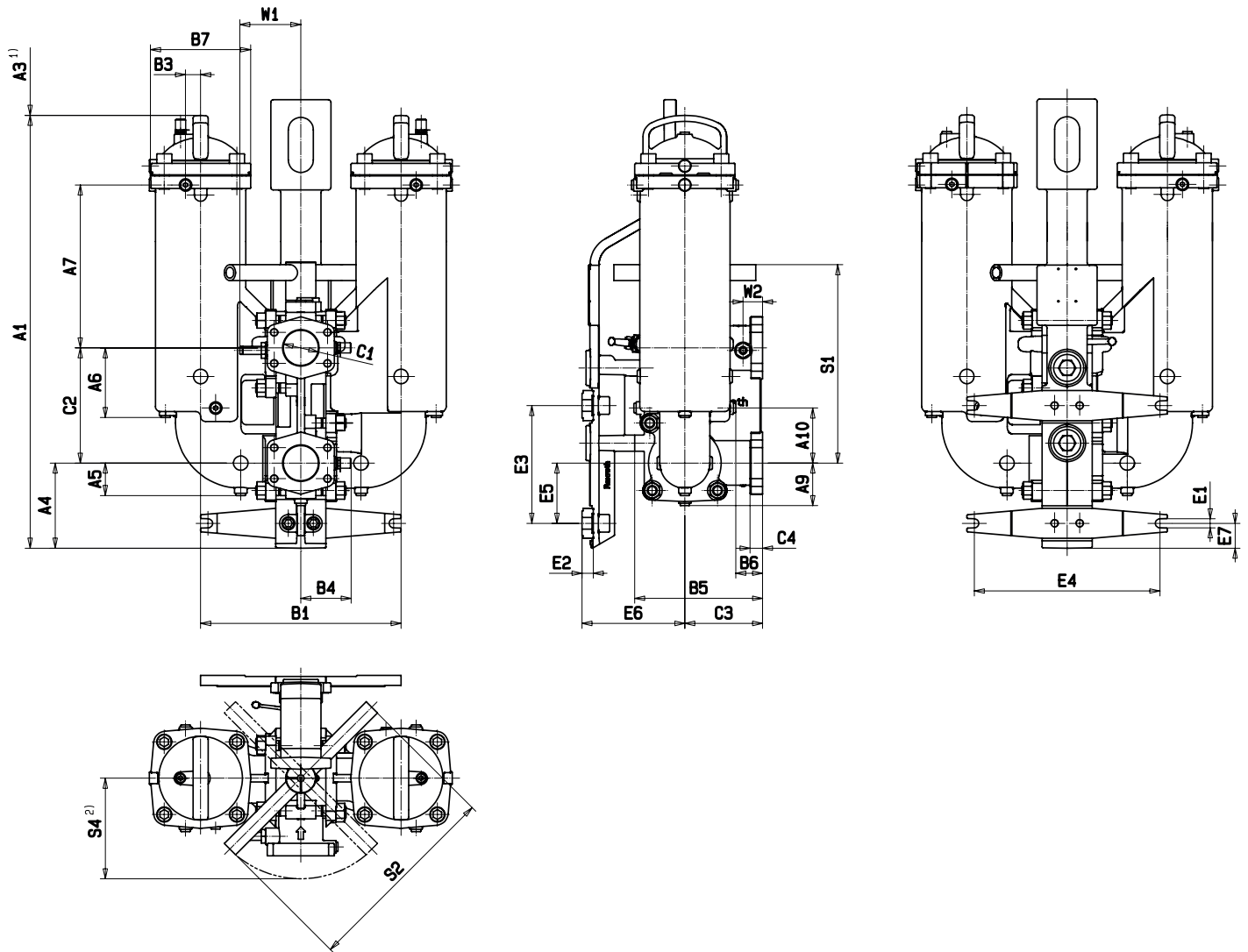
Important information on hydraulic fluids!

- For further 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 lower than expected. Filter materials made of filter paper P (cellulose) must not be used, filter elements with glass fiber material (Pure Power PWR... or wire mesh G) must 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 expansion.

Unit dimensions: NG0400 ... NG0630 with wall mounting
 (dimensions in mm [inch])



1) servicing height

2) cannot be defined as the switching lever is movable

Unit dimensions: NG0400 ... NG630 with wall mounting
(dimensions in mm [*inch*])

With wall mounting	Lengths / heights									
	A1	A3 ¹⁾	A4	A5	A6	A7	A8	A9	A10	A11
50/63 FLDKN 0400 - W (DN80)	714 [28.1]	400 [15.7]	170 [6.69]	61.5 [2.42]	139 [5.47]	175 [6.89]	-	84.5 [3.33]	110 [4.33]	-
50/63 FLDKN 0630 - W (DN80)	864 [34]					325 [12.8]				

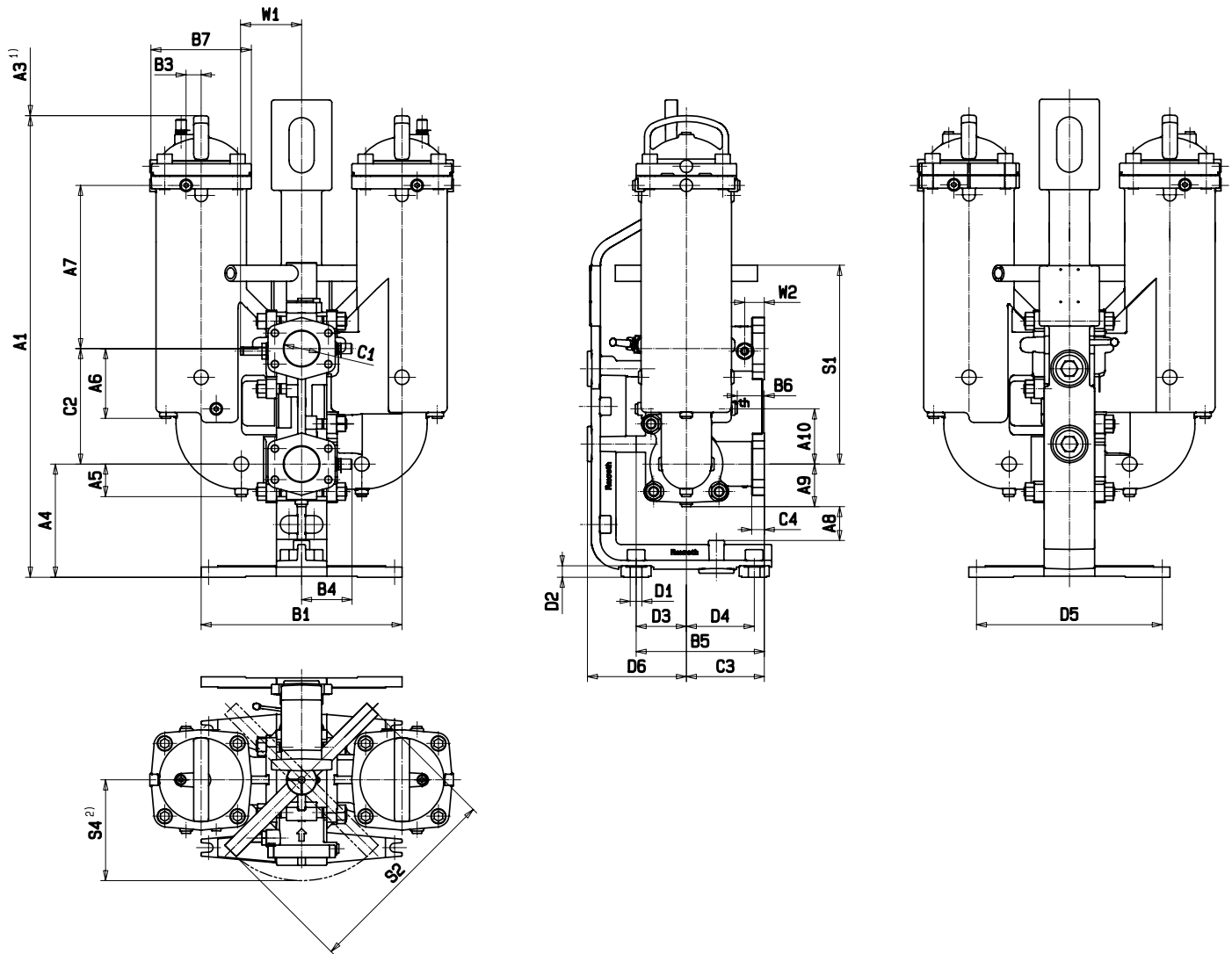
With wall mounting	Widths						Connections						
	B1	B3	B4	B5	B6	ØB7	Port C1			C2	C3	C4	
							S...		D...				
50/63 FLDKN 0400 - W (DN80)	400	30	98	255	54	202	SAE 2 1/2" - 3000 psi (S9)			-	230	155	25
50/63 FLDKN 0630 - W (DN80)	[15.7]	[1.18]	[9.86]	[10]	[2.13]	[7.95]	SAE 3" - 3000 psi (S10)				[9.06]	[6.1]	[0.98]

With wall mounting	Wall mounting							Switching lever			WA	
	E1	E2	E3	E4	E5	E6	E7	S1	S2	S4 ²⁾	W1	W2
50/63 FLDKN 0400 - W (DN80)	18	20	235	370	120	205	50	396	650	-	122	39
50/63 FLDKN 0630 - W (DN80)	[0.71]	[0.79]	[9.25]	[14.6]	[4.72]	[8.07]	[1.97]	[15.6]	[25.6]		[4.8]	[1.54]

¹⁾ servicing height

²⁾ cannot be defined as the switching lever is movable

Unit dimensions: NG0400 ... NG0630 with optional foot mounting
 (dimensions in mm [inch])



- 1) servicing height
- 2) cannot be defined as the switching lever is movable

Unit dimensions: NG0400 ... NG0630 with optional foot mounting
(dimensions in mm [*inch*])

With foot mounting	Lengths / heights									
	A1	A3 ¹⁾	A4	A5	A6	A7	A8	A9	A10	A11
50/63 FLDKN 0400 - FB (DN80)	769 [30.3]	400 [15.7]	225 [8.86]	61.5 [2.42]	139 [5.47]	175 [6.89]	67.5 [2.66]	84.5 [3.33]	110 [4.33]	-
50/63 FLDKN 0630 - FB (DN80)	919 [36.2]					325 [12.8]				

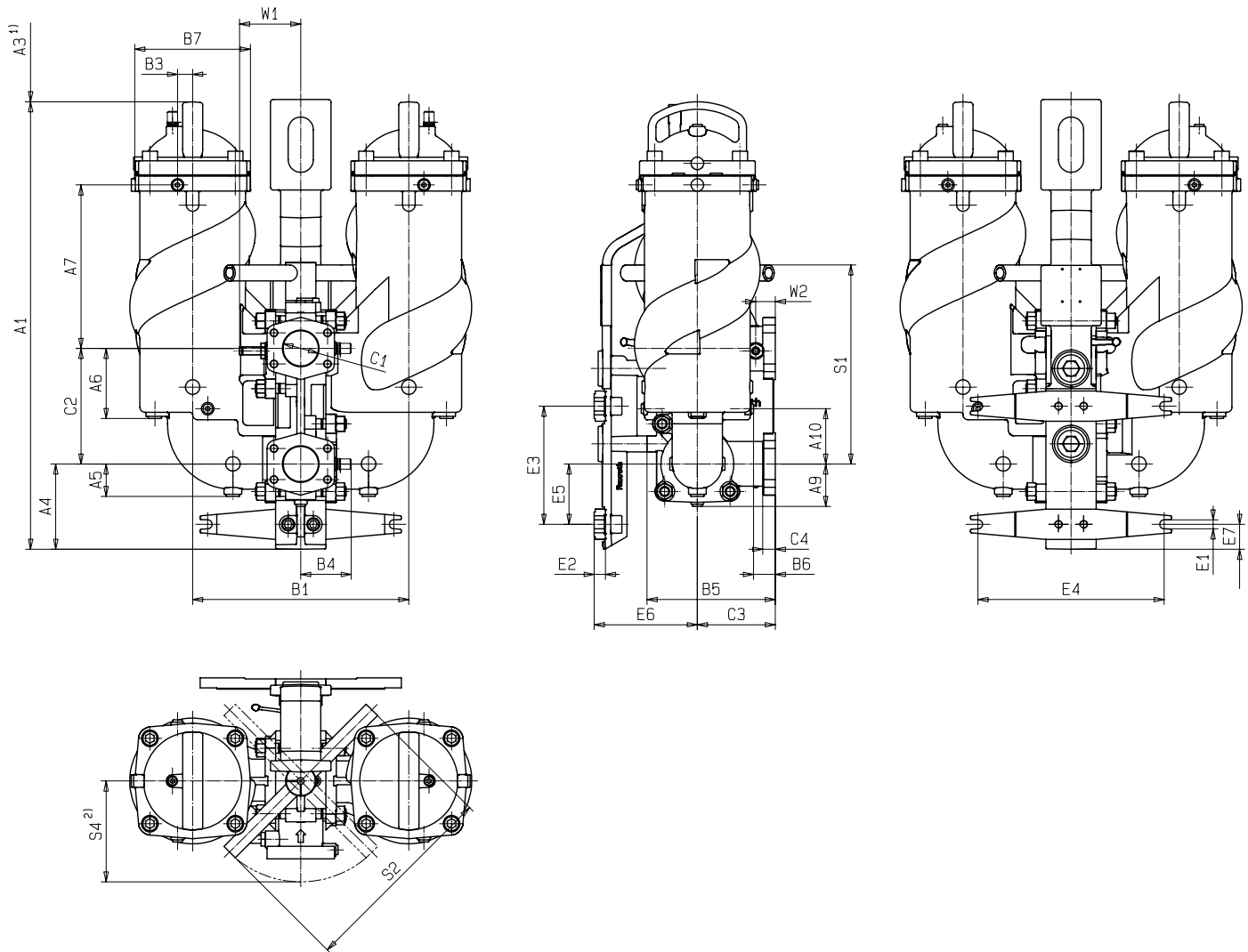
With foot mounting	Widths						Connections					
	B1	B3	B4	B5	B6	ØB7	Port C1			C2	C3	C4
							S...		D...			
50/63 FLDKN 0400 - FB (DN80)	400	30	98	255	54	202	SAE 2 1/2" - 3000 psi (S9)			230 [9.06]	155 [6.1]	25 [0.98]
50/63 FLDKN 0630 - FB (DN80)	[15.7]	[1.18]	[9.86]	[10]	[2.13]	[7.95]	SAE 3" - 3000 psi (S10)					

With foot mounting	Foot mounting						Switching lever			WA	
	D1	D2	D3	D4	D5	D6	S1	S2	S4 ²⁾	W1	W2
50/63 FLDKN 0400 - FB (DN80)	18	20	100	135	370	197	396	650	-	122	39
50/63 FLDKN 0630 - FB (DN80)	[0.71]	[0.79]	[3.94]	[5.31]	[14.6]	[7.76]	[15.6]	[25.6]		[4.8]	[1.54]

¹⁾ servicing height

²⁾ cannot be defined as the switching lever is movable

Unit dimensions: NG1000 (DN 80) with wall mounting
 (dimensions in mm [inch])



- 1) servicing height
- 2) cannot be defined as the switching lever is movable

Unit dimensions: NG1000 (DN 80) with wall mounting
(dimensions in mm [*inch*])

With wall mounting	Lengths / heights									
	A1	A3 ¹⁾	A4	A5	A6	A7	A8	A9	A10	A11
50/63 FLDKN 1000 - W (DN80)	890 [35]	400 [15.7]	170 [6.69]	64.5 [2.54]	139.5 [5.49]	325 [12.8]	-	84.5 [3.33]	110 [4.33]	-

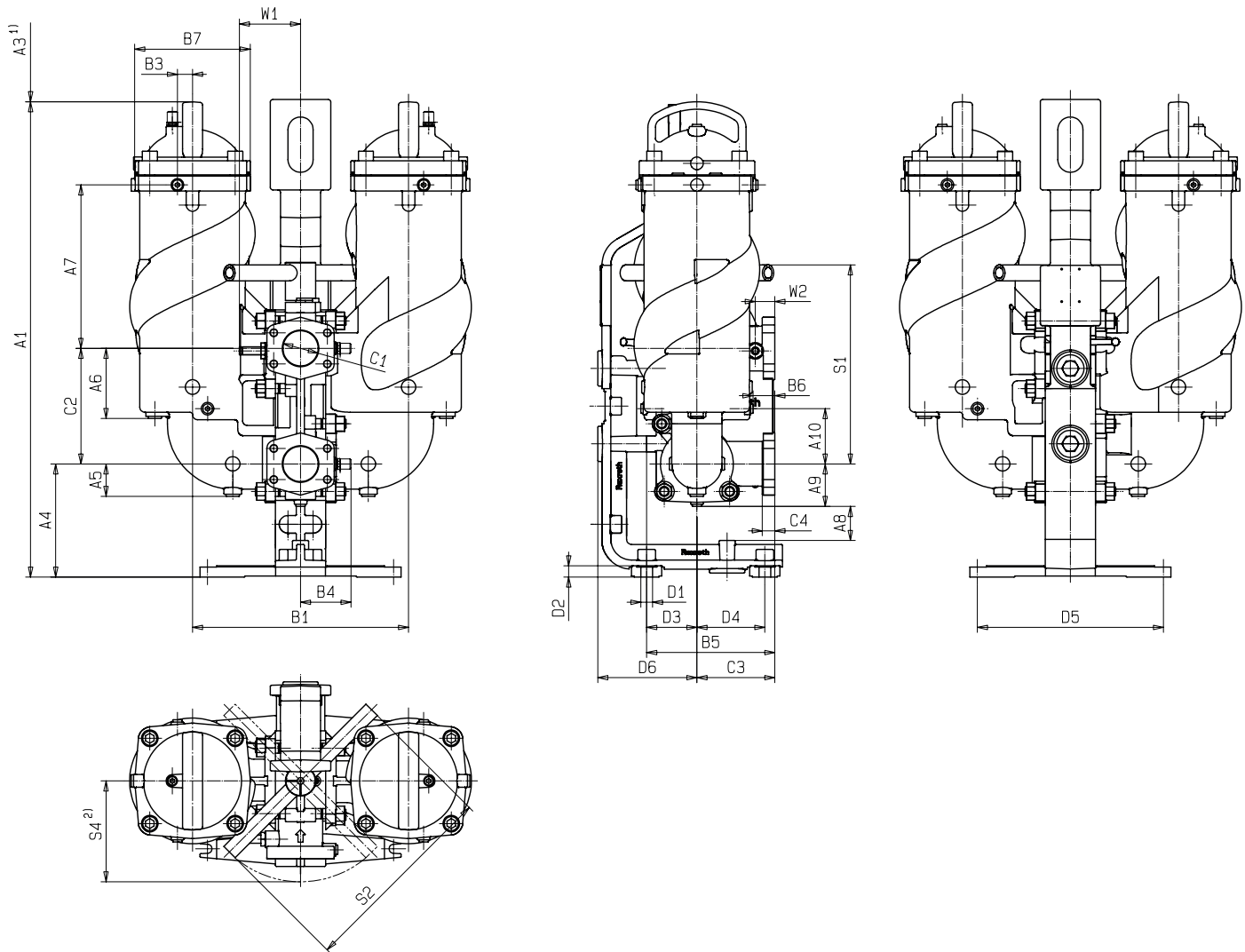
With wall mounting	Widths						Connections					
	B1	B3	B4	B5	B6	ØB7	Port C1		C2	C3	C4	
							S...	D...				
50/63 FLDKN 1000 - W (DN80)	430 [16.9]	30 [1.18]	99 [3.9]	255 [8.86]	40 [1.57]	232 [9.13]	SAE 3" - 3000 psi (S10)		-	230 [9.06]	155 [6.1]	25 [0.98]

With wall mounting	Wall mounting							Switching lever			WA	
	E1	E2	E3	E4	E5	E6	E7	S1	S2	S4 ²⁾	W1	W2
50/63 FLDKN 1000 - W (DN80)	18 [0.71]	20 [0.79]	235 [9.25]	370 [14.6]	120 [4.72]	205 [8.07]	50 [1.97]	396 [15.6]	650 [25.6]	-	122 [4.8]	39 [1.54]

¹⁾ servicing height

²⁾ cannot be defined as the switching lever is movable

Unit dimensions: NG1000 (DN100) with optional foot mounting
 (dimensions in mm [inch])



1) servicing height

2) cannot be defined as the switching lever is movable

Unit dimensions: NG1000 (DN100) with optional foot mounting
(dimensions in mm [*inch*])

With foot mounting	Lengths / heights									
	A1	A3 ¹⁾	A4	A5	A6	A7	A8	A9	A10	A11
50/63 FLDKN 1000 - FB (DN100)	945 [37.2]	400 [15.7]	225 [8.86]	64.5 [2.54]	139.5 [5.49]	325 [12.8]	67.5 [2.66]	84.5 [3.33]	110 [4.33]	-

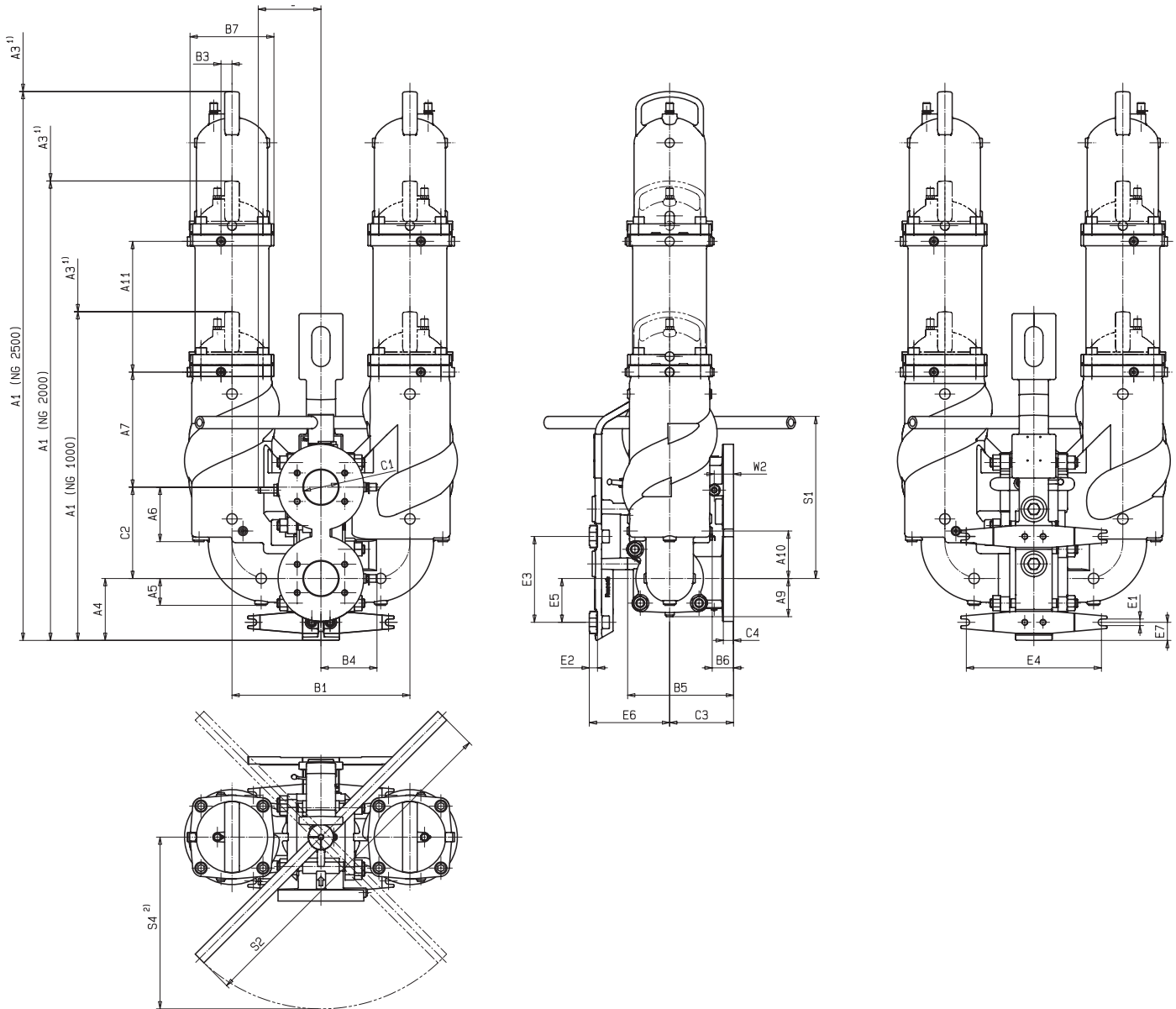
With foot mounting	Widths						Connections					
	B1	B3	B4	B5	B6	ØB7	Port C1		C2	C3	C4	
							S...	D...				
50/63 FLDKN 1000 - FB (DN100)	430 [16.9]	30 [1.18]	99 [3.9]	255 [10]	40 [1.57]	232 [9.13]	SAE 3" - 3000 psi (S10)		-	230 [9.06]	155 [6.1]	25 [0.98]

With foot mounting	Foot mounting						Switching lever			WA	
	D1	D2	D3	D4	D5	D6	S1	S2	S4 ²⁾	W1	W2
50/63 FLDKN 1000 - FB (DN100)	18 [0.71]	20 [0.79]	100 [3.94]	135 [5.31]	370 [14.6]	197 [7.76]	396 [15.6]	650 [25.6]	-	122 [4.8]	39 [1.54]

¹⁾ servicing height

²⁾ cannot be defined as the switching lever is movable

Unit dimensions: NG1000, NG2000, NG2500 (DN100) with wall mounting
 (dimensions in mm [inch])



- 1) servicing height
- 2) cannot be defined as the switching lever is movable

Unit dimensions: NG1000, NG2000, NG2500 (DN100) with wall mounting
(dimensions in mm [inch])

With wall mounting	Lengths / heights										
	A1	A3 ¹⁾	A4	A5	A6	A7	A8	A9	A10	A11	
50FLDKN 1000 - W (DN100)	900 [35.4]	400 [15.7]									-
50FLDK 2000 - W (DN100)	1258 [49.5]	760 [29.9]	170 [6.69]	73.5 [2.89]	149 [5.87]	315 [12.4]	-	105 [4.13]	130 [5.12]	358 [14.1]	
50FLDK 2500 - W (DN100)	1503 [59.2]										

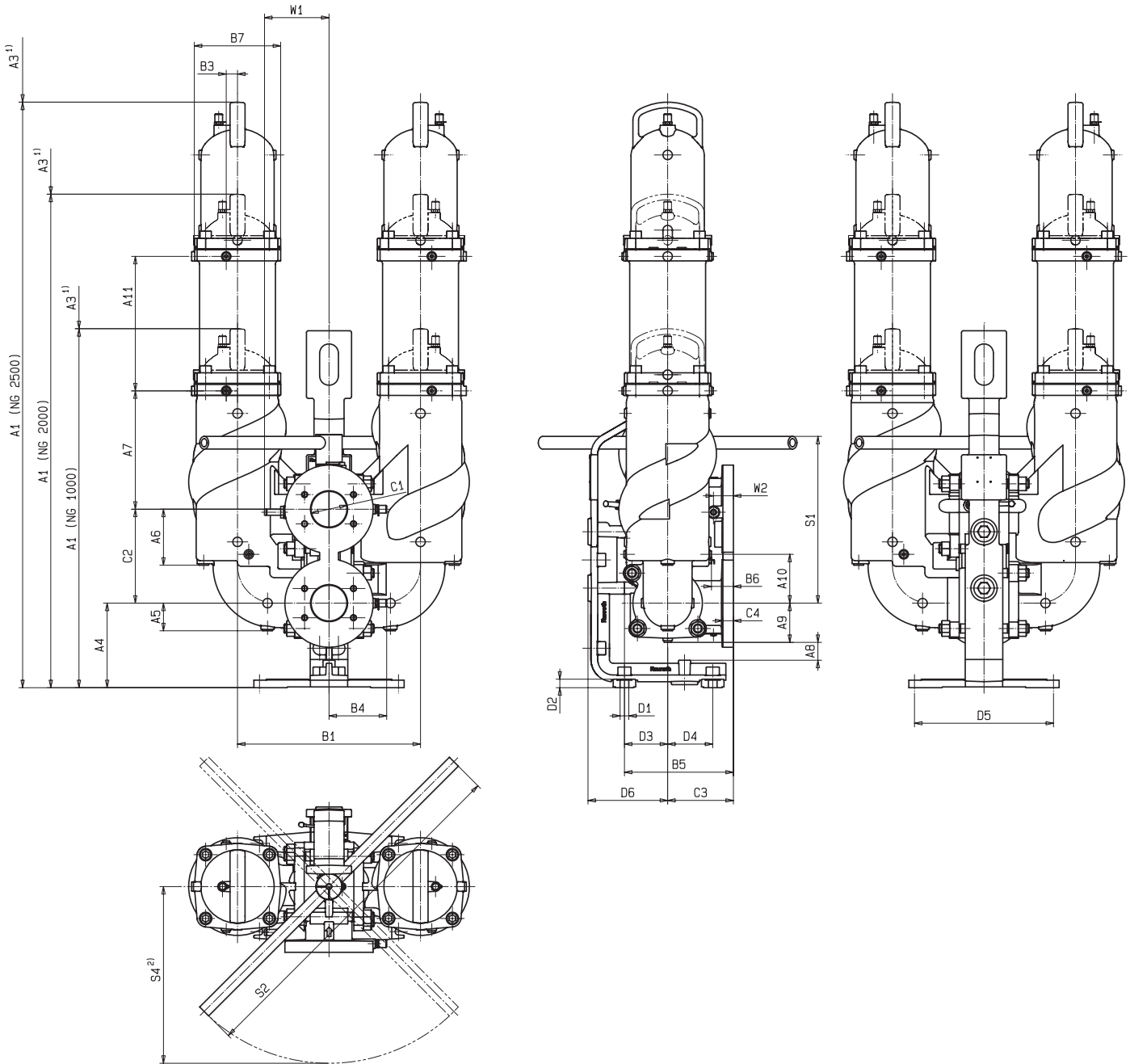
With wall mounting	Widths						Connections				
	B1	B3	B4	B5	B6	ØB7	Port C1		C2	C3	C4
							S...	D...			
50FLDKN 1000 - W (DN100)					53 (D...) [2.09]	232 [9.13]	SAE 4" - 3000psi (S12)	DN 80 PN 63 (D10) DN 100 PN 40 (D12)	250 [9.84]	175 [6.89]	30 [1.18]
50FLDK 2000 - W (DN100)	487 [19.2]	30 [1.18]	152 [5.98]	290 [11.4]	55 (S...) [2.17]						
50FLDK 2500 - W (DN100)											

With wall mounting	Wall mounting							Switching lever			WA	
	E1	E2	E3	E4	E5	E6	E7	S1	S2	S4 ²⁾	W1	W2
50FLDKN 1000 - W (DN100)												
50FLDK 2000 - W (DN100)	18 [0.71]	20 [0.79]	235 [9.25]	370 [14.6]	120 [4.72]	220 [8.66]	50 [1.97]	444 [17.5]	940 [37]	-	172 [6.77]	53 [2.09]
50FLDK 2500 - W (DN100)												

¹⁾ servicing height

²⁾ cannot be defined as the switching lever is movable

Unit dimensions: NG1000, NG2000, NG2500 (DN100) with optional foot mounting
 (dimensions in mm [inch])



1) servicing height

2) cannot be defined as the switching lever is movable

Unit dimensions: NG1000, NG2000, NG2500 (DN100) with optional foot mounting
(dimensions in mm [inch])

With foot mounting	Lengths / heights									
	A1	A3 ¹⁾	A4	A5	A6	A7	A8	A9	A10	A11
50FLDKN 1000 - FB (DN100)	955 [37.6]	400 [15.7]								-
50FLDK 2000 - FB (DN100)	1313 [51.7]	760 [29.9]	225 [8.86]	73.5 [2.89]	149 [5.87]	315 [12.4]	47.5 [1.87]	105 [4.13]	130 [5.12]	358 [14.1]
50FLDK 2500 - FB (DN100)	1558 [61.3]									

With foot mounting	Widths						Connections				
	B1	B3	B4	B5	B6	ØB7	Port C1		C2	C3	C4
							S...	D...			
50FLDKN 1000 - FB (DN100)					53 (D...) [2.09]	232 [9.13]	SAE 4" - 3000psi (S12)	DN 80 PN 63 (D10) DN 100 PN 40 (D12)	250 [9.84]	175 [6.89]	30 [1.18]
50FLDK 2000 - FB (DN100)	487 [19.2]	30 [1.18]	152 [5.98]	290 [11.4]	55 (S...) [2.17]						
50FLDK 2500 - FB (DN100)											

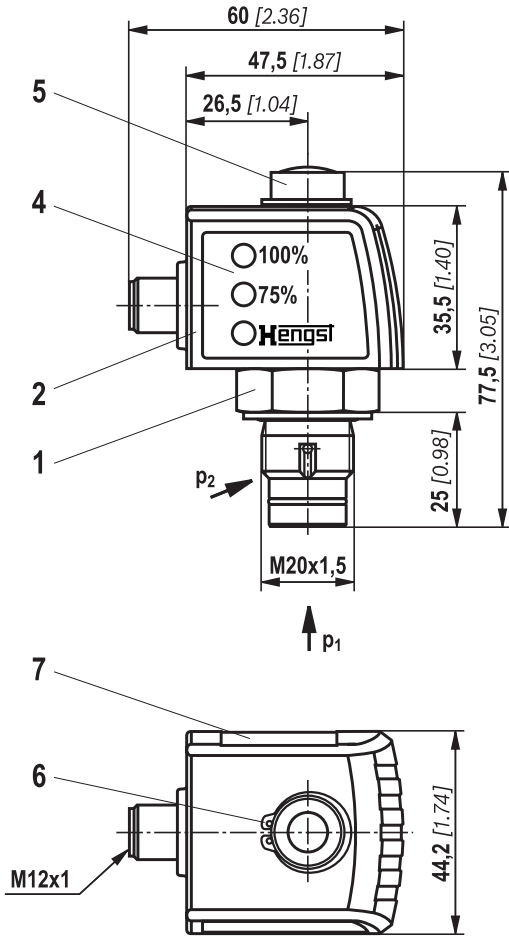
With foot mounting	Foot mounting						Switching lever			WA	
	D1	D2	D3	D4	D5	D6	S1	S2	S4 ²⁾	W1	W2
50FLDKN 1000 - FB (DN100)											
50FLDK 2000 - FB (DN100)	18 [0.71]	20 [0.79]	115 [4.53]	120 [4.72]	370 [14.6]	212 [8.35]	444 [17.5]	940 [37]	-	172 [6.77]	53 [2.09]
50FLDK 2500 - FB (DN100)											

¹⁾ servicing height

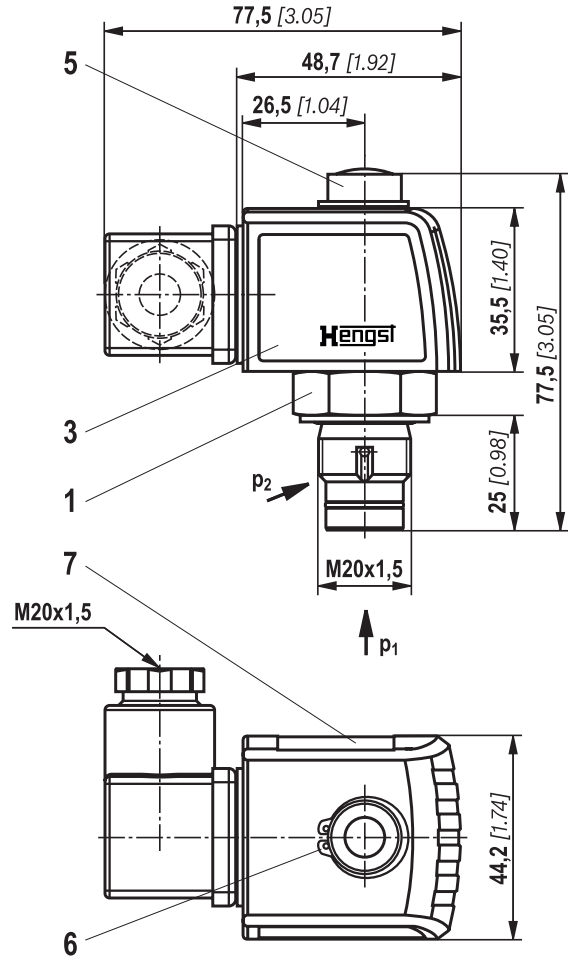
²⁾ cannot be defined as the switching lever is movable

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 $M_{A \max} = 50 \text{ Nm}$ [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 Optical indicator with memory function
- 6 Locking ring DIN 471-16x1,
material no. R900003923
- 7 Name plate

Notes:

The drawing shows the mechanical/optical maintenance indicator (1) and the electronic switching element (2) (3).

Ordering code Spare parts

Filter element

01	02	03	04	05	06
1.			- A00	- 0	-

Filter element

01	Design	1.
----	--------	----

Size

02	FLDKN... (Filter element according to DIN 24550)	0400 0630 1000
	FLDK... (Filter element according to Hengst Standard)	2000 2500

Filter rating in μm

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

Pressure differential

04	Maximum permissible pressure differential of the filter element 30 bar [435 psi]	A00
----	--	-----

Bypass valve

05	without bypass valve	0
----	----------------------	---

Seal

06	NBR seal	M
	FKM seal	V

Order example:

1.0400 PWR10-A00-0-M

For further information on Hengst filter elements, please refer to data sheet 51515.

Preferred range of replacement elements

Filter element type	Filter material/material no.				
	PWR3	PWR6	PWR10	PWR20	G25
1.0400 ...A00-0-M	R928005961	R928005962	R928005963	R928005964	R928005960
1.0630 ...A00-0-M	R928005997	R928005998	R928005999	R928006000	R928005996
1.1000 ...A00-0-M	R928006033	R928006034	R928006035	R928006036	R928006032
1.2000 ...A00-0-M	R928041312	R928048158	R928040797	R928041235	R928056876
1.2500 ...A00-0-M	R928041314	R928046806	R928040800	R928041237	R928056877

Ordering code

Spare parts

Mechanical/optical maintenance indicator

01	02	03	04	05	06
W	O	-	D01	-	-

01	Maintenance indicator	W
02	mechanical/optical 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			- 1X / -	

01	Seal kit	D
----	----------	---

Series

02	Duplex filter 50/63 bar [725/914 psi] (only for NG0400-0630)	50/63FLDK
	Duplex filter 50 bar [725 psi] (only for NG1000-2500)	50FLDK

Size

03	NG0400-0630	N0400-0630
	NG1000	N1000
	NG2000-2500	2000-2500

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.
D50/63FLDKN-1X/-0400-0630-M	R928044572
D50FLDKN1000-1X/-M	R928044593
D50FLDK2000-2500-1X/-M	R928044641
D50/63FLDKN0400-0630-1X/-V	R928056719
D50FLDKN1000-1X/-V	R928056720
D50FLDK2000-2500-1X/-V	R928056721

Notice:

Seals of the switch-over are not included in the filter seal kit. In the case of leakages at the switch-over, please contact the Hengst Service.

Ordering code accessories

Threaded coupling incl. hose for bleeding	Material no.
DN2-400/MCS20-MOS-G1/4/630ST3N00Z-P (NBR)	R901360230
DN2-400/MCS20-MOS-G1/4/630ST3F00Z-P (FKM)	R901360231

Assembly, commissioning, maintenance

Assembly

- ▶ The max. operating pressure of the system must not exceed the max. permissible operating pressure of the filter (see name plate).
- ▶ During the assembly, it is necessary to distinguish between floor mounting and wall mounting.
- ▶ During assembly of the filter (also see the section "Tightening torques"), the flow direction (direction arrows) and the required servicing height of the filter element (see the section "Dimensions") must be considered. The intended lifting point is the hoisting eye over the name plate.
- ▶ Flawless functioning is only guaranteed in the installation position with the filter cover vertically upwards. The maintenance indicator must be positioned so that it is clearly visible.
- ▶ Remove the plastic plugs in the filter inlet and outlet.
- ▶ Ensure that the system is assembled when the power supply is fully deactivated.
- ▶ 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 in place by means of the locking ring.

Commissioning

- ▶ Open the pressure equalization line.
- ▶ Commission the system.
- ▶ The filter is to be bled via threaded couplings on both filter covers. After the operating fluid escapes, the threaded couplings are to be closed again.
- ▶ 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 which is in operation.
- ▶ The pressure compensation remains open.

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 and cleaned respectively.
Also see data sheet 51450
- ▶ The material number of the corresponding replacement filter element is indicated on the name plate of the complete filter. It must comply with the material number on the filter element.

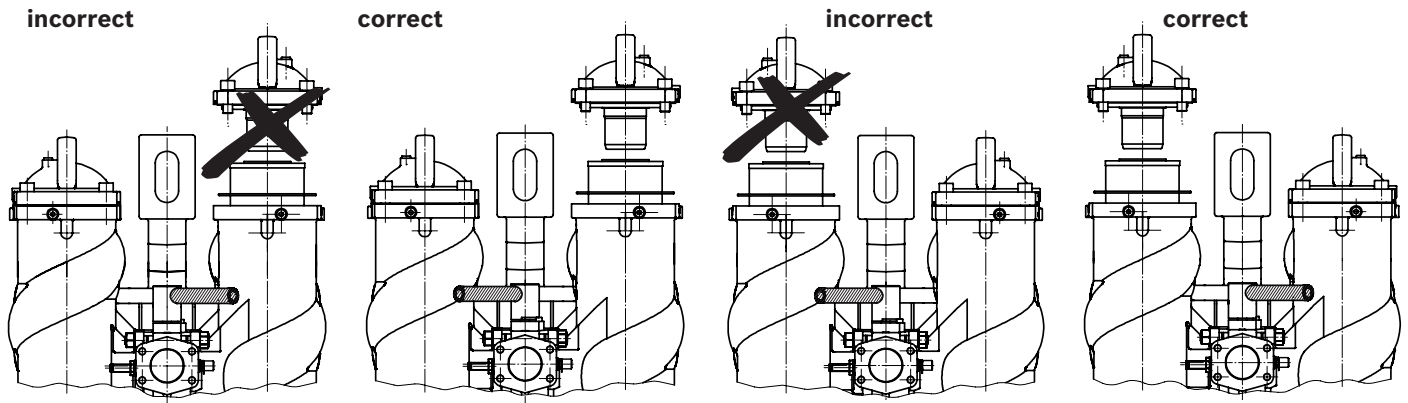
- ▶ The switch-over lever is on the filter side which is in operation. (See information on the name plate).
- ▶ Switch the filter over.
- ▶ Close the pressure compensation at the ball valve.
- ▶ To reduce the pressure, open the threaded coupling of the filter cover on the decommissioned filter side.
- ▶ The oil on the dirt side can be drained via the drain screw.
- ▶ Unscrew the filter cover of the filter side which is not in operation.
- ▶ Remove the filter element from the spigot by rotating it slightly.
- ▶ Remove the solenoid screw if applicable, and check it for magnetic residues.
- ▶ Clean the filter components if necessary.
- ▶ Check the seals for damage and renew them if necessary.
For suitable seal kits, refer to the section "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 rotating it slightly.
- ▶ The filter is to be assembled in reverse order.
- ▶ The torque specifications ("Tightening torques" section) are to be observed.
- ▶ To fill the maintained filter side, open the pressure equalization line.
- ▶ The filter is bled via the threaded coupling which remains open on the filter cover of the filter side that is to be serviced.
- ▶ After the fluid escapes, close the threaded coupling again.
- ▶ Ensure correct position of the switch-over lever end position.
- ▶ The pressure compensation remains open.

Notice:

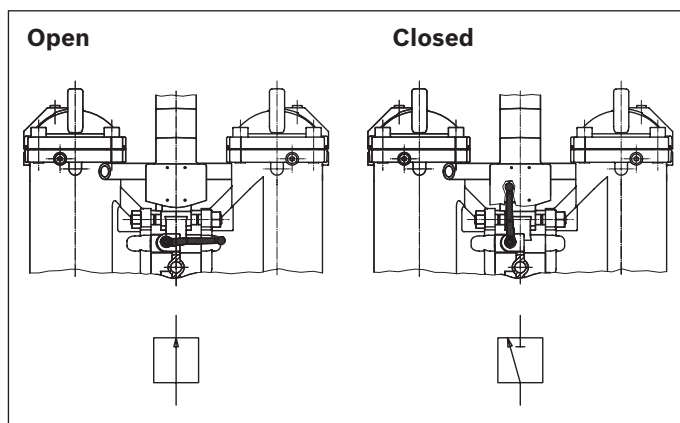
The ball valve switch-over may only be disassembled by Hengst service personnel. If the ball valve is not switched over for a longer period of time, the torque will increase.

Assembly, commissioning, maintenance

Correct position of the switching lever during filter element exchange



Correct position of the switching lever during pressure compensation



WARNINGS!

- ▶ Assembly and disassembly work may only take place when the system is depressurized! To exchange the filter element, refer to "Maintenance".
- ▶ The tank is under pressure!
- ▶ Work on the filter may only be carried out by trained specialists.
- ▶ Only remove the filter cover when it is depressurized!
- ▶ Do not exchange the optical/mechanical maintenance indicator while the filter is under pressure!
- ▶ Do not operate the switching lever or the pressure equalization valve when exchanging the filter element.

- ▶ When disassembling the filter, it must be ensured that the system is depressurized.
- ▶ The functionality and safety are only guaranteed if original Hengst filter elements and spare parts are used.
- ▶ The warranty becomes void if the delivered item is changed by the ordering party or third parties, or it is improperly mounted, installed, maintained, repaired, used or exposed to environmental conditions that do not comply with the installation conditions.

Tightening torques

(dimensions in mm [inch])

Wall mounting

Series 50.../63...		FLDKN0400	FLDKN0630	FLDKN1000	FLDK2000	FLDK2500
Screw / tightening torque with $\mu_{\text{total}} = 0.14$	Nm [lb-ft]	M16 / 153 $\pm 10\%$ [113 $\pm 10\%$] (Series 50...) M16 / 224 $\pm 10\%$ [165 $\pm 10\%$] (Series 63...)				
Quantity		4				
Recommended strength class of screw		8.8				
Minimum screw-in depth	mm [inch]	15 [0.59]				

Mounting with optional foot mounting

Series 50.../63...		FLDKN0400	FLDKN0630	FLDKN1000	FLDK2000	FLDK2500
Screw / tightening torque with $\mu_{\text{total}} = 0.14$	Nm [lb-ft]	M16 / 153 $\pm 10\%$ [113 $\pm 10\%$] (Series 50...) M16 / 224 $\pm 10\%$ [165 $\pm 10\%$] (Series 63...)				
Quantity		4				
Recommended strength class of screw		8.8				
Minimum screw-in depth	mm [inch]	15 [0.59]				

Filter cover and maintenance indicator

Series 50.../63...		FLDKN0400	FLDKN0630	FLDKN1000	FLDK2000	FLDK2500
Filter cover	Nm [lb-ft]	M20 / 308 $\pm 10\%$ [227 $\pm 10\%$] (Series 50...) M20 / 438 $\pm 10\%$ [323 $\pm 10\%$] (Series 63...)				
Quantity		2 x 4				
Tightening torque of maintenance indicator		50 ± 5 [37 ± 3.7]				
Tightening torque of cubic connector screw switching element EN-175301-803	mm [inch]	35 ± 3 [26 ± 2.2]				

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 16889:2008-06
Δp (pressure loss) characteristic curves	ISO 3968:2001-12
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 51482 are pressure-holding equipment in terms of article 2, section 5 of the Pressure Equipment Directive 2014/68/EU (PED).

However, due to the safety requirements fulfilled in article 4, subsection 3, hydraulic filters are exempt from the PED if they are not classified higher than category I.

For the classification, fluids from the chapter "Compatibility with permitted hydraulic fluids" have been taken into consideration.

The intended use is only permissible with fluids of group 2 and within the specified limitations of use (see the section "Technical data").

Therefore, these filters are not provided with the CE mark.

Use in potentially explosive areas according to Directive 2014/34/EU

These duplex filters are not equipment or components in terms of Directive 2014/34/EU and are not provided with the CE mark. It has been demonstrated in the ignition risk analysis that these inline filters do not have their own ignition sources according to DIN EN 80079-36.

The electronic maintenance indicators with one switching point:

WE-1SP-M12x1 **R928028409**

WE-1SP-EN175301-803 **R928036318**

are, according to DIN EN 60079-11:2012, simple, electronic operating equipment without their own voltage source.

Note:

According to DIN EN 60079-14:2014, in intrinsically safe electric circuits (Exib), this simple, electronic operating equipment may be used in systems without marking and certification.

The duplex filters and electronic maintenance indicators described here can be used for the following potentially explosive areas:

	Zone suitability	
	1	2
Gas	1	2
Dust	21	22

Directives and standardization

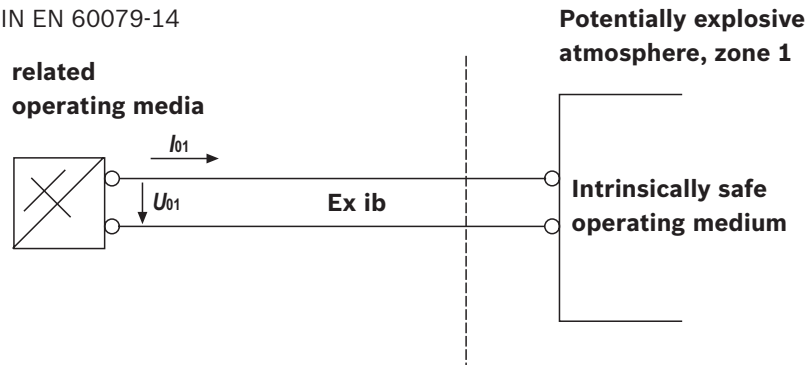
Complete filter with mechanical / optical maintenance indicator			
Use /assignment		Gas 2G	Dust 2D
Assignment ¹⁾		Ex h II c T6...T1 Gb	Ex h II C T70°C...T450°C Db
Conductivity of the medium	pS/m	min	300
Dust accumulation		max	-
			0.5 mm

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
		max	1.0 W T4 T _{max} 80 °C
Surface temperature ²⁾		max	-
			100 °C
inner capacity	Ci		neglectable
inner inductivity	Li		neglectable
Dust accumulation		max	-
			0.5 mm

¹⁾ TX = max. operating temperature, see the section "Technical data"

²⁾ 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!

- ▶ Risk of explosion 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 to ensure that the maximum permissible ignition temperature is not exceeded in the potentially explosive area.
- ▶ When using the duplex filters according to 51482 in

potentially explosive areas, sufficient equipotential bonding must be ensured. The filter should ideally be earthed via the mounting screws. In this respect, please note that paintwork and oxidic protective layers are not electrically conductive.

- ▶ When exchanging the filter element, the packaging material is to be removed from the replacement element outside the potentially explosive area

👉 Notes:

- ▶ Maintenance by specialist staff only.
Instruction by the machine end-user according to DIRECTIVE 1999/92/EC appendix II, section 1.1
- ▶ Functional and safety warranty is only valid 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 admissible.

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.

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