

Low Pressure Filter

Pi 270

Operating pressure 10 bar, Nominal size up to 315

1. Features

Efficient filters for modern hydraulic systems

- Modular design
 - Minimal pressure loss
 - Compact design
 - Visual / electrical / electronic differential pressure indication
 - Threaded ports
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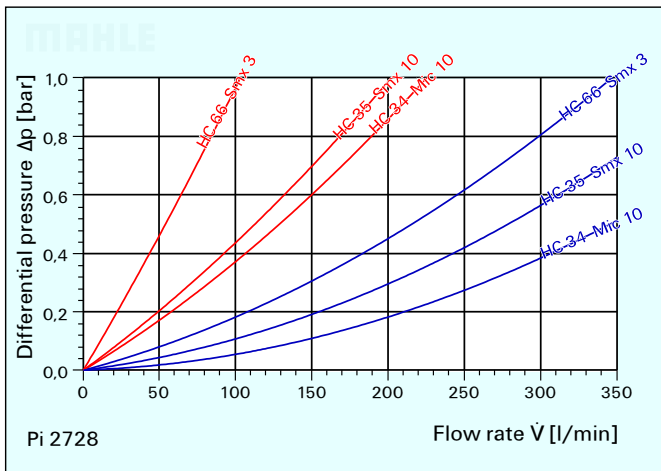
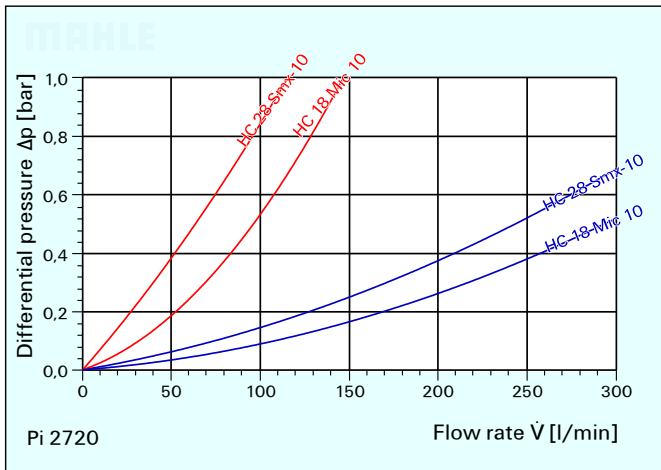
Quality filters, easy to service

- Highly efficient Sm-x-filter elements
 - β -rated elements per ISO 4572
 - Large dirt holding capacity and high differential pressure stability providing optimal element service life
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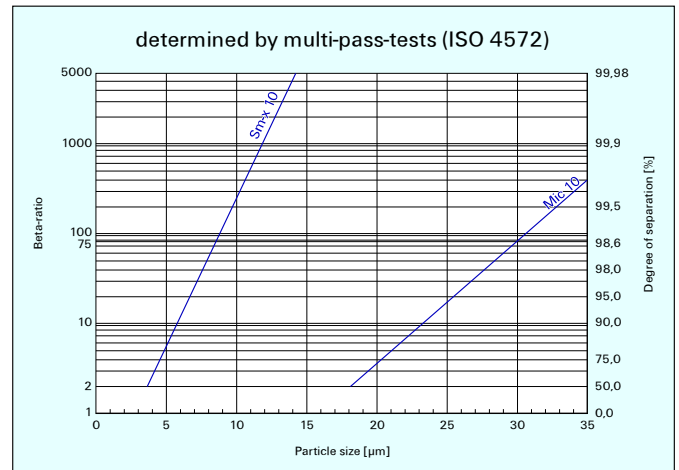
World-wide sales



2. Flow rate/pressure drop curve compl. filter



3. Separation characteristics



Example for ordering filters:

(pressure-side)

$\dot{V} = 250$ l/min, bypass, electrical indicator

Type-no. Pi 2720-058

Order-no. 769.406.0

+ 2. Spin-on-cartridges Mic 10

Type-no. HC 18

Order-no. 764.333.1

190 mm²/s (25° E)

33 mm²/s (4,5° E)

4. Test regulations

MAHLE filter elements are manufactured respectively, tested in accordance with the following international standards:

No.	Designation
ISO 2941	Hydraulic-filter elements: Verification of burst resistance
ISO 2942	Hydraulic-filter elements: Determination of fabrication integrity
ISO 2943	Hydraulic-filter elements: Verification of material compatibility with hydraulic fluids
ISO 3723	Hydraulic-filter elements: Method for testing end-cap load
ISO 3724	Hydraulic-filter elements: Verification of flow fatigue characteristics
ISO 3968.2	Hydraulic-filters: Evaluation of pressure drop versus flow
ISO 4572	Hydraulic-filter elements: Testing of filter performance (multi-pass-test)

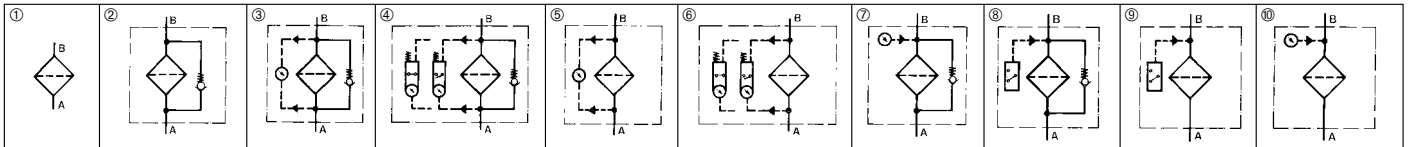
5. Order numbers for pressure side installation

6. Order numbers for suction side installation

5.1 Housing design										5.2 Spin-on cartridges			6.1 Housing design													
Order number	Type number	Nominal size (NG)	①	②	③	④	⑤	⑥		() = filter surface area [] = type no.				①	②	⑦	⑧	⑨	⑩	Nominal size (NG)	Type number	Order number				
			standard	with bypass valve 3,5 bar	with bypass valve 3,5 bar and visual indicator	with bypass valve 3,5 bar and electrical indicator	with visual indicator	with electrical indicator		Mic 10 Δp 5 bar	Sm-x 3 Δp 5 bar	Sm-x 10 Δp 5 bar		standard	with Bypass valve 0,25 bar	with bypass valve 0,25 bar and vacuum meter	with bypass valve 0,25 bar and vacuum switch	with vacuum switch	with vacuum meter							
		250							}	(7000 cm ²)		(3400 cm ²)	}							80						
769.401.1	Pi 2720-060																							Pi 2720-060	769.401.1	
769.402.9	Pi 2720-056											764.333.1			764.339.8										Pi 2720-067	769.409.4
769.407.8	Pi 2720-057											[HC 18]			[HC 28]										Pi 2720-062	769.410.2
769.406.0	Pi 2720-058											764.333.1													Pi 2720-061	769.411.0
769.404.5	Pi 2720-068																								Pi 2720-065	769.408.6
769.403.7	Pi 2720-069																				Pi 2720-066	769.405.2				
		315							}	(13500 cm ²)	(7500 cm ²)	(7500 cm ²)	}							125						
769.412.8	Pi 2728-060																								Pi 2728-060	769.412.8
769.413.6	Pi 2728-056											750.419.4		871.475.0	764.384.4										Pi 2728-067	769.420.1
769.418.5	Pi 2728-057											[HC 34]		[HC 66]	[HC 35]										Pi 2728-062	769.421.9
769.417.7	Pi 2728-058											750.419.4													Pi 2728-061	769.422.7
769.415.1	Pi 2728-068																								Pi 2728-065	769.419.3
769.414.4	Pi 2728-069																				Pi 2728-066	769.416.9				

When filter with non bypass configuration is selected, a Δp of 5 bar may not be exceeded.

7. Symbols



8. Specifications

Design:	line mounting filter
Operating pressure:	10 bar*
Test pressure:	13 bar
Temperature range:	-10 °C to +120 °C (other temperatures on request)
Bypass opening pressure:	
pressure side:	Δp 3,5 bar \pm 10%
suction side:	Δp 0,25 bar \pm 10%
Filter head material:	GAL
Spin-on-cartridge material:	St
Material of seals:	NBR / AL
Activating pressure of visual / electrical differential pressure indicator:	Δp 2,2 bar \pm 0,3 bar
Indicating range vacuum gauge:	-1 bar up to +1,5 bar
Pressure setting vacuum switch:	200 mbar
Type of protection (suction side):	IP 54
Electrical data of contamination indicator:	
Maximum voltage:	230 V \sim / =
Maximum current on contact:	2,5 A
Maximum contact load:	60 VA / 40 W
Inrush current:	70 VA
Type of protection (pressure side):	IP 65 when inserted and secured
Contact:	bistable
Cable connection:	PG 11 \varnothing 6-10

The electrical indicator function can be changed from the Normally Open position to the Normally Closed position or visa versa by inverting the electrical section.

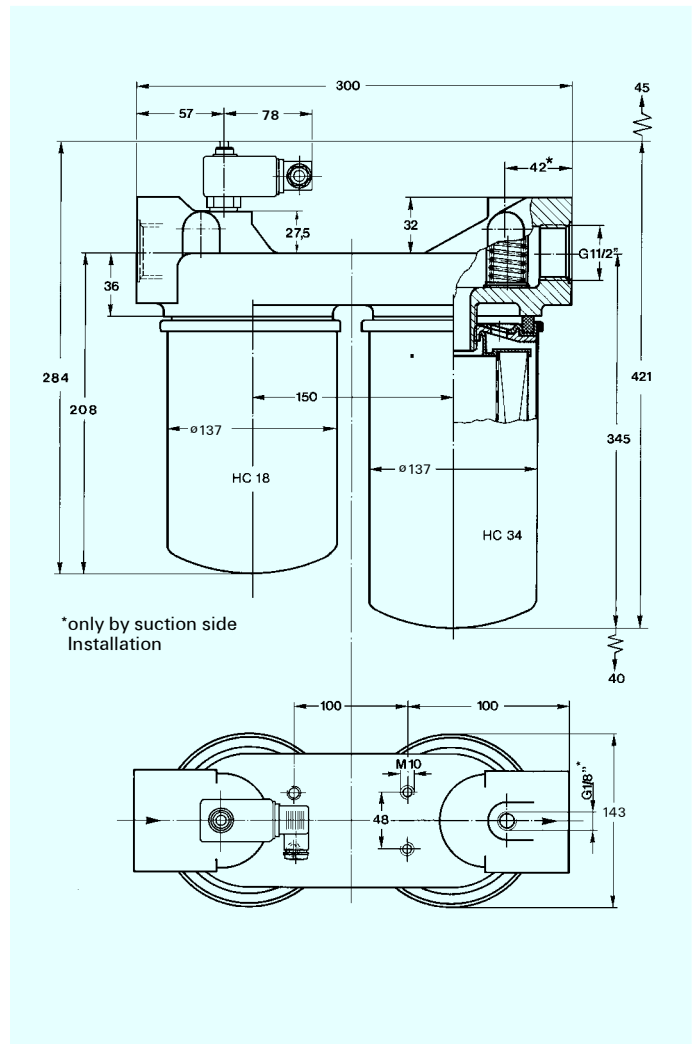
With the inrush current of 70 VA the indicator can trigger small contactors or contactor relays.

Inductivity in the direct current may require the use of a signal eraser.

For further information and executions please see our leaflet: Contamination indicators.

Spin-on cartridges are compatible with standard mineral oils. Please contact us in case of using other media.

9. Dimensions



10. Installation, operating and maintenance instructions

10.1 Filter installation

When installing the filter make sure that sufficient space is available to remove the spin-on cartridge. Preferably the filter should be installed with the spin-on cartridge pointing downwards. The contamination indicator must be visible.

10.2 Connecting the electrical contamination indicator

The electrical indicator is connected via a 2-pole appliance plug according to DIN 43650 with poles marked 1 and 2. The electrical section can be inverted to change from Normally Open position to Normally Closed position or visa versa.

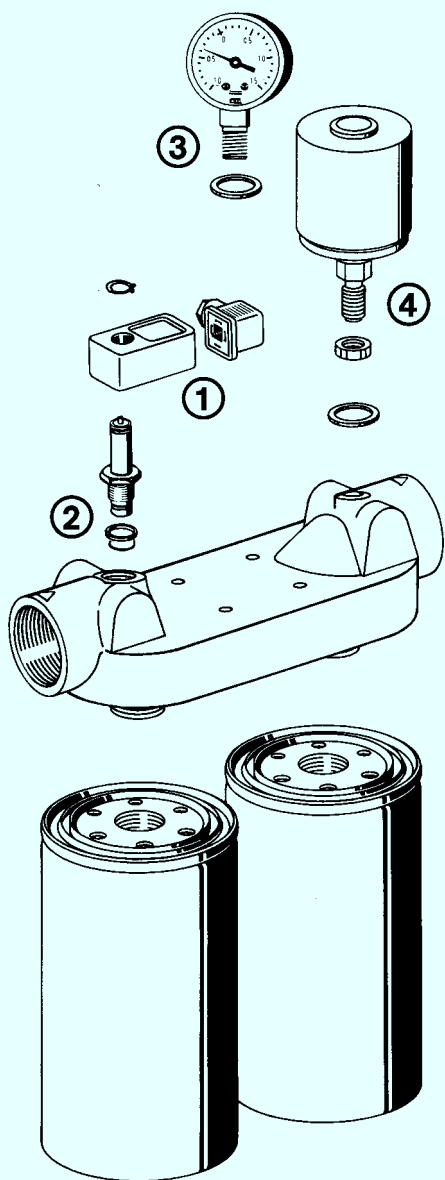
10.3 When must the spin-on cartridge be replaced?

- Filters equipped with the visual and electrical contamination indicator:
During cold starts, the indicator may give a warning signal. Depress the red button of the visual indicator once again only after operating temperature has been reached. If the red button immediately pops out again and/or the electrical signal has not switched off after reaching operating temperature, the spin-on cartridge must be replaced after the end of the shift.
- Filters without contamination indicator:
the spin-on cartridge should be replaced after the trial run or flushing of the system. Afterwards follow instructions of the manufacturer.
- Please always ensure that you have original MAHLE-replacement cartridges in stock.

10.4 Change of spin-on cartridge

- Stop plant and relieve filter from pressure.
- Unscrew the spin-on cartridge with the aid of a belt spanner by turning same to the left.
- Check if the part number on the new spin-on cartridge is identical with that of the type plate.
- The seal of the screw-on cartridge should be lightly oiled.
- Screw cartridge on in accordance with the printed-on instructions.

Subject to technical changes.



11. Spare parts list

Pos.	Order-no./Type-no.		
①	Contamination indicator		
	visual	electrical	electrical section only
	766.997.1 Pis 3098/2,2	766.994.8 Pis 3097/2,2	753.655.0
②	Seal set for contamination indicator NBR 776.030.9		
③	Vacuum meter 754.802.7		
④	Vacuum switch 766.972.4 Pis 3070 / 200 mbar		

MAHLE

MAHLE Filtersysteme GmbH

Bereich Industriefilter · Schleifbachweg 45 · D-74613 Öhringen · Postfach 13 09 · D-74603 Öhringen
Telefon (0 79 41) 67-0 · Telefax (0 79 41) 67-429 · Internet: <http://www.mahle.com> · E-mail: ub2.industrie@mahle.com