



Tank top return-line filter

Pi 500

Nominal size 40 up to 100
according DIN 24550

1. Features

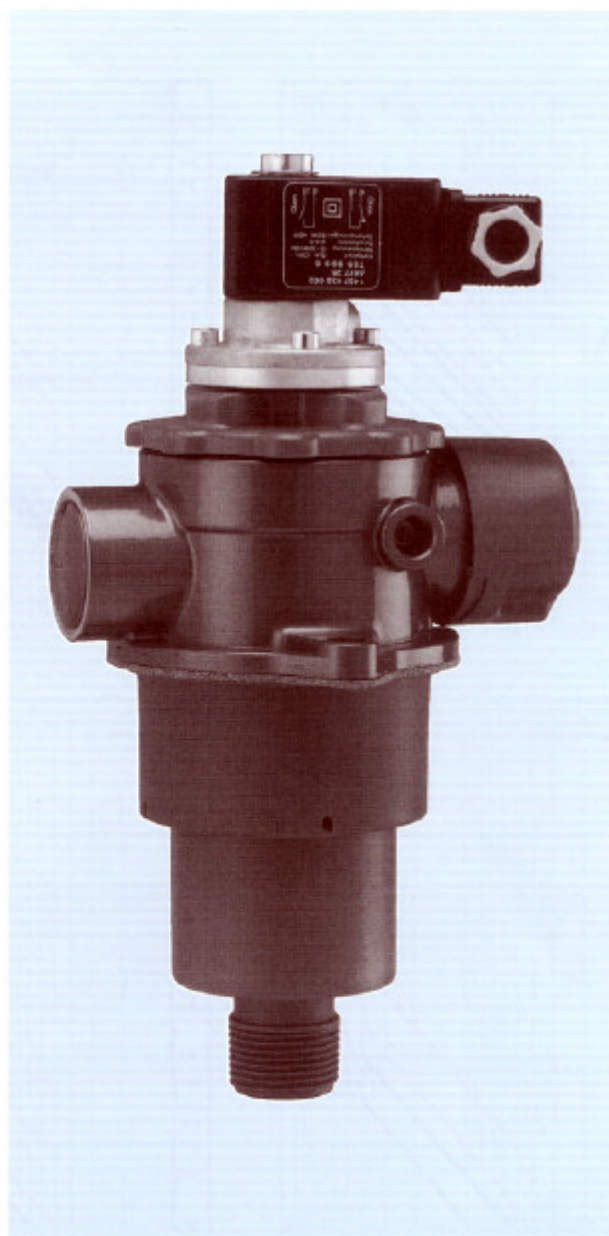
Efficient filters for modern hydraulic systems

- Modular design
- Minimal pressure loss
- Compact design
- Visual / electrical / electronic contamination control
- Threaded or flange ports

Quality filters, easy to service

- Highly efficient filter elements
- β -rated elements per ISO 4572
- Large dirt holding capacity and high differential pressure stability providing optimum element service life
- 100 % bubble-point tested elements

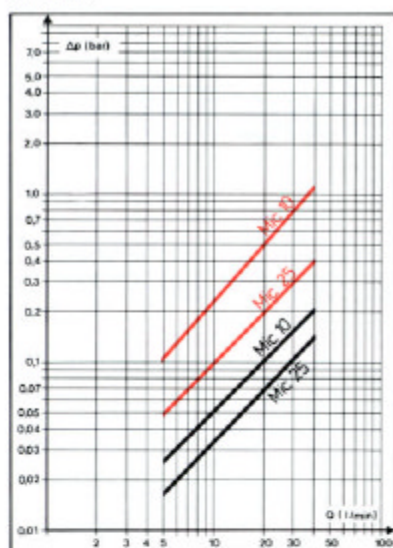
World-wide sales



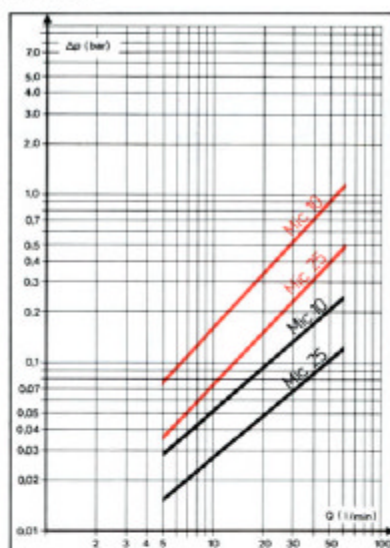
2. Flow rate/pressure drop curve compl. filter

190 mm²/s (25° E)
33 mm²/s (4,5° E)

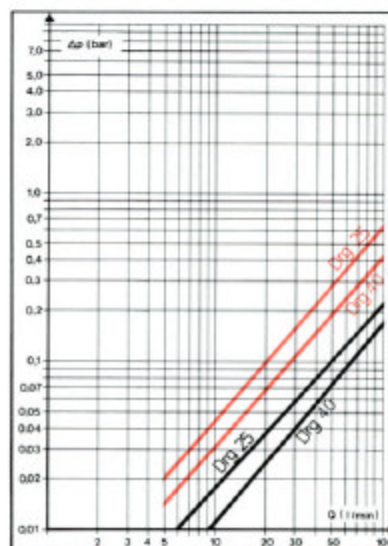
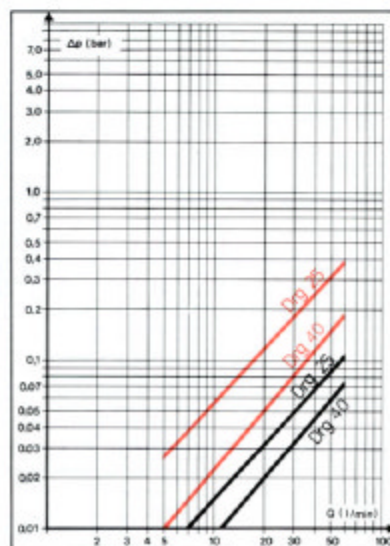
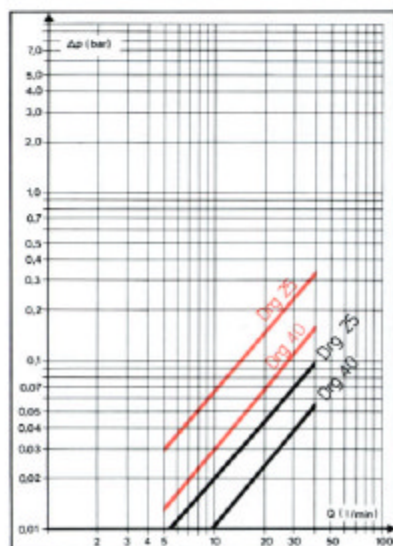
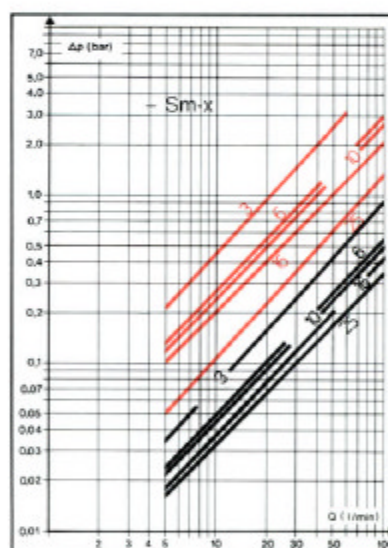
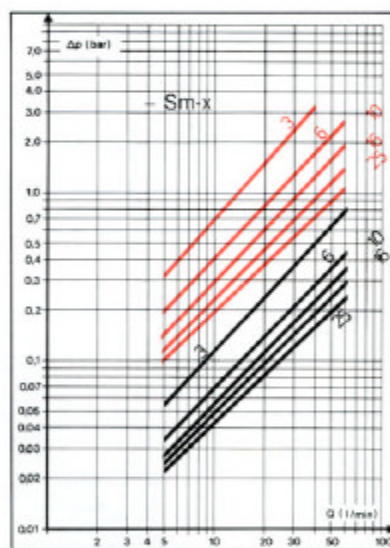
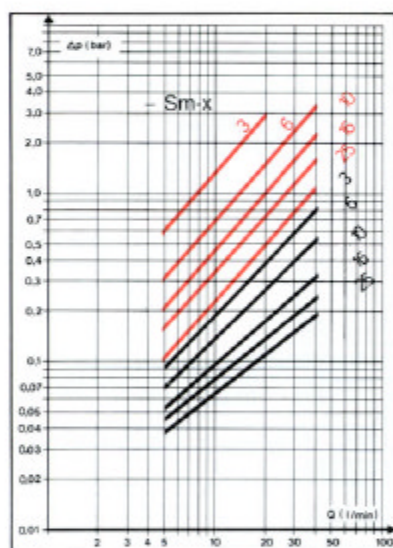
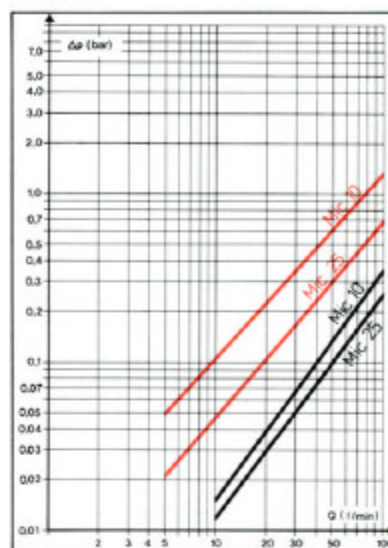
Pi 50004



Pi 50006



Pi 50010

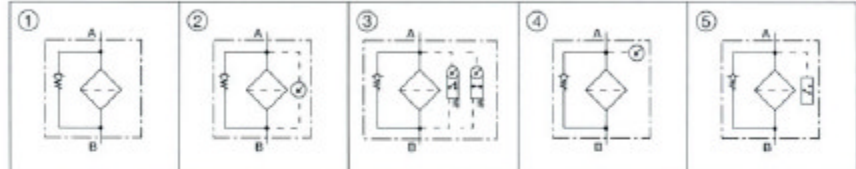


5. Test regulations

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-filter: Evaluation of pressure drop versus flow
ISO 4572	Hydraulic-filter elements: Testing of filter performance (multi-pass-test)

6. Symbols



7.2 Filter elements

() = filter surface area

Nominal size (NG)	organic paper		anorganic paper					Wire mesh	
	Mic 10 Δp 10 bar	Mic 25 Δp 10 bar	Sm-x 3 Δp 10 bar	Sm-x 6 Δp 10 bar	Sm-x 10 Δp 10 bar	Sm-x 16 Δp 10 bar	Sm-x 25 Δp 10 bar	Drg 25 Δp 10 bar	Drg 40 Δp 10 bar
40	Pi 13 004 RN (820 cm ²)	Pi 15 004 RN (820 cm ²)	Pi 21 004 RN (820 cm ²)	Pi 22 004 RN (820 cm ²)	Pi 23 004 RN (820 cm ²)	Pi 24 004 RN (820 cm ²)	Pi 25 004 RN (820 cm ²)	Pi 35 004 RN (505 cm ²)	Pi 36 004 RN (505 cm ²)
63	Pi 13 006 RN (1.445 cm ²)	Pi 15 006 RN (1.445 cm ²)	Pi 21 006 RN (1.445 cm ²)	Pi 22 006 RN (1.445 cm ²)	Pi 23 006 RN (1.445 cm ²)	Pi 24 006 RN (1.445 cm ²)	Pi 25 006 RN (1.445 cm ²)	Pi 35 006 RN (890 cm ²)	Pi 36 006 RN (890 cm ²)
100	Pi 13 010 RN (2.380 cm ²)	Pi 15 010 RN (2.380 cm ²)	Pi 21 010 RN (2.380 cm ²)	Pi 22 010 RN (2.380 cm ²)	Pi 23 010 RN (2.380 cm ²)	Pi 24 010 RN (2.380 cm ²)	Pi 25 010 RN (2.380 cm ²)	Pi 35 010 RN (1.465 cm ²)	Pi 36 010 RN (1.465 cm ²)

7.3 Sealing material

N = NBR
F = FPM
E = EPDM

7.4 Example for ordering filters:

Type no.	Housing design	Sealing material	+ filter element
Pi 50 006 - 050		- N	+ Pi 25006 RN
= NG 63	= with bypass valve 3,5 bar	= NBR	= Sm-x 25

8. Specifications

Design:	tank mounting filter
Nominal pressure:	10 bars
Test pressure:	13 bars
Temperature range:	-10 °C to +80 °C (other temperature ranges on request)
Bypass opening pressure:	Δp 3,5 bar $\pm$ 10 %
Filter head material:	GD Al
Filter bowl material:	plastic
Filter cover material:	plastic
Activating pressure of visual/ electrical pressure indicator:	Δp 2,2 bar $\pm$ 10 %
Electrical specifications of pressure indicator:	
Maximum voltage:	230 V ~/-
Maximum current on contact:	2,5 A
Maximum contact load:	60 VA/40 W
Inrush current:	70 VA
Type of protection:	IP 65 when inserted and secured
Contact:	normally open/normally closed
Cable connection:	PG 11 Ø 6-10
If desired, electrical pressure indicator may be supplied with a light.	

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

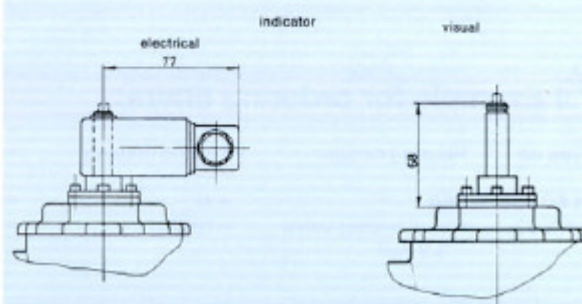
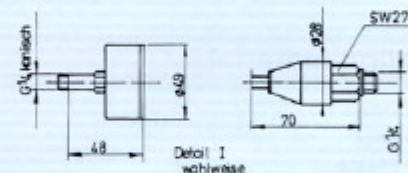
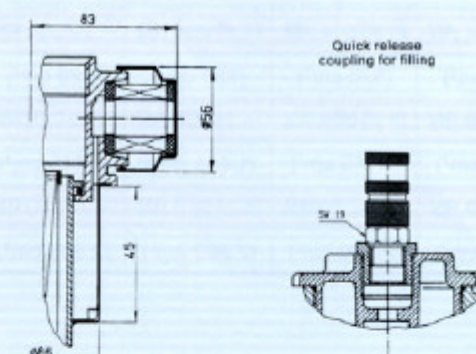
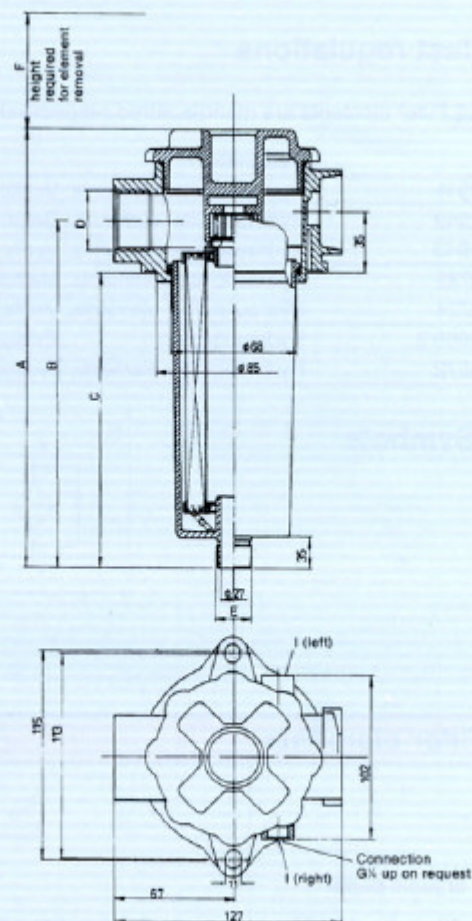
With the inrush current of 70 VA the indicator can trigger small contactors or contactor relays.

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

For further information also see our leaflet Contamination indicators!

Recommended max. flow rate of the filling unit at viscosity of 500 mm²/s and a degree of filtration 3 μ .

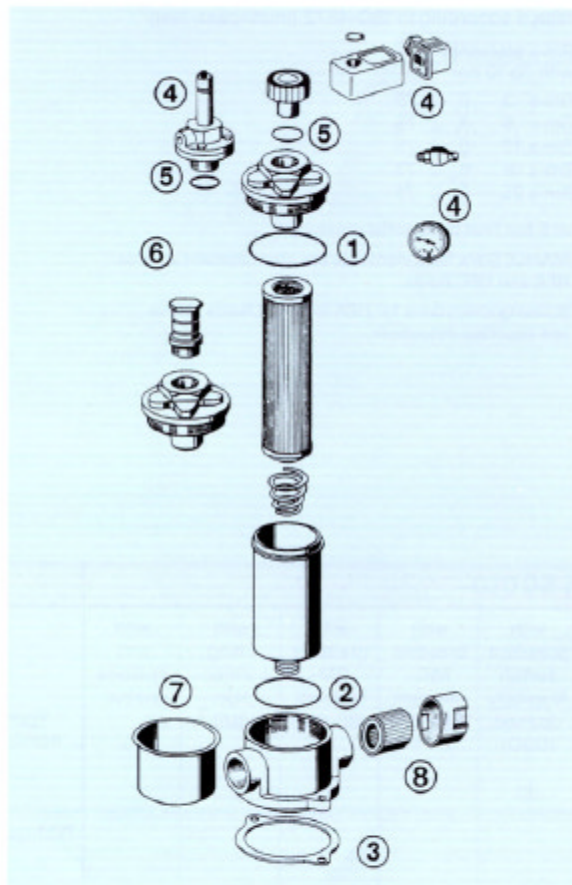
NG 40	8 l/min
NG 63	15 l/min
NG 100	25 l/min



9. Dimensions

Dimensions Type	A	B	C	D	E	F	Weight kg
PI 50 004	208	159	131	G 1	G 1 DIN 2999	100	0,65
PI 50 006	268	219	191	G 1	G 1 DIN 2999	130	0,68
PI 50 010	358	309	281	G 1	G 1 DIN 2999	200	0,74

10. Installation, operating and maintenance instructions



11. Spare parts list

	Type number/housing			
	Pi 50 004	... to ...		Pi 50 010
Pos. 1-3	Seal kit for filter housing	without air breather	with air breather	
	NBR	799.970.9	799.971.7	
	FPM	799.972.5	799.973.3	
	EPDM	799.974.1	799.975.8	
Pos. 4	Contamination indicator	electrical	Pressure	Pressure switch
	visual	773.780.2	Gauge	Normally closed
	electrical	773.803.2	only	Normally opened
	Pis3084/2.2	Pis3085/2.2	753.655.0	784.584.5
Pos. 5	Seal kit for contamination indicator	NBR	776.021.8	787.059.5
		FPM	776.022.8	
		EPDM	776.023.4	
Pos. 6	Thread connection for filling	796.901.7		
	Quick release coupling	796.513.0		
Pos. 7	Anti spillage sleeve	792.764.3		
Pos. 8	Air breather element	Mic®	Sm®	
		852.514 Mic	852.514 Sm-L	
		766.769.2	764.356.2	

10.1 Filter installation

When installing the filter make sure that:

- sufficient space is available to remove filter element and filter bowl,
- the mounting hole in the tank top is not excessively large, to ensure proper sealing.
- the filter is free of tension after installation.

Preferably the filter should be installed with the filter bowl pointing downwards. In this position the visual pressure indicator is accessible and visible.

10.2 Connecting the electrical pressure indicator

The electrical pressure 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 vice versa.

10.3 When must the filter element be replaced?

- Filters equipped with visual and/or electrical pressure indicators:
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 filter element must be replaced after the end of the shift.
- Filters without pressure indicator: the filter element should be replaced after trial run or flushing of the system. Afterwards follow instructions of the manufacturer.
- Please, always ensure that you have original MAHLE replacement elements in stock; disposable elements cannot be cleaned.

10.4 Element replacement

- Stop system and relieve filter from pressure.
- Unscrew cover, turning counter-clockwise.
- Remove filter bowl and filter element by pulling upwards.
- Remove filter element with a side-to-side motion.
- Clean the filter bowl with a suitable medium.
- Check O-rings on filter cover and filter bowl for damage. Replace, if necessary.
- Make sure that the part number on the spare element corresponds with the part number on the filter name-plate.
- Remove filter element from the plastic bag and reassemble filter in reverse order (items 1 to 6)

Subject to technical alteration without prior notice.



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