

## Tank Top Return-Line Filter Pi 530

Nominal size 35 and 50

### 1.Features

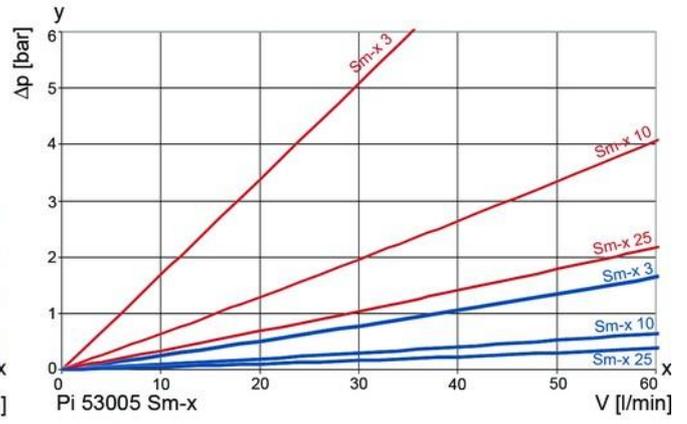
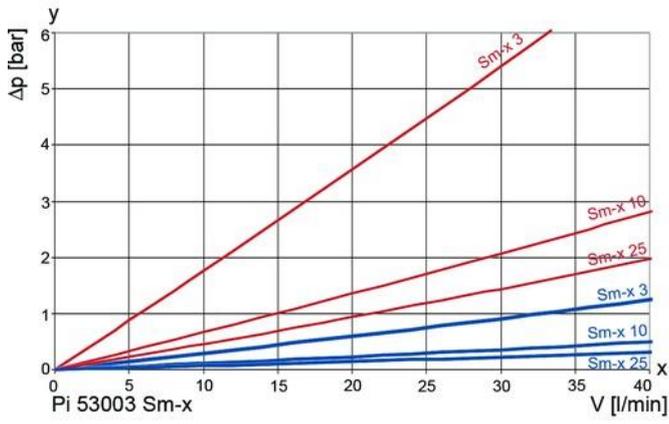
#### High performance filters for modern hydraulic systems

- Provided for tank top installation
- Modular system
- Compact design
- Minimal pressure drop through optimal flow design
- Visual/electrical/electronic maintenance control
- Threaded alt. hose connections
- Quality filters, easy to service
- Equipped with highly efficient glass fibre Sm-x filter
- Beta rated elements according to ISO 16889 multipass test
- Elements with high differential pressure stability and dirt holding capacity
- Worldwide distribution



## 2. Flow rate/pressure drop curve complete filter

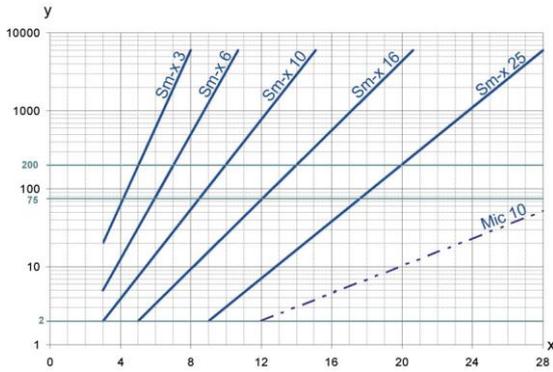
■ 190 mm<sup>2</sup>/s  
■ 33 mm<sup>2</sup>/s



y = differential pressure p [bar]

x = flow rate V [l/min]

### 3. Separation grade characteristics



y = beta-value

x = particle size [ $\mu\text{m}$ ]

determined by multipass tests (ISO 16889)

calibration according to ISO 11171 (NIST)

### 5. Quality assurance

Filtration Group filters and filter elements are produced according to the following international standards:

| Norm          | Designation  |
|---------------|--|
| DIN ISO 2 941 | Hydraulic fluid power filter elements; verification of collapse/burst resistance                         |
| DIN ISO 2 942 | Hydraulic fluid power filter elements; verification of fabrication integrity                             |
| DIN ISO 2 943 | Hydraulic fluid power filter elements; verification of material compatibility with fluids                |
| DIN ISO 3 723 | Hydraulic fluid power filter elements; method for end load test  |
| DIN ISO 3 724 | Hydraulic fluid power filter elements; verification of flow fatigue characteristics                      |
| ISO 3 968     | Hydraulic fluid power-filters-evaluation of pressure drop versus flow characteristics                    |
| ISO 10 771.1  | Fatigue pressure testing of metal containing envelopes in hydraulic fluid applications                   |
| ISO 16 889    | Hydraulic fluid power filters-multi-passmethod for evaluation filtration performance of a filter element |

### 4. Filter performance data

tested according to ISO 16889 (multipass test)

Sm-x-elements with

max.  $\Delta p$  10 bar

Sm-x 3  $\beta_{5(C)} \geq 200$

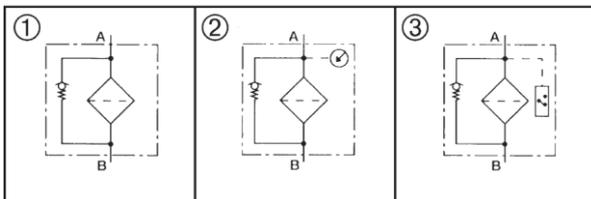
Sm-x 10  $\beta_{10(C)} \geq 200$

Sm-x 25  $\beta_{20(C)} \geq 200$

values guaranteed up to

5 bar differential pressure

### 6. Symbols



## 7. Order numbers

Example for ordering filters:

| 1. Housing design   | 2. Filter element              |
|---|--------------------------------|
| Housing NG 35 with hose connection, bypass valve, breather and pressure gauge<br>Type: Pi 53003/1-141 | Mic 10<br>Type: 852 939 Mic 10 |

| 7.1 Housing design      |                |  |                       |               |                         |  |                                      |
|-------------------------|----------------|--|-----------------------|---------------|-------------------------|--|--------------------------------------|
| Nominal size NG [l/min] | Type           | Version filter head                        | ① with bypass 1.5 bar | with breather | ② with bypass and gauge | ③ with pressure switch normally closed | ③ with pressure switch normally open |
| 35                      | Pi 53003/1-009 | Filter head PA 6 with hose-connection DN20 |                       |               |                         |  |                                      |
|                         | Pi 53003/1-020 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/1-144 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/1-145 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/1-146 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/1-141 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/1-142 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/1-143 |  |                       |               |                         |  |                                      |
|                         | Pi 53003/2-009 |  | Al-filter head G½     |               |                         |  |                                      |
|                         | Pi 53003/2-020 |  |                       |               |                         |  |                                      |
| 50                      | Pi 53005/1-009 | Filter head PA 6 with hose-connection DN20 |                       |               |                         |  |                                      |
|                         | Pi 53005/1-020 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/1-144 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/1-145 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/1-146 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/1-141 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/1-142 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/1-143 |  |                       |               |                         |  |                                      |
|                         | Pi 53005/2-009 |  | Al-filter head G½     |               |                         |  |                                      |
|                         | Pi 53005/2-020 |  |                       |               |                         |  |                                      |

| 7.2 Filter elements*    |              |                 |                 |                |                      |
|-------------------------|--------------|-----------------|-----------------|----------------|----------------------|
| Nominal size NG [l/min] | Order number | Type            | Filter material | max. Δ p [bar] | Filter surface [cm²] |
| 35                      | 78309387     | 852 939 Mic 10  | Mic 10          | 5              | 870                  |
|                         | 78206781     | 852 939 Mic 25  | Mic 25          |                |                      |
|                         | 79312117     | 852 588 Sm-x 3  | Sm-x 3          | 10             | 650                  |
|                         | 79312125     | 852 588 Sm-x 10 | Sm-x 10         |                |                      |
|                         | 79312133     | 852 588 Sm-x 25 | Sm-x 25         |                |                      |
| 50                      | 78309395     | 852 940 Mic 10  | Mic 10          | 5              | 1100                 |
|                         | 79312315     | 852 940 Mic 25  | Mic 25          |                |                      |
|                         | 79312158     | 852 945 Sm-x 3  | Sm-x 3          | 10             | 810                  |
|                         | 79312166     | 852 945 Sm-x 10 | Sm-x 10         |                |                      |
|                         | 79312174     | 852 945 Sm-x 25 | Sm-x 25         |                |                      |

\* a wider range of element types is available on request

| 7.3 Breather element (only for filter head PA 6, batch size 3 pcs.) |              |         |                 |                                      |
|---|--------------|---------|-----------------|--------------------------------------|
| Nominal size<br>NG [l/min]  | Order number | Type    | Filter material | Filter surface<br>[cm <sup>2</sup> ] |
| 35  | 78206831     | 852 937 | Mic             | 40                                   |
| 50  |              |         |                 |                                      |

## 8. Technical Specifications

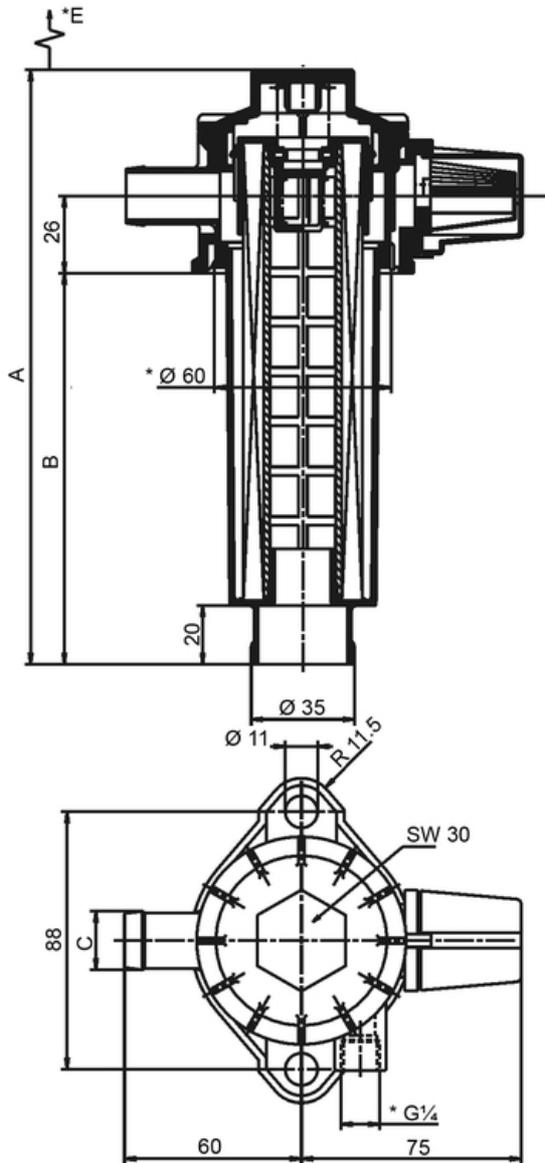
|  |   |
|--|---|
| Design:                                    | tank mounting filter  |
| Nominal pressure:                          | 6 bar (90 psi)  |
| Test pressure:                             | 9 bar (130 psi)   |
| Temperature range:                         | -10 °C to +80 °C<br>(other temperature ranges on request)                             |
| Bypass setting:                            | $\Delta p$ 1.5 bar  |
| Filter head material:                      | plastic-PA 6/Al   |
| Filter housing material:                   | plastic PA 6  |
| Filter cover material:                     | plastic PA 6  |
| Indication range of<br>pressure gauge:     | 0 to 4 bar  |
| Activating pressure<br>of pressure switch: | 1.2 bar   |
| Electrical data of pressure switch:        |   |
| Max. voltage:                              | 42 V  |
| Max. current:                              | 2 A   |
| Contact load:                              | 100 VA  |
| Type of protection:                        | IP 65 - with protection cap   |
| Contact:                                   | normally open/closed  |
| Electrical connection:                     | AMP 6,3 DIN 46248<br>connector according to<br>DIN 46247,<br>connection method 2-pole |

We draw attention to the fact that all values indicated are average values which do not always occur in specific cases of application. Our products are continually being further developed. Values, dimensions and weights can change as a result of this. Our specialized department will be pleased to offer you advice.

We recommend to contact us concerning applications of our filters in areas governed by the EU Directive 94/9 EC (ATEX 95). The standard version can be used for liquids based on mineral oil (corresponding to the fluids in Group 2 of Directive 97/23 EC Article 9). If you consider to use other fluids please contact us for additional support.

Subject to technical alteration without prior notice.

## 9. Dimensions

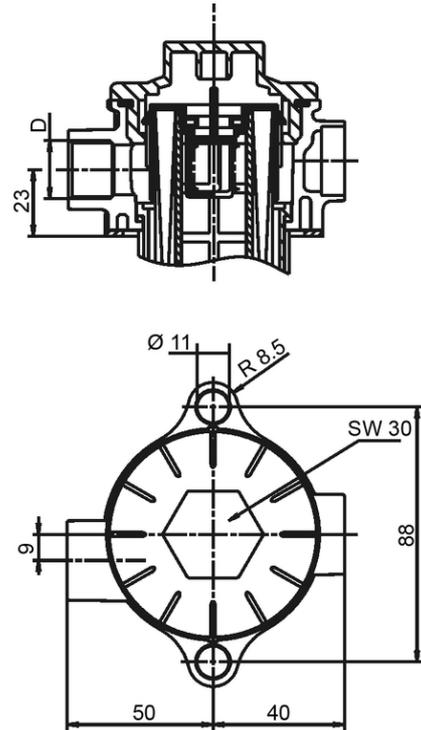


Version with filter head PA 6

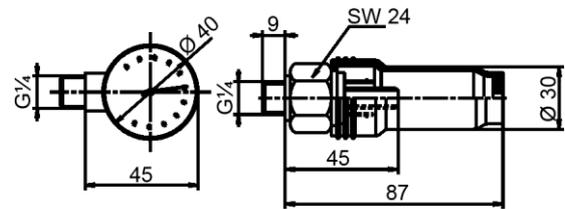
\*E= Minimum clearance for filter element removal

\* Ø 60= Mounting hole Ø 60

\*G¼= Option



Version with filter head AI



All dimensions except "D" in mm.

| Type       | A   | B     | C    | D  | E   |
|------------|-----|-------|------|----|-----|
| Pi 53003/1 | 203 | 133,5 | DN20 | -  | 130 |
| Pi 53003/2 | 203 | 135,5 | -    | G½ | 130 |
| Pi 53005/1 | 241 | 171,5 | DN20 | -  | 180 |
| Pi 53005/2 | 241 | 173,0 | -    | G½ | 180 |

## 10. Installation, operating and maintenance instructions

### 10.1 Filter installation

When installing the filter make sure that :

- Sufficient space is available to remove filter element and filter housing
- The mounting hole in the tank top is not excessively large, to ensure proper sealing,
- The filter is free of tension after installation, max. torque 7 Nm.  
Preferably the filter should be installed with the filter housing pointing downwards.

### 10.2 Connecting the electrical pressure switch

The electrical pressure switch is connected via connectors according to DIN 46247.

### 10.3 When should the filter element be replaced?

- Filters equipped with pressure gauge:  
When the dynamic pressure reaches 1.2 bar (red/green indication), the filter element must be replaced.
- Filters equipped with pressure switch:  
During cold starts, the pressure switch may give a signal. If 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 indicator:  
The filter element should be replaced after trial run or flushing of the system.  
Afterwards follow instructions of manufacturer.
- Please, always ensure that you have original Filtration Group spare elements in stock: Disposable elements (Mic, Sm-x) cannot be cleaned.

### 10.4 Element replacement

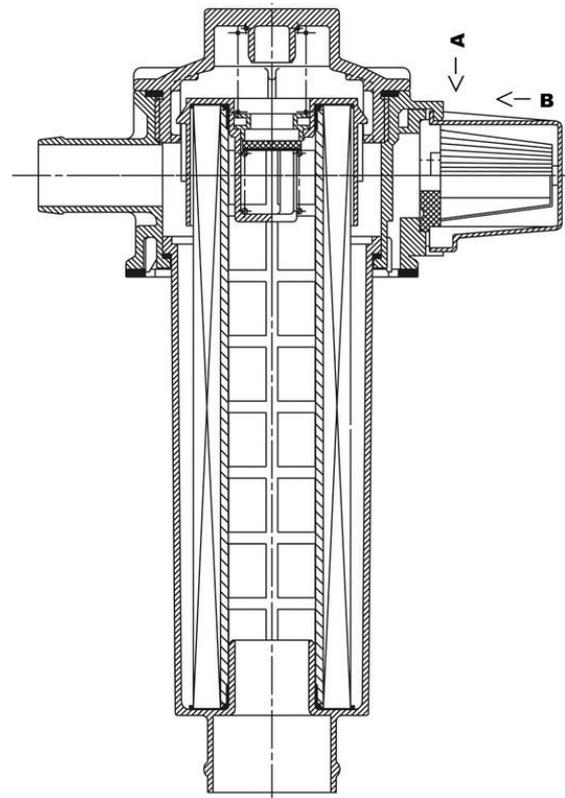
- Stop system and relieve filter from pressure.
- Unscrew cover, turning counter-clockwise.
- Remove filter housing and filter element by pulling upwards.
- Remove filter element with a side-to-side motion.
- Clean the filter housing with a suitable medium.
- Check O-rings on filter cover and filter housing for damage. Replace, if necessary.
- Make sure that the order number on the spare element corresponds to the order number of the filter name-plate.
- Remove filter element from plastic bag and reassemble in reverse order (items 1 to 4). The cover have to tightened with max. 20 Nm.
- Contaminated Mic elements can be reduced to ashes. Sm-x filter elements must be disposed in another way.

### 10.5 Replacement of air breather filter element (plastic filter head only)

- Push slightly on the lid and air breather element downwards (lid A).
- Remove lid and element from the lower hook.
- Pull out element from the lid.
- Install new element in the lid.
- Installation in reverse order.
- Check correct position of the lid.

Note: Filter element and air breather element should be always replaced at the same time.

Subject to technical alteration without prior notice.



## 11. Spare parts list

| Order numbers for spare parts                        |              |
|--|--------------|
| Type   | Order number |
| Seal kit NBR   |              |
| Pi 530.../1  | 78309072     |
| Pi 530.../2  | 78206062     |
| Pressure gauge                                       | 79358326     |
| Pressure switch                                      |              |
| normally closed                                      | 77870587     |
| normally open  | 77863814     |
| Breather element for Pi 530.../1 (batch size 3 pcs.) | 78206831     |