High Pressure Filter
FSP400N..-DA

Nominal pressure 400 bar (5690 psi) Nominal Size up to 400 according DIN 24550

High performance filters for modern hydraulic systems
Features

High performance filters for modern hydraulic systems

- Modular system
- Compact design
- Minimal pressure drop through optimal flow design
- Visual/electrical/electronic maintenance indicator
- Threaded connections
- Change over valve on upstream side
- Approval: VW

Ergonomic switch-over handle with safety lock and pressure compensation
User-optimized one-hand-operation
Equipped with highly efficient filter elements
Beta rated elements according to ISO 16889 multipass test
Elements with high differential pressure stability and dirt holding capacity
Worldwide distribution

Type Code

<table>
<thead>
<tr>
<th>F</th>
<th>S</th>
<th>P</th>
<th>400</th>
<th>N</th>
<th>025</th>
<th>D</th>
<th>B</th>
<th>015</th>
<th>S3155</th>
<th>50</th>
<th>N</th>
<th>10</th>
</tr>
</thead>
<tbody>
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</table>

Filter function
- P: High pressure
- R: Low pressure
- S: Suction filter
- V: Tank filter (built-in)

Filter type
- S: Standard Filter
- D: Duplex filter

Filter-Nominal size
Value Nominal size / 10
- 025: NG250
- 040: NG400

Filter element size
D: DIN

Design of filter housing
- A: Filter housing from below

Housing style
- 015: HD without bypass, el. indicator

pressure in bar

Filter mesh
- 03 fineness 03µm
- 10 fineness 10µm

Sealing
- N: NBR
- F: FPM
- E: EPDM
- V: V

Indicator setting
Value in 0.1 bar
e.g. 50 = 5.0 bar

Indicator type
- S3155: 400 bar, opt./el., NC/NO
Flow rate/pressure drop curve complete filter

Separation grade characteristics

determined by multipass tests (ISO 16889)
calibration according to ISO 11171 (NIST)
Filter performance data

tested according to ISO 16889 (multipass test)

| PS vst-elements with max. \( \Delta p = 210 \text{ bar} \) |
|-----------------|--------|----------------|
| PS vst 3        | \( \beta_0(C) \) | \( \geq 200 \) |
| PS vst 10       | \( \beta_{10}(C) \) | \( \geq 200 \) |

Quality assurance

These filters and filter elements are produced according to the following international standards

<table>
<thead>
<tr>
<th>Norm</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN ISO 2941</td>
<td>Hydraulic fluid power filter elements; verification of collapse/burst resistance</td>
</tr>
<tr>
<td>DIN ISO 2942</td>
<td>Hydraulic fluid power filter elements; verification of fabrication integrity</td>
</tr>
<tr>
<td>DIN ISO 2943</td>
<td>Hydraulic fluid power filter elements; verification of material compatibility with fluids</td>
</tr>
<tr>
<td>DIN ISO 2923</td>
<td>Hydraulic fluid power filter elements, method for end load test</td>
</tr>
<tr>
<td>DIN ISO 2924</td>
<td>Hydraulic fluid power filter elements; verification of flow fatigue characteristics</td>
</tr>
<tr>
<td>ISO 3968</td>
<td>Hydraulic fluid power-filters-evaluation of pressure drop versus flow characteristics</td>
</tr>
<tr>
<td>ISO 10771.1</td>
<td>Fatigue pressure testing of metal containing envelopes in hydraulic fluid applications</td>
</tr>
<tr>
<td>ISO 16889</td>
<td>Hydraulic fluid power filters-multipass method for evaluation filtration performance of a filter element</td>
</tr>
</tbody>
</table>

Symbols

Order numbers

<table>
<thead>
<tr>
<th>Complete filter</th>
<th>Type Description</th>
<th>Filter Surface ( \text{cm}^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZKF05-00000002</td>
<td>FSP400N010-DA015SS3155-50N10</td>
<td>1275</td>
</tr>
<tr>
<td>ZKF05-00000004</td>
<td>FSP400N016-DA015SS3155-50N10</td>
<td>1885</td>
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<td>ZKF05-00000006</td>
<td>FSP400N025-DA015SS3155-50N10</td>
<td>3090</td>
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<td>ZKF05-00000008</td>
<td>FSP400N040-DA015SS3155-50N10</td>
<td>5240</td>
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<tr>
<td>ZKF05-00000012</td>
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<td>ZKF05-00000014</td>
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<td>1885</td>
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<tr>
<td>ZKF05-00000016</td>
<td>FSP400N025-DA015SS3155-50N03</td>
<td>3090</td>
</tr>
<tr>
<td>ZKF05-00000018</td>
<td>FSP400N040-DA015SS3155-50N03</td>
<td>5240</td>
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</tbody>
</table>
Technical specifications

Design: line mounting filter
Nominal: 400 bar (5690 psi)
Test pressure: 520 bar (7400 psi)
Temperature range: -10 °C bis +120 °C
Filter head material: GGG
Filter housing material: St
Sealing material: NBR/PTFE
Maintenance indicator setting: Δp 5 bar ±10%
Electrical data of maintenance indicator:
Max. voltage: 10-30 V DC
Max. current: 1 A
Contact load: 20 W
Type of protection: IP 65 in inserted and secured status
Connector: M12x1, 4 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.

In = Inlet
Out = Outlet

*4 Vent screw (FSP400N040)

Pos *2 Electrical upper section
Pos *3 Visual Maintenance Indicator
Pos *5 DN38 in according to SAE 1 1/2 - 6000psi
**Dimensions**

All dimensions except “C” in mm.

<table>
<thead>
<tr>
<th>Typ</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>SW</th>
<th>H</th>
<th>I</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>R</th>
<th>S</th>
<th>T</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSP400N010-DA</td>
<td>78</td>
<td>31</td>
<td>G1</td>
<td>344</td>
<td>402</td>
<td>80</td>
<td>27</td>
<td>66</td>
<td>90</td>
<td>92</td>
<td>23,5</td>
<td>54</td>
<td>47</td>
<td>M8x16</td>
<td>16</td>
<td>8</td>
<td>–</td>
<td>–</td>
<td>5,3</td>
</tr>
<tr>
<td>FSP400N016-DA</td>
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<td>46</td>
<td>G1¼</td>
<td>294</td>
<td>352</td>
<td>110</td>
<td>30</td>
<td>109</td>
<td>142</td>
<td>143,5</td>
<td>12</td>
<td>86</td>
<td>–</td>
<td>M12x15</td>
<td>–</td>
<td>23</td>
<td>–</td>
<td>–</td>
<td>12,6</td>
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<tr>
<td>FSP400N025-DA</td>
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<td>46</td>
<td>G1½</td>
<td>394</td>
<td>452</td>
<td>110</td>
<td>30</td>
<td>109</td>
<td>142</td>
<td>143,5</td>
<td>12</td>
<td>86</td>
<td>–</td>
<td>M12x15</td>
<td>–</td>
<td>23</td>
<td>–</td>
<td>–</td>
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<td>FSP400N040-DA</td>
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<td>46</td>
<td>DN 38</td>
<td>544</td>
<td>602</td>
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<td>30</td>
<td>109</td>
<td>142</td>
<td>143,5</td>
<td>12</td>
<td>86</td>
<td>–</td>
<td>M12x15</td>
<td>–</td>
<td>23</td>
<td>79,4</td>
<td>36,5</td>
<td>18,4</td>
</tr>
</tbody>
</table>

**Maintenance indicators**

Differential pressure Indicators with optical and electrical indication:

40" = 40 mm wide

**Material lower section:** CuZn
**Material upper section:** PA6

**S3154, S3155**

1. Setting point at 75 % of the indicating pressure (normally open)
2. Setting point at 100 % of the indicating pressure (normally closed)

**Max. Voltage:** 10-30 V DC
**Max. current:** 1 A
**Max. Contact load:** 20 W
**Type of protection:** IP65 in inserted and secured status
**Plug connection:** M12x1, 4-pole

**LED 1:** Ready, LED green
**LED 2:** Setting point 75%, LED yellow
**LED 3:** Setting point 100%, LED red
Installation, operating and maintenance instructions

1. Filter installation
When installing the filter make sure that sufficient space is available to remove filter element and filter housing. Preferably the filter should be installed with the filter housing pointing downwards. The maintenance indicator must be visible.

2. When should the filter element be replaced?
1. Filters equipped with visual and electrical maintenance indicator: During cold starts, the indicator may give a warning signal. Press the red button of the visual indicator once again only after operating temperature has been reached. If the red button immediately pops up 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.

2. Please always ensure that you have original Parker spare elements in stock: Disposable elements cannot be cleaned.

3. Element Replacement
Note: The maintenance indicator monitors the filter side in operation, which is identified by the position of the switching lever catch. The change-over transfer valve must be switched prior filter servicing. Now the signal of the maintenance indicators cancelled and the red button can be repressed again:

1. Operate and hold pressure equalizing lever located behind switching lever. Pull catch knob and swivel switching lever. Engage the catch on the clear filter side. Place through or drip pan underneath to collect leaving oil.

2. Loosen vent screw of the filter side not in use by 2-3 turns; max. until contact is made with the safety stop.

3. Unscrew filter housing by turning counterclockwise. Clean the housing using a suitable cleaning solvent.

4. Remove filter element by pulling down carefully.

5. Check o-ring on the filter housing for damage. Replace, if necessary.

6. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element first open the plastic bag and push the element over the spigot in the filter head. Now remove plastic bag.

7. Lightly lubricate the thread of the filter housing and screw onto the filter head completely. After that unscrew the filter housing 1/8 to 1/2 return.

8. To refill the filter chamber, operate only the pressure equalizing lever (leave the switching lever arrested in its catch) long enough for the medium to emerge bubble-free from the vent bore.

9. Tighten vent screw. Check filter for leaks by operating the pressure equalizing lever once again.
### Spare parts list

#### Order Numbers for spare parts

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
<th>Order-Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Element NG 100, 3µm</td>
<td>FDAE3A02QH</td>
</tr>
<tr>
<td></td>
<td>Element NG 100, 10µm</td>
<td>FDAE3A10QH</td>
</tr>
<tr>
<td></td>
<td>Element NG 160, 3µm</td>
<td>FDBE1A02QH</td>
</tr>
<tr>
<td></td>
<td>Element NG 160, 10µm</td>
<td>FDBE1A10QH</td>
</tr>
<tr>
<td></td>
<td>Element NG 250, 3µm</td>
<td>FDBE2A02QH</td>
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<tr>
<td></td>
<td>Element NG 250, 10µm</td>
<td>FDBE2A10QH</td>
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<tr>
<td></td>
<td>Element NG 400, 3µm</td>
<td>FDBE3A02QH</td>
</tr>
<tr>
<td></td>
<td>Element NG 400, 10µm</td>
<td>FDBE3A10QH</td>
</tr>
<tr>
<td>1+3</td>
<td>Sealing Kit</td>
<td>ZKF99-00000019</td>
</tr>
<tr>
<td></td>
<td>Sealing Kit FSP4000N010-DA</td>
<td>ZKF99-00000020</td>
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<td>Sealing Kit FSP4000N016-DA</td>
<td>ZKF99-00000020</td>
</tr>
<tr>
<td></td>
<td>Sealing Kit FSP4000N025-DA</td>
<td>ZKF99-00000020</td>
</tr>
<tr>
<td></td>
<td>Sealing Kit FSP4000N040-DA</td>
<td>ZKF99-00000020</td>
</tr>
<tr>
<td>2+4</td>
<td>Maintenance Indicator, complete unit</td>
<td>ZKF99-00000030</td>
</tr>
<tr>
<td></td>
<td>2 Switch points S3155-50</td>
<td>ZKF99-00000030</td>
</tr>
<tr>
<td>4</td>
<td>Maintenance Indicator, only electrical unit</td>
<td>ZKF99-00000033</td>
</tr>
<tr>
<td></td>
<td>2 Switch points S3155-50</td>
<td>ZKF99-00000033</td>
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