Series DU 1050-2050
464 PSI

Position I: Left filter-side in operation
Position II: Right filter-side in operation

Execution DU 2050

1) Connection for the potential equalization, only for application in the explosive area.

Execution DU 1050

Weight DU1050: approx. 331 lbs.
Weight DU2050: approx. 441 lbs.

Dimensions: inches

Designs and performance values are subject to change.
Pressure Filter, change over
Series DU 1050-2050
464 PSI

Description:
Pressure filter change over series DU 1050-2050 have a working pressure up to 464 PSI. Pressure peaks can be absorbed with a sufficient safety margin.

A changeover ball valve between the two filter housings makes it possible to switch from the dirty filter side to the clean filter side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of star-shaped, pleated filter material, which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to inside.

For cleaning the stainless steel mesh element or changing the filter element, remove the cover and take out the element. The mesh elements are not guaranteed to maintain 100% performance after cleaning.

For filtration finer than 40 μm, use the disposable elements made of microglass. Filter elements as fine as 5 μm(c) are available; finer filter elements are available upon request.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

Eaton filter can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

The internal valves are integrated in the filter cover. After reaching the bypass pressure setting, the bypass valve will send unfiltered partial flow around the filter.

Ship classifications available upon request.

Type index:

Complete filter: (ordering example)

DU.1050. 10VG. 10. B. P. -. FS. B. -. -. - AE

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>series:</td>
<td>DU = pressure filter, change over</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nominal size:</td>
<td>1050, 2050</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

filter-material:
- 80G, 40G, 25G stainless steel wire mesh
- 25VG, 16VG, 10VG, 6VG, 3VG microglass
- 25API, 10API microglass according to API
- 10P paper

filter element collapse rating:
- 10 = ΔP 145 PSI

filter element design:
- B = both sides open
- V = Viton (FPM)

sealing material:
- P = Nitrile (NBR)
- V = Viton (FPM)

filter element specification:
- = standard
- VA = stainless steel
- IS06 = for HFC application, see sheet-no. 31601
- IS07 = for oil/ammonia mixtures (NH₃), see sheet-no. 31602

process connection:
- FS = SAE-flange connection 3000 PSI

process connection size:
- B = 4”
- A = 3” (with counter flange BFS.B.E.88,9x3,2.ST.P.3000)

filter housing specification:
- = standard
- IS12 = internal parts of change over armature stainless steel, see sheet-no. 41028

pressure vessel specification:
- = standard (PED 2014/68/EU)
- IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
  (max. operating pressure 232 PSI)

internal valve:
- = without
- S = with bypass valve ΔP 29 PSI
- S1 = with bypass valve ΔP 51 PSI

filter assembly:
- = without
- AOR = visual, see sheet-no. 1606
- AOC = visual, see sheet-no. 1606
- AE = visual-electric, see sheet-no. 1609
- OP = visual, see sheet-no. 1628
- OE = visual-electric, see sheet-no. 1628
- VS5 = electronic, see sheet-no. 1641

To add an indicator/sensor to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

Filter element: (ordering example)

01NR. 1000. 10VG. 10. B. P. -

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>series:</td>
<td>01NR = standard-return-line filter element according to DIN 24550, T4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nominal size:</td>
<td>1000, 1001 (only with DU2050)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accessories:
- gauge port and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1651
- SAE-counter flanges, see sheet-no. 1652
- shut-off valve, see sheet-no. 1655
Technical data:
operating temperature: +14°F to +212°F
operating medium: mineral oil, other media on request
max. operating pressure: 464 PSI
test pressure: 900 PSI
max. operating pressure with IS20: 232 PSI
test pressure with IS20: 464 PSI
process connection: SAE-flange connection 3000 PSI
sealing material: Nitrile (NBR) or Viton (FPM), other materials on request
installation position: vertical
measuring connections: BSPP ¼
drain- and bleeder connections: BSPP ½
volume tank DU1050: 2x 3.62 gal.
volume tank DU2050: 2x 6.31 gal.

Classified under the Pressure Equipment Directive 2014/68/EU for mineral oil (fluid group 2), Article 4, Para. 3.
Classified under ATEX Directive 2014/34/EU according to specific application (see questionnaire sheet-no. 34279-4).

Pressure drop flow curves:

Filter calculation/sizing
The pressure drop of the assembly at a given flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

\[ \Delta p_{\text{assembly}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}} \]
\[ \Delta p_{\text{housing}} = (\text{see } \Delta p = f(Q) - \text{characteristics}) \]
\[ \Delta p_{\text{element}} (\text{PSI}) = Q \left( \frac{\text{GPM}}{1000} \right) \left( \frac{\text{PSI}}{\text{GPM}} \right) \times \sqrt{\frac{p}{0.876}} \times \frac{\text{kg}}{\text{dm}^3} \]

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

Material gradient coefficients (MSK) for filter elements
The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

<table>
<thead>
<tr>
<th>DU</th>
<th>3VG</th>
<th>6VG</th>
<th>10VG</th>
<th>16VG</th>
<th>25VG</th>
<th>25G</th>
<th>40G</th>
<th>80G</th>
<th>10P</th>
<th>10API</th>
<th>25API</th>
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</thead>
<tbody>
<tr>
<td>1050</td>
<td>0.237</td>
<td>0.165</td>
<td>0.105</td>
<td>0.092</td>
<td>0.063</td>
<td>0.0061</td>
<td>0.0057</td>
<td>0.0039</td>
<td>0.051</td>
<td>0.053</td>
<td>0.024</td>
</tr>
<tr>
<td>2050</td>
<td>0.118</td>
<td>0.082</td>
<td>0.053</td>
<td>0.046</td>
<td>0.031</td>
<td>0.0030</td>
<td>0.0028</td>
<td>0.0019</td>
<td>0.026</td>
<td>0.027</td>
<td>0.012</td>
</tr>
</tbody>
</table>

\[ \Delta p = f(Q) - \text{characteristics according to ISO 3968} \]
The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm³. The pressure drop changes proportionally to the density.
Symbols:
- without indicator
- with bypass valve
- with electric indicator
- with visual-electric indicator
- with electric indicator
- with visual-electric indicator
- with visual-electric indicator
- with electronic sensor

Spare parts:

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty.</th>
<th>Designation</th>
<th>Dimension DU 1050</th>
<th>Dimension DU 2050</th>
<th>Article-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>filter element (DU1050)</td>
<td>01NR.1000...</td>
<td>01NR.1000... or 1001</td>
<td>306941 (NBR) 307031 (FPM)</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>O-ring (DU1050)</td>
<td>90 x 4</td>
<td></td>
<td>314419 (NBR) 316530 (FPM)</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>gasket</td>
<td>3 6</td>
<td></td>
<td>311275</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>O-ring</td>
<td>114 x 6</td>
<td></td>
<td>314419 (NBR) 316530 (FPM)</td>
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<tr>
<td>6</td>
<td>4</td>
<td>O-ring</td>
<td>140 x 4</td>
<td></td>
<td>305145 (NBR) 305201 (FPM)</td>
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<tr>
<td>7</td>
<td>2</td>
<td>O-ring</td>
<td>38 x 3</td>
<td></td>
<td>304340 (NBR) 317013 (FPM)</td>
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<tr>
<td>8</td>
<td>4</td>
<td>O-ring</td>
<td>8 x 2</td>
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<td>310004 (NBR) 316530 (FPM)</td>
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<tr>
<td>9</td>
<td>2</td>
<td>O-ring</td>
<td>85.32 x 3.53</td>
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<td>305590 (NBR) 306308 (FPM)</td>
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<tr>
<td>10</td>
<td>2</td>
<td>screw plug</td>
<td>BSPP ¼</td>
<td></td>
<td>305003</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
<td>screw plug (DU1050)</td>
<td>BSPP ½</td>
<td></td>
<td>305003</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>connecting pipe (DU2050)</td>
<td>1.54 dia</td>
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<td>313233</td>
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<tr>
<td>13</td>
<td>1</td>
<td>clogging indicator, visual</td>
<td>AOR or AOC see sheet no. 1606</td>
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<tr>
<td>14</td>
<td>1</td>
<td>clogging indicator, visual</td>
<td>OP see sheet no. 1628</td>
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<tr>
<td>15</td>
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<td>clogging indicator, visual-electric</td>
<td>OE see sheet no. 1628</td>
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<tr>
<td>16</td>
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<td>clogging indicator, visual-electric</td>
<td>AE see sheet no. 1609</td>
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<tr>
<td>17</td>
<td>1</td>
<td>clogging sensor, electronic</td>
<td>VS5 see sheet no. 1641</td>
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<td></td>
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<tr>
<td>18</td>
<td>2</td>
<td>screw plug</td>
<td>BSPP ¾</td>
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<td>305003</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>pressure balance valve</td>
<td>3/8”</td>
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<td>305000</td>
</tr>
</tbody>
</table>

Item 18 execution only without clogging indicator or clogging sensor

Test methods:
- Filter elements are tested according to the following ISO standards:
  - ISO 2941 Verification of collapse/burst resistance
  - ISO 2942 Verification of fabrication integrity
  - ISO 2943 Verification of material compatibility with fluids
  - ISO 3723 Method for end load test
  - ISO 3724 Verification of flow fatigue characteristics
  - ISO 3968 Evaluation of pressure drop versus flow characteristics
  - ISO 16889 Multi-pass method for evaluating filtration performance

For more information, please email us at filtration@eaton.com or visit www.eaton.com/filtration