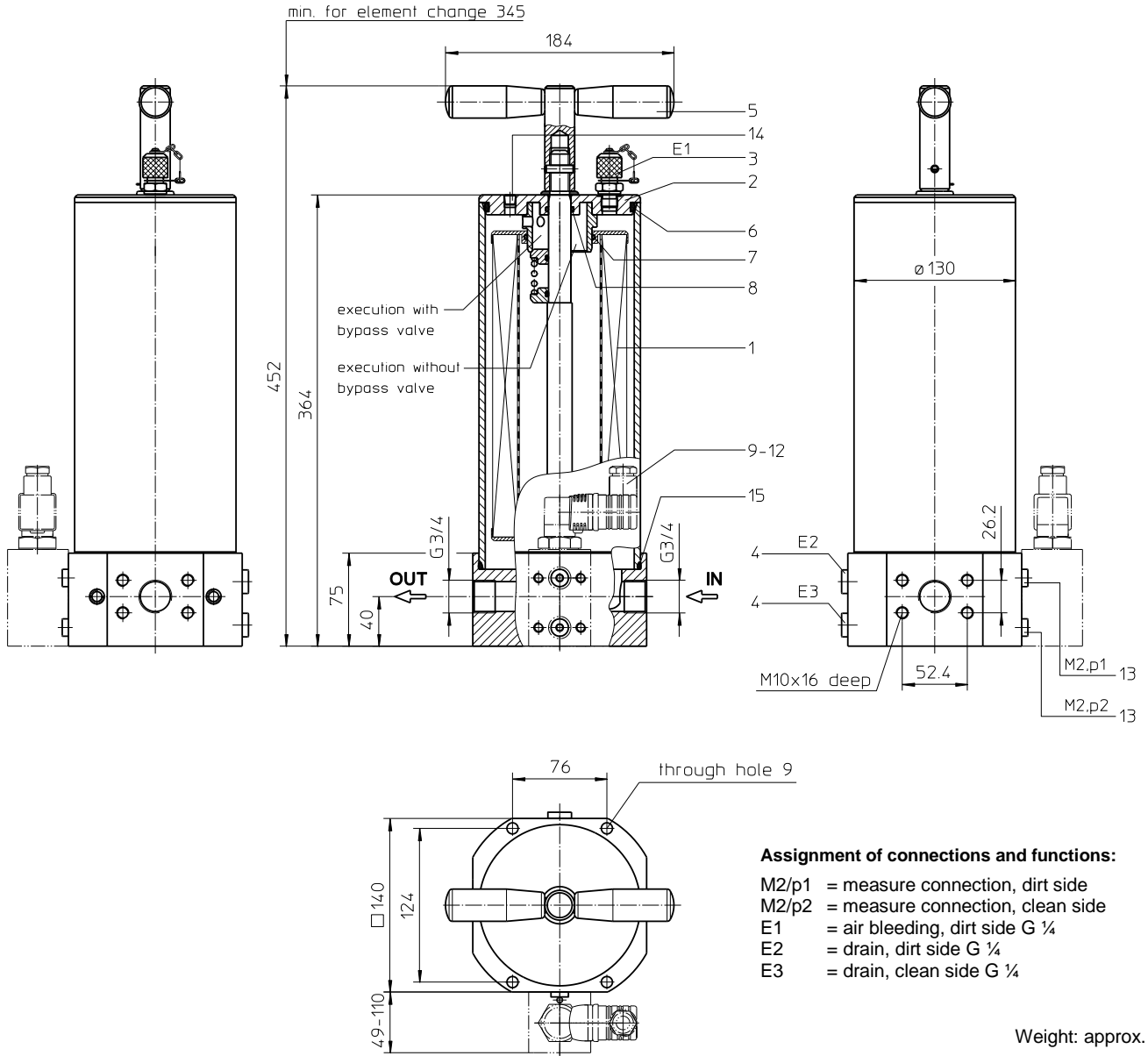


Series NF 250 DN25 PN16



Assignment of connections and functions:

- M2/p1 = measure connection, dirt side
- M2/p2 = measure connection, clean side
- E1 = air bleeding, dirt side G ¼
- E2 = drain, dirt side G ¼
- E3 = drain, clean side G ¼

Weight: approx. 8 kg

Dimensions: mm

Designs and performance values are subject to change.

EDV 01/20

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Offline Filter

Series NF 250

DN25 PN16

Description:

The offline filter NF 250 is foreseen for the fine filtration of hydraulic and lubrication circuits additionally to the main filter.

The big filtration area in comparison to the nominal size is the premise for a high dirt-retaining capacity even in case of small filter-fineness. The filter NF is flanged mounted to the line.

Filter elements as fine as 5 µm_(c) are available; finer filter elements on request. Element change without tools is possible. After release of the straining screw and removal of the cover the elements are accessible and could be changed.

The filter elements were delivered completely inclusive seals. Cleaning of the elements not possible therefore the user should have enough spare elements on stock.

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

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

1. Type index:

1.1. Complete filter: (ordering example)

NF. 250. 10VG. 10. B. P. - . FS. 5. - . - . AE

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|----|----|----|

- 1 | **series:**
NF = offline filter
- 2 | **nominal size:** 250
- 3 | **filter-material:**
25VG, 16VG, 10VG, 6VG, 3VG microglass
10WVG, 3WVG watersorp-filter element
- 4 | **filter element collapse rating:**
10 = Δp 10 bar
- 5 | **filter element design:**
B = both sides open
- 6 | **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 | **filter element specification:**
- = standard
VA = stainless steel
IS06 = for HFC applications, see sheet-no. 31601
- 8 | **process connection:**
FS = SAE-flange connection 3000 PSI ¹⁾
- 9 | **process connection size:**
5 = 1" ¹⁾
- 10 | **filter housing specification:**
- = standard
IS06 = for HFC applications, see sheet-no. 31605
- 11 | **internal valve:**
- = without
S1 = with bypass valve Δp 3,5 bar
- 12 | **clogging indicator or clogging sensor:**
- = without
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

¹⁾ in addition available:
thread G ¾ according to DIN 3852 T2, design Z

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.

1.2. Filter element: (ordering example)

01NR. 250. 10VG. 10. B. P. -

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

- 1 | **series:**
01NR = standard return line filter element according to DIN 24550, part 4
- 2 | **nominal size:** 250
- 3 | - | 7 | see type index-complete filter

Accessories:

- gauge port- and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1651



Technical data:

| | |
|---------------------------------|--|
| operating temperature: | -10°C bis +100°C |
| operating medium | mineral oil, other media on request |
| max. operating pressure: | 16 bar |
| test pressure: | 23 bar |
| process connection: | SAE-flange connection 3000 PSI |
| housing material: | aluminium forging alloy |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| measure connection: | G ¼ (mini-measuring) |
| drain- and bleeder connections: | G ¼ |
| volume tank: | 3,3 l |

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).

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:

$$\Delta p_{assembly} = \Delta p_{housing} + \Delta p_{element}$$

$$\Delta p_{housing} = (\text{see } \Delta p = f(Q) - \text{characteristics})$$

$$\Delta p_{element} (mbar) = Q \left(\frac{l}{min} \right) \times \frac{MSK}{10} \left(\frac{mbar}{l/min} \right) \times v \left(\frac{mm^2}{s} \right) \times \frac{p}{0,876} \left(\frac{kg}{dm^3} \right)$$

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

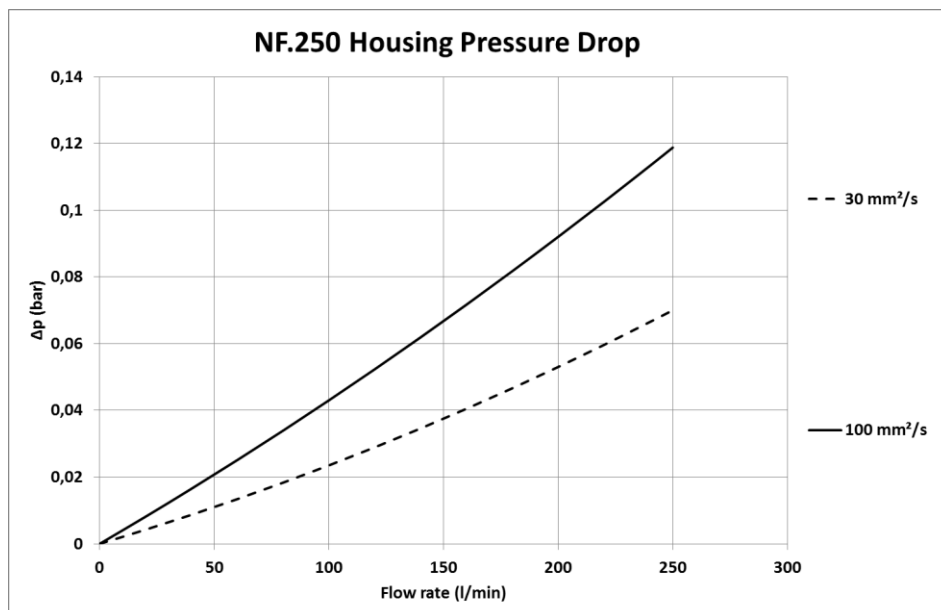
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in mbar/(l/min) apply to mineral oil (HLP) with a density of 0,876 kg/dm³ and a kinematic viscosity of 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

| NF | VG | | | | |
|-----|----------|-------|------------|-------|-------|
| | 3VG/3WVG | 6VG | 10VG/10WVG | 16VG | 25VG |
| 250 | 0,555 | 0,385 | 0,247 | 0,215 | 0,147 |

$\Delta p = f(Q)$ – characteristics according to ISO 3968

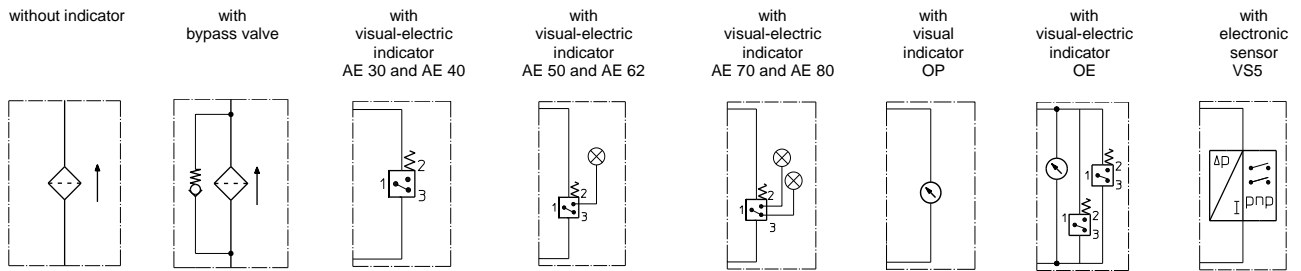
The pressure drop characteristics apply to mineral oil (HLP) with a density of 0,876 kg/dm³. The pressure drop changes proportionally to the density.



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Symbols:



Spare parts:

| item | qty. | designation | dimension | article-no. | |
|------|------|-------------------------------------|-------------|--------------------|--------------|
| 1 | 1 | filter element | 01NR.250... | | |
| 2 | 1 | filter cover without bypass valve | 30631-3 | | |
| | 1 | filter cover with bypass valve S1 | 33127-3 | | |
| 3 | 1 | mini-measuring connection | MA.1.ST | 305453 | |
| 4 | 2 | screw plug | G 1/4 | 305003 | |
| 5 | 1 | straining screw | 30631-3 | 316404 | |
| 6 | 1 | O-ring | 110 x 6 | 337001 (NBR) | 337002 (FPM) |
| 7 | 2 | O-ring | 52 x 3 | 314206 (NBR) | 316698 (FPM) |
| 8 | 1 | O-ring | 18 x 3 | 304359 (NBR) | 304399 (FPM) |
| 9 | 1 | clogging indicator, visual | OP | see sheet-no. 1628 | |
| 10 | 1 | clogging indicator, visual-electric | OE | see sheet-no. 1628 | |
| 11 | 1 | clogging indicator, visual-electric | AE | see sheet-no. 1609 | |
| 12 | 1 | clogging sensor, electronic | VS5 | see sheet-no. 1641 | |
| 13 | 2 | screw plug | G 1/8 | 304791 | |
| 14 | 1 | screw plug | G 1/8 | 305496 | |
| 15 | 1 | O-ring | 123 x 4 | 337003 (NBR) | 337004 (FPM) |

item 13 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 |

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