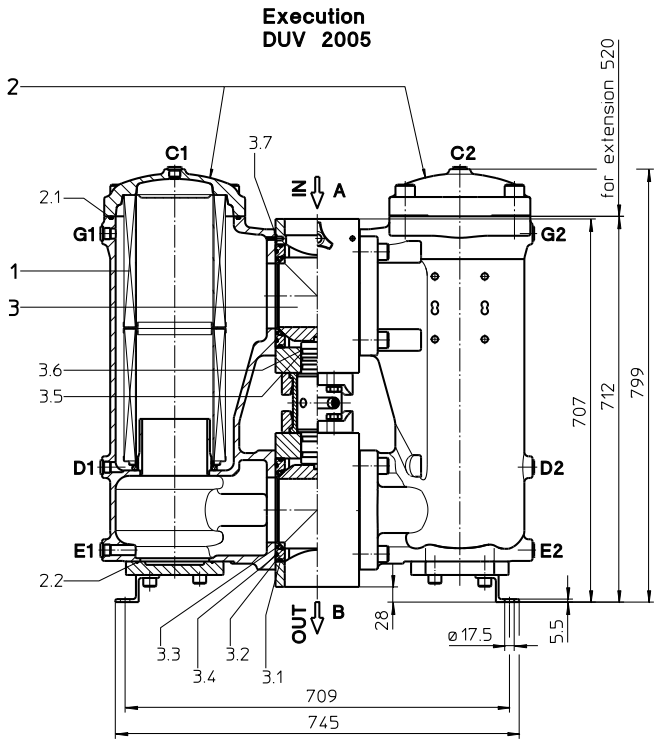
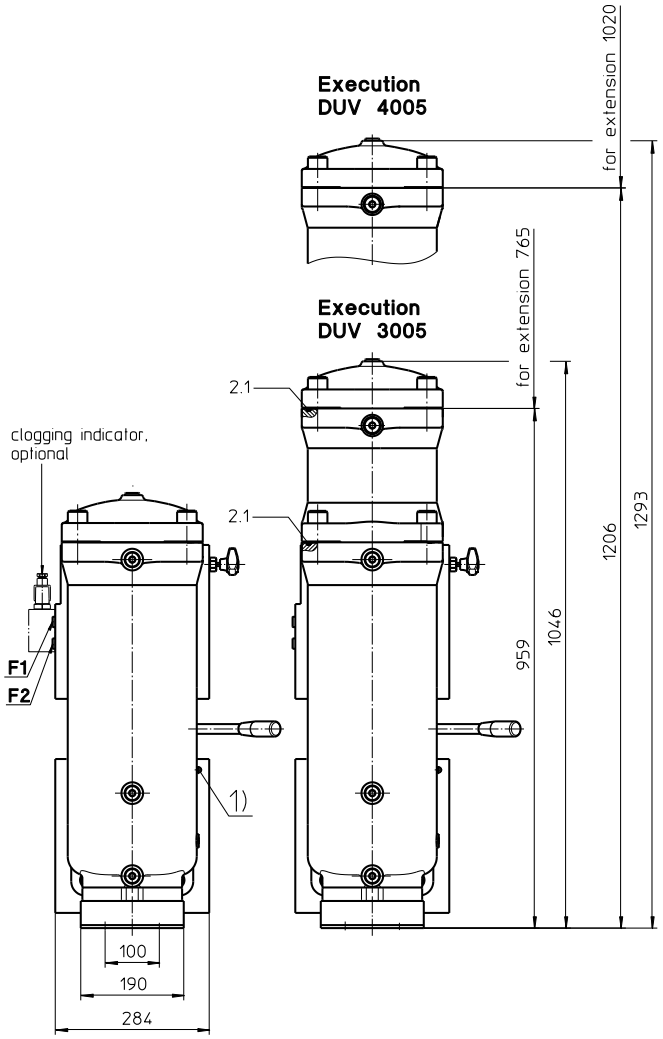
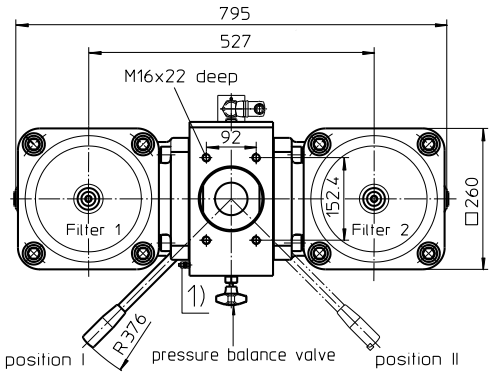
# Series DUV 2005-4005
# DN125 PN32

**Assignment of connections and functions:**

**A:** process inlet SAE 5” 3000 PSI
**B:** process outlet SAE 5” 3000 PSI
**C1/C2:** air bleeding G ½
**D1/D2:** drain G ½, dirt side
**E1/E2:** drain G ½, clean side
**F1:** measuring connection G ¼, dirt side
**F2:** measuring connection G ¼, clean side
**G1/G2:** air bleeding G ½




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

Position I: Filter 1 in operation
Position II: Filter 2 in operation

Weight DUV2005: approx. 340 kg
Weight DUV3005: approx. 402 kg
Weight DUV4005: approx. 436 kg

Dimensions: mm

Designs and performance values are subject to change.

# Pressure Filter, changeover Series DUV 2005-4005 DN125 PN32

## Description:

Pressure filter, change over series DUV 2005-4005 have a working pressure up to 32 bar. 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 (see special leaflets 21070-4 and 39448-4) 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)

| DUV. | 2005. | 10VG. | 10. | E. | P. | -. | FS. | C. | -. | -. | -. | AE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |

1 **series:**
DUV = pressure filter, change over with vertical connecting line

2 **nominal size:** 2005, 3005, 4005

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

4 **filter element collapse rating:**
10 = Δp 10 bar

5 **filter element design:**
E = without bypass valve
S = with bypass valve Δp 2,0 bar
S1 = with bypass valve Δp 3,5 bar

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

7 **filter element specification:**
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601

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

9 **process connection size:**
C = 5”

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

11 **pressure vessel specification:**
- = standard (PED 2014/68/EU)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217 (max. operating pressure 16 bar)

12 **internal valve:**
- = without

13 **clogging indicator or clogging sensor:**
- = 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)

| 01E. | 2001. | 10VG. | 10. | E. | P. | - |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

1 **series:**
01E = filter element according to company standard

2 **nominal size:** 2001, 3001, 4001

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
- SAE-counter flanges, see sheet-no. 1652
- shut-off valve, see sheet-no. 1655

# Technical data:

| | |
|---|---|
| operating temperature: | -10°C to +100°C |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 32 bar |
| test pressure: | 64 bar |
| max. operating pressure with IS20: | 16 bar |
| test pressure with IS20: | 32 bar |
| process connection: | SAE-flange connection 3000 PSI |
| housing material: | EN-GJS-400-18-LT |
| switching housing-material: | S235J2+N |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| measuring connections: | G ¼ |
| drain- and bleeder connections: | G ½ |
| volume tank DUV2005: | 2x 29 l |
| volume tank DUV3005: | 2x 38 l |
| volume tank DUV4005: | 2x 47 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).

# 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:

$\Delta p_{assembly} = \Delta p_{housing} + \Delta p_{element}$
$\Delta p_{housing}$ = *(see Δp = f (Q) - characteristics)*

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

For ease of calculation our Filter Selection tool is available online at www.eaton.com/hydraulic-filter-evaluation

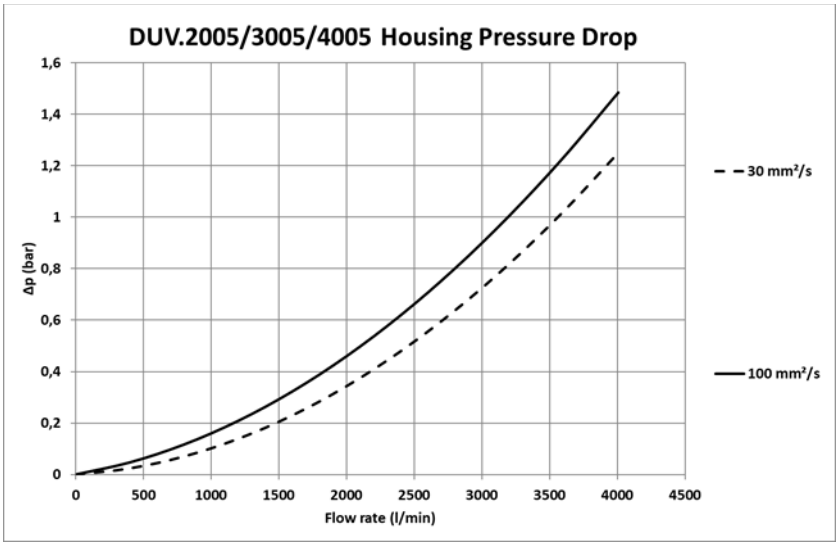
## Material gradient coefficients (MSK) for filter elements

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.

| DUV | VG | | | | | G | | | P | API | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3VG | 6VG | 10VG | 16VG | 25VG | 25G | 40G | 80G | 10P | 10API | 25API |
| **2005** | 0,147 | 0,102 | 0,065 | 0,057 | 0,039 | 0,0048 | 0,0045 | 0,0031 | 0,033 | 0,033 | 0,015 |
| **3005** | 0,098 | 0,068 | 0,043 | 0,038 | 0,026 | 0,0032 | 0,0030 | 0,0021 | 0,022 | 0,022 | 0,010 |
| **4005** | 0,073 | 0,051 | 0,033 | 0,028 | 0,019 | 0,0024 | 0,0023 | 0,0015 | 0,017 | 0,016 | 0,007 |

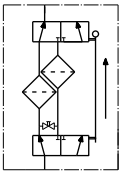
## Δp = f(Q) – characteristics according to ISO 3968

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.

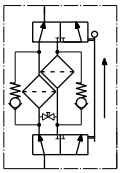


## Symbols:

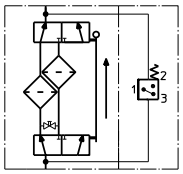
without indicator



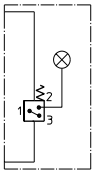
with bypass valve



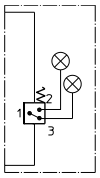
with electric indicator AE 30 / AE 40



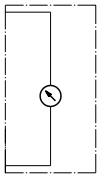

with visual-electric indicator AE 50 / AE 62



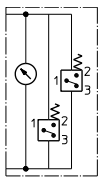

with visual-electric indicator AE 70 / AE 80 / AE90



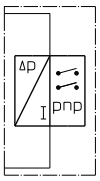

with visual indicator OP



with visual-electric indicator OE




with electronic sensor VS5




## Spare parts:

| item | qty. | designation | dimension | | | article-no. | |
|---|---|---|---|---|---|---|---|
| | | | DUV 2005 | DUV 3005 | DUV 4005 | | |
| **1** | 2 | filter element | 01.E2001… | 01.E3001… | 01.E4001… | | |
| **2** | **1** | **gasket kit filter housing** | | | | | |
| 2.1 | 2 | O-ring (DUV 2005) | 240 x 5 | | | 307592 (NBR) | 328793 (FPM) |
| | 4 | O-ring (DUV 3005/4005) | 240 x 5 | | | 307592 (NBR) | 328793 (FPM) |
| 2.2 | 2 | O-ring | 136,12 x 3,53 | | | 320162 (NBR) | 320163 (FPM) |
| **3** | **1** | **gasket kit of switching over consisting of:** | 5“ (DN125) | | | 322726 (NBR) | 322727 (FPM) |
| 3.1 | 4 | O-ring | 175 x 5 | | | | |
| 3.2 | 4 | O-ring | 160 x 5 | | | | |
| 3.3 | 4 | O-ring | 135 x 3 | | | | |
| 3.4 | 4 | gasket | DN125 | | | | |
| 3.5 | 4 | O-ring | 53 x 3,55 | | | | |
| 3.6 | 4 | support ring | 60 x 54,9 x 5 | | | | |
| 3.7 | 2 | O-ring | 10 x 2 | | | | |

## 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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