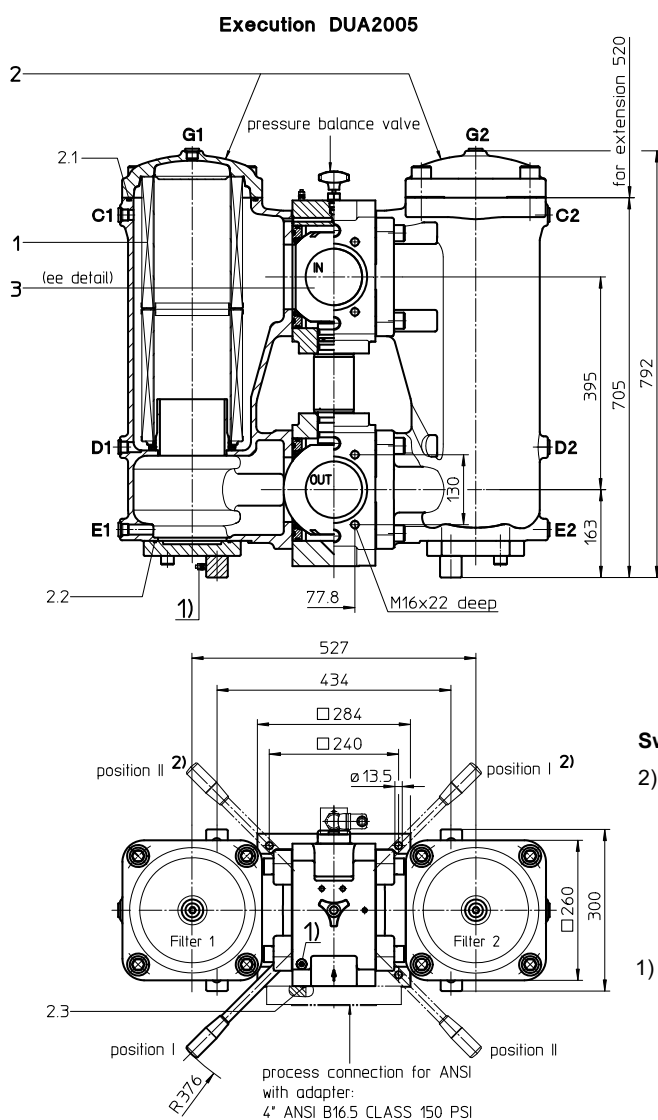


Series DUA 2005-4005

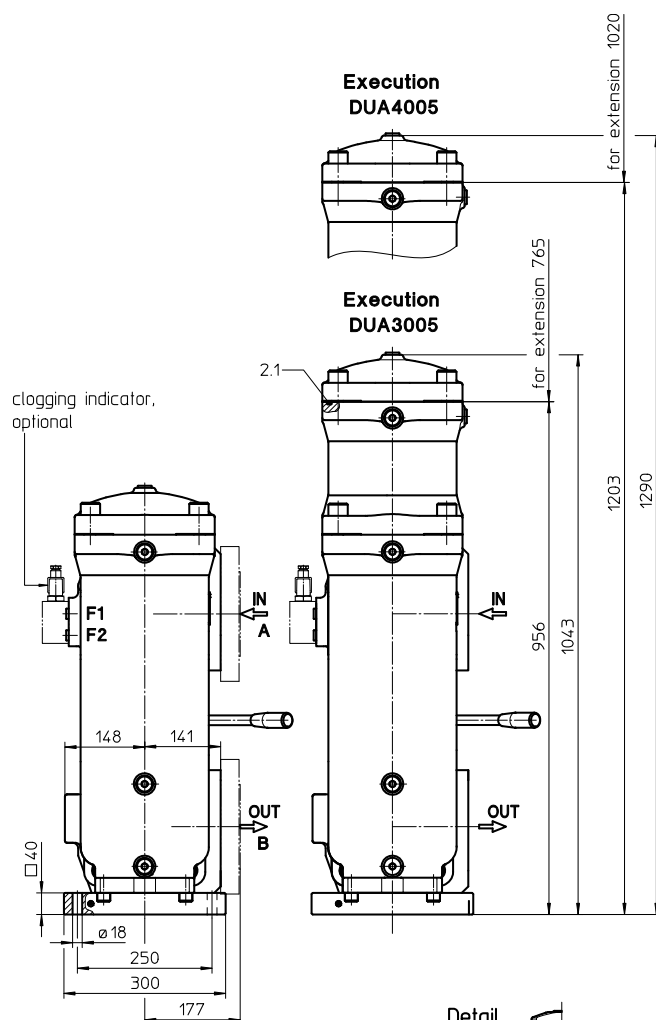
DN100 PN22

Assignment of connections and functions:

- A:** process inlet SAE 4" 3000 PSI
B: process outlet SAE 4" 3000 PSI
C1/C2: air bleeding G 1/2
D1/D2: drain G 1/2, dirt side
E1/E2: drain G 1/2, clean side
F1: measuring connection G 1/4, dirt side
F2: measuring connection G 1/4, clean side
G1/G2: air bleeding G 1/2

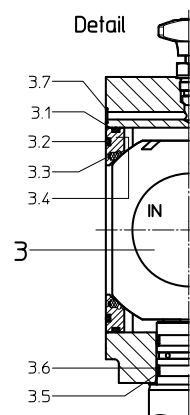


Position I: Filter 1 in operation
Position II: Filter 2 in operation



Switch lever standard in the front.

- On request:
The switch lever can be moved to backside of the changeover valve, opposite to the inlet and outlet. Please specify this configuration on the order.
- Connection for the potential equalization, only for application in the explosive area.



Weight DUA 2005: approx. 321 kg
Weight DUA 3005: approx. 393 kg
Weight DUA 4005: approx. 419 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, changeover

Series DUA 2005-4005

DN100 PN22

Description:

Pressure filter, change over series DUA 2005-4005 have a working pressure up to 22 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.

Ship classifications available upon request.

Type index:

Complete filter: (ordering example)

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

1 series:

DUA = pressure filter, change over, acc. to ASME-code

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 by-pass valve
S = with by-pass valve Δp 2,0 bar
S1 = with by-pass 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
FA11 = flange ANSI CLASS 150 PSI,
sealing surface Rz = 160 µm (not finer than 40 µm)
FA12 = flange ANSI CLASS 150 PSI,
sealing surface Rz = 16

9 process connection size:

B = 4" (DN100)

10 filter housing specification:

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

11 pressure vessel specification:

IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

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:	22 bar
test pressure acc. to ASME VIII Div. 1:	2 x operating pressure = 44 bar
test pressure acc. to API 614, Chapter 1:	1,5 x operating pressure = 33 bar
process connection:	SAE-flange connection 3000 PSI or ANSI-flange B16.5 CLASS 150 PSI
housing material:	EN-GJS-400-18-LT/SA395-60-40-18
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 DUA 2005:	2x 29 l
volume tank DUA 3005:	2x 38 l
volume tank DUA 4005:	2x 47 l
operating pressure adapter flanges:	(FA11/FA12) according to B16.5 CLASS 150 (Pressure-Temperature Rating Diagramm)

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:

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

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

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

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

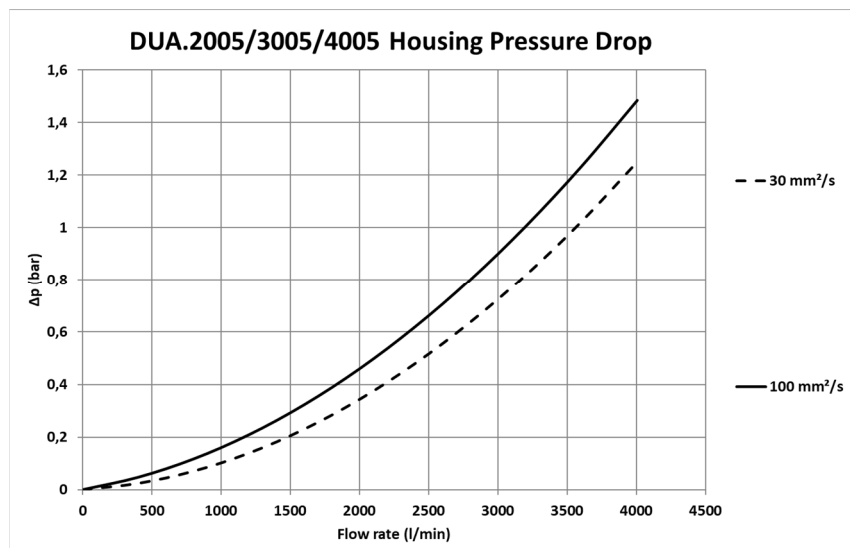
Material gradient coefficients (MSK) for filter elements

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.

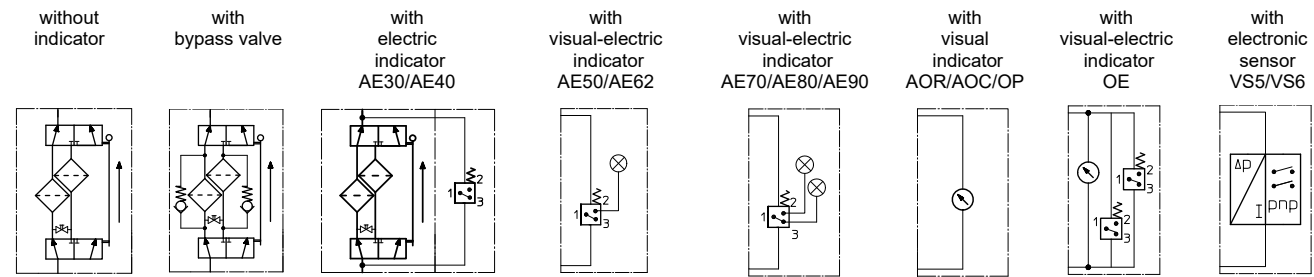
DUA	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
2005	0,147	0,102	0,065	0,057	0,039	0,0048	0,0045	0,0031	0,033	0,033	0,015
3005	0,098	0,068	0,043	0,038	0,026	0,0032	0,0030	0,0021	0,022	0,022	0,010
4005	0,073	0,051	0,033	0,028	0,019	0,0024	0,0023	0,0015	0,017	0,016	0,007

$\Delta p = f(Q)$ – 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.



Symbols:



Spare parts:

item	qty.	designation	dimension			article-no.	
			DUA 2005	DUA 3005	DUA 4005		
1	2	filter element	01.E2001...	01.E3001...	01.E4001...		
2	1	gasket kit filter housing					
2.1	2	O-ring (DUA 2005)		240 x 5		307592 (NBR)	328793 (FPM)
	4	O-ring (DUA 3005/4005)		240 x 5		307592 (NBR)	328793 (FPM)
2.2	2	O-ring		136,12 x 3,53		320162 (NBR)	320163 (FPM)
2.3	2	O-ring (at execution with adapter)					
3	1	gasket kit of switching over consisting of:		DN125 (5")		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 ring		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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