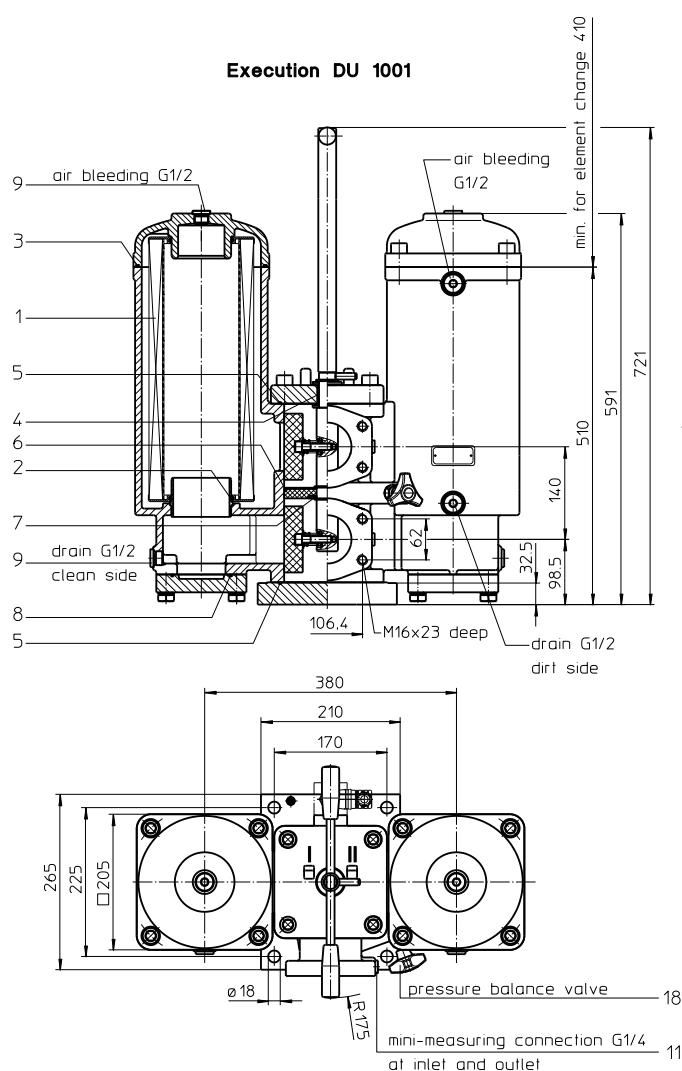


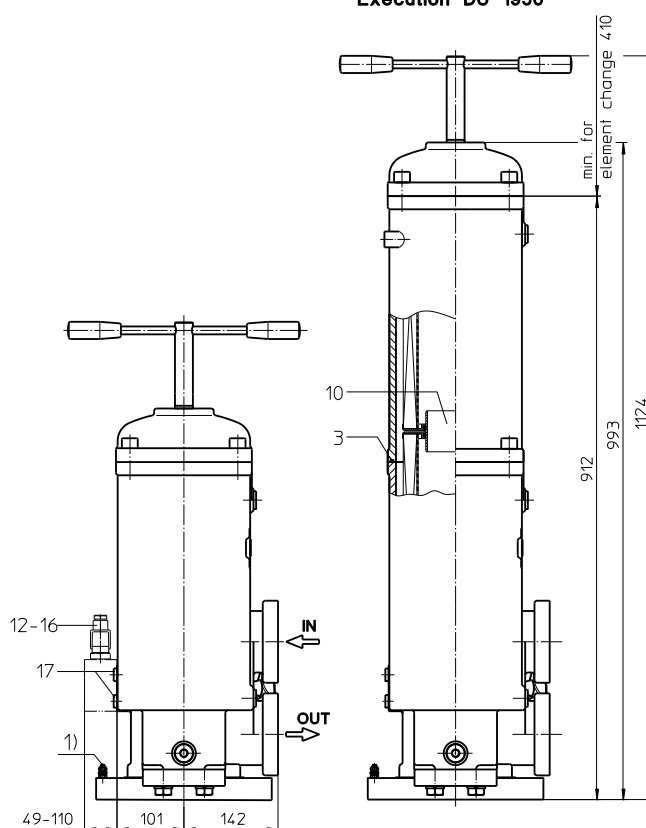
Series DU 1001-1950

DN80 PN32

Execution DU 1001



Execution DU 1950



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

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

Weight DU1001: approx. 120 kg
Weight DU1950: approx. 173 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 1001-1950 DN80 PN32

Description:

Pressure filter change over series DU 1001-1950 have a working pressure up to 32 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A three-way-change-over valve which is integrated in the middle of the housing 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)

DU.1001.10VG.10. B. P. - . FS. A. - . - . AE

1	2	3	4	5	6	7	8	9	10	11	12	13
---	---	---	---	---	---	---	---	---	----	----	----	----

- 1 series:**
DU = pressure filter, change over
- 2 nominal size:** 1001, 1950
- 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:**
B = both sides open
- 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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602
- 8 process connection:**
FS = SAE-flange connection 3000 PSI
- 9 process connection size:**
A = 3"
- 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)
IS14 = pressure vessel parts are calculated acc. to EN 13445 see sheet-no. 69828 (max. operating pressure 10 bar)
- 12 internal valve:**
- = without
S = with bypass valve Δp 2,0 bar
S1 = with bypass valve Δp 3,5 bar
- 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)

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

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

- 1 series:**
01NR = standard-return-line filter element according to DIN 24550, T4
- 2 nominal size:** 1000, 1001 (only with DU1950)
- 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
max. operating pressure with IS14:	10 bar
test pressure with IS14:	20 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
measuring connections:	G 1/4
drain- and bleeder connections:	G 1/2
volume tank DU1001:	2x 13,0 l
volume tank DU1950:	2x 23,3 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).

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:

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

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

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

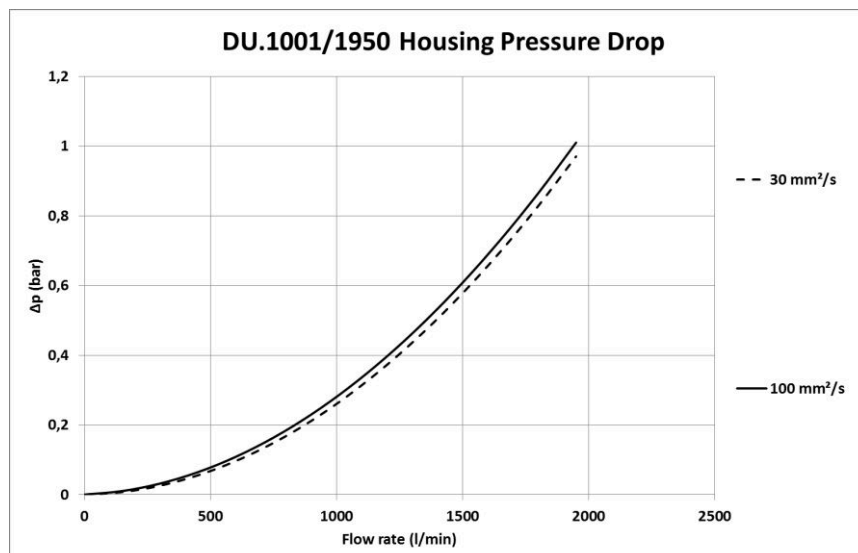
Material gradient coefficients (MSK) for filter elements

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.

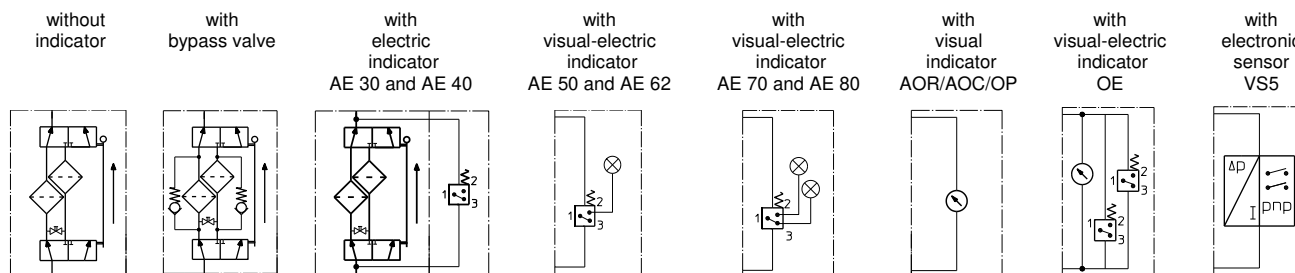
DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
1001	0,197	0,137	0,087	0,076	0,052	0,0050	0,0046	0,0032	0,042	0,044	0,020
1950	0,098	0,068	0,044	0,038	0,026	0,0025	0,0023	0,0016	0,021	0,022	0,010

$\Delta p = f(Q)$ – 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	designation	qty.	dimension / article-no. DU 1001		qty.	dimension / article-no. DU 1950	
1	filter element	2	01NR.1000...		4	01NR.1000... or 01NR.1001...	
2	O-ring	4	90 x 4	306941 (NBR) 307031 (FPM)	8	90 x 4	306941 (NBR) 307031 (FPM)
3	O-ring	2	185 x 4	305593 (NBR) 306309 (FPM)	4	185 x 4	305593 (NBR) 306309 (FPM)
4	O-ring	1	24 x 3	303038 (NBR) 304397 (FPM)	1	24 x 3	303038 (NBR) 304397 (FPM)
5	O-ring	2	140 x 3	304604 (NBR) 307541 (FPM)	2	140 x 3	304604 (NBR) 307541 (FPM)
6	O-ring	1	120 x 4	305300 (NBR) 307991 (FPM)	1	120 x 4	305300 (NBR) 307991 (FPM)
7	O-ring	1	32 x 2,5	306843 (NBR) 308268 (FPM)	1	32 x 2,5	306843 (NBR) 308268 (FPM)
8	O-ring	2	85,32 x 3,53	305590 (NBR) 306308(FPM)	2	85,32 x 3,53	305590 (NBR) 306308(FPM)
9	screw plug	8	G 1/2	304678	10	G 1/2	304678
10	connecting pipe	-	-		2	Ø 90	313233
11	screw plug	2	G 1/4		305003		
12	clogging indicator, visual	1	AOR or AOC		see sheet-no. 1606		
13	clogging indicator, visual r, optisch	1	OP		see sheet-no. 1628		
14	clogging indicator, visual-electric	1	OE		see sheet-no. 1628		
15	clogging indicator, visual-electric	1	AE		see sheet-no. 1609		
16	clogging sensor, electronic	1	VS5		see sheet-no. 1641		
17	screw plug	2	G 1/4		305003		
18	pressure balance valve	1	DN10		305000		

item 17 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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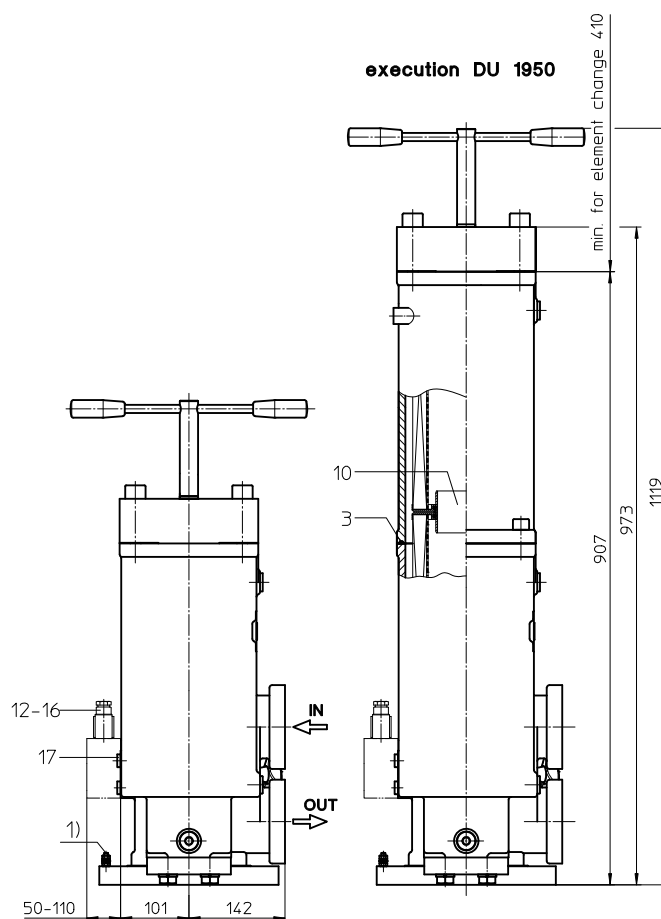
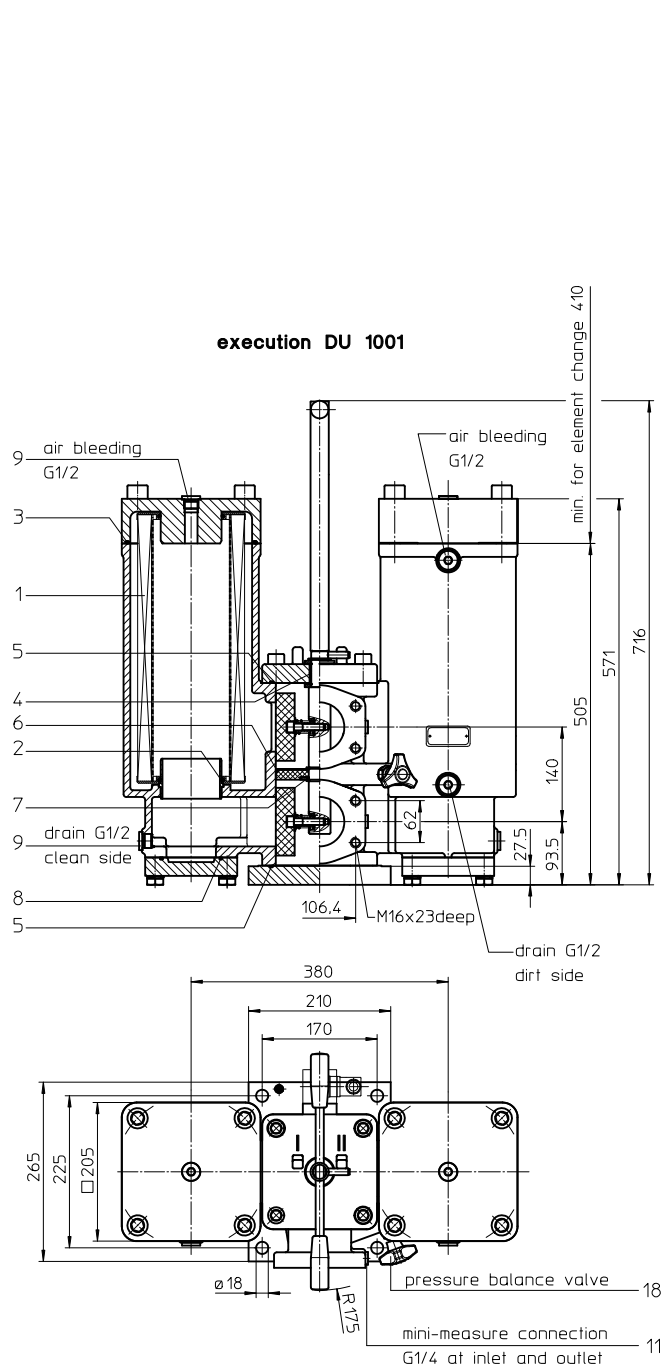
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Series DU 1001-1950

DN80 PN63



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

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

Weight DU1001: approx. 120 kg
Weight DU1950: approx. 173 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 1001-1950 DN80 PN63

Description:

Pressure filter change over series DU 1001-1950 have a working pressure up to 63 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A three-way-change-over valve which is integrated in the middle of the housing 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)

DU.1001.10VG.10. B. P. -. FS. A. -. IS63. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 | **series:**
DU = pressure filter, change over
- 2 | **nominal size:** 1001, 1950
- 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:**
B = both sides open
- 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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602
- 8 | **process connection:**
FS = SAE-flange connection 3000 PSI
- 9 | **process connection size:**
A = 3"
- 10 | **filter housing specification:**
- = standard
IS12 = internal parts of change over armature stainless steel, see sheet-no. 41028
- 11 | **pressure vessel specification:**
IS63 = for operating pressure to 63 bar, see sheet-no. 68796
- 12 | **internal valve:**
- = without
S = with bypass valve Δp 2,0 bar
S1 = with bypass valve Δp 3,5 bar
- 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)

01NR. 1000. 10VG. 10. B. P. -						
1	2	3	4	5	6	7

- 1 | **series:**
01NR = standard-return-line filter element according to DIN 24550, T4
- 2 | **nominal size:** 1000, 1001 (only with DU1950)
- 3 | - 7 | see type index complete filter

Accessories:

- gauge port and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1659
- SAE-counter flanges, see sheet-no. 1652
- shut-off valve, see sheet-no. 1655

Technical data:

design temperature:	-10 °C to +100 °C
operating temperature:	-10 °C to +80 °C
operating medium:	mineral oil, other media on request
max. operating pressure:	63 bar
test pressure:	126 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT, S355J2+N (filter cover)
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 DU1001:	2x 13,0 l
volume tank DU1950:	2x 23,3 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).

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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

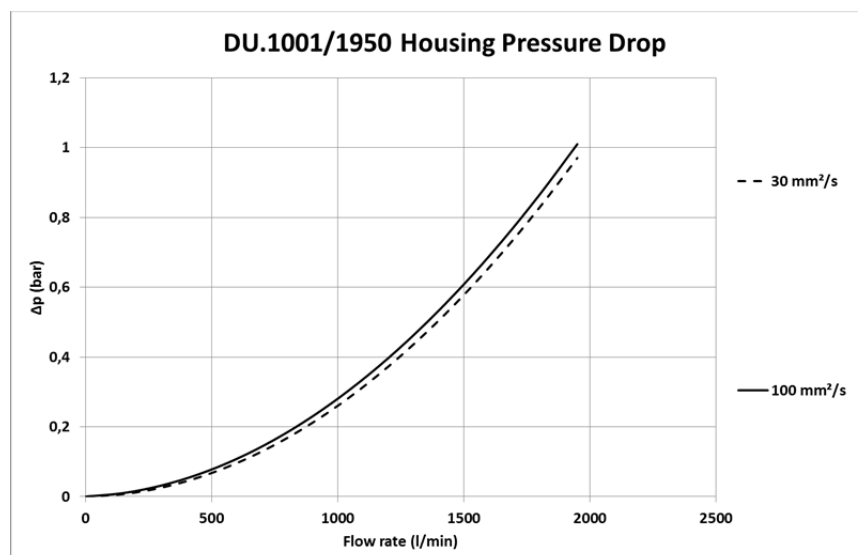
Material gradient coefficients (MSK) for filter elements

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 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

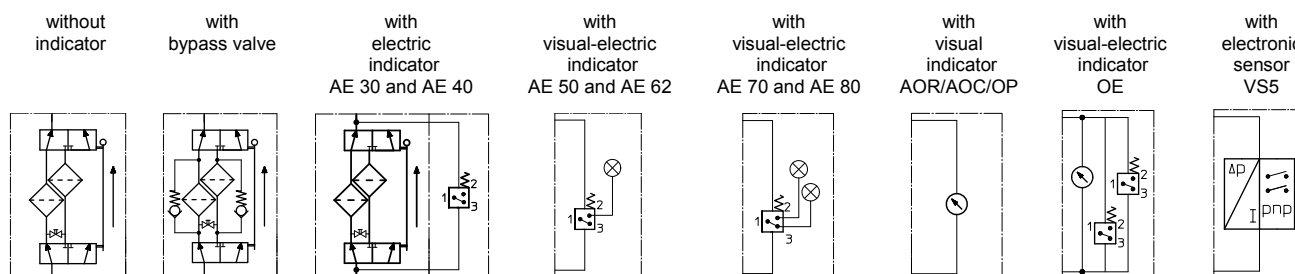
DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
1001	0,197	0,137	0,087	0,076	0,052	0,0050	0,0046	0,0032	0,042	0,044	0,020
1950	0,098	0,068	0,044	0,038	0,026	0,0025	0,0023	0,0016	0,021	0,022	0,010

$\Delta p = f(Q)$ – 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	designation	qty.	dimension / article-no. DU 1001		qty.	dimension / article-no. DU 1950	
1	filter element	2	01NR.1000...		4	01NR.1000... or 01NR.1001...	
2	O-ring	4	90 x 4	306941 (NBR) 307031 (FPM)	8	90 x 4	306941 (NBR) 307031 (FPM)
3	O-ring	2	185 x 4	305593 (NBR) 306309 (FPM)	4	185 x 4	305593 (NBR) 306309 (FPM)
4	O-ring	1	24 x 3	303038 (NBR) 304397 (FPM)	1	24 x 3	303038 (NBR) 304397 (FPM)
5	O-ring	2	140 x 3	304604 (NBR) 307541 (FPM)	2	140 x 3	304604 (NBR) 307541 (FPM)
6	O-ring	1	96 x 4	305190 (NBR) 308148 (FPM)	1	96 x 4	305190 (NBR) 308148 (FPM)
7	O-ring	1	32 x 2,5	306843 (NBR) 308268 (FPM)	1	32 x 2,5	306843 (NBR) 308268 (FPM)
8	O-ring	2	85,32 x 3,53	305590 (NBR) 306308 (FPM)	2	85,32 x 3,53	305590 (NBR) 306308 (FPM)
9	screw plug	8	G ½	304678	10	G ½	304678
10	connecting pipe	-	-		2	Ø 90	313233
11	screw plug	2	G ¼		305003		
12	clogging indicator, visual	1	AOR or AOC		see sheet-no. 1606		
13	clogging indicator, visual r. optisch	1	OP		see sheet-no. 1628		
14	clogging indicator, visual-electric	1	OE		see sheet-no. 1628		
15	clogging indicator, visual-electric	1	AE		see sheet-no. 1609		
16	clogging sensor, electronic	1	VS5		see sheet-no. 1641		
17	screw plug	2	G ¼		305003		
18	pressure balance valve	1	DN10		305000		

item 17 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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For more information, please

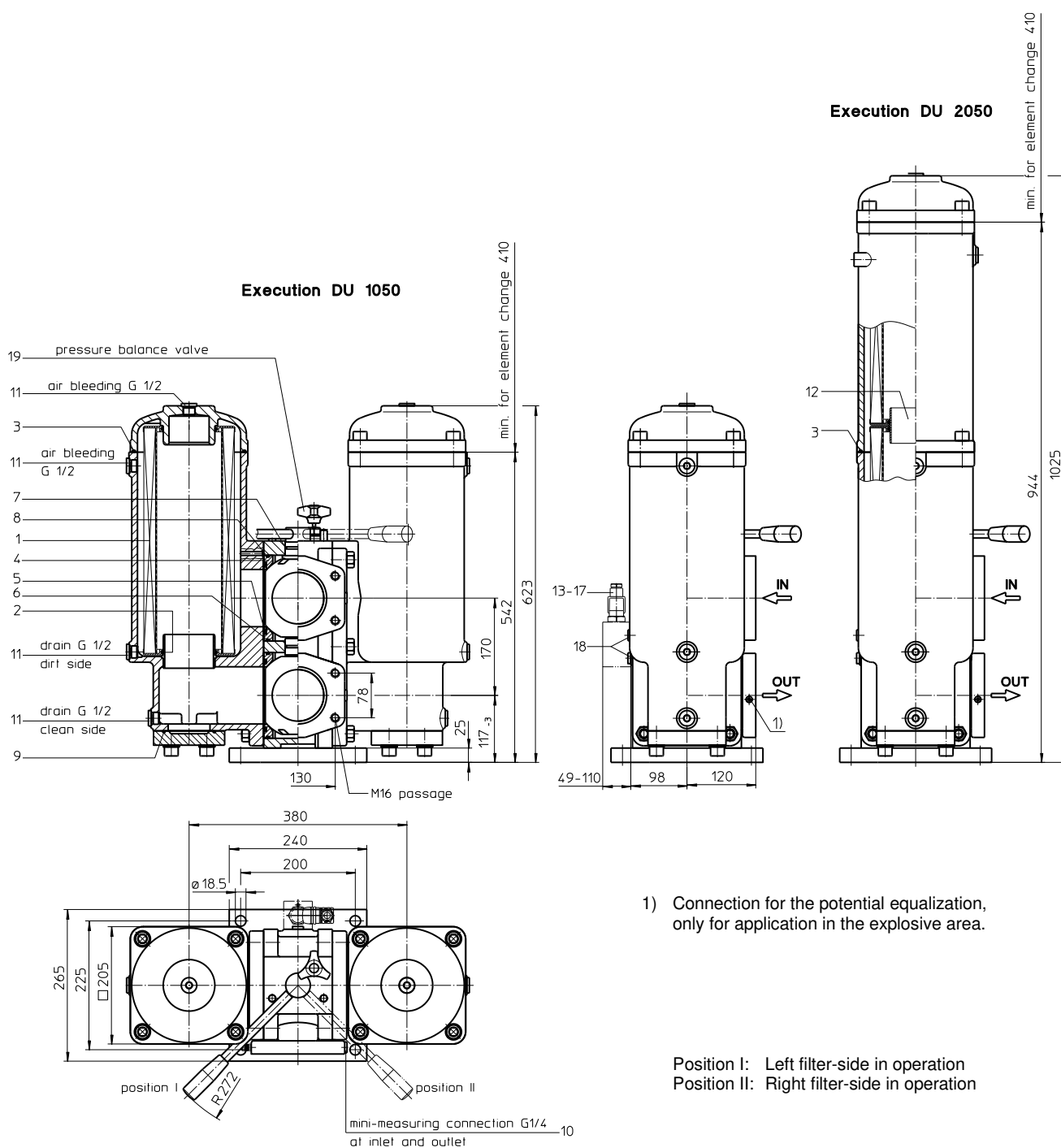
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Series DU 1050-2050

DN100 PN32



Weight DU1050: approx. 155 kg
Weight DU2050: approx. 195 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 1050-2050 DN100 PN32

Description:

Pressure filter change over series DU 1050-2050 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)

DU.1050.10VG.10. B. P. -. FS. B. -. -. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 | series:**
DU = pressure filter, change over
- 2 | nominal size:** 1050, 2050
- 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:**
B = both sides open
- 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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602
- 8 | process connection:**
FS = SAE-flange connection 3000 PSI
- 9 | process connection size:**
B = 4"
A = 3" (with counter flange BFS.B.E.88,9x3,2....)
- 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)
IS14 = pressure vessel parts are calculated acc. to EN 13445 see sheet-no. 69828 (max. operating pressure 10 bar)
- 12 | internal valve:**
- = without
S = with bypass valve Δp 2,0 bar
S1 = with bypass valve Δp 3,5 bar
- 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)

01NR. 1000. 10VG. 10. B. P. -						
1	2	3	4	5	6	7

- 1 | series:**
01NR = standard-return-line filter element according to DIN 24550, T4
- 2 | nominal size:** 1000, 1001 (only with DU2050)
- 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
max. operating pressure with IS14:	10 bar
test pressure with IS14:	20 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
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 DU1050:	2x 13,7 l
volume tank DU2050:	2x 23,9 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

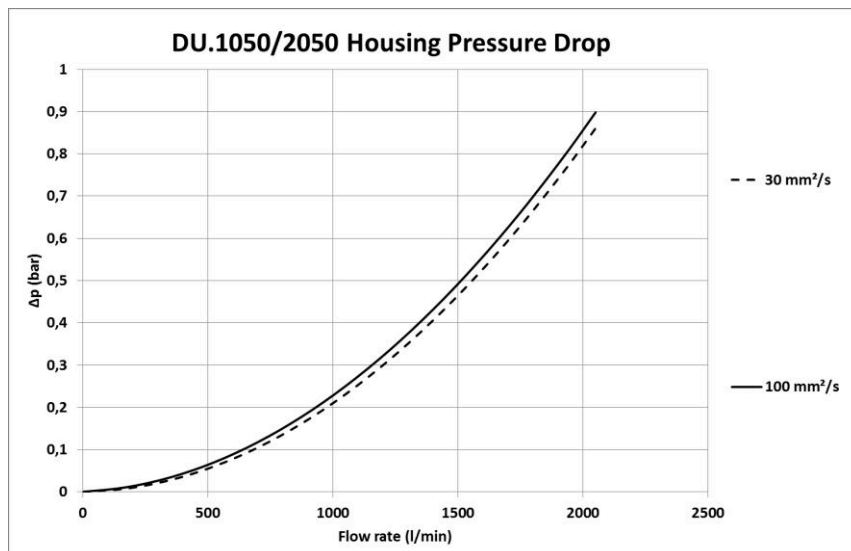
Material gradient coefficients (MSK) for filter elements

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.

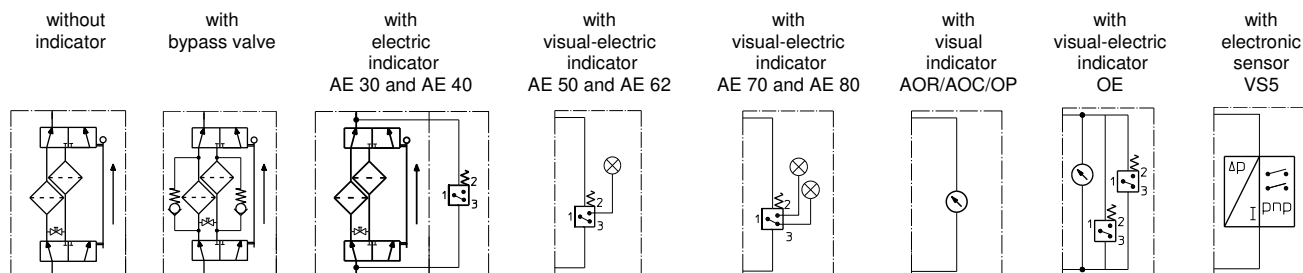
DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
1050	0,197	0,137	0,087	0,076	0,052	0,0050	0,0046	0,0032	0,042	0,044	0,020
2050	0,098	0,068	0,044	0,038	0,026	0,0025	0,0023	0,0016	0,021	0,022	0,010

$\Delta p = f(Q)$ – 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.	
			DU 1050	DU 2050		
1	2	filte relement (DU1050)	01NR.1000...	01NR.1000...or 1001		
	4	filter element (DU2050)	01NR.1000...	01NR.1000...or 1001		
2	4	O-ring (DU1050)	90 x 4		306941 (NBR)	307031 (FPM)
	8	O-ring (DU2050)	90 x 4		306941 (NBR)	307031 (FPM)
3	2	O-ring (DU1050)	185 x 4		305593 (NBR)	306309 (FPM)
	4	O-ring (DU2050)	185 x 4		305593 (NBR)	306309 (FPM)
4	4	gasket	DN 90		312275	
5	4	O-ring	114 x 6		314419 (NBR)	316531 (FPM)
6	4	O-ring	140 x 4		305145 (NBR)	305201 (FPM)
7	2	O-ring	38 x 3		304340 (NBR)	317013 (FPM)
8	4	O-ring	8 x 2		310004 (NBR)	316530 (FPM)
9	2	O-ring	85,32 x 3,53		305590 (NBR)	306308 (FPM)
10	2	screw plug	G 1/4		305003	
11	8	screw plug (DU1050)	G 1/2		304678	
	10	screw plug (DU2050)	G 1/2		304678	
12	2	connecting pipe (DU2050)	Ø 90		313233	
13	1	clogging indicator, visual	AOR or AOC		see sheet no. 1606	
14	1	clogging indicator, visual r, optisch	OP		see sheet no. 1628	
15	1	clogging indicator, visual-electric	OE		see sheet no. 1628	
16	1	clogging indicator, visual-electric	AE		see sheet no. 1609	
17	1	clogging sensor, electronic	VS5		see sheet no. 1641	
18	2	screw plug	G 1/4		305003	
19	1	pressure balance valve	DN10		305000	

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

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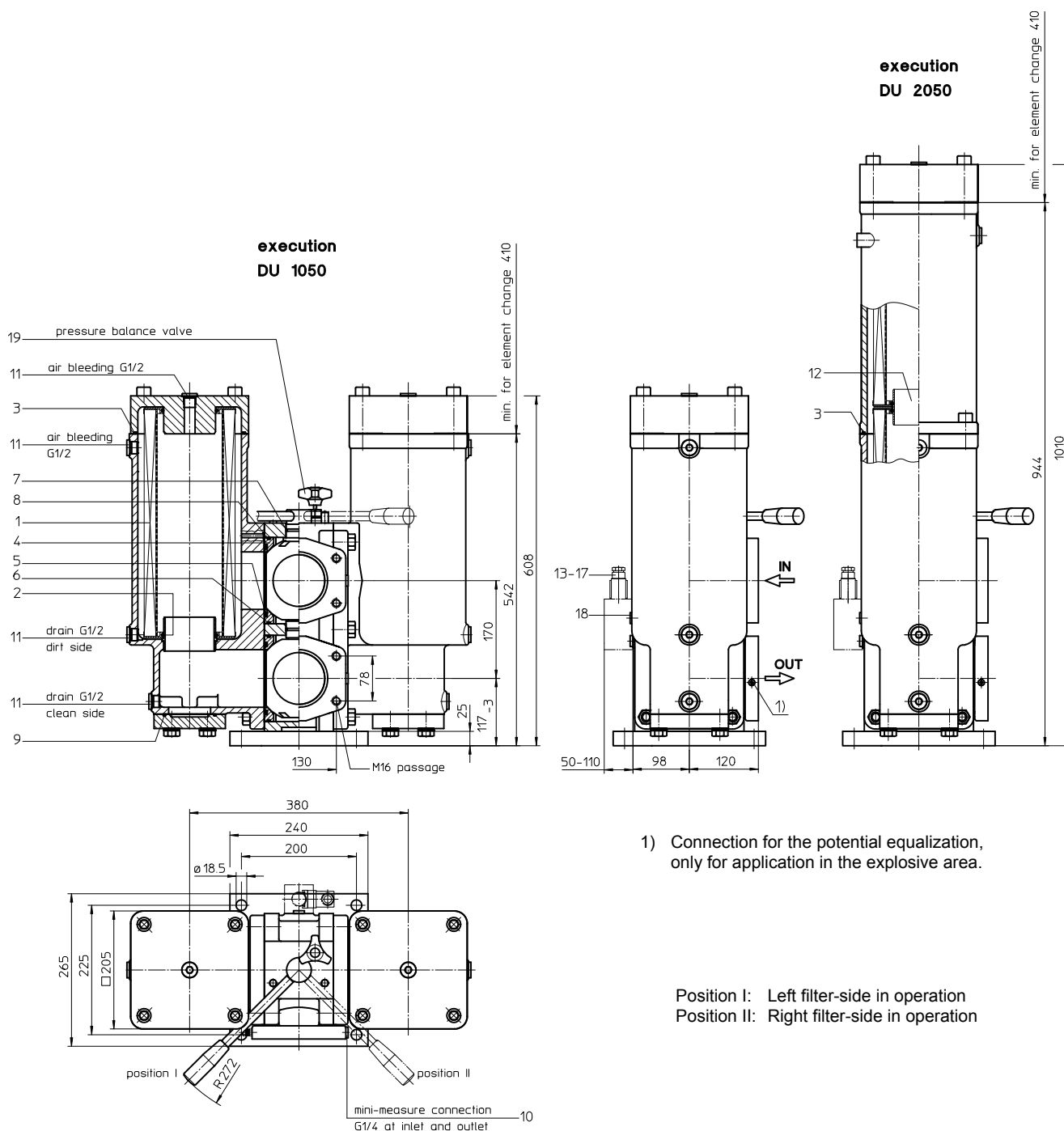
For more information, please

email us at filtration@eaton.com
or visit www.eaton.com/filtration

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Series DU 1050-2050

DN100 PN63



Weight DU1050: approx. 150 kg
Weight DU2050: approx. 200 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 1050-2050 DN100 PN63

Description:

Pressure filter change over series DU 1050-2050 have a working pressure up to 63 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)

DU.1050.10VG.10. B. P. -. FS. B. -. IS63. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 | **series:**
DU = pressure filter, change over
- 2 | **nominal size:** 1050, 2050
- 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:**
B = both sides open
- 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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602
- 8 | **process connection:**
FS = SAE-flange connection 3000 PSI
- 9 | **process connection size:**
B = 4"
A = 3" (with counter flange BFS.B.E.88,9x3,2.ST.P.3000)
- 10 | **filter housing specification:**
- = standard
IS12 = internal parts of change over armature stainless steel, see sheet-no. 41028
- 11 | **pressure vessel specification:**
IS63 = for operating pressure to 63 bar, see sheet-no. 68796
- 12 | **internal valve:**
- = without
S = with bypass valve Δp 2,0 bar
S1 = with bypass valve Δp 3,5 bar
- 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)

01NR. 1000. 10VG. 10. B. P. -						
1	2	3	4	5	6	7

- 1 | **series:**
01NR = standard-return-line filter element according to DIN 24550, T4
- 2 | **nominal size:** 1000, 1001 (only with DU2050)
- 3 | - 7 | see type index complete filter

Accessories:

- gauge port and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1659
- SAE-counter flanges, see sheet-no. 1652
- shut-off valve, see sheet-no. 1655

Technical data:

design temperature:	-10 °C to +100 °C
operating temperature:	-10 °C to +80 °C
operating medium:	mineral oil, other media on request
max. operating pressure:	63 bar
test pressure:	126 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT, S355J2+N (filter cover)
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 DU1050:	2x 13,7 l
volume tank DU2050:	2x 23,9 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:

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

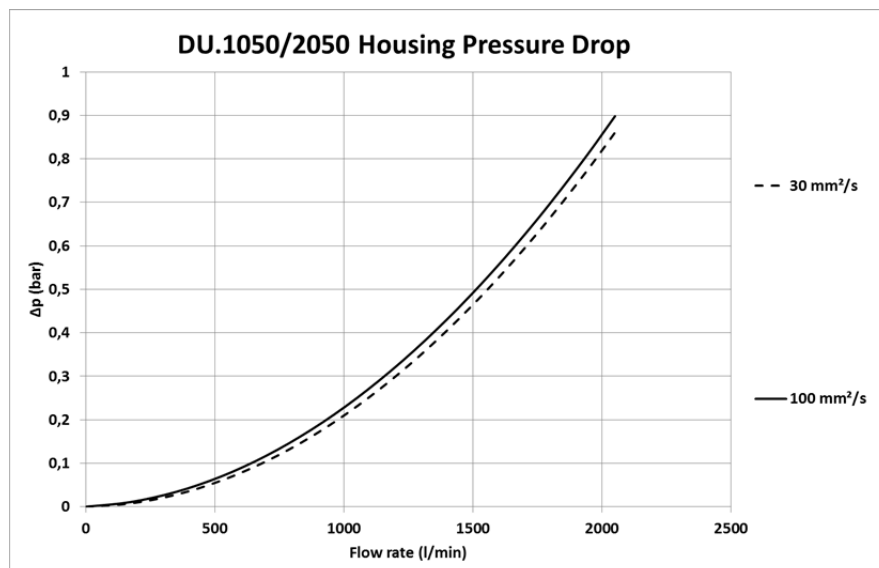
Material gradient coefficients (MSK) for filter elements

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 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

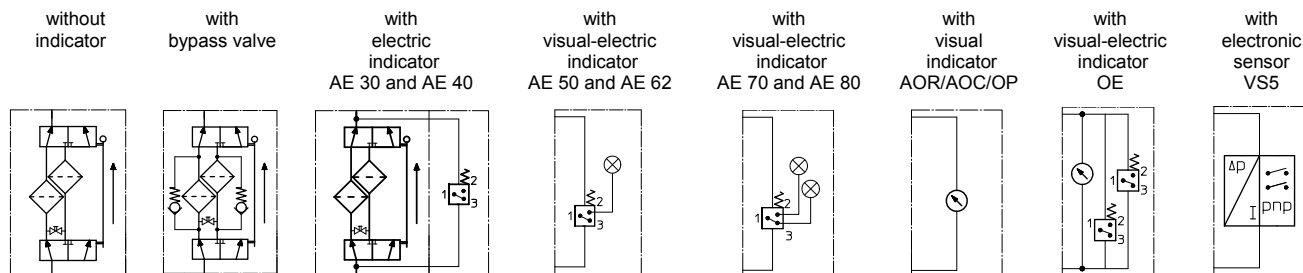
DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
1050	0,197	0,137	0,087	0,076	0,052	0,0050	0,0046	0,0032	0,042	0,044	0,020
2050	0,098	0,068	0,044	0,038	0,026	0,0025	0,0023	0,0016	0,021	0,022	0,010

$\Delta p = f(Q)$ – 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.	
			DU 1050	DU 2050		
1	2	filte relement (DU1950)	01NR.1000...	01NR.1000...or 1001		
	4	filter element (DU2050)	01NR.1000...	01NR.1000...or 1001		
2	4	O-ring (DU1050)	90 x 4		306941 (NBR)	307031 (FPM)
	8	O-ring (DU2050)	90 x 4		306941 (NBR)	307031 (FPM)
3	2	O-ring (DU1050)	185 x 4		305593 (NBR)	306309 (FPM)
	4	O-ring (DU2050)	185 x 4		305593 (NBR)	306309 (FPM)
4	4	gasket	DN 90		312275	
5	4	O-ring	114 x 6		314419 (NBR)	316531 (FPM)
6	4	O-ring	140 x 4		305145 (NBR)	305201 (FPM)
7	2	O-ring	38 x 3		304340 (NBR)	317013 (FPM)
8	4	O-ring	8 x 2		310004 (NBR)	316530 (FPM)
9	2	O-ring	85,32 x 3,53		305590 (NBR)	306308 (FPM)
10	2	screw plug	G ¼		305003	
11	8	screw plug (DU1050)	G ½		304678	
	10	screw plug (DU2050)	G ½		304678	
12	2	connecting pipe (DU2050)	Ø 90		313233	
13	1	clogging indicator, visual	AOR or AOC		see sheet no. 1606	
14	1	clogging indicator, visual r, optisch	OP		see sheet no. 1628	
15	1	clogging indicator, visual-electric	OE		see sheet no. 1628	
16	1	clogging indicator, visual-electric	AE		see sheet no. 1609	
17	1	clogging sensor, electronic	VS5		see sheet no. 1641	
18	2	screw plug	G ¼		305003	
19	1	pressure balance valve	DN10		305000	

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

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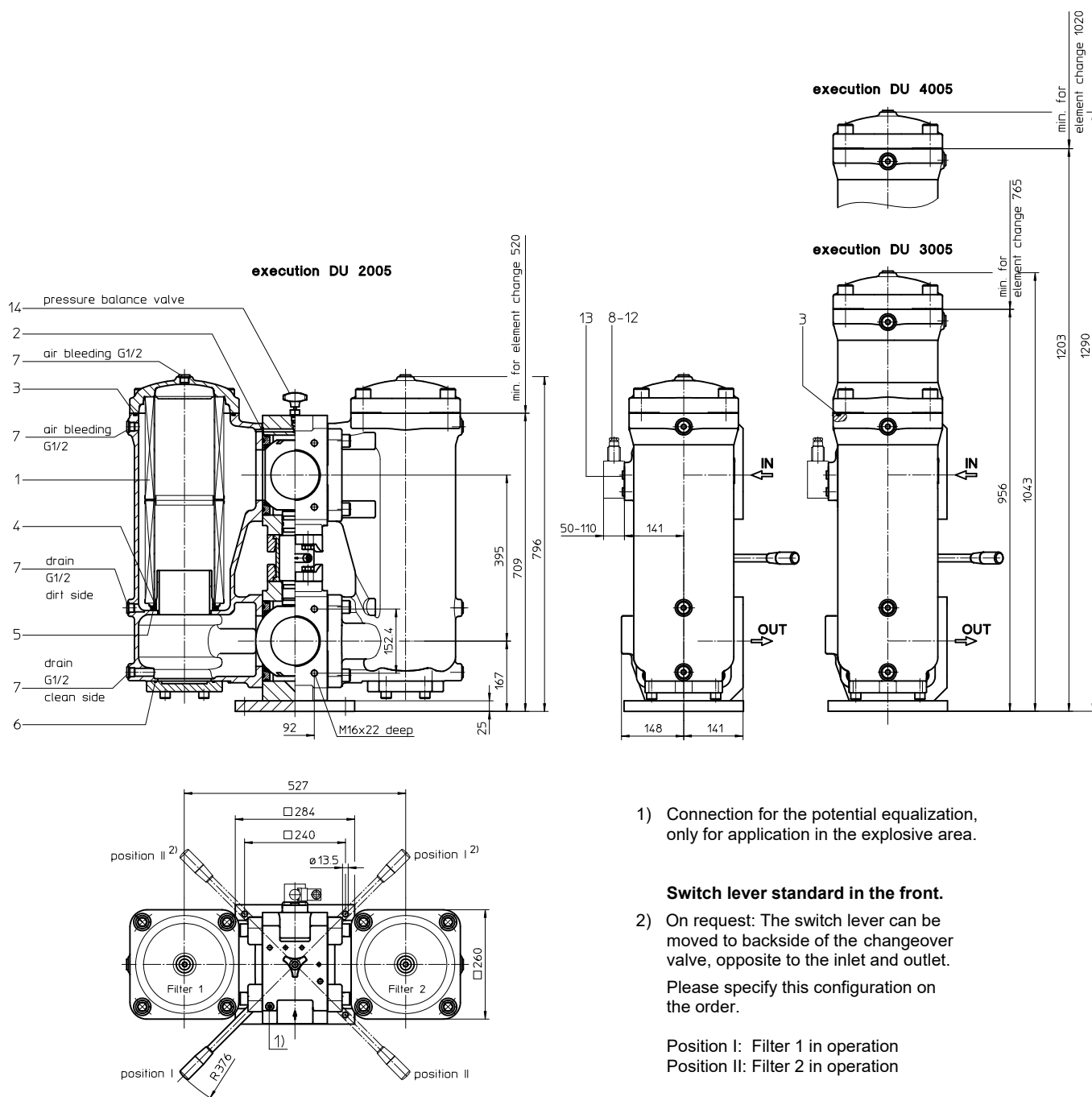
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For more information, please

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or visit www.eaton.com/filtration

Series DU 2005-4005
DN125 PN32



Weight DU2005: approx. 342 kg
Weight DU3005: approx. 405 kg
Weight DU4005: approx. 440 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 2005-4005 DN125 PN32

Description:

Pressure filter change over series DU 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.

Ship classifications available upon request.

Type index:

Complete filter: (ordering example)

DU.2005.10VG.10. E. P. -. FS. C. -. -. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 | **series:**
DU = pressure filter, change over
- 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
- 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
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 DU2005:	2x 29 l
volume tank DU3005:	2x 38 l
volume tank DU4005:	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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

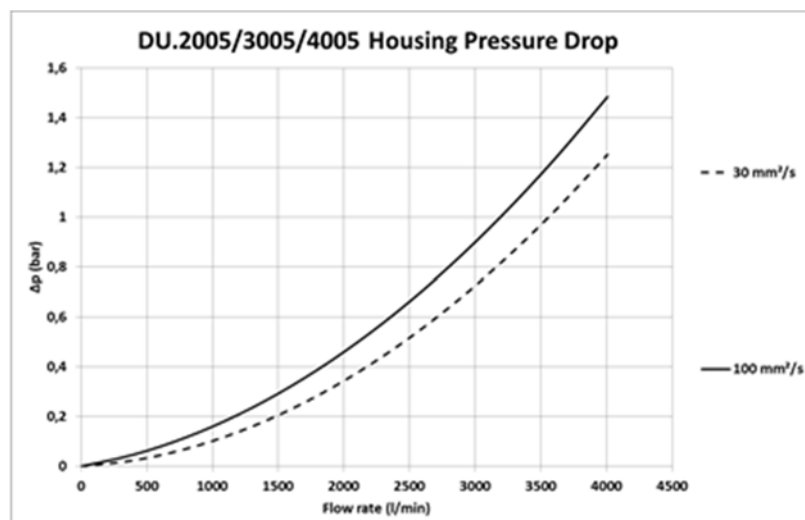
Material gradient coefficients (MSK) for filter elements

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.

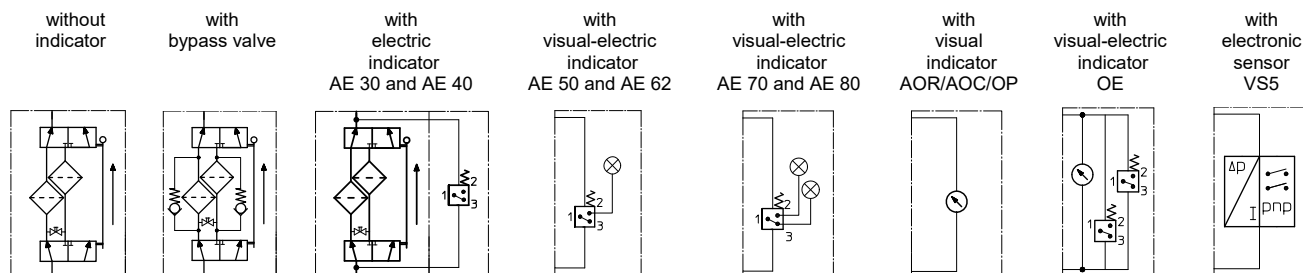
DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
2005	0,147	0,102	0,065	0,057	0,039	0,0048	0,0045	0,0031	0,033	0,033	0,015
3005	0,098	0,068	0,043	0,038	0,026	0,0032	0,0030	0,0021	0,022	0,022	0,010
4005	0,073	0,051	0,033	0,028	0,019	0,0024	0,0023	0,0015	0,017	0,016	0,007

$\Delta p = f(Q)$ – 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.	
			DU 2005	DU 3005	DU 4005		
1	2	filter element	01E.2001...	01E.3001...	01E.4001...		
2	4	gasket kit of change over UKK	5" (DN125)			322726 (NBR)	3322727 (FPM)
3	2	O-ring (DU2005)	240 x 5			307592 (NBR)	328793 (FPM)
	4	O-ring (DU3005/4005)	240 x 5			307592 (NBR)	328793 (FPM)
4	2	O-ring	135 x 4,75			326348 (NBR)	326349 (FPM)
5	2	O-ring	125 x 10			304388 (NBR)	306006 (FPM)
6	2	O-ring	136,12 x 3,53			320162 (NBR)	320163 (FPM)
7	8	screw plug (DU2005)	G ½			304678	
	10	screw plug (DU3005/4005)	G ½			304678	
8	1	clogging indicator, visual	AOR or AOC			see sheet no. 1606	
9	1	clogging indicator, visual r, optisch	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 ¼			305003	
14	1	pressure balance valve	DN10			305000	

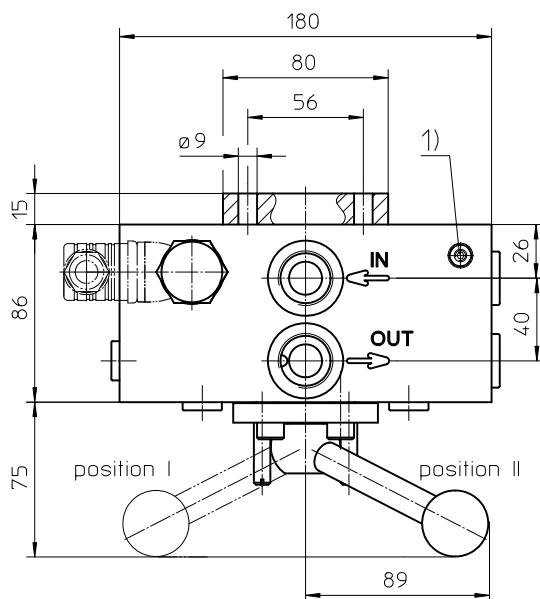
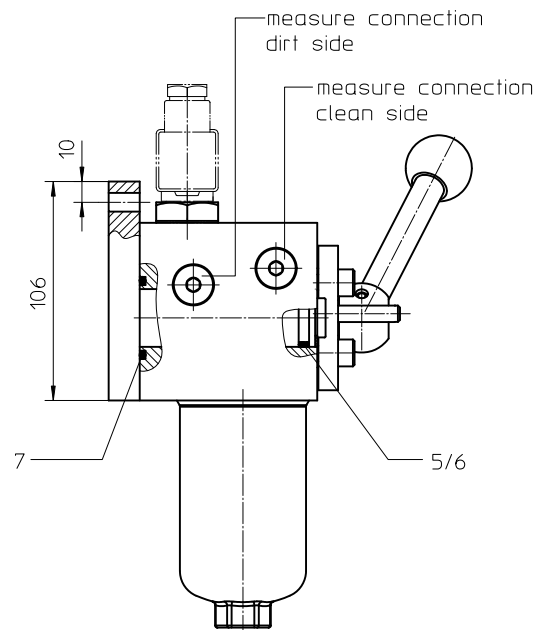
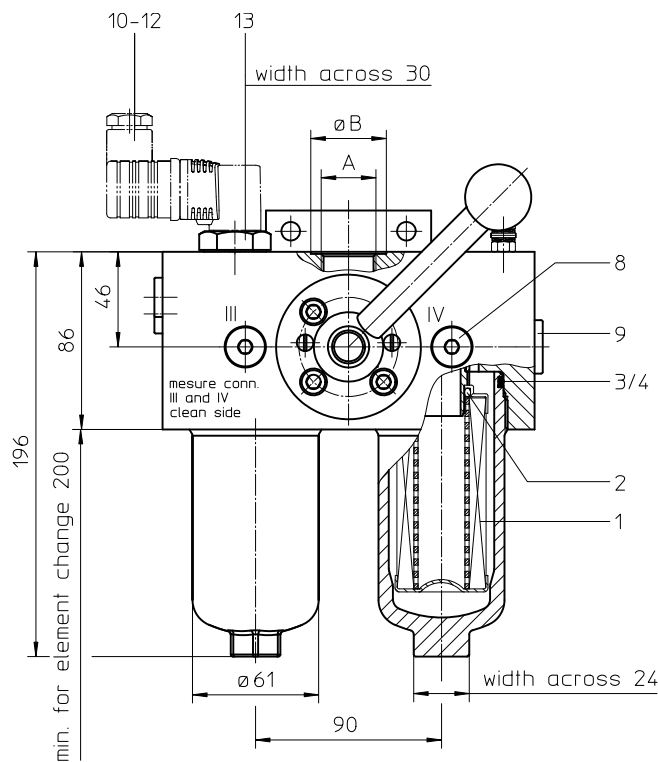
item 13 execution only without clogging indicator or clogging sensor

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

Series DU 40
DN15-20 PN63



Dimensions:

A	ØB
G 1/2	30
G 3/4	36.5

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

Connections III and IV to be used for pressure relief and air bleeding respective filter side.

Position I: left filter side in operation
Position II: right filter side in operation

Weight: approx.. 12 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter

Series DU 40

DN15-20 PN63

Description:

Pressure filters changeover series DU 40 are suitable for operating pressure up to 63 bar. The pressure peaks are absorbed by a sufficient margin of safety.

Duplex filters can be serviced without interruption of operation. The upper part has a three-way-changeover valve which allows to change-over the flow from the dirty filter-side to the clean filter-side without interrupting the operation. The changeover procedure does not lead to a cross sectional contraction. The closed filter-side has to be air-bleed by vent III respectively by vent IV. Then change filter element.

For cleaning the stainless steel mesh element (see special leaflets 21070-4 and 39448-4) or changing the filter element, filter bowl has to be disassembled. The mesh elements are not guaranteed to maintain 100% performance after cleaning.

For filtration finer than 25 µm, use the disposable elements made of microglass. Filter elements as fine as 3 µm are available; finer filter elements are available upon request.

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

Eaton filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.

Type index:

Complete filter: (ordering example)

DU. 40. 10VG. 30. E. P. -. G. 4. -. -. AE											
1	2	3	4	5	6	7	8	9	10	11	12

- 1 **series:**
DU = pressure filter change over
- 2 **nominal size:** 40
- 3 **filter material:**
80G, 40G, 25G, 10G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
- 4 **filter element collapse rating:**
30 = Δp 30 bar
- 5 **filter element design:**
E = single-end open
- 6 **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 **filter element specification:**
- = standard
ISO6 = for HFC application, see sheet-no. 31601
- 8 **process connection:**
G = thread connection according to ISO 228
- 9 **process connection size:**
3 = G ½
4 = G ¾
- 10 **filter housing specification:**
- = standard
ISO6 = for HFC application, see sheet-no. 31605
- 11 **specification pressure vessel:**
- = standard (PED 2014/68/EU)
- 12 **clogging indicator or clogging sensor:**
- = without
AOR = visual, see sheet-no. 1606
AOC = visual, see sheet-no. 1606
AE = visual-electric, see sheet-no. 1615
VS5 = electronic, see sheet-no. 1619

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)

01NL. 40. 10VG. 30. E. P. -						
1	2	3	4	5	6	7

- 1 **series:**
01NL = standard filter element according to DIN 24550, T3
- 2 **nominal size:** 40
- 3 - 7 see type index-complete filter

Accessories:

- gauge port- and bleeder connections, see sheet-no. 1650

Technical data:

max. operating temperature:	-10°C to +100°C
operating medium:	mineral oil, other media on request
max. operating pressure:	63 bar
test pressure:	90 bar
standard process connection:	thread connection according to ISO 228
housing material:	AL, carbon steel (filter bowl)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
measure- and bleeder connections	G 1/4
volume tank:	2x 0,2 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:

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

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

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

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

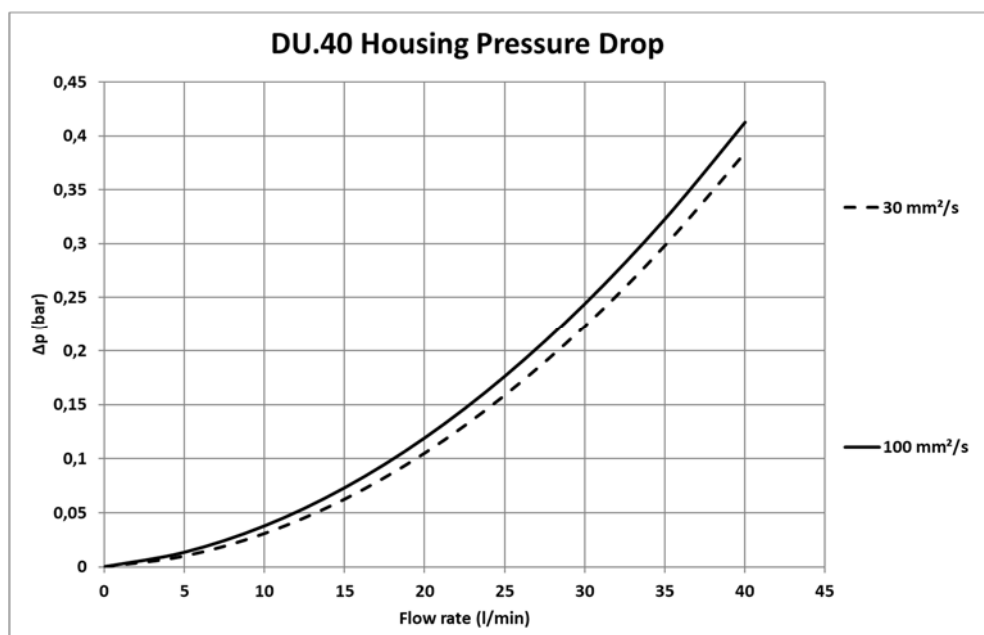
Material gradient coefficients (MSK) for filter elements

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.

DU	VG					G			
	3VG	6VG	10VG	16VG	25VG	10G	25G	40G	80G
40	5,709	3,963	2,537	2,209	1,509	0,2085	0,1545	0,1442	0,0988

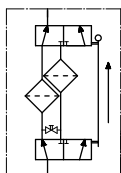
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

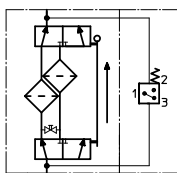


Symbols:

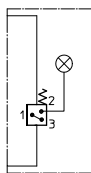
without indicator



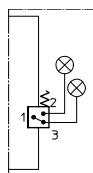
with electric indicator
AE 30 and AE 40



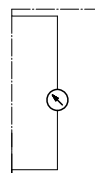
with visual-electric indicator
AE 50 and AE 62



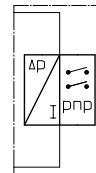
with visual-electric indicator
AE 70 and AE 80



with visual indicator
AOR/AOC



with electronic sensor
VS5



Spare parts:

item	qty.	designation	dimension	article no.	
1	2	filter element	01NL.40...		
2	2	O-ring	22 x 3,5	304341 (NBR)	304392 (FPM)
3	2	O-ring	54 x 3	304657 (NBR)	304720 (FPM)
4	2	support ring	60 x 2,6 x 1	311779	
5	1	O-ring	23 x 3	307285 (NBR)	311019 (FPM)
6	1	support ring	28 x 23,6 x 1	350525	
7	1	O-ring	32,9 x 3,53	318850 (NBR)	338231 (FPM)
8	4	screw plug	G ¼	305003	
9	2	screw plug	G ½	304678	
10	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
11	1	clogging indicator, visual-electric	AE	see sheet-no. 1615	
12	1	clogging sensor, electronic	VS5	see sheet-no. 1619	
13	1	screw plug	20913-4	309817	

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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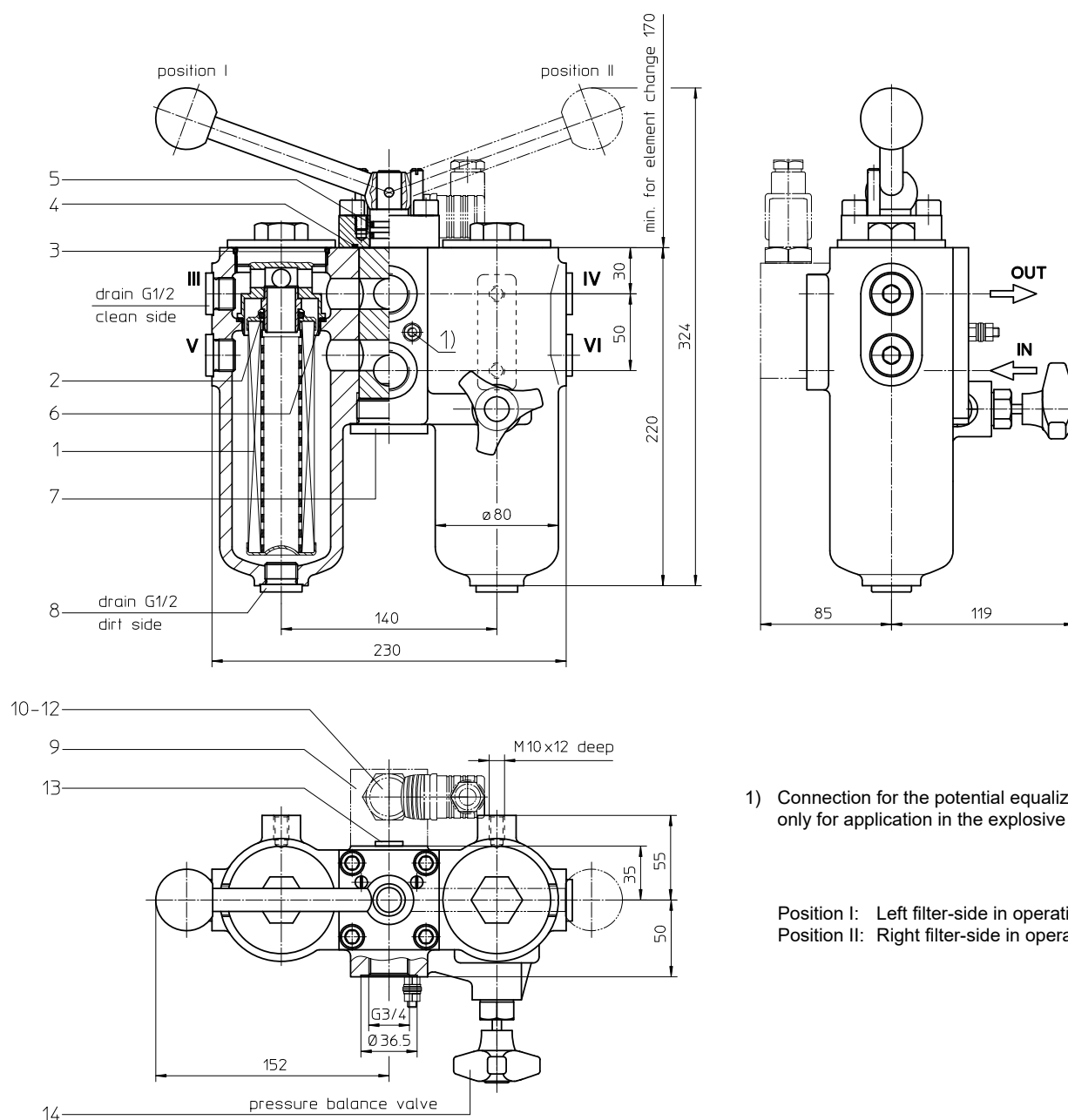
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Series DU 63

DN20 PN63



Measuring connection III, IV: Drain G ½ - clean side

Measuring connection V, VI : Air bleeding, pressure relief G ½ - dirt side

weight: approx. 15 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 63 DN20 PN63

Description:

Pressure filter change over series DU63 have a working pressure up to 63 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A rotary slide valve integrated in the middle of the housing 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 bypass valve is 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. 63. 10VG. 30. E. P. -. G. 4. -. -. -. AE

1	2	3	4	5	6	7	8	9	10	11	12	13
---	---	---	---	---	---	---	---	---	----	----	----	----

- 1 series:**
DU = pressure filter, change over
- 2 nominal size:** 63
- 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:**
30 = Δp 30 bar
- 5 filter element design:**
E = single end open
- 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:**
G = thread connection according to ISO 228
- 9 process connection size:**
4 = G ¾
- 10 filter housing specification:**
- = standard
- 11 pressure vessel specification:**
- = standard (PED 2014/68/EU)
- 12 internal valve:**
- = without
S1 = with bypass valve Δp 3,5 bar
- 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.1615
VS5 = electronic, see sheet-no.1619

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)

01NL. 63. 10VG. 30. E. P. -

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

- 1 series:**
01NL. = standard filter element according to DIN 24550, T3
- 2 nominal size:** 63
- 3 - 7** see type index complete filter

Accessories:

- gauge port and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1659

Technical data:

operating temperature:	-10°C to +100°C
operating medium:	mineral oil, other media on request
max. operating pressure:	63 bar
test pressure:	126 bar
process connection:	thread connection according to ISO 228
housing material:	EN-GJS-400-18-LT
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
measuring connections:	G ½
drain- and bleeder connections:	G ½
volume tank:	2x 0,65 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

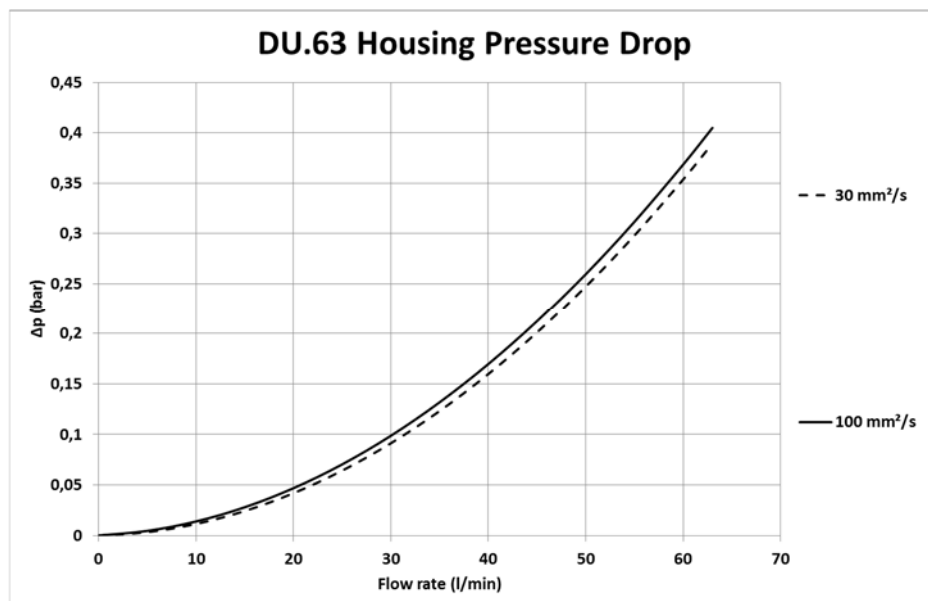
Material gradient coefficients (MSK) for filter elements

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.

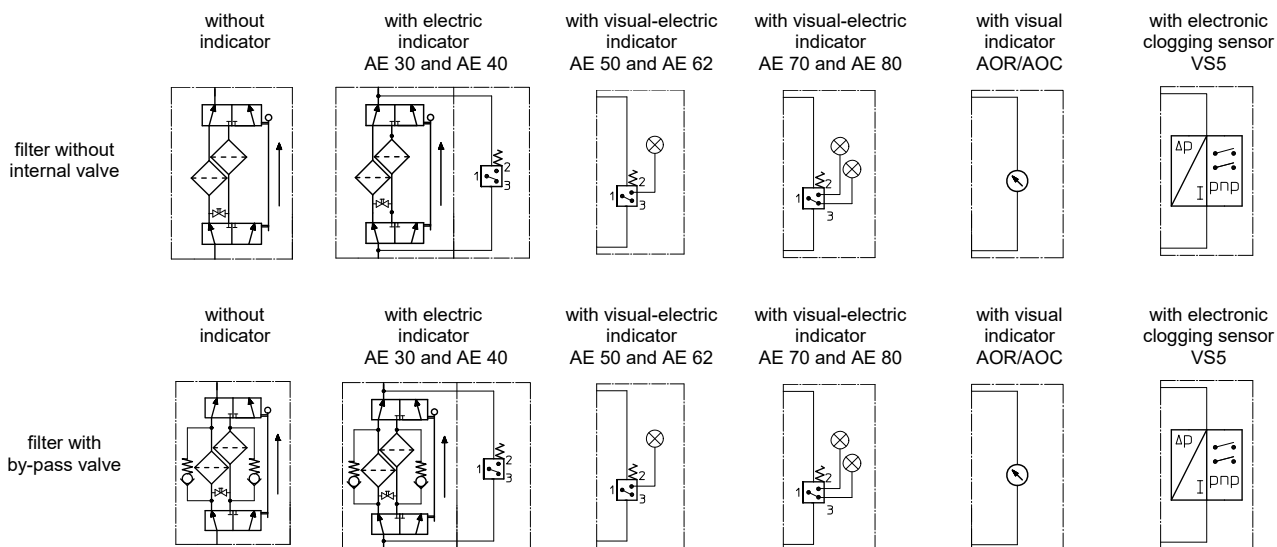
DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
63	3,441	2,389	1,530	1,332	0,910	0,0924	0,0862	0,0591	0,773	0,811	0,371

$\Delta p = f(Q)$ – 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.	
1	2	filter element	01NL.63...		
2	2	O-ring	22 x 3,5	304341 (NBR)	304392 (FPM)
3	2	O-ring	56 x 3	305072 (NBR)	305322 (FPM)
4	1	O-ring	42,52 x 2,62	304352 (NBR)	304393 (FPM)
5	2	O-ring	18 x 3	304359 (NBR)	304399 (FPM)
6	2	O-ring	48 x 3	304357 (NBR)	304404 (FPM)
7	1	screw plug	G 1 ¼	308530	
8	6	screw plug	G ½	304678	
9	1	adapter		314110	
10	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
11	1	clogging indicator, visual-electric	AE	see sheet-no. 1615	
12	1	clogging sensor, electronic	VS5	see sheet-no. 1619	
13	2	screw plug	G ¼	306326	
14	1	pressure balance valve	3/8"	305000	

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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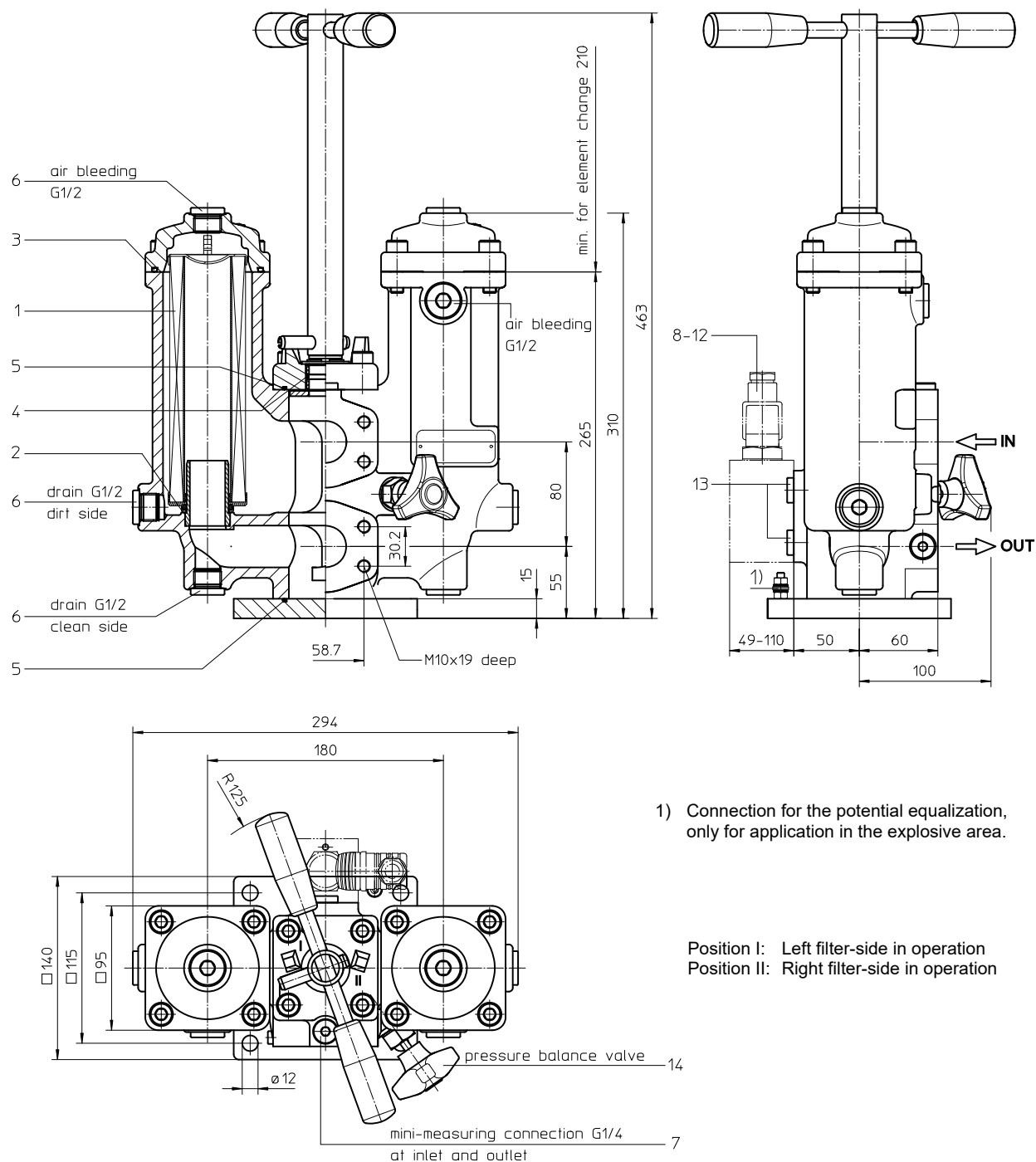
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Series DU 101

DN32 PN32



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

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

weight: approx. 23 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 101 DN32 PN32

Description:

Pressure filter change over series DU 101 have a working pressure up to 32 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A three-way-change-over valve which is integrated in the middle of the housing 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)

DU. 101. 10VG. 16. E. P. -. FS. 6. -. -. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

1 series:

DU = pressure filter, change over

2 nominal size: 101

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:

16 = Δp 16 bar

5 filter element design:

E = single end open
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:

6 = 1 1/4" (standard)
5 = 1" (with counter flange BFS.6.A.33,7x2,6.ST.P.3000)

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)
IS63 = for operating pressure to 63 bar, see sheet-no. 68796

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)

01N.	100.	10VG.	16.	E.	P.	-
1	2	3	4	5	6	7

1 series:

01N = filter element according to company standard

2 nominal size: 100

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 resp. 1659
- 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
max. operating pressure with IS63:	63 bar
test pressure with IS63:	126 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
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:	2x 0,9 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

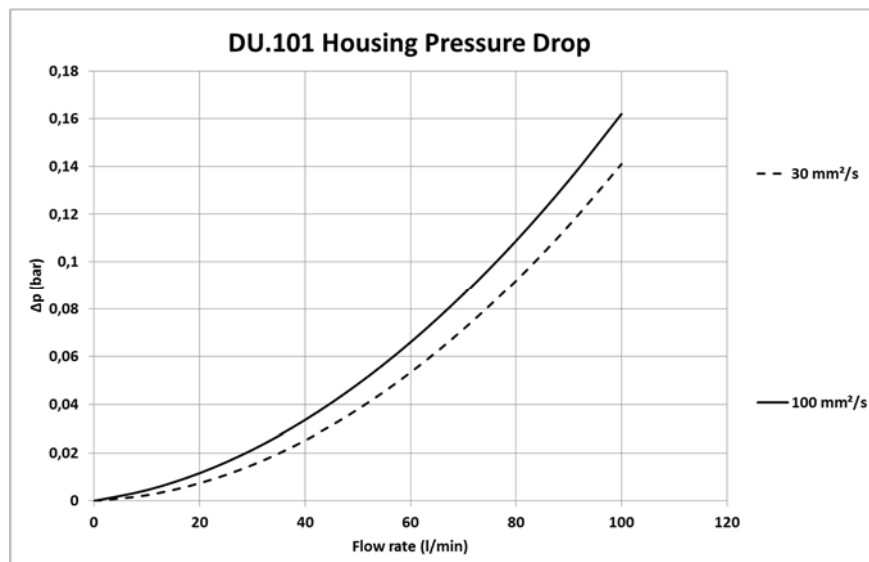
Material gradient coefficients (MSK) for filter elements

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.

DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
101	2,052	1,425	0,912	0,794	0,542	0,0717	0,0531	0,0496	0,411	0,475	0,217

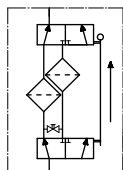
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

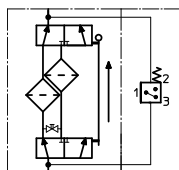


Symbols:

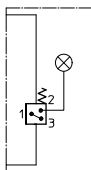
without indicator



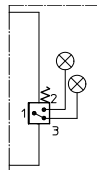
with electric indicator
AE 30 and AE 40



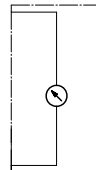
with visual-electric indicator
AE 50 and AE 62



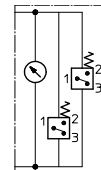
with visual-electric indicator
AE 70 and AE 80



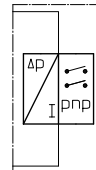
with visual indicator
AOR/AOC/OP



with visual-electric indicator
OE



with electronic sensor
VS5



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01N.100...		
2	2	O-ring	32 x 3,5	304378 (NBR)	304401 (FPM)
3	2	O-ring	76 x 4	305599 (NBR)	310291 (FPM)
4	1	O-ring	24 x 3	303038 (NBR)	304397 (FPM)
5	2	O-ring	60 x 2,5	305601 (NBR)	310267 (FPM)
6	8	screw plug	G ½	304678	
7	2	screw plug	G ¼	305003	
8	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
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 ¼	305003	
14	1	pressure balance valve	DN10	305000	

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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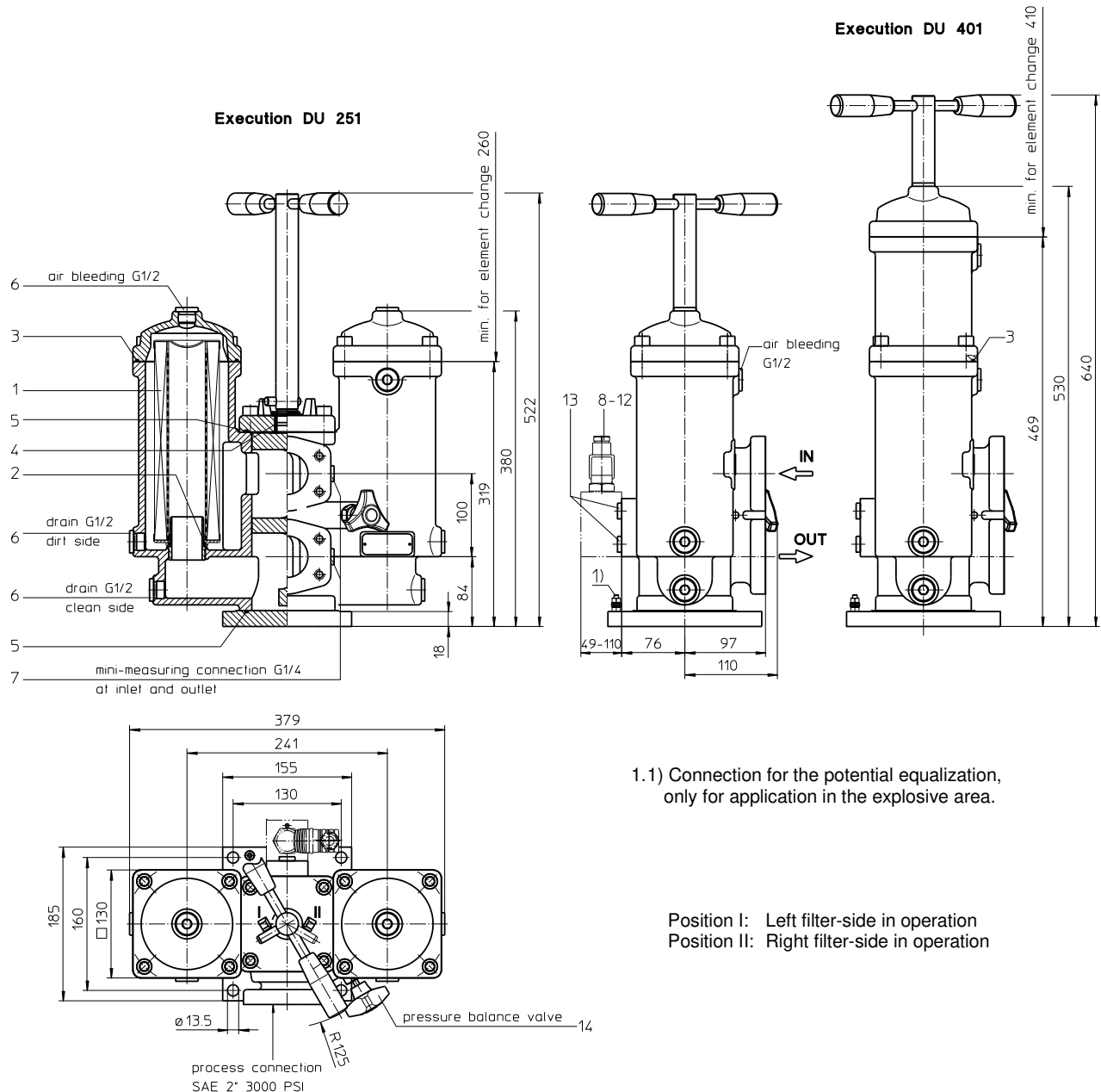
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Series DU 251-401

DN50 PN32



Weight DU251: approx. 39 kg
Weight DU401: approx. 49 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 251-401 DN50 PN32

Description:

Pressure filter changeover series DU 251-401 have a working pressure up to 32 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A three-way-change-over valve which is integrated in the middle of the housing 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)

DU.	251.	10VG.	30.	E.	P.	-.	FS.	8.	-.	-.	-.	AE
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 series:**
DU = pressure filter, change over
- 2 nominal size:** 251, 401
- 3 filter-material:**
130G, 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:**
30 = Δp 30 bar
- 5 filter element design:**
E = single end open
S0,3 = with bypass valve Δp 0,3 bar
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:**
8 = 2" (standard)
7 = 1 1/2" (with counter flange BFS.8.A.48,3x3,7.ST.P.3000)
- 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)
IS14 = calculation pressure vessel parts acc. to EN 13445, see sheet-no. 69828 (max. operating pressure 10 bar)
IS63 = for operating pressure to 63 bar, see sheet-no. 68796
- 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)

01NL.	250.	10VG.	30.	E.	P.	-
1	2	3	4	5	6	7

- 1 series:**
01NL = standard filter element according to DIN 24550, T3
- 2 nominal size:** 250, 400
- 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 resp. 1659
- 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
max. operating pressure with IS14:	10 bar
test pressure with IS14:	20 bar
max. operating pressure with IS63:	63 bar
test pressure with IS63:	126 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
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 DU251:	2x 2,5 l
DU401:	2x 3,7 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

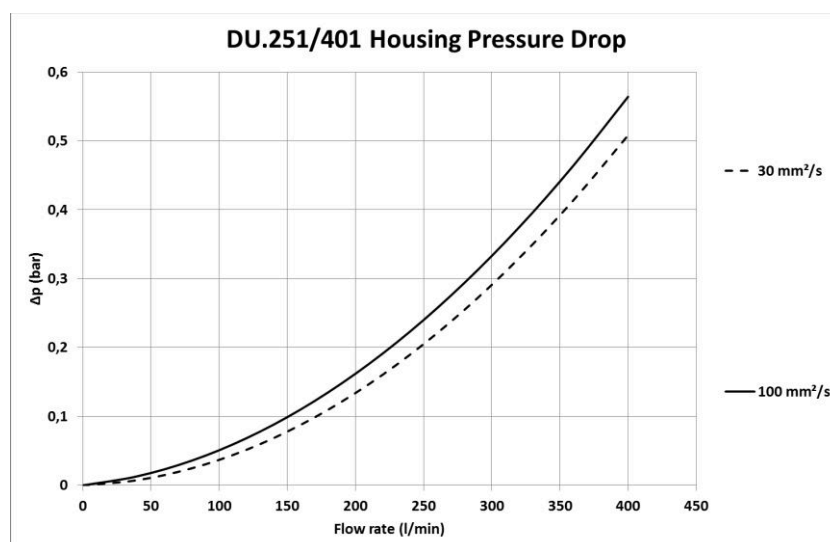
Material gradient coefficients (MSK) for filter elements

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.

DU	VG					G				P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	130G	10P	10API	25API
251	0,931	0,646	0,414	0,360	0,246	0,0277	0,0258	0,0177	0,0131	0,189	0,212	0,097
401	0,571	0,397	0,254	0,221	0,151	0,0169	0,0158	0,0108	0,0080	0,099	0,130	0,059

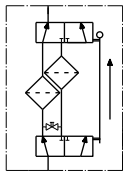
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

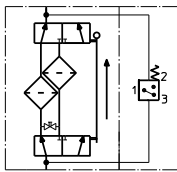


Symbols:

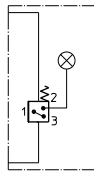
without indicator



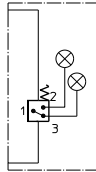
with electric indicator
AE 30 and AE 40



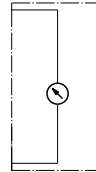
with visual-electric indicator
AE 50 and AE 62



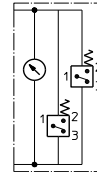
with visual-electric indicator
AE 70 and AE 80



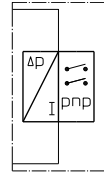
with visual indicator
AOR/AOC/OP



with visual-electric indicator
OE



with electronic sensor
VS5



Spare parts:

item	qty.	designation	dimension		article-no.	
			DU 251	DU 401		
1	2	filter element	01NL250...	01NL400...		
2	2	O-ring	40 x 3		304389 (NBR)	304391 (FPM)
3	2	O-ring (DU251)	115 x 3		303963 (NBR)	307762 (FPM)
	4	O-ring (DU401)	115 x 3		303963 (NBR)	307762 (FPM)
4	1	O-ring	24 x 3		303038 (NBR)	304397 (FPM)
5	2	O-ring	95 x 3		305808 (NBR)	304828 (FPM)
6	8	screw plug (DU251)	G 1/2		304678	
	10	screw plug (DU401)	G 1/2		304678	
7	2	screw plug	G 1/4		305003	
8	1	clogging indicator, visual	AOR or AOC		see sheet-no. 1606	
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 1/4		305003	
14	1	pressure balance valve	DN10		305000	

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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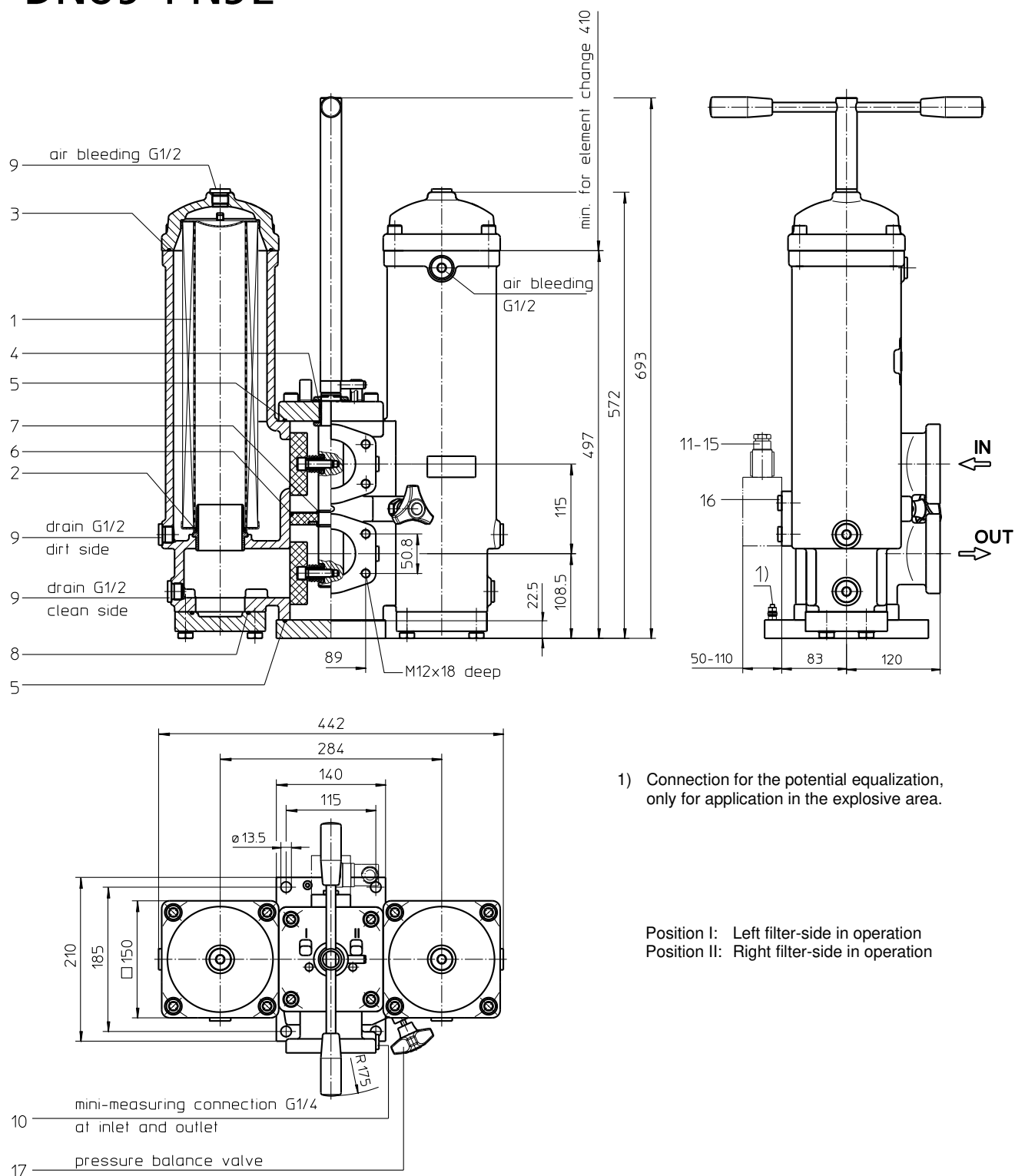
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Series DU 631

DN65 PN32



weight: approx. 76 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 631 DN65 PN32

Description:

Pressure filter change over series DU 631 have a working pressure up to 32 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A three-way-change-over valve which is integrated in the middle of the housing 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)

DU. 631. 10VG. 30. E. P. -. FS. 9. -. -. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

1 series:

DU = pressure filter, changeover

2 nominal size: 631

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:

30 = Δp 30 bar

5 filter element design:

E = single end open
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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602

8 process connection:

FS = SAE-flange connection 3000 PSI

9 process connection size:

9 = 2 1/2"

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)
IS14 = pressure vessel parts are calculated acc. to EN 13445 see sheet-no. 69828 (max. operating pressure 10 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)

01NL. 630. 10VG. 30. E. P. -						
1	2	3	4	5	6	7

1 series:

01NL. = standard filter element according to DIN 24550, T3

2 nominal size: 630

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
max. operating pressure with IS14:	10 bar
test pressure with IS14:	20 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
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:	2x 5,7 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

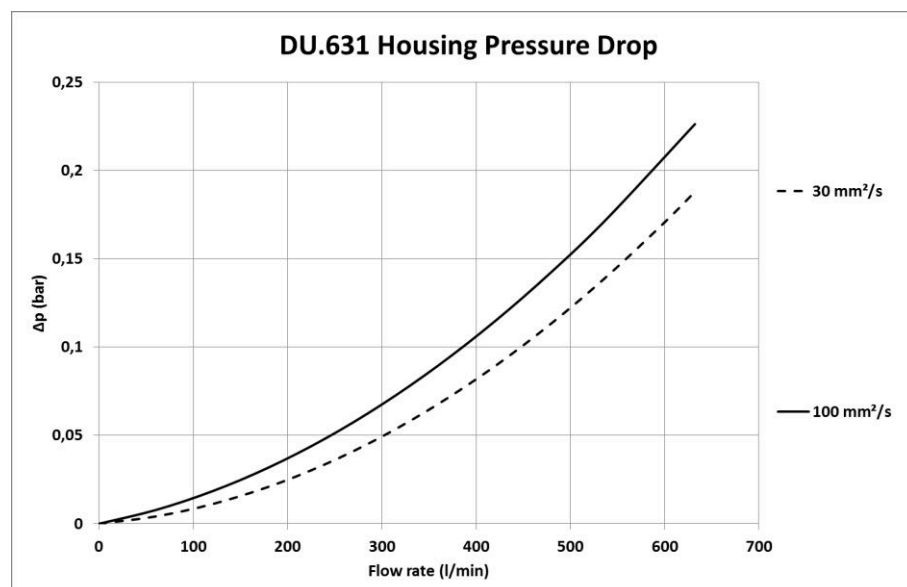
Material gradient coefficients (MSK) for filter elements

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 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
631	0,436	0,303	0,194	0,169	0,115	0,1417	0,1322	0,0906	0,092	0,099	0,045

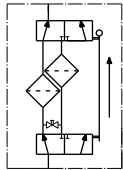
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

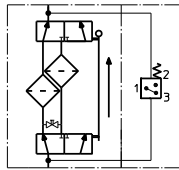


Symbols:

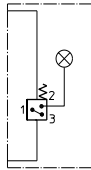
without indicator



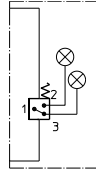
with electric indicator
AE 30 and AE 40



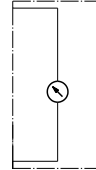
with visual-electric indicator
AE 50 and AE 62



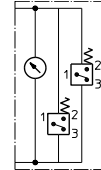
with visual-electric indicator
AE 70 and AE 80



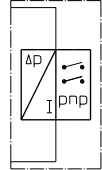
with visual indicator
AOR/AOC/OP



with visual-electric indicator
OE



with electronic sensor
VS5



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01NL.630...		
2	2	O-ring	60 x 3,5	304377 (NBR)	304398 (FPM)
3	2	O-ring	125 x 3	306025 (NBR)	307358 (FPM)
4	1	O-ring	24 x 3	303038 (NBR)	304397 (FPM)
5	2	O-ring	115 x 3	303963 (NBR)	307762 (FPM)
6	1	O-ring	96 x 4	305190 (NBR)	308148 (FPM)
7	1	O-ring	32 x 2,5	306843 (NBR)	308268 (FPM)
8	2	O-ring	69,45 x 3,53	305868 (NBR)	307357 (FPM)
9	8	screw plug	G 1/2	304678	
10	2	screw plug	G 1/4	305003	
11	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
12	1	clogging indicator, visual r, optisch	OP	see sheet-no. 1628	
13	1	clogging indicator, visual-electric	OE	see sheet-no. 1628	
14	1	clogging indicator, visual-electric	AE	see sheet-no. 1609	
15	1	clogging sensor, electronic	VS5	see sheet-no. 1641	
16	2	screw plug	G 1/4	305003	
17	1	pressure balance valve	DN10	305000	

item 16 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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05038-001, Brazil
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For more information, please

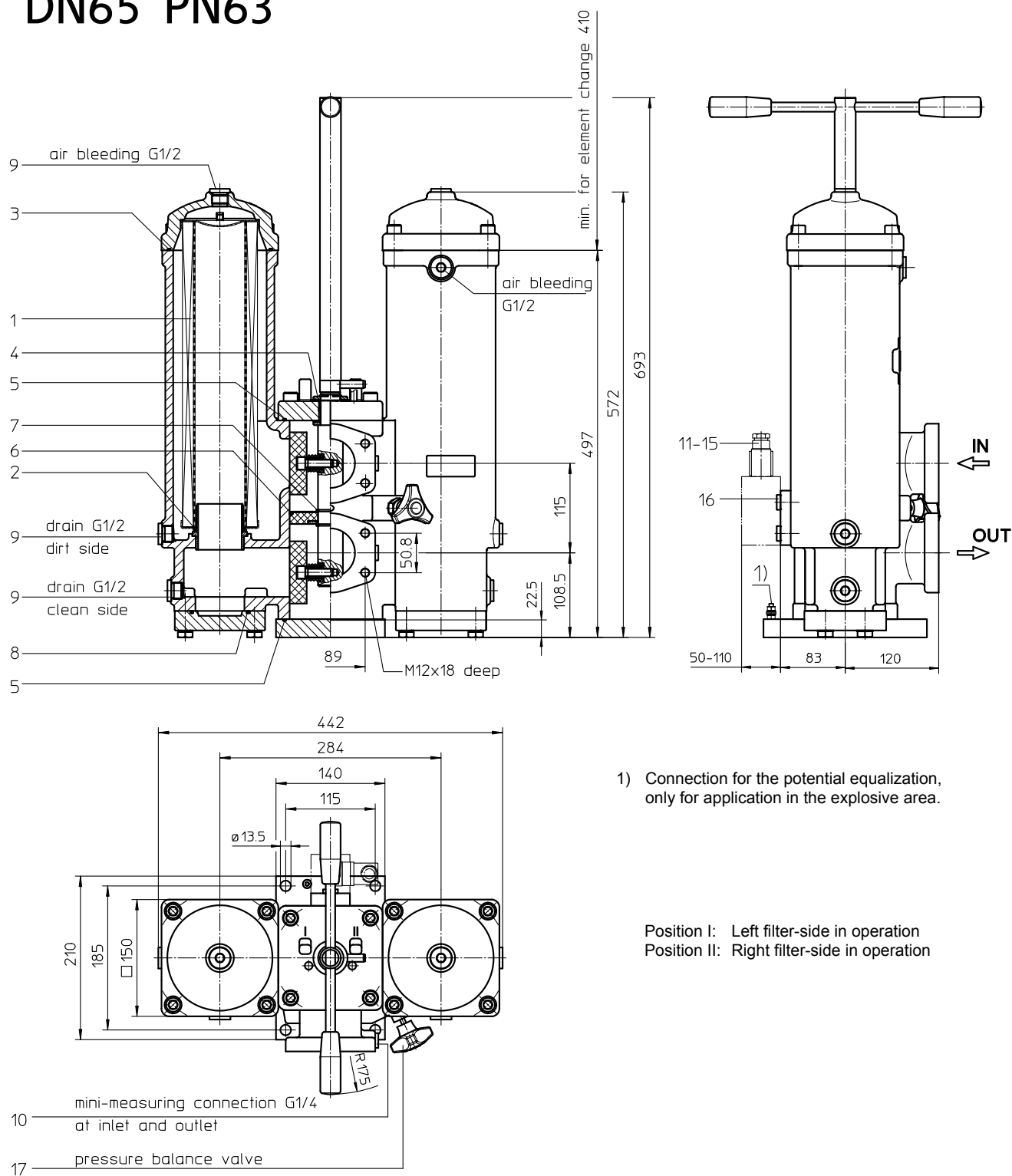
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Series DU 631

DN65 PN63



weight: approx. 76 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over

Series DU 631

DN65 PN63

Description:

Pressure filter change over series DU 631 have a working pressure up to 63 bar. Pressure peaks can be absorbed with a sufficient safety margin.

A three-way-change-over valve which is integrated in the middle of the housing 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)

DU. 631. 10VG. 30. E. P. -. FS. 9. -. IS63. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 | series:**
DU = pressure filter, changeover
- 2 | nominal size:** 631
- 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:**
30 = Δp 30 bar
- 5 | filter element design:**
E = single end open
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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602
- 8 | process connection:**
FS = SAE-flange connection 3000 PSI
- 9 | process connection size:**
9 = 2 1/2"
- 10 | filter housing specification:**
- = standard
IS12 = internal parts of change over armature stainless steel, see sheet-no. 41028
- 11 | pressure vessel specification:**
IS63 = for operating pressure to 63 bar, see sheet-no. 68796
- 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)

01NL.	630.	10VG.	30.	E.	P.	-
1	2	3	4	5	6	7

- 1 | series:**
01NL. = standard filter element according to DIN 24550, T3
- 2 | nominal size:** 630
- 3 | - 7 |** see type index complete filter

Accessories:

- gauge port and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1659
- SAE-counter flanges, see sheet-no. 1652
- shut-off valve, see sheet-no. 1655

Technical data:

design temperature:	-10 °C to +100 °C
operating temperature:	-10 °C to +80 °C
operating medium:	mineral oil, other media on request
max. operating pressure:	63 bar
test pressure:	126 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
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:	2x 5,7 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

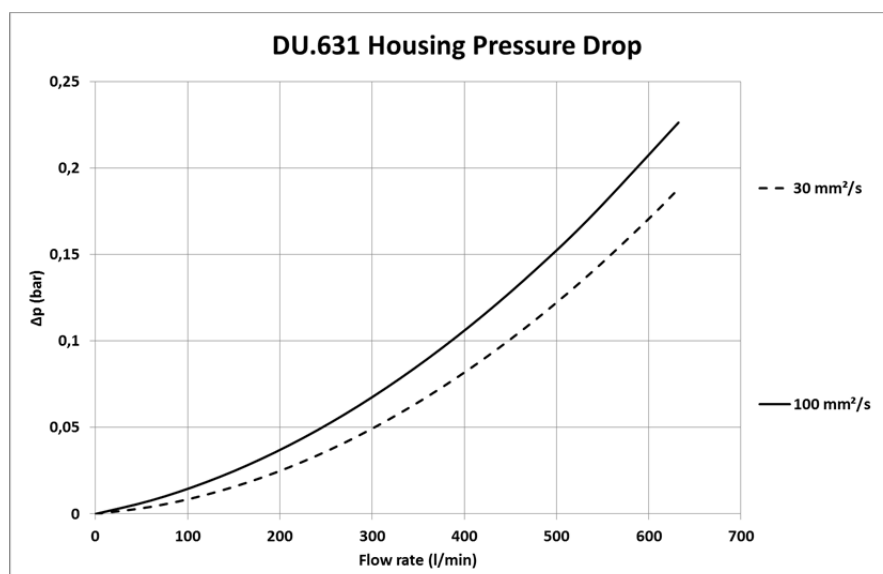
Material gradient coefficients (MSK) for filter elements

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 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
631	0,436	0,303	0,194	0,169	0,115	0,1417	0,1322	0,0906	0,092	0,099	0,045

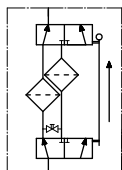
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

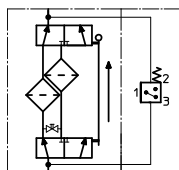


Symbols:

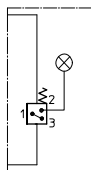
without indicator



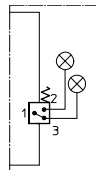
with electric indicator
AE 30 and AE 40



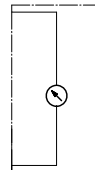
with visual-electric indicator
AE 50 and AE 62



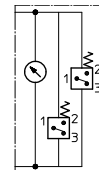
with visual-electric indicator
AE 70 and AE 80



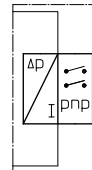
with visual indicator
AOR/AOC/OP



with visual-electric indicator
OE



with electronic sensor
VS5



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01NL.630...		
2	2	O-ring	60 x 3,5	304377 (NBR)	304398 (FPM)
3	2	O-ring	125 x 3	306025 (NBR)	307358 (FPM)
4	1	O-ring	24 x 3	303038 (NBR)	304397 (FPM)
5	2	O-ring	115 x 3	303963 (NBR)	307762 (FPM)
6	1	O-ring	96 x 4	305190 (NBR)	308148 (FPM)
7	1	O-ring	32 x 2,5	306843 (NBR)	308268 (FPM)
8	2	O-ring	69,45 x 3,53	305868 (NBR)	307357 (FPM)
9	8	screw plug	G ½	304678	
10	2	screw plug	G ¼	305003	
11	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
12	1	clogging indicator, visual r, optisch	OP	see sheet-no. 1628	
13	1	clogging indicator, visual-electric	OE	see sheet-no. 1628	
14	1	clogging indicator, visual-electric	AE	see sheet-no. 1609	
15	1	clogging sensor, electronic	VS5	see sheet-no. 1641	
16	2	screw plug	G ¼	305003	
17	1	pressure balance valve	DN10	305000	

item 16 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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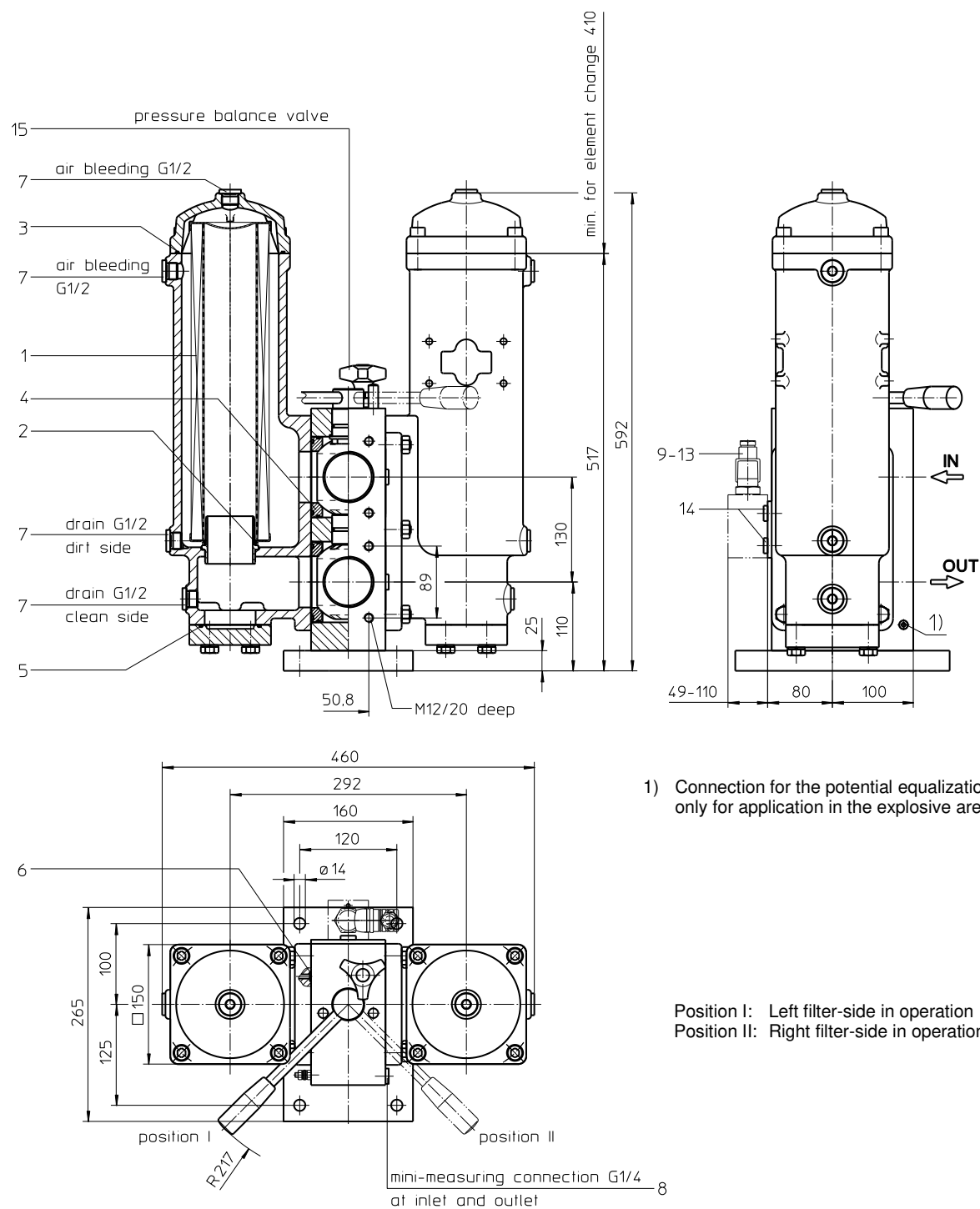
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or visit www.eaton.com/filtration

Series DU 635

DN65 PN32



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

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

weight: approx. 92 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series DU 635 DN65 PN32

Description:

Pressure filter change over series DU 635 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.

Ship classifications available upon request.

Type index:

Complete filter: (ordering example)

DU. 635. 10VG. 30. E. P. -. FS. 9. -. -. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 series:**
DU = pressure filter, change over
- 2 nominal size:** 635
- 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:**
30 = Δp 30 bar
- 5 filter element design:**
E = single end open
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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602
- 8 process connection:**
FS = SAE-flange connection 3000 PSI
- 9 process connection size:**
9 = 2 1/2"
- 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)
IS14 = pressure vessel parts are calculated acc. to EN 13445 see sheet-no. 69828 (max. operating pressure 10 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)

01NL.	630.	10VG.	30.	E.	P.	-
1	2	3	4	5	6	7

- 1 series:**
01NL. = standard filter element according to DIN 24550, T3
- 2 nominal size:** 630
- 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
max. operating pressure with IS14:	10 bar
test pressure with IS14:	20 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
switching housing material:	S355J2+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:	2x 5,7 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at

www.eatonpowersource.com/calculators/filtration/

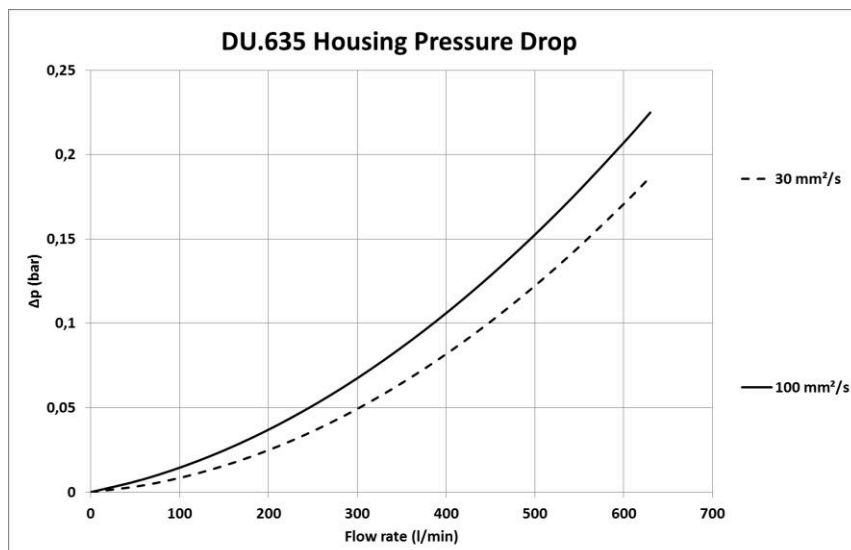
Material gradient coefficients (MSK) for filter elements

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.

DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
635	0,436	0,303	0,194	0,169	0,115	0,1417	0,1322	0,0906	0,092	0,099	0,045

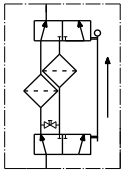
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

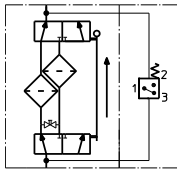


Symbols:

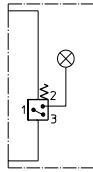
without indicator



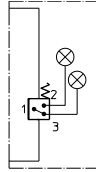
with electric indicator
AE 30 and AE 40



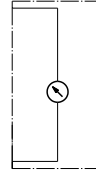
with visual-electric indicator
AE 50 and AE 62



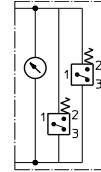
with visual-electric indicator
AE 70 and AE 80



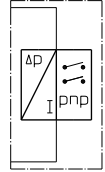
with visual indicator
AOR/AOC/OP



with visual-electric indicator
OE



with electronic sensor
VS5



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01NL.630...		
2	2	O-ring	60 x 3,5	304377 (NBR)	304398 (FPM)
3	2	O-ring	125 x 3	306025 (NBR)	307358 (FPM)
4	4	gasket kit of change over UKK	2 1/2" (DN65)	322718 (NBR)	322719 (FPM)
5	2	O-ring	69,45 x 3,53	305868 (NBR)	307357 (FPM)
6	4	O-ring	8 x 2	310004 (NBR)	316530 (FPM)
7	8	screw plug	G 1/2	304678	
8	2	screw plug	G 1/4	305003	
9	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
10	1	clogging indicator, visual r, optisch	OP	see sheet-no. 1628	
11	1	clogging indicator, visual-electric	OE	see sheet-no. 1628	
12	1	clogging indicator, visual-electric	AE	see sheet-no. 1609	
13	1	clogging sensor, electronic	VS5	see sheet-no. 1641	
14	2	screw plug	G 1/4	305003	
15	1	pressure balance valve	DN10	305000	

item 14 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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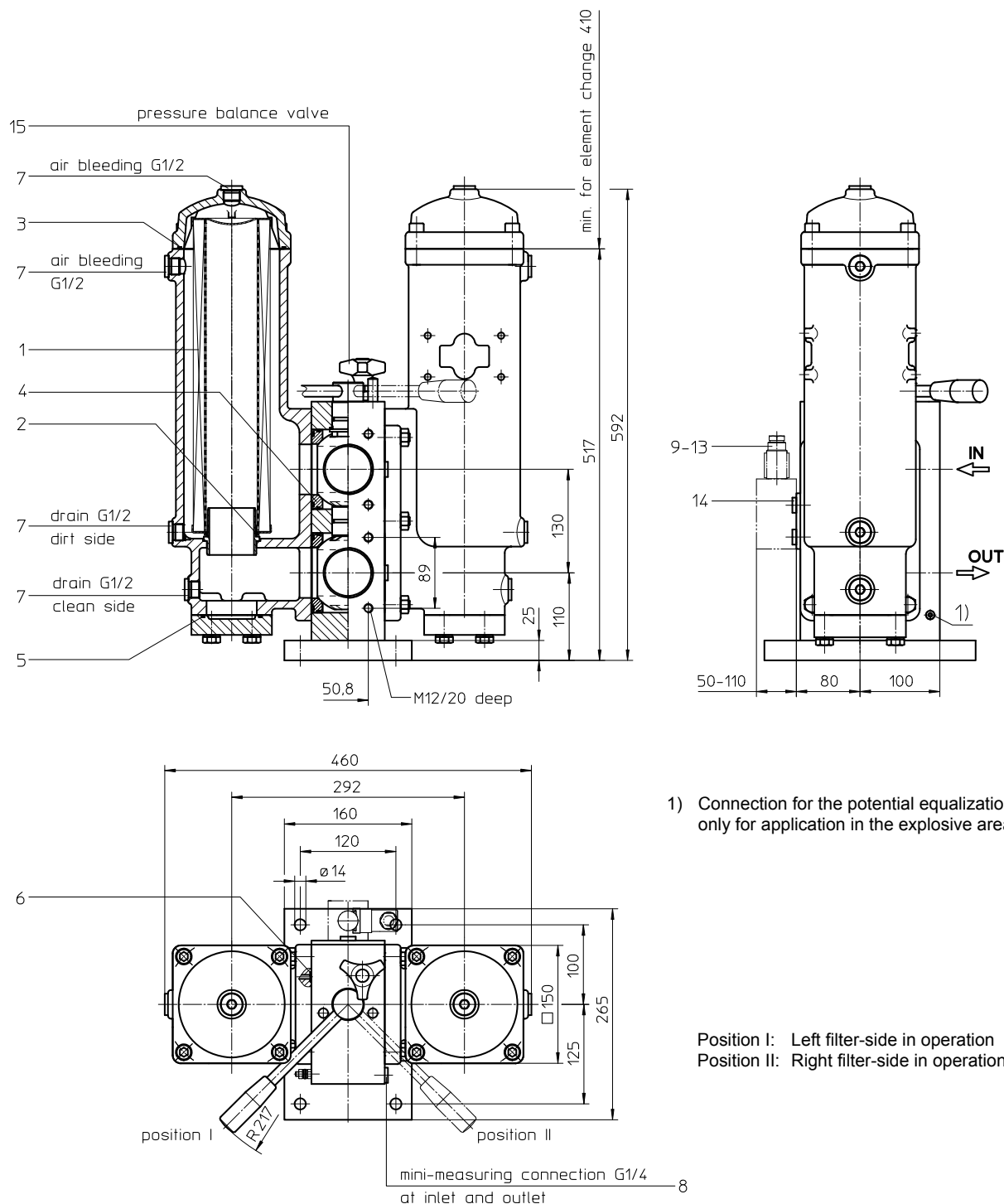
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Series DU 635

DN65 PN63



weight: approx. 92 kg

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over

Series DU 635

DN65 PN63

Description:

Pressure filter change over series DU 635 have a working pressure up to 63 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)

DU.635. 10VG. 30. E. P. -. FS. 9. -. IS63. -. AE												
1	2	3	4	5	6	7	8	9	10	11	12	13

1 | series:

DU = pressure filter, change over

2 | nominal size: 635

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:

30 = Δp 30 bar

5 | filter element design:

E = single end open
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
IS07 = for oil/amonia mixtures (NH₃), see sheet-no. 31602

8 | process connection:

FS = SAE-flange connection 3000 PSI

9 | process connection size:

9 = 2 1/2"

10 | filter housing specification:

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

11 | pressure vessel specification:

IS63 = for operating pressure to 63 bar, see sheet-no. 68796

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)

01NL.	630.	10VG.	30.	E.	P.	-
1	2	3	4	5	6	7

1 | series:

01NL. = standard filter element according to DIN 24550, T3

2 | nominal size: 630

3 | - 7 | see type index complete filter

Accessories:

- gauge port and bleeder connection, see sheet-no. 1650
- drain- and bleeder connection, see sheet-no. 1659
- SAE-counter flanges, see sheet-no. 1652
- shut-off valve, see sheet-no. 1655

Technical data:

design temperature:	-10°C to +100°C
operating temperature:	-10°C to +80°C
operating medium:	mineral oil, other media on request
max. operating pressure:	63 bar
test pressure:	126 bar
process connection:	SAE-flange connection 3000 PSI
housing material:	EN-GJS-400-18-LT
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:	2x 5,7 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:

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

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

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

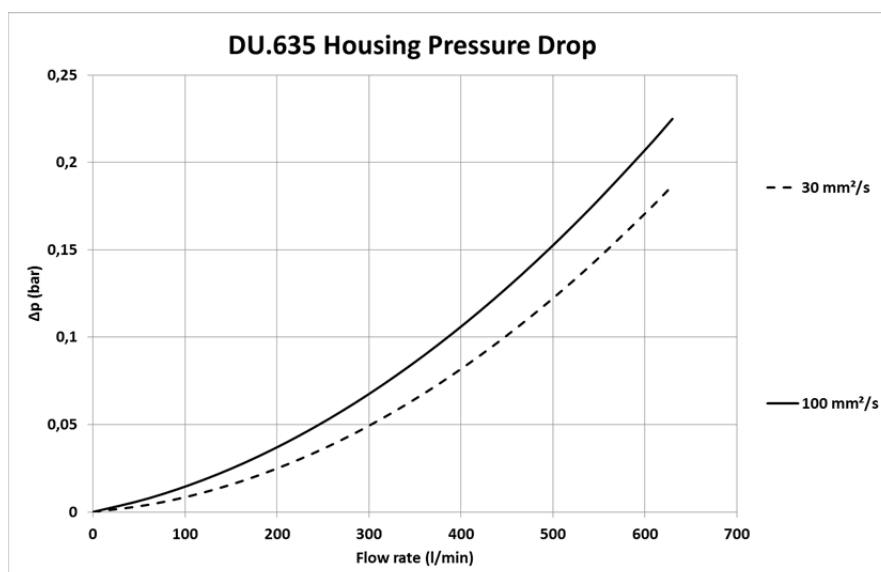
Material gradient coefficients (MSK) for filter elements

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 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

DU	VG					G			P	API	
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P	10API	25API
635	0,436	0,303	0,194	0,169	0,115	0,1417	0,1322	0,0906	0,092	0,099	0,045

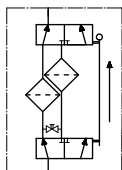
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

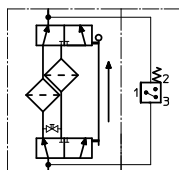


Symbols:

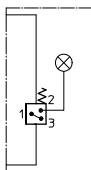
without indicator



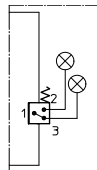
with electric indicator
AE 30 and AE 40



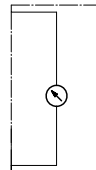
with visual-electric indicator
AE 50 and AE 62



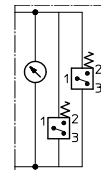
with visual-electric indicator
AE 70 and AE 80



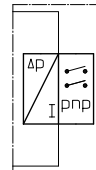
with visual indicator
AOR/AOC/OP



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with electronic sensor
VS5



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