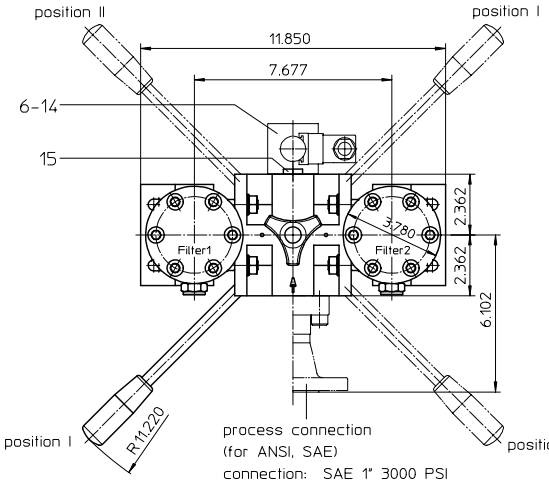
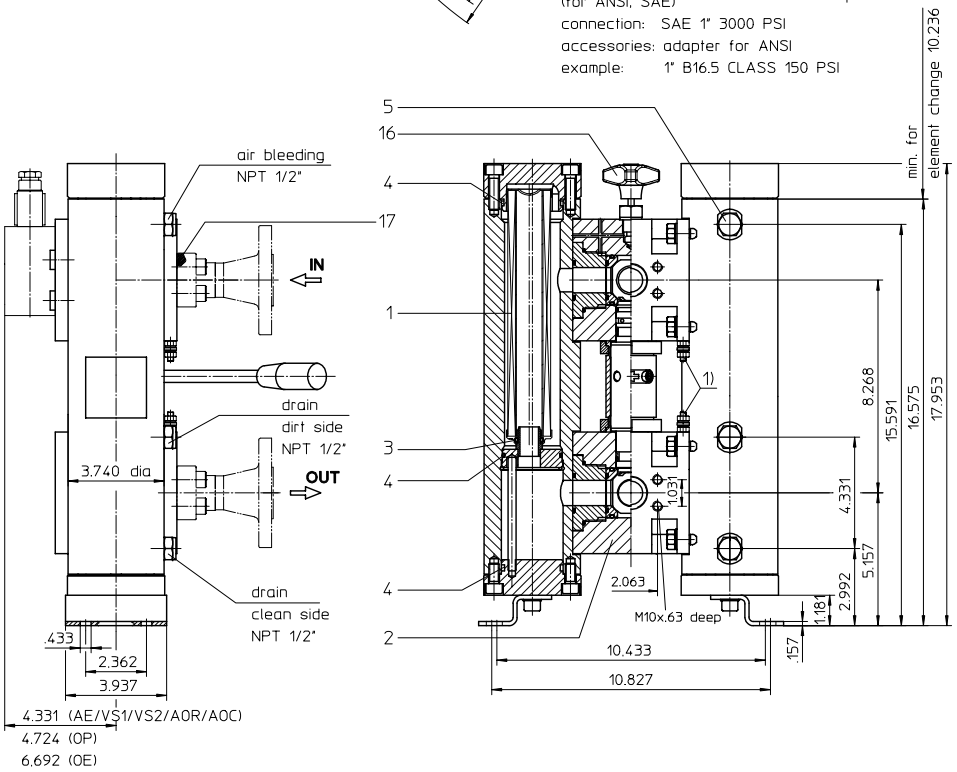
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 101 NPS 1“ CLASS 150 PSI

Sheet No. **2168 B**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 101. 10VG. 30. E. P. VA. FS. 5. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 101

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
30 = Δp 435 PSI

5 **filter element design:**
E = single-end open, S = with by-pass valve Δp 29 PSI, S1 = with by-pass valve Δp 51 PSI

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

7 **filter element specification:**
- = standard, VA = stainless steel

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
5 = 1“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NL. 100. 10VG. 30. E. P. VA**

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

1 **series:**
01NL. = standard filter element according to DIN 24550, T3

2 **nominal size:** 100

3 - 7 see type index complete filter

weight: approx. 132 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NL.100... | | |
| 2 | 1 | change over UKK | 1“ | | |
| 3 | 2 | O-ring | 22 x 3,5 | 304341 (NBR) | 304392 (FPM) |
| 4 | 6 | O-ring | 54 x 3 | 304657 (NBR) | 304720 (FPM) |
| 5 | 6 | screw plug | NPT ½ | 307766 | |
| 6 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 7 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 8 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 9 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 10 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 11 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 12 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 13 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 14 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 15 | 2 | screw plug | BSPP ¼ | 306968 | |
| 16 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 17 | 2 | O-ring (only for execution with ANSI-flange) | 32,9 x 3,53 | 318850 (NBR) | 338231(FPM) |

item 15 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 101 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 5. Technical data:

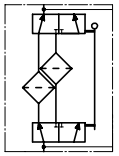
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ |
| drain connection dirt side : | NPT ½“ |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x .24 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

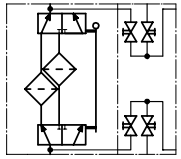
US 2168 B

## 6. Symbols:

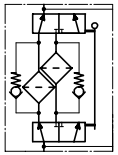
without indicator



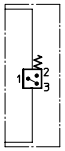
with shut-off valve



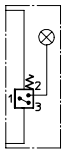
with by-pass valve



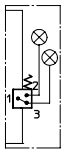
with electrical indicator
AE 30 and AE 40



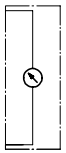
with visual-electrical indicator
AE 50 and AE 62



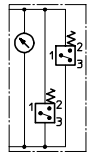
with visual-electrical indicator
AE 70 and AE 80



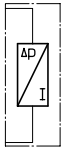
with visual indicator
AOR/AOC/OP



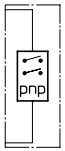
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

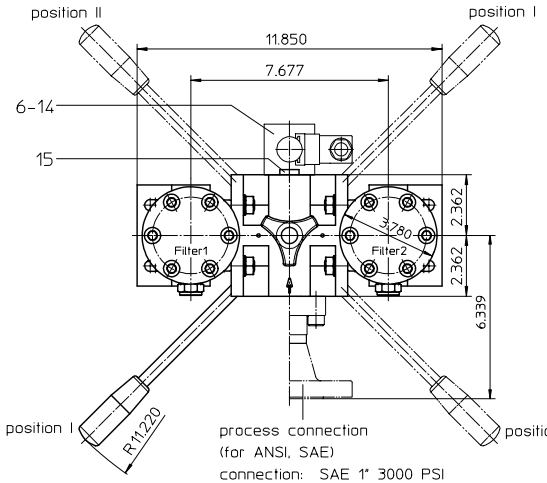
## 8. Test methods:

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 perfo rmance |

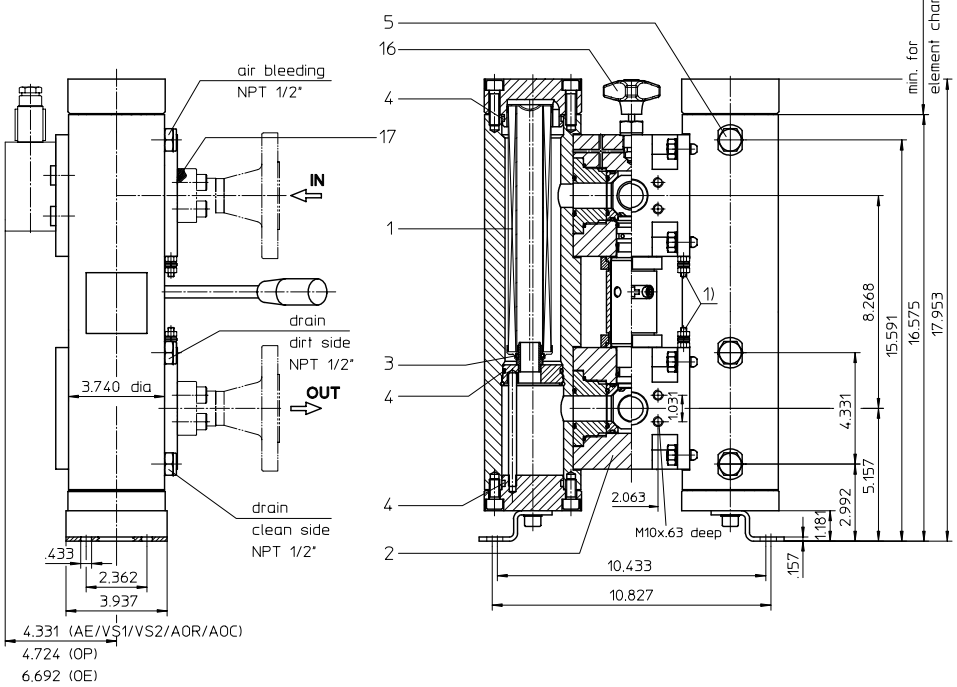
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 100 NPS 1“ CLASS 300 PSI

Sheet No. **2159 C**




[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 100. 10VG. 30. E. P. VA. FS. 5. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**1 series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

**2 nominal size:** 100

**3 filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

**4 resistance of pressure difference for filter element:**
30 = Δp 435 PSI

**5 filter element design:**
E = single-end open, S = with by-pass valve Δp 29 PSI, S1 = with by-pass valve Δp 51 PSI

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

**7 filter element specification:**
- = standard, VA = stainless steel

**8 process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

**9 process connection size:**
5 = 1“

**10 filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

**11 internal valve:**
- = without

**12 clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

**13 shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

**14 specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

**15 switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

**16 air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NL. 100. 10VG. 30. E. P. VA**

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

**1 series:**
01NL. = standard filter element according to DIN 24550, T3

**2 nominal size:** 100

**3** - 7 see type index complete filter

weight: approx. 132 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NL.100... | | |
| 2 | 1 | change over UKK | 1“ | | |
| 3 | 2 | O-ring | 22 x 3,5 | 304341 (NBR) | 304392 (FPM) |
| 4 | 6 | O-ring | 54 x 3 | 304657 (NBR) | 304720 (FPM) |
| 5 | 6 | screw plug | NPT ½ | 307766 | |
| 6 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 7 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 8 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 9 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 10 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 11 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 12 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 13 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 14 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 15 | 2 | screw plug | BSPP ¼ | 306968 | |
| 16 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 17 | 2 | O-ring (only for execution with ANSI-flange) | 32,9 x 3,53 | 318850 (NBR) | 338231(FPM) |

item 15 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 100 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 5. Technical data:

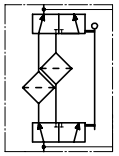
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ |
| drain connection dirt side : | NPT ½“ |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x .24 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

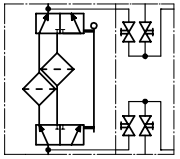
US 2159 C

## 6. Symbols:

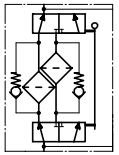
without indicator



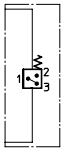
with shut-off valve



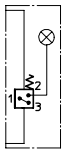
with by-pass valve



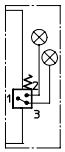
with electrical indicator
AE 30 and AE 40



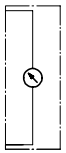

with visual-electrical indicator
AE 50 and AE 62



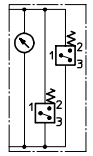

with visual-electrical indicator
AE 70 and AE 80



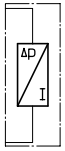

with visual indicator
AOR/AOC/OP



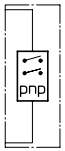
with visual-electrical indicator
OE




with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 8. Test methods:

Filter elements are tested according to the following ISO standards:

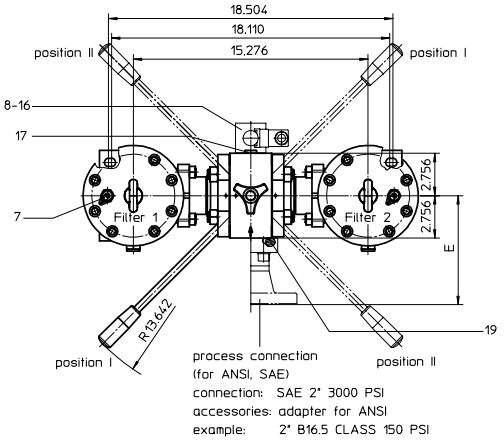
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

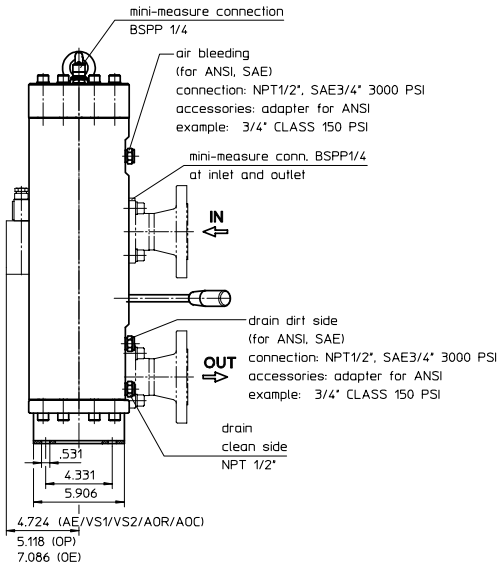
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 251-401 NPS 2“ CLASS 150 PSI

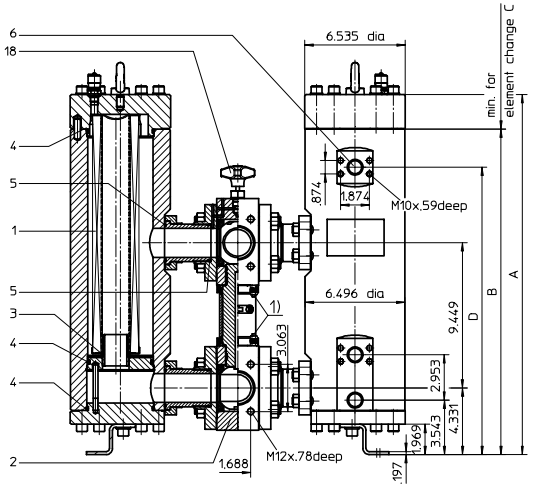
Sheet No. **2169 B**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 401. 10VG. 30. E. P. VA. FS. 8. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 251, 401

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
30 = Δp 435 PSI

5 **filter element design:**
E = single-end open, S = with by-pass valve Δp 29 PSI, S1 = with by-pass valve Δp 51 PSI

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

7 **filter element specification:**
- = standard, VA = stainless steel

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
7 = 1 ½“ (only with adapter),
8 = 2“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NL. 400. 10VG. 30. E. P. VA**

| 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

## 2. Dimensions: inch

| type | connection | A | B | C | D | E | weight lbs. |
|---|---|---|---|---|---|---|---|
| EDA 251 | SAE 2“ | 17.91 | 15.66 | 10.23 | 14.27 | - | approx. 287 |
| | ANSI 2“ | | | | | 7.08 | |
| | ANSI 1 ½“ | | | | | 7.04 | |
| EDA 401 | SAE 2“ | 23.42 | 21.18 | 16.14 | 17.76 | - | approx. 353 |
| | ANSI 2“ | | | | | 7.08 | |
| | ANSI 1 ½“ | | | | | 7.04 | |

Changes of measures and design are subject to alterat ion!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fax 740 - 454 - 0075 url www.internormen.com

## 3. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 4. Spare parts:

| item | qty. | designation | dimension EDA 251 | dimension EDA 401 | article-no. | |
|---|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NL. 250... | 01NL. 400... | | |
| 2 | 1 | change over UKK | 2“ | | | |
| 3 | 2 | O-ring | 40 x 3 | | 304389NBR) | 305482FPM) |
| 4 | 6 | O-ring | 100 x 5 | | 327063 (NBR) | 327064 (FPM) |
| 5 | 8 | O-ring | 56 x 3 | | 305072 (NBR) | 305322 (FPM) |
| 6 | 6 | screw plug | NPT ½ | | 307766 | |
| 7 | 2 | mini-measuring connection | MA.1.VA | | 320128 | |
| 8 | 1 | clogging indicator, visual | AOR or AOC | | see sheet-no. 1606 | |
| 9 | 1 | clogging indicator, visual-electrical | OP | | see sheet-no. 1628 | |
| 10 | 1 | clogging indicator, visual-electrical | OE | | see sheet-no. 1628 | |
| 11 | 1 | clogging indicator, visual-electrical | AE | | see sheet-no. 1609 | |
| 12 | 1 | clogging sensor, electronical | VS1 | | see sheet-no. 1607 | |
| 13 | 1 | clogging sensor, electronical | VS2 | | see sheet-no. 1608 | |
| 14 | 1 | O-ring | 15 x 1,5 | | 315357 (NBR) | 315427 (FPM) |
| 15 | 1 | O-ring | 22 x 2 | | 304708 (NBR) | 304721 (FPM) |
| 16 | 2 | O-ring | 14 x 2 | | 304342 (NBR) | 304722 (FPM) |
| 17 | 2 | screw plug | BSPP ¼ | | 306968 | |
| 18 | 1 | pressure balance valve | 3/8“ | | 310316 | |
| 19 | 2 | O-ring (only for execution with ANSI-flange) | 56,75 x 3,53 | | 306035 (NBR) | 310264 (FPM) |

item 17 execution only with clogging indicator or clogging sensor

## 5. Description:

Stainless steel-pressure filters, change-over series EDA 251-401 are suitable for operating pressure up to 580 bar.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 6. Technical data:

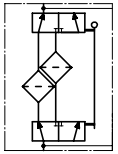
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank EDA 251: | 2x .79 Gal. |
| EDA 401: | 2x 1.13 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

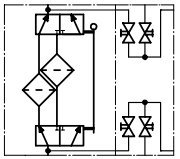
US 2169 B

## 7. Symbols:

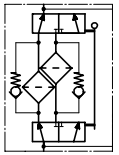
without indicator



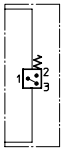
with shut-off valve



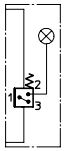
with by-pass valve



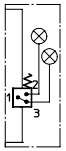
with electrical indicator AE 30 and AE 40



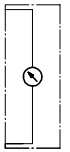
with visual-electrical indicator AE 50 and AE 62



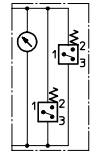
with visual-electrical indicator AE 70 and AE 80



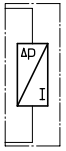
with visual indicator AOR/AOC/OP



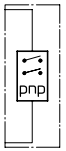
with visual-electrical indicator OE



with electronical sensor VS1




with electronical sensor VS2




## 8. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 9. Test methods:

Filter elements are tested according to the following ISO standards:

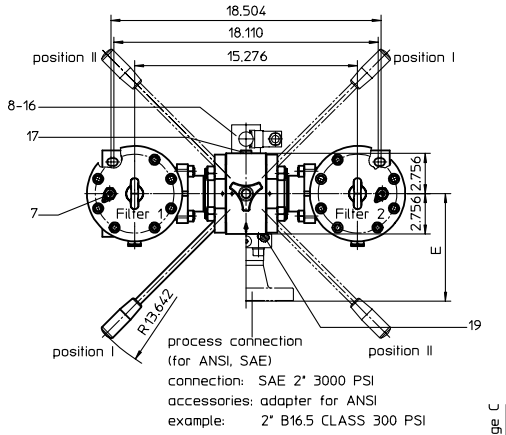
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

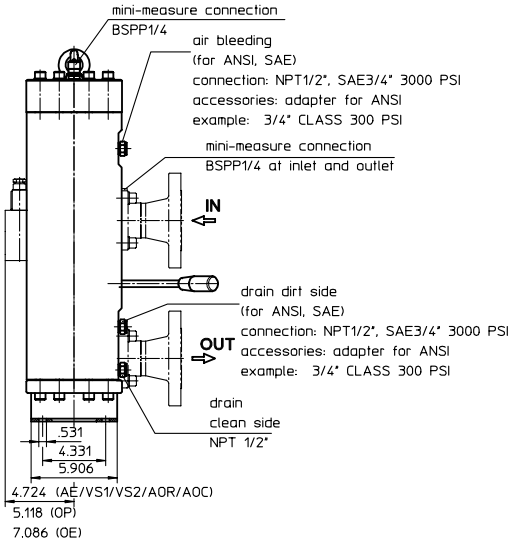
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 250-400 NPS 2“ CLASS 300 PSI

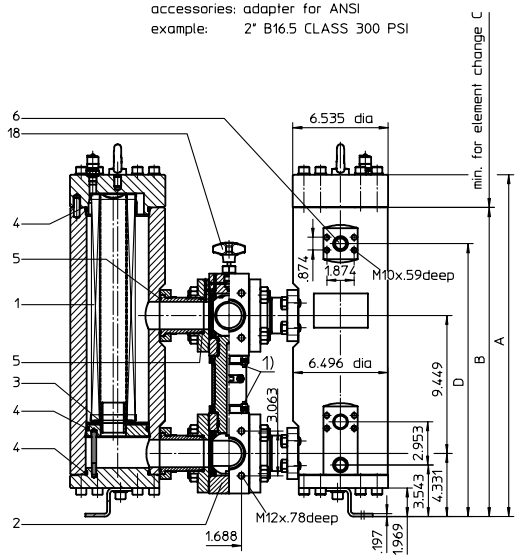
Sheet No. **2157 C**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 400. 10VG. 30. E. P. VA. FS. 8. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 250, 400

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
30 = Δp 435 PSI

5 **filter element design:**
E = single-end open, S = with by-pass valve Δp 29 PSI, S1 = with by-pass valve Δp 51 PSI

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

7 **filter element specification:**
- = standard, VA = stainless steel

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
7 = 1 ½“ (only with adapter),
8 = 2“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NL. 400. 10VG. 30. E. P. VA**

| 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

## 2. Dimensions: inch

| type | connection | A | B | C | D | E | weight lbs. |
|---|---|---|---|---|---|---|---|
| EDA 250 | SAE 2“ | 17.91 | 15.66 | 10.23 | 14.27 | - | approx. 287 |
| | ANSI 2“ | | | | | 7.36 | |
| | ANSI 1 ½“ | | | | | 7.78 | |
| EDA 400 | SAE 2“ | 23.42 | 21.18 | 16.14 | 17.76 | - | approx. 353 |
| | ANSI 2“ | | | | | 7.36 | |
| | ANSI 1 ½“ | | | | | 7.78 | |

Changes of measures and design are subject to alterat ion!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## 3. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 4. Spare parts:

| item | qty. | designation | dimension EDA 250 | dimension EDA 400 | article-no. | |
|---|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NL. 250... | 01NL. 400... | | |
| 2 | 1 | change over UKK | 2“ | | | |
| 3 | 2 | O-ring | 40 x 3 | | 304389NBR) | 305482FPM) |
| 4 | 6 | O-ring | 100 x 5 | | 327063 (NBR) | 327064 (FPM) |
| 5 | 8 | O-ring | 56 x 3 | | 305072 (NBR) | 305322 (FPM) |
| 6 | 6 | screw plug | NPT ½ | | 307766 | |
| 7 | 2 | mini-measuring connection | MA.1.VA | | 320128 | |
| 8 | 1 | clogging indicator, visual | AOR or AOC | | see sheet-no. 1606 | |
| 9 | 1 | clogging indicator, visual-electrical | OP | | see sheet-no. 1628 | |
| 10 | 1 | clogging indicator, visual-electrical | OE | | see sheet-no. 1628 | |
| 11 | 1 | clogging indicator, visual-electrical | AE | | see sheet-no. 1609 | |
| 12 | 1 | clogging sensor, electronical | VS1 | | see sheet-no. 1607 | |
| 13 | 1 | clogging sensor, electronical | VS2 | | see sheet-no. 1608 | |
| 14 | 1 | O-ring | 15 x 1,5 | | 315357 (NBR) | 315427 (FPM) |
| 15 | 1 | O-ring | 22 x 2 | | 304708 (NBR) | 304721 (FPM) |
| 16 | 2 | O-ring | 14 x 2 | | 304342 (NBR) | 304722 (FPM) |
| 17 | 2 | screw plug | BSPP ¼ | | 306968 | |
| 18 | 1 | pressure balance valve | 3/8“ | | 310316 | |
| 19 | 2 | O-ring (only for execution with ANSI-flange) | 56,75 x 3,53 | | 306035 (NBR) | 310264 (FPM) |

item 17 execution only with clogging indicator or clogging sensor

## 5. Description:

Stainless steel-pressure filters, change-over series EDA 250-400 are suitable for operating pressure up to 580 bar.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 6. Technical data:

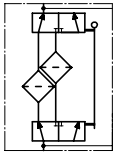
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank EDA 250: | 2x .79 Gal. |
| EDA 400: | 2x 1.13 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

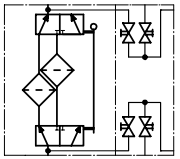
US 2157 C

## 7. Symbols:

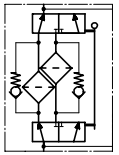
without indicator



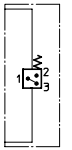
with shut-off valve



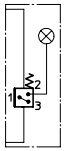
with by-pass valve



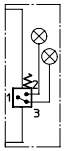
with electrical indicator AE 30 and AE 40



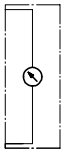

with visual-electrical indicator AE 50 and AE 62



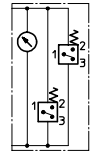

with visual-electrical indicator AE 70 and AE 80



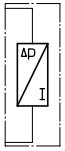

with visual indicator AOR/AOC/OP



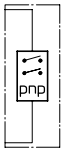
with visual-electrical indicator OE




with electronical sensor VS1




with electronical sensor VS2




## 8. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 9. Test methods:

Filter elements are tested according to the following ISO standards:

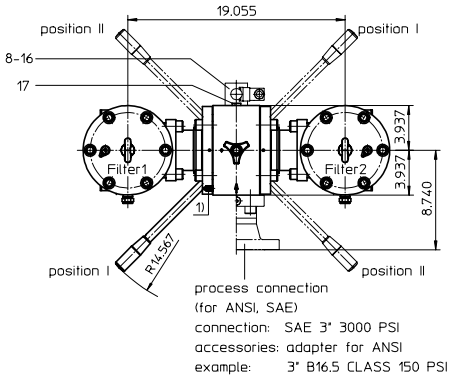
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

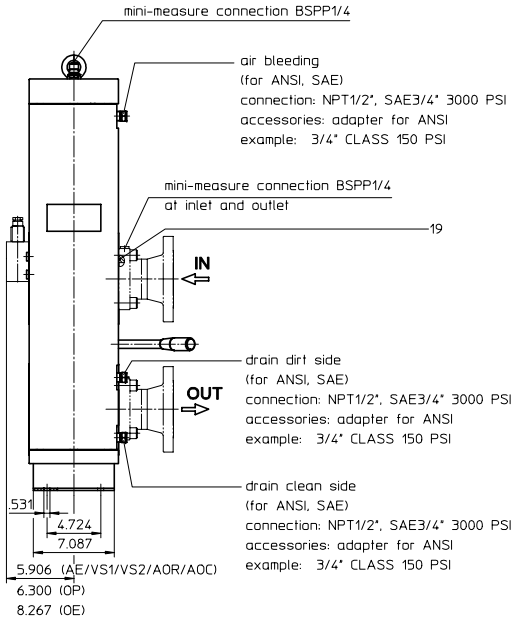
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
# Series EDA 631-1001 NPS 3“ CLASS 150 PSI

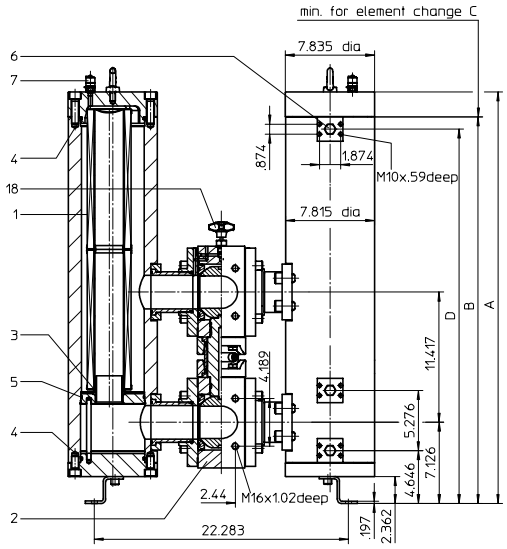
Sheet No. **2170 B**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 1001. 10VG. 30. E. P. VA. FS. A. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 631, 1001

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
30 = Δp 435 PSI

5 **filter element design:**
E = single-end open, S = with by-pass valve Δp 29 PSI, S1 = with by-pass valve Δp 51 PSI

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

7 **filter element specification:**
- = standard, VA = stainless steel

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
A = 3“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NL. 1000. 10VG. 30. E. P. VA**

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

1 **series:**
01NL. = standard filter element according to DIN 24550, T3

2 **nominal size:** 1000

3 - 7 see type index complete filter

## 2. Dimensions: inch

| type | connection size | A | B | C | D | weight lbs. |
|---|---|---|---|---|---|---|
| EDA 631 | SAE or ANSI 3“ | 27.04 | 24.84 | 16.14 | 23.77 | approx. 639 |
| EDA 1001 | SAE or ANSI 3“ | 36.10 | 33.89 | 25.19 | 32.83 | approx. 771 |

Changes of measures and design are subject to alterat ion!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fax 740 - 454 - 0075 url www.internormen.com

## 3. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 4. Spare parts:

| item | qty. | designation | dimension EDA 631 | dimension EDA 1001 | article-no. | |
|---|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NL.630 | 01NL.1000 | | |
| 2 | 1 | change over UKK | 3“ | | | |
| 3 | 2 | O-ring | 60 x 3,5 | | 304377 (NBR) | 304398 (FPM) |
| 4 | 4 | O-ring | 135 x 4,75 | | 326348 (NBR) | 326349 (FPM) |
| 5 | 2 | O-ring | 136,12 x 3,53 | | 320162 (NBR) | 320163 (FPM) |
| 6 | 6 | screw plug | NPT ½ | | 307766 | |
| 7 | 2 | mini-measuring connection | MA.1.VA | | 320128 | |
| 8 | 1 | clogging indicator, visual | AOR or AOC | | see sheet-no. 1606 | |
| 9 | 1 | clogging indicator, visual-electrical | OP | | see sheet-no. 1628 | |
| 10 | 1 | clogging indicator, visual-electrical | OE | | see sheet-no. 1628 | |
| 11 | 1 | clogging indicator, visual-electrical | AE | | see sheet-no. 1609 | |
| 12 | 1 | clogging sensor, electronical | VS1 | | see sheet-no. 1607 | |
| 13 | 1 | clogging sensor, electronical | VS2 | | see sheet-no. 1608 | |
| 14 | 1 | O-ring | 15 x 1,5 | | 315357 (NBR) | 315427 (FPM) |
| 15 | 1 | O-ring | 22 x 2 | | 304708 (NBR) | 304721 (FPM) |
| 16 | 2 | O-ring | 14 x 2 | | 304342 (NBR) | 304722 (FPM) |
| 17 | 2 | screw plug | BSPP ¼ | | 306968 | |
| 18 | 1 | pressure balance valve | 3/8“ | | 310316 | |
| 19 | 2 | O-ring (only for execution with ANSI-flange) | 85,32 x 3,53 | | 305590 (NBR) | 306308 (FPM) |

item 17 execution only with clogging indicator or clogging sensor

## 5. Description:

Stainless steel-pressure filters, change-over series EDA 631-1001 are suitable for operating pressure up to 580 PSI
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 6. Technical data:

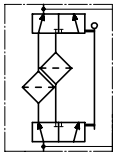
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank EDA 631: | 2x 2.20 Gal. |
| EDA 1001: | 2x 3.12 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

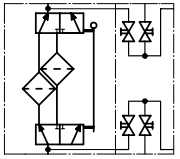
US 2170 B

## 7. Symbols:

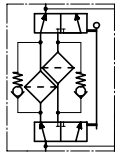
without indicator



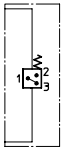
with shut-off valve



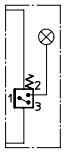
with by-pass valve



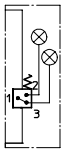
with electrical indicator AE 30 and AE 40



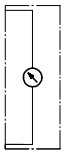
with visual-electrical indicator AE 50 and AE 62



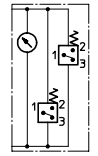
with visual-electrical indicator AE 70 and AE 80



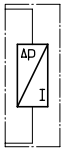
with visual indicator AOR/AOC/OP



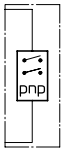
with visual-electrical indicator OE



with electronical sensor VS1




with electronical sensor VS2




## 8. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 9. Test methods:

Filter elements are tested according to the following ISO standards:

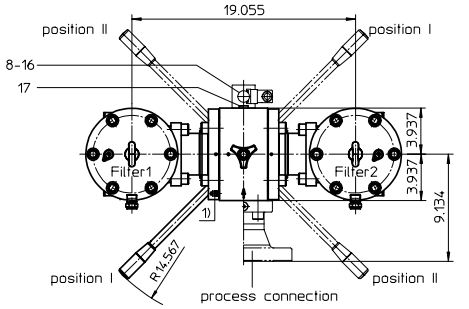
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

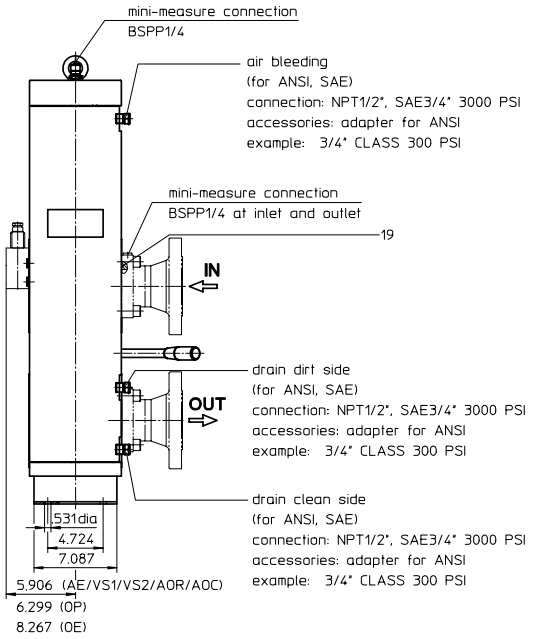
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 630-1000 NPS 3“ CLASS 300 PSI

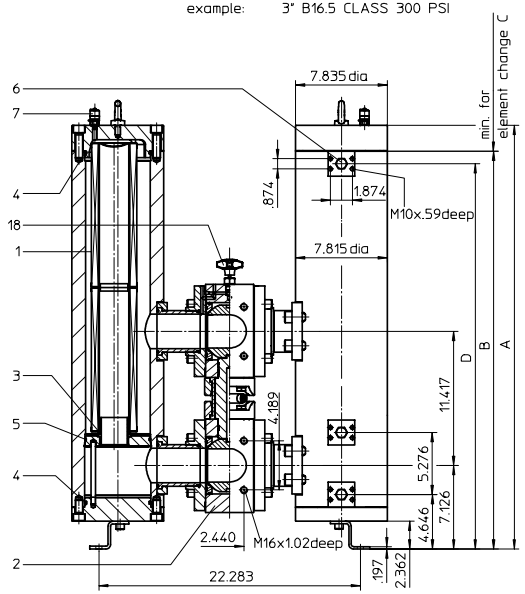
Sheet No. **2158 C**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 1000. 10VG. 30. E. P. VA. FS. A. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 630, 1000

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
30 = Δp 435 PSI

5 **filter element design:**
E = single-end open, S = with by-pass valve Δp 29 PSI, S1 = with by-pass valve Δp 51 PSI

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

7 **filter element specification:**
- = standard, VA = stainless steel

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
A = 3“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NL. 1000. 10VG. 30. E. P. VA**

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

1 **series:**
01NL. = standard filter element according to DIN 24550, T3

2 **nominal size:** 630, 1000

3 - 7 see type index complete filter

## 2. Dimensions: inch

| type | connection size | A | B | C | D | weight lbs. |
|---|---|---|---|---|---|---|
| EDA 630 | SAE 3“ | 27.04 | 24.84 | 16.14 | 23.77 | approx. 639 |
| EDA 1000 | SAE 3“ | 36.10 | 33.89 | 25.19 | 32.83 | approx. 771 |

Changes of measures and design are subject to alterat ion!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## 3. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 4. Spare parts:

| item | qty. | designation | dimension EDA 630 | dimension EDA 1000 | article-no. | |
|---|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NL. 630... | 01NL.1000... | | |
| 2 | 1 | change over UKK | 3" | | | |
| 3 | 2 | O-ring | 60 x 3,5 | | 304377 (NBR) | 304398 (FPM) |
| 4 | 4 | O-ring | 135 x 4,75 | | 326348 (NBR) | 326349 (FPM) |
| 5 | 2 | O-ring | 136,12 x 3,53 | | 320162 (NBR) | 320163 (FPM) |
| 6 | 6 | screw plug | NPT ½ | | 307766 | |
| 7 | 2 | mini-measuring connection | MA.1.VA | | 320128 | |
| 8 | 1 | clogging indicator, visual | AOR or AOC | | see sheet-no. 1606 | |
| 9 | 1 | clogging indicator, visual-electrical | OP | | see sheet-no. 1628 | |
| 10 | 1 | clogging indicator, visual-electrical | OE | | see sheet-no. 1628 | |
| 11 | 1 | clogging indicator, visual-electrical | AE | | see sheet-no. 1609 | |
| 12 | 1 | clogging sensor, electronical | VS1 | | see sheet-no. 1607 | |
| 13 | 1 | clogging sensor, electronical | VS2 | | see sheet-no. 1608 | |
| 14 | 1 | O-ring | 15 x 1,5 | | 315357 (NBR) | 315427 (FPM) |
| 15 | 1 | O-ring | 22 x 2 | | 304708 (NBR) | 304721 (FPM) |
| 16 | 2 | O-ring | 14 x 2 | | 304342 (NBR) | 304722 (FPM) |
| 17 | 2 | screw plug | BSPP ¼ | | 306968 | |
| 18 | 1 | pressure balance valve | 3/8" | | 310316 | |
| 19 | 2 | O-ring (only for execution with ANSI-flange) | 85,32 x 3,53 | | 305590 (NBR) | 306308 (FPM) |

item 17 execution only with clogging indicator or clogging sensor

## 5. Description:

Stainless steel-pressure filters, change-over series EDA 630-1000 are suitable for operating pressure up to 580 bar.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies" D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 6. Technical data:

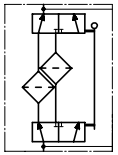
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½" and SAE ¾" 3000 PSI |
| drain connection dirt side : | NPT ½" and SAE ¾" 3000 PSI |
| drain connection clean side : | NPT ½" and SAE ¾" 3000 PSI |
| volume tank EDA 630: | 2x 2.19 Gal. |
| EDA 1000: | 2x 3.11 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

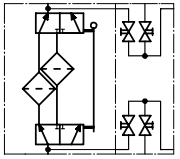
US 2158 C

## 7. Symbols:

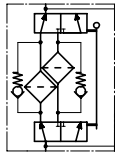
without indicator



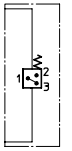
with shut-off valve



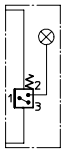
with by-pass valve



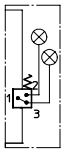
with electrical indicator AE 30 and AE 40



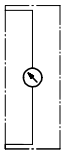
with visual-electrical indicator AE 50 and AE 62



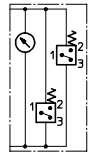
with visual-electrical indicator AE 70 and AE 80



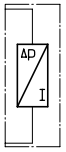
with visual indicator AOR/AOC/OP



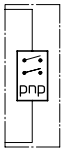
with visual-electrical indicator OE



with electronical sensor VS1




with electronical sensor VS2




## 8. Pressure drop flow curves:

Precise flow rates see 'INT-Expert-System Filter', respectively Δp- curves; depending on filter fin eness and viscosity.

## 9. Test methods:

Filter elements are tested according to the following ISO standards:

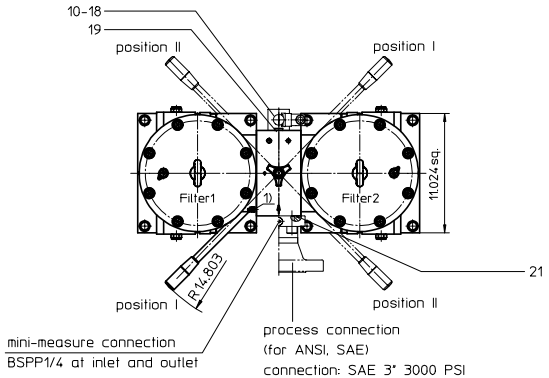
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

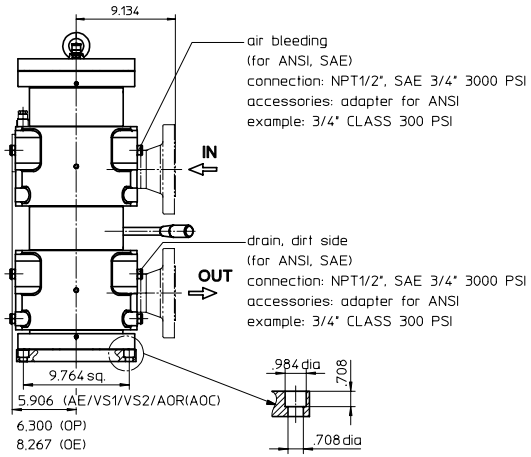
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 1004 NPS 3“ CLASS 300 PSI

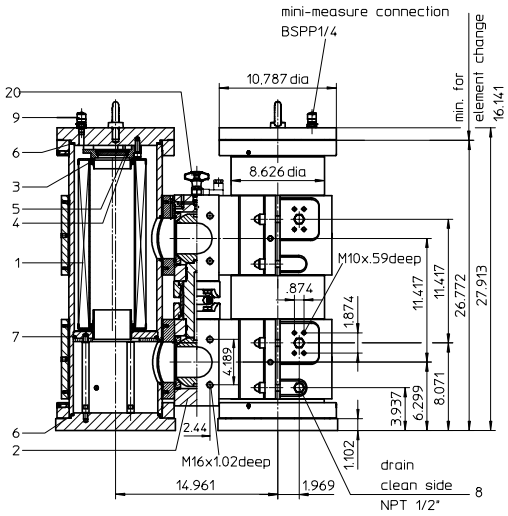
Sheet No. **2176 A**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 1004. 10VG. 10. B. P. VA. FS. A. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 1004

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
10 = Δp 145 PSI

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

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
A = 3“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without, S1 = with by-pass valve Δp 51 PSI

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

2 **nominal size:** 1000

3 - 7 see type index complete filter

weight: approx. 816 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 3“ | | |
| 3 | 4 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 85,32 x 3,53 | 305590 (NBR) | 306308 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 1004 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

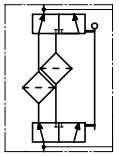
## 5. Technical data:

| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 5.02 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

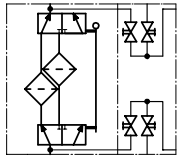
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

## 6. Symbols:

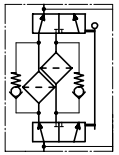
without indicator



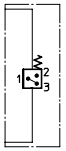
with shut-off valve



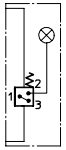
with by-pass valve



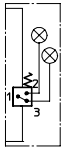
with electrical indicator
AE 30 and AE 40



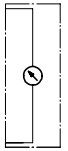
with visual-electrical indicator
AE 50 and AE 62



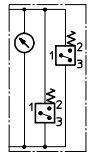
with visual-electrical indicator
AE 70 and AE 80



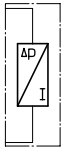
with visual indicator
AOR/AOC/OP



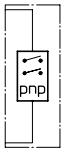
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fineness and viscosity.

## 8. Test methods:

Filter elements are tested according to the following ISO standards:

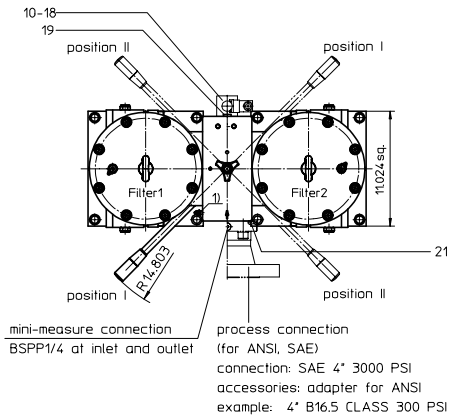
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

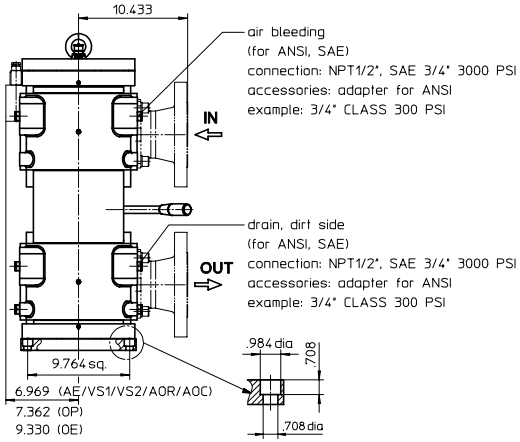
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 1005 NPS 4“ CLASS 300 PSI

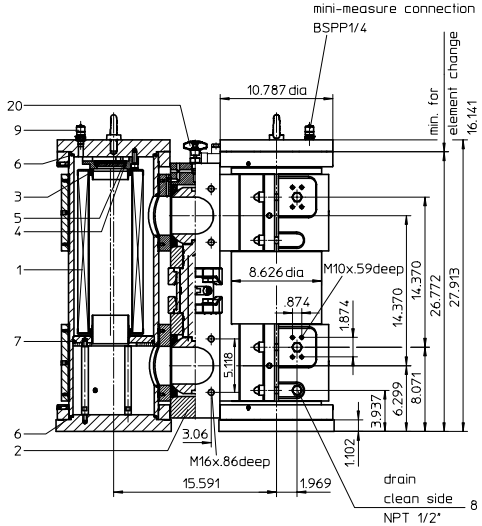
Sheet No. **2177 A**

[1] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 1005. 10VG. 10. B. P. VA. FS. B. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 1005

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
10 = Δp 145 PSI

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

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
B = 4“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without, S1 = with by-pass valve Δp 51 PSI

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

2 **nominal size:** 1000

3 - 7 see type index complete filter

weight: approx. 915 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 4“ | | |
| 3 | 4 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 110,72 x 3,53 | 316355 (NBR) | 316356 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 1005 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

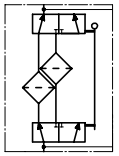
## 5. Technical data:

| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 5.02 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

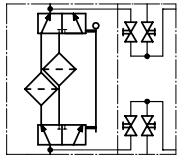
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

## 6. Symbols:

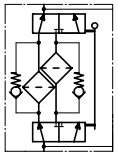
without indicator



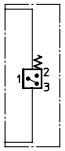
with shut-off valve



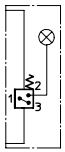
with by-pass valve



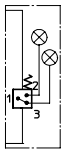
with electrical indicator
AE 30 and AE 40



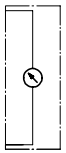
with visual-electrical indicator
AE 50 and AE 62



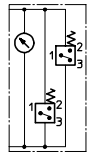
with visual-electrical indicator
AE 70 and AE 80



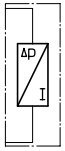
with visual indicator
AOR/AOC/OP



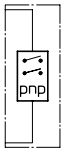
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fineness and viscosity.

## 8. Test methods:

Filter elements are tested according to the following ISO standards:

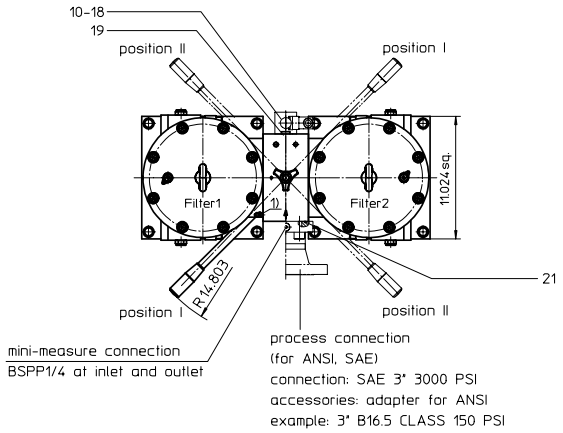
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration performance |

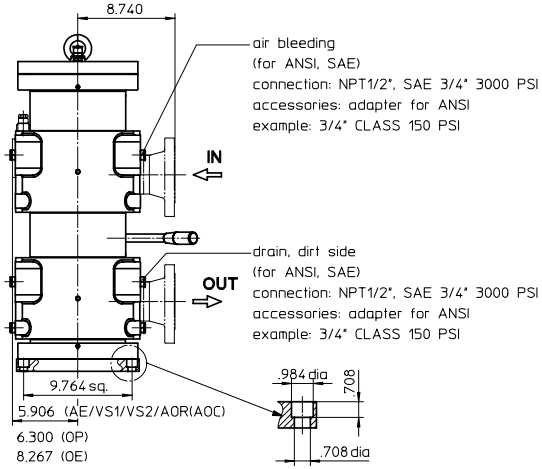
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 1014 NPS 3“ CLASS 150 PSI

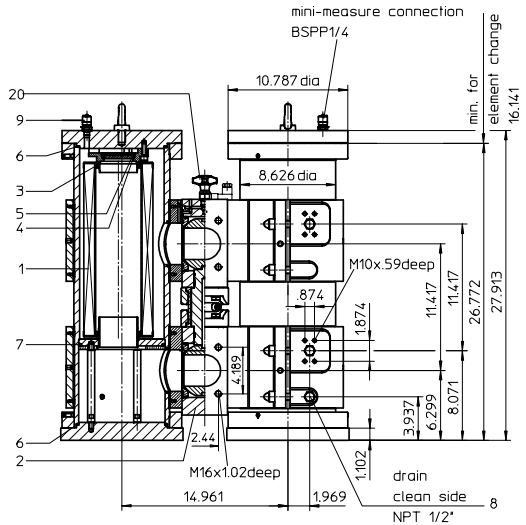
Sheet No. **2175 A**

[1] Connection for the potential equalisation at inlet and outlet, only for applicati on in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 1014. 10VG. 10. B. P. VA. FS. A. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 1014

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
10 = Δp 145 PSI

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

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
A = 3“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without, S1 = with by-pass valve Δp 51 PSI

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

2 **nominal size:** 1000

3 - 7 see type index complete filter

weight: approx. 816 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 3“ | | |
| 3 | 4 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 85,32 x 3,53 | 305590 (NBR) | 306308 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 1014 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

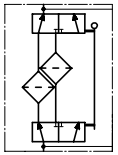
## 5. Technical data:

| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 5.02 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

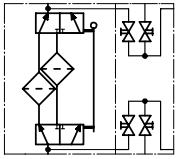
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

## 6. Symbols:

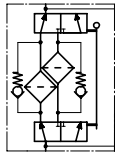
without indicator



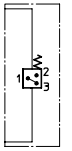
with shut-off valve



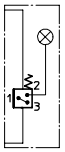
with by-pass valve



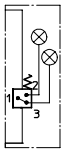
with electrical indicator
AE 30 and AE 40



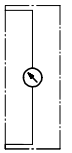
with visual-electrical indicator
AE 50 and AE 62



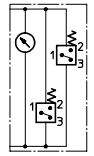
with visual-electrical indicator
AE 70 and AE 80



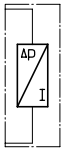
with visual indicator
AOR/AOC/OP



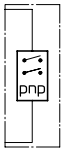
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 8. Test methods:

Filter elements are tested according to the following ISO standards:

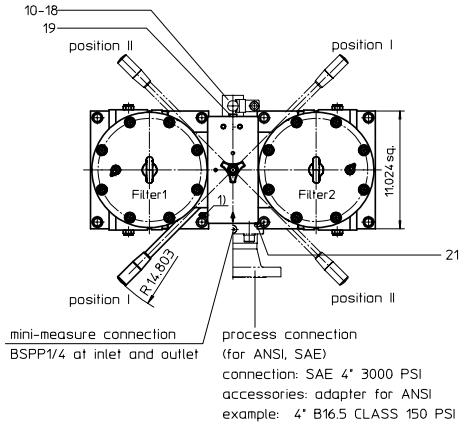
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibilit y with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

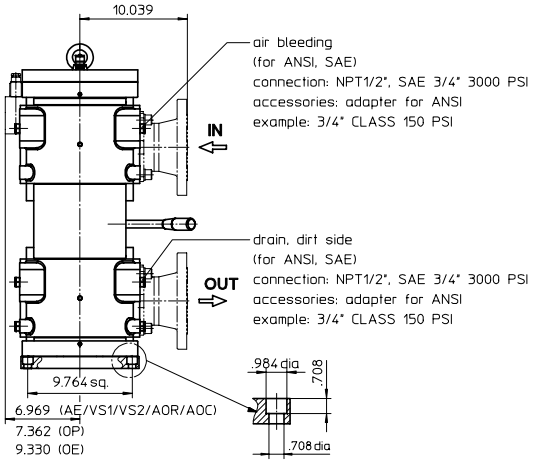
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
# Series EDA 1015 NPS 4“ CLASS 150 PSI

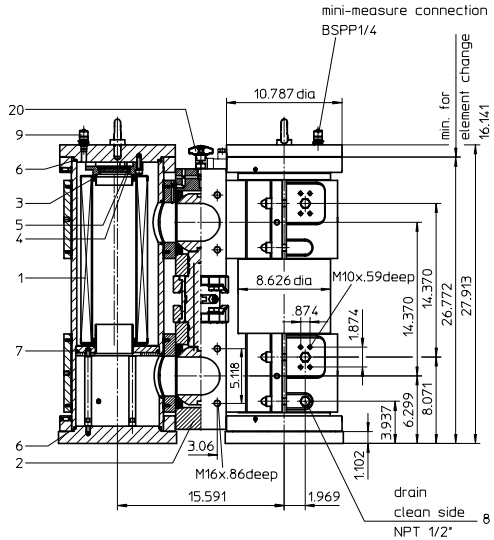
Sheet No. **2171 A**

[1)] Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 1015. 10VG. 10. B. P. VA. FS. B. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**1 series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

**2 nominal size:** 1015

**3 filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

**4 resistance of pressure difference for filter element:**
10 = Δp 145 PSI

**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

**8 process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

**9 process connection size:**
B = 4“

**10 filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

**11 internal valve:**
- = without, S1 = with by-pass valve Δp 51 PSI

**12 clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

**13 shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

**14 specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

**15 switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

**16 air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

**1 series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

**2 nominal size:** 1000

**3** - **7** see type index complete filter

weight: approx. 915 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 2 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 4“ | | |
| 3 | 4 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 110,72 x 3,53 | 316355 (NBR) | 316356 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 1015 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

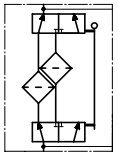
## 5. Technical data:

| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 5.02 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

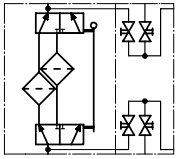
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

## 6. Symbols:

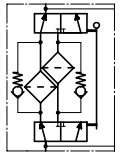
without indicator



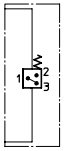
with shut-off valve



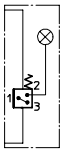
with by-pass valve



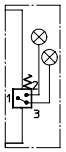
with electrical indicator
AE 30 and AE 40



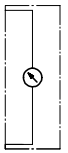
with visual-electrical indicator
AE 50 and AE 62



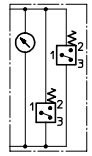
with visual-electrical indicator
AE 70 and AE 80



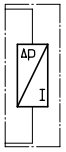
with visual indicator
AOR/AOC/OP



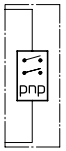
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 8. Test methods:

Filter elements are tested according to the following ISO standards:

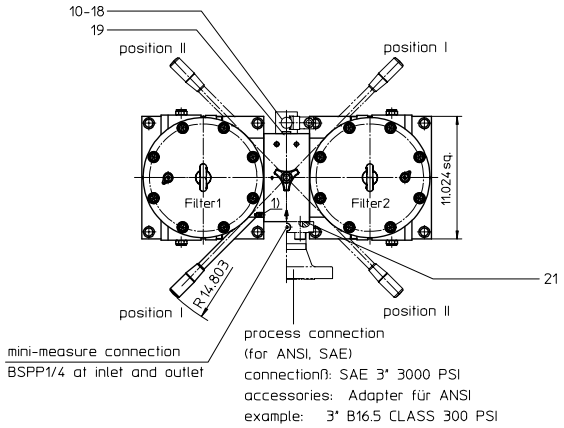
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibil ity with fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

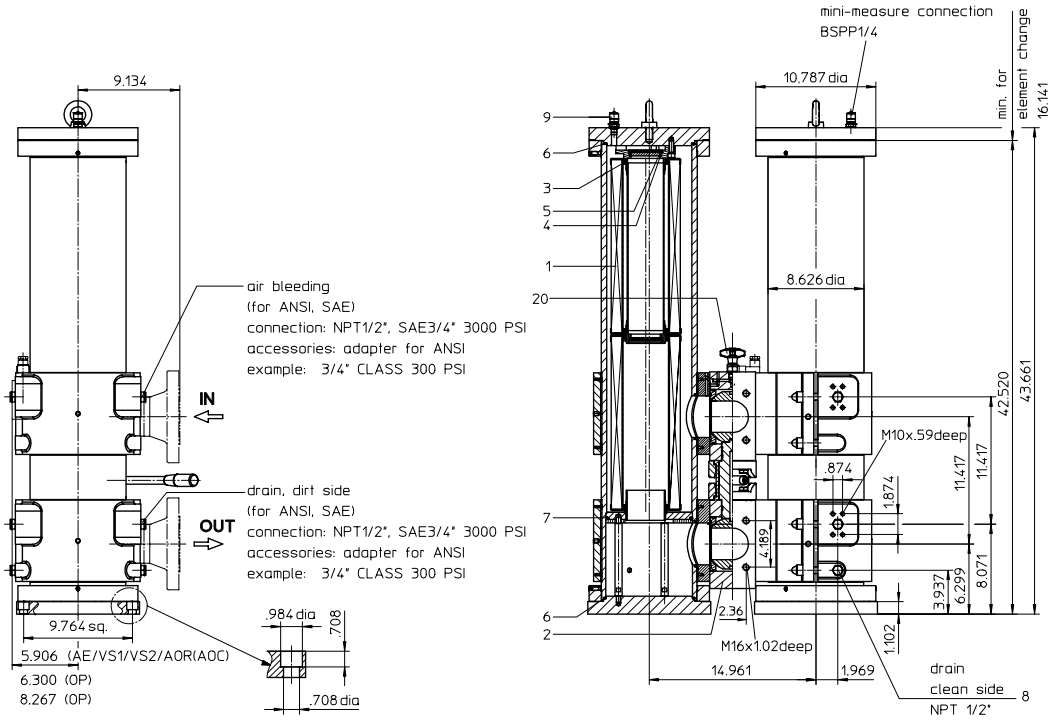
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
# Series EDA 2204 NPS 3“ CLASS 300 PSI

Sheet No. **2179**

[1] Connection for the potential equalisation at inlet and outlet, only for applicatio n in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 2204. 10VG. 10. B. P. VA. FS. A. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 2204

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
10 = Δp 145 PSI

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

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
A = 3“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without; S1 = with by-pass valve Δp 51 PSI

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

2 **nominal size:** 1000

3 - 7 see type index complete filter

weight: approx. 1080 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 4 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 3“ | | |
| 3 | 8 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 85,32 x 3,53 | 305590 (NBR) | 306308 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 2204 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

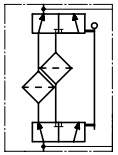
## 5. Technical data:

| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 7.92 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

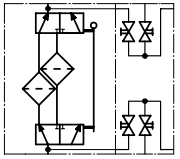
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

## 6. Symbols:

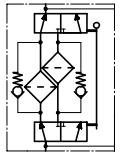
without indicator



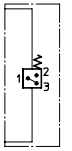
with shut-off valve



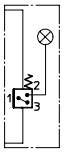
with by-pass valve



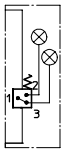
with electrical indicator
AE 30 and AE 40



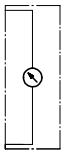
with visual-electrical indicator
AE 50 and AE 62



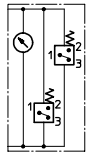
with visual-electrical indicator
AE 70 and AE 80



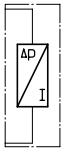
with visual indicator
AOR/AOC/OP



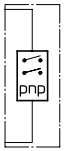
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 8. Test methods:

Filter elements are tested according to the following ISO standards:

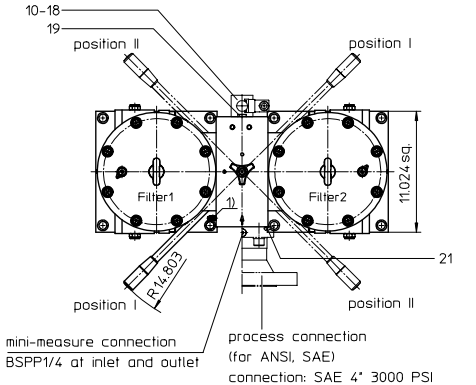
| | |
|---|---|
| ISO 2941 | Verification of collapse/burst resistance |
| ISO 2942 | Verification of fabrication integrity |
| ISO 2943 | Verification of material compatibility wit h fluids |
| ISO 3723 | Method for end load test |
| ISO 3724 | Verification of flow fatigue characteristics |
| ISO 3968 | Evaluation of pressure drop versus flow characteristics |
| ISO 16889 | Multi-pass method for evaluating filtration perfo rmance |

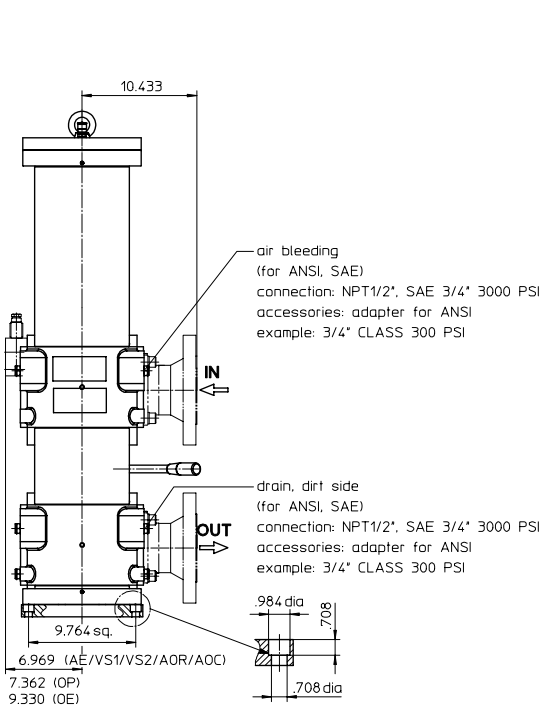
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 2205 NPS 4“ CLASS 300 PSI

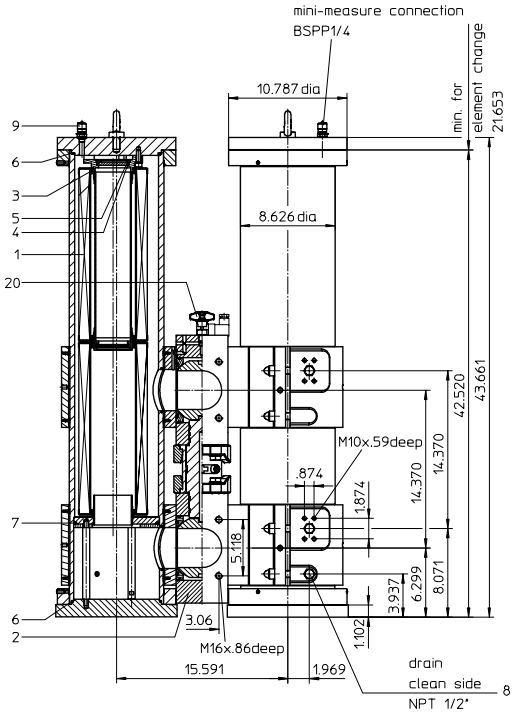
Sheet No. **2178 A**

[1)] Connection for the potential equalisation at inlet and outlet, only for applicatio n in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 2205. 10VG. 10. B. P. VA. FS. B. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 2205

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
10 = Δp 145 PSI

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

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA1 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind 1600-3600 µin
FA2 = ANSI-flange connection CLASS 300 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
B = 4“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without; S1 = with by-pass valve Δp 51 PSI

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

2 **nominal size:** 1000

3 - 7 see type index complete filter

weight: approx. 1102 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 300 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 4 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 4“ | | |
| 3 | 8 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 110,72 x 3,53 | 316355 (NBR) | 316356 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 2205 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 5. Technical data:

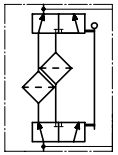
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 7.92 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 300 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

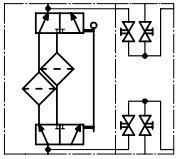
US 2178 A

## 6. Symbols:

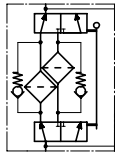
without indicator



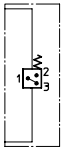
with shut-off valve



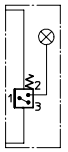
with by-pass valve



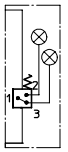
with electrical indicator
AE 30 and AE 40



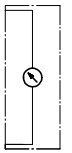
with visual-electrical indicator
AE 50 and AE 62



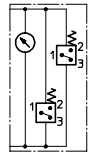
with visual-electrical indicator
AE 70 and AE 80



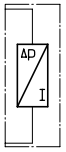
with visual indicator
AOR/AOC/OP



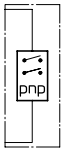
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

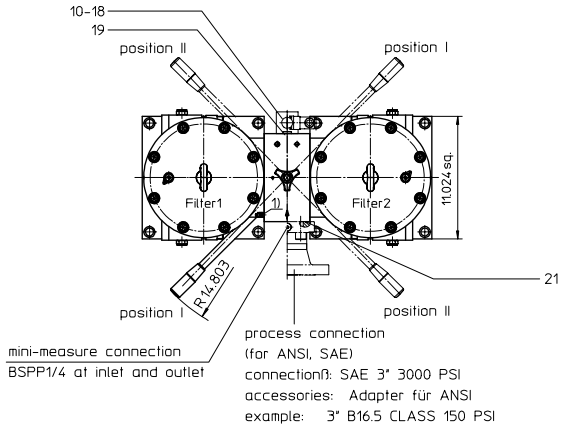
## 8. Test methods:

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 compatibilit y 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 perfo rmance |

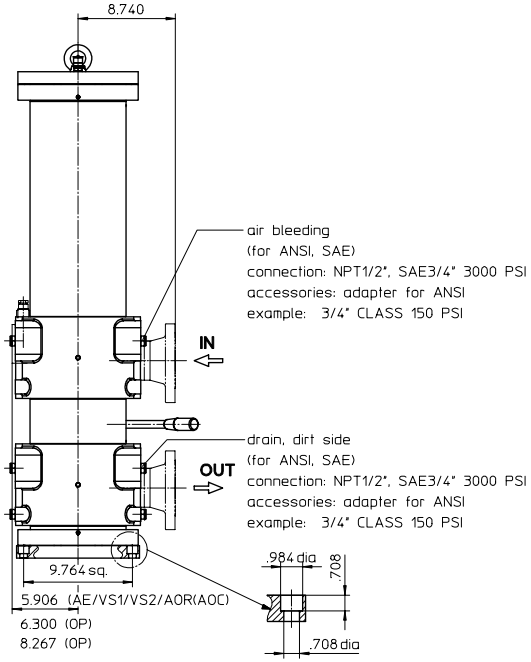
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
## Series EDA 2214 NPS 3“ CLASS 150 PSI

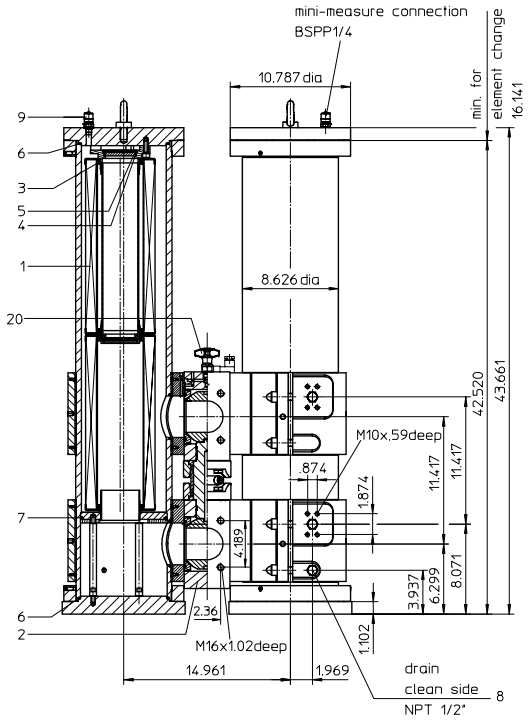
Sheet No. **2167**




1) Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 2214. 10VG. 10. B. P. VA. FS. A. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**1 series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

**2 nominal size:** 2214

**3 filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

**4 resistance of pressure difference for filter element:**
10 = Δp 145 PSI

**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

**8 process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

**9 process connection size:**
A = 3“

**10 filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

**11 internal valve:**
- = without; S1 = with by-pass valve Δp 51 PSI

**12 clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

**13 shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

**14 specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

**15 switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

**16 air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

**1 series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

**2 nominal size:** 1000

**3** - 7 see type index complete filter

weight: approx. 1080 lbs.

Changes of measures and design are subject to alterat ion!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## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 4 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 3“ | | |
| 3 | 8 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 85,32 x 3,53 | 305590 (NBR) | 306308 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 2214 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 5. Technical data:

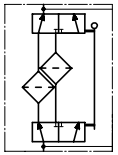
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 7.92 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

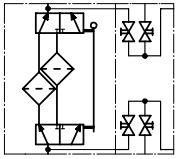
US 2167

## 6. Symbols:

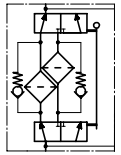
without indicator



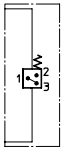
with shut-off valve



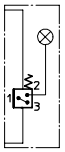
with by-pass valve



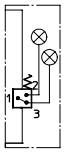
with electrical indicator
AE 30 and AE 40



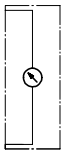
with visual-electrical indicator
AE 50 and AE 62



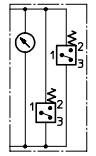
with visual-electrical indicator
AE 70 and AE 80



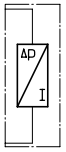
with visual indicator
AOR/AOC/OP



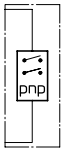
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

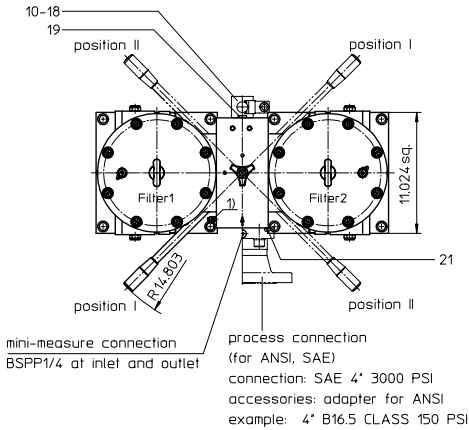
## 8. Test methods:

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 perfo rmance |

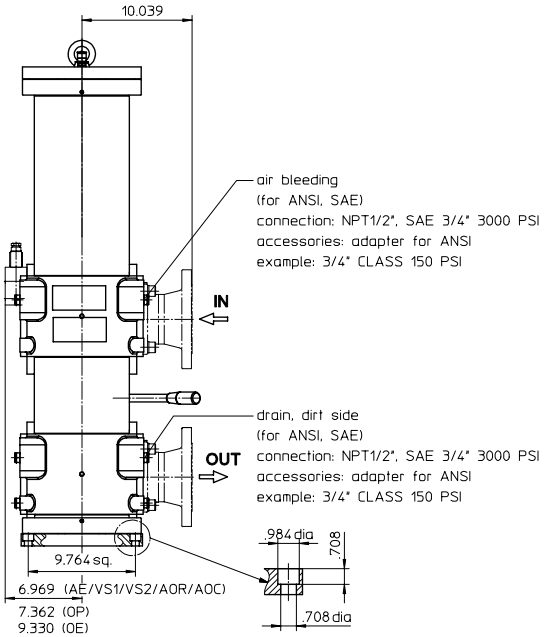
# *STAINLESS STEEL*-PRESSURE FILTER, change-over
# Series EDA 2215 NPS 4“ CLASS 150 PSI

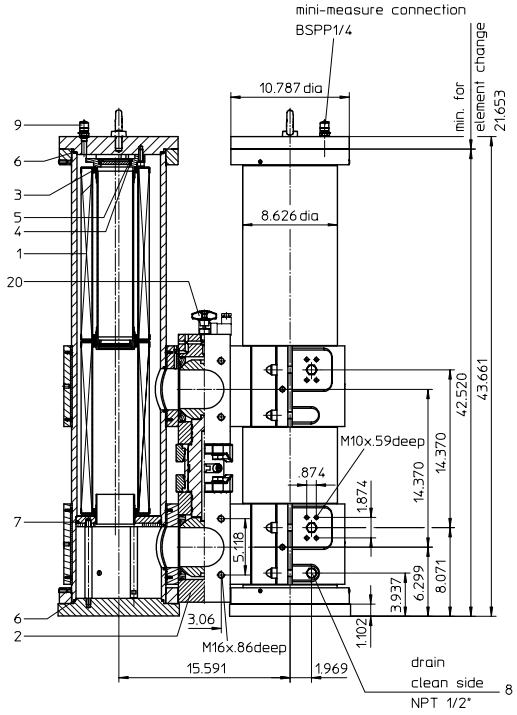
Sheet No. **2172 B**




1) Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

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




## 1. Type index:

### 1.1. Complete filter: (ordering example)

**EDA. 2215. 10VG. 10. B. P. VA. FS. B. IS30. -. AE. AV. IS21. F. F**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1 **series:**
EDA = stainless steel-pressure filter change-over, according to ASME-code

2 **nominal size:** 2215

3 **filter-material and filter- fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm, 10 G = 10 µm stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$, 6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fiber)
25 API = 20 µm, 10 API = 10 µm Interpor fleece (glass fiber) according to API
25 P = 25 µm, 10 P = 10 µm paper

4 **resistance of pressure difference for filter element:**
10 = Δp 145 PSI

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

8 **process connection:**
FS = SAE-flange connection 3000 PSI
FA11 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind 1600-3600 µin
FA12 = ANSI-flange connection CLASS 150 PSI, sealing surface rough grind < 640 µin

9 **process connection size:**
B = 4“

10 **filter housing specification:** (material) see sheet-no. 55050
- = standard, per according to specification pressure vessel DGLR/ASME, 1.4571/type 304-316L
IS30 = only type 316, see sheet-no. 55219

11 **internal valve:**
- = without, S1 = with by-pass valve Δp 51 PSI

12 **clogging indicator or clogging sensor:**
- = without, OP = visual, see sheet-no. 1628
AOR = visual, see sheet-no. 1606, OE = visual-electrical, see sheet-no. 1628
AOC = visual, see sheet-no. 1606, VS1 = electronical, see sheet-no. 1607
AE = visual-electrical, see sheet-no. 1609, VS2 = electronical, see sheet-no. 1608

13 **shut-off valve:**
- = without, AV = shut-off valve, see sheet-no. 1655

14 **specification pressure vessel:**
- = standard (PED 97/23/EC)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217
IS21 = ASME VIII Div.1 with U-stamp, see sheet-no. 43415
IS23 = ASME VIII Div.1 without U-stamp, see sheet-no. 55218

15 **switch lever:**
F = toward IN/OUT, B = opposite IN/OUT

16 **air bleeding/drain:**
F = toward IN/OUT, B = opposite IN/OUT

### 1.2. Filter element: (ordering example)

**01NR. 1000. 10VG. 10. B. P. VA**

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

1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4

2 **nominal size:** 1000

3 - 7 see type index complete filter

weight: approx. 1102 lbs.

Changes of measures and design are subject to alterat ion!

EDV 05/10


internormen technology
**900 Air Park Drive, Zanesville, Ohio 43701**
phone 740 - 452 - 7775 e-mail sales@atico-internormen.com
fax 740 - 454 - 0075 url www.internormen.com

## 2. Accessories:

- SAE-counter flanges, see sheet-no. 1652
- adapter for ANSI-connection B16.5 CLASS 150 PSI, see sheet-no. 1658
- drain- and bleeder connection, see sheet-no. 1659

## 3. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|---|---|---|---|---|---|
| 1 | 4 | filter element | 01NR.1000 ... | | |
| 2 | 1 | change over UKK | 4“ | | |
| 3 | 8 | O-ring | 90 x 4 | 306941 (NBR) | 307031 (FPM) |
| 4 | 2 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 5 | 2 | circlip | DIN472-75x2,5-1.4310 | 318481 | |
| 6 | 4 | O-ring | 200 x 4 | 334555 (NBR) | 334554 (FPM) |
| 7 | 2 | O-ring | 185 x 6 | 335381 (NBR) | 335306 (FPM) |
| 8 | 12 | screw plug | NPT ½ | 307766 | |
| 9 | 2 | mini-measuring connection | MA.1.VA | 320128 | |
| 10 | 1 | clogging indicator, visual | AOR or AOC | see sheet-no. 1606 | |
| 11 | 1 | clogging indicator, visual-electrical | OP | see sheet-no. 1628 | |
| 12 | 1 | clogging indicator, visual-electrical | OE | see sheet-no. 1628 | |
| 13 | 1 | clogging indicator, visual-electrical | AE | see sheet-no. 1609 | |
| 14 | 1 | clogging sensor, electronical | VS1 | see sheet-no. 1607 | |
| 15 | 1 | clogging sensor, electronical | VS2 | see sheet-no. 1608 | |
| 16 | 1 | O-ring | 15 x 1,5 | 315357 (NBR) | 315427 (FPM) |
| 17 | 1 | O-ring | 22 x 2 | 304708 (NBR) | 304721 (FPM) |
| 18 | 2 | O-ring | 14 x 2 | 304342 (NBR) | 304722 (FPM) |
| 19 | 2 | screw plug | BSPP ¼ | 306968 | |
| 20 | 1 | pressure balance valve | 3/8“ | 310316 | |
| 21 | 2 | O-ring (only for execution with ANSI-flange) | 110,72 x 3,53 | 316555 (NBR) | 316356 (FPM) |

item 19 execution only with clogging indicator or clogging sensor

## 4. Description:

Stainless steel-pressure filters, change-over series EDA 2215 are suitable for operating pressure up to 580 PSI.
Pressure peaks can be absorbed with a sufficient margin o safety.
Change-over ball valve which, 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.
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 the i nside.
These filters can be installed as suction filters.
For cleaning (see special leaflet 21070-4 and 34448-4) the mesh element respectively to change the glass fiber element remove the cover and take out the element.
Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 $\mu m_{(c)}$ are available; finer filter elements on request.
INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.
The inspection according to TÜV, according to ASME VIII Div.1 and the major „Shipyard Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S. and others are possible. If inspection is required please indicate in your order.

## 5. Technical data:

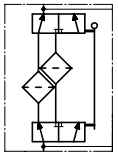
| | |
|---|---|
| temperature ranges | |
| - calculation temperature (pressure vessel): | +14°F to +212°F |
| - medium temperature: | +14°F to +176°F |
| - ambient temperature: | - 40°F to +140°F |
| - survival temperature: | - 40°F to +212°F (short-time) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 580 PSI |
| test pressure acc. to PED 97/23/EC: | 1,43 x operating pressure = 827 PSI |
| test pressure acc. to ASME VIII Div. 1: | 1,3 x operating pressure = 754 PSI |
| test pressure acc. to API 614, Chapter 1: | 1,5 x operating pressure = 870 PSI |
| connection system: | SAE-flange connection 3000 PSI |
| housing material: | stainless steel, see sheet-no. 55050 |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| bleeder connection : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection dirt side : | NPT ½“ and SAE ¾“ 3000 PSI |
| drain connection clean side : | NPT ½“ |
| volume tank : | 2x 7.92 Gal. |
| operating pressure adapter flanges: | according to B16.5 CLASS 150 PSI |

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4)

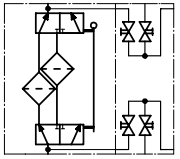
US 2172 B

## 6. Symbols:

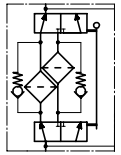
without indicator



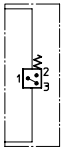
with shut-off valve



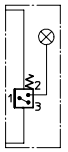
with by-pass valve



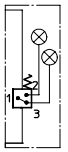
with electrical indicator
AE 30 and AE 40



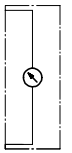
with visual-electrical indicator
AE 50 and AE 62



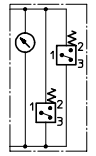
with visual-electrical indicator
AE 70 and AE 80



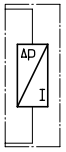
with visual indicator
AOR/AOC/OP



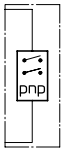
with visual-electrical indicator
OE



with electronical sensor
VS1




with electronical sensor
VS2




## 7. Pressure drop flow curves:

Precise flow rates see ‘INT-Expert-System Filter’, respectively Δp- curves; depending on filter fin eness and viscosity.

## 8. 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 compatibil ity 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 perfo rmance |