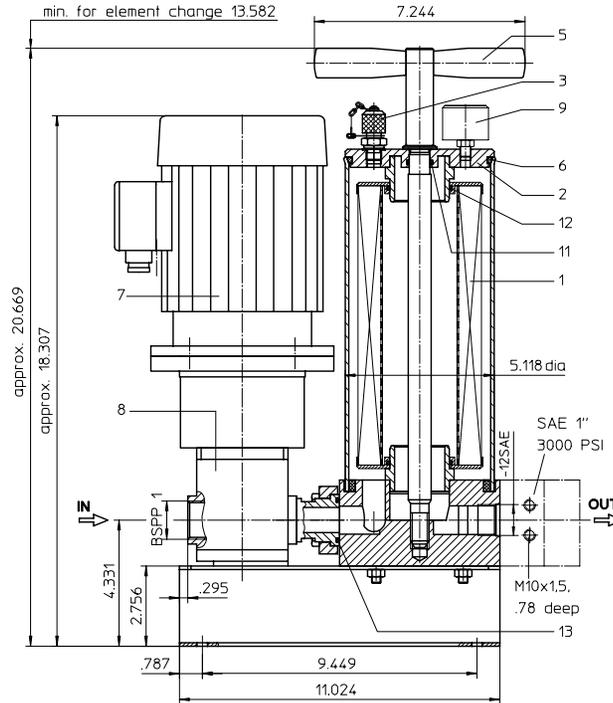
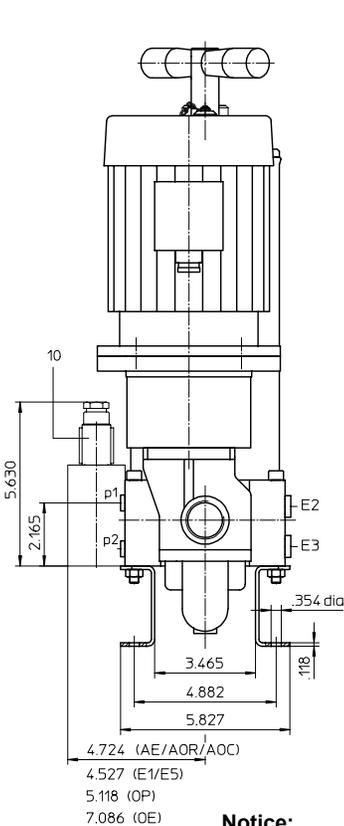
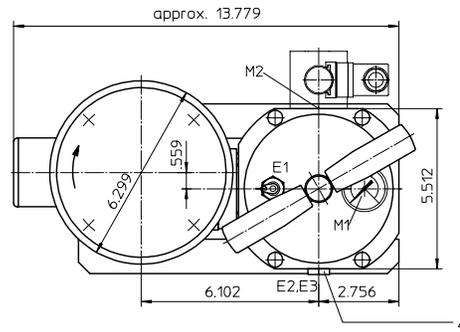


- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St, see sheet-no. 1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
- p₁ = dirt side
- p₂ = clean side



FILTER UNIT, stationary
Series US 20

Sheet No. **4008.1 G**
Sheet 1/3

1. Type index:

1.1. Filter unit: (ordering example)

US. 20. 6VG. 10. B. P. -. P01. D03. O. AE

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

- 1 **series:**
US = filter unit, stationary
- 2 **nominal size:** 20
- 3 **filter-material and filter-fineness:**
10 VG = 10 µm_(e), 6 VG = 7 µm_(e), 3 VG = 5 µm_(e), 1 VG = 4 µm_(e) Interpor fleece (glass fiber)
10 WVG = 10 µm_(e), 3 WVG = 5 µm_(e) Watersorp-filter element
- 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), by agreement
- 7 **filter element specification:**
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601
- 8 **pump unit:**
P01 = pump unit 01, NG 20.16 (standard-pump unit / setting range 14.5 - 218 PSI)
- 9 **motor:** (D = rotary current motor / W = alternating current motor)

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D03 ¹⁾	230/400V	50Hz	6.9 GPM	46-1860 SUS	58 PSI	-	42742-4
D03 ¹⁾	265/460V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	-	42742-4
D34	230/400V	50Hz	6.9 GPM	46-1860 SUS	58 PSI	S	K
D34	265/460V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	S	K
W01 ¹⁾	110V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	-	43066-4
W03	230V	50Hz	6.9 GPM	46-1860 SUS	58 PSI	S	K
W07	110V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	S	K

¹⁾ standard motor

- 10 **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 **clogging indicator at M2:**
- = without
AOR = AOR.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2.5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2.5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 250. 6VG. 10. B. P. -

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

- 1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 **nominal size:** 250
- 3 - 7 | see type index-filter unit

Changes of measures and design are subject to alteration!

Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR. 250	
2	housing cover	1	30615-3	315437
3	mini-measuring connection	1	MA. 1.St	305453
4	screw plug	2	¼ BSPF	305003
5	straining screw	1	30631-4	316404
6	O-ring	1	115 x 5	306640 (NBR)
7	electric motor	1	according to type index	
8	pump unit P01	1	NG 20,16	316270
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	18 x 3	304359 (NBR)
12	O-ring	2	52 x 3	314206 (NBR)
13	O-ring	1	32 x 3,5	304378 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to by-pass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability. The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 250.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 $\mu\text{m}_{(c)}$. The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

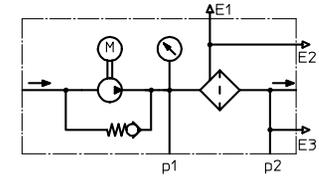
4. Technical data:

filter-fineness: 4, 5, 7 or 10 $\mu\text{m}_{(c)}$
 weight: approx. 62 lbs.
 operating medium: hydraulic oil based on mineral oil from 46 SUS,
 other media on request

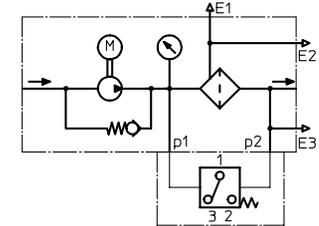
Classified under the Pressure Vessel Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
 Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

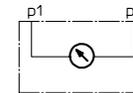
Filter unit without clogging indicator



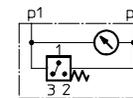
Filter unit with electrical clogging indicator AE30



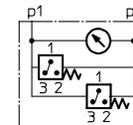
Filter unit with visual clogging indicator AOR, AOC, OP



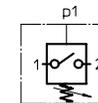
Filter unit with visual-electrical clogging indicator OE1



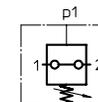
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. Test methods:

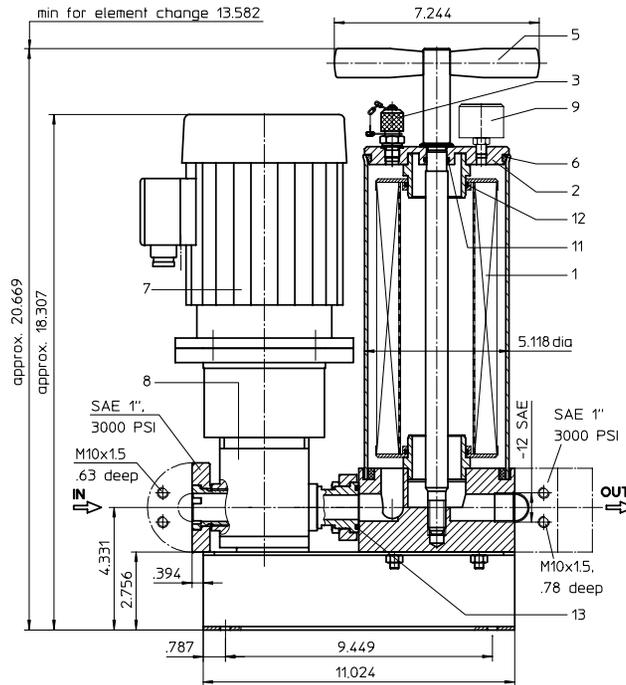
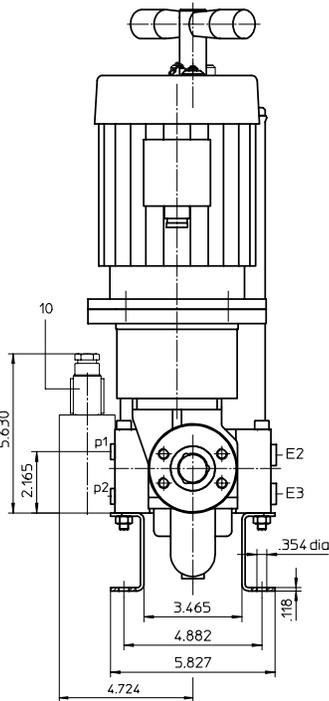
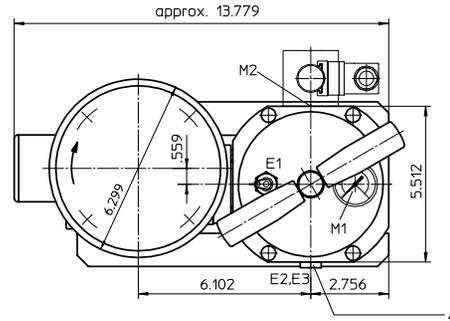
Filter elements are tested according to the following ISO standards:

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

- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St, see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
- p₁ = dirt side
- p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

FILTER UNIT, stationary
Series US 21 58 PSI

1. Type index:

1.1. Filter unit: (ordering example)

US. 21. 6VG. 10. B. P. -. P08. D03. O. AE

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

- 1 **series:**
US = filter unit, stationary
- 2 **nominal size:** 21
- 3 **filter-material and filter-fineness:**
10 VG = 10 µm_(c), 6 VG = 7 µm_(c), 3 VG = 5 µm_(c), 1 VG = 4 µm_(c) Interpor fleece (glass fiber)
10 WVG = 10 µm_(c), 3 WVG = 5 µm_(c) Watersorp-filter element
- 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), by agreement
- 7 **filter element specification:**
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601
- 8 **pump unit:**
P08 = pump unit 08, NG 20.16 (standard-pump unit / setting range 14.5 - 218 PSI)
- 9 **motor: (D = rotary current motor / W = alternating current motor)**

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D03 ¹⁾	230/400V	50Hz	6.9 GPM	46-1860 SUS	58 PSI	-	42742-4
D03 ¹⁾	265/460V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	-	42742-4
D34	230/400V	50Hz	6.9 GPM	46-1860 SUS	58 PSI	S	K
D34	265/460V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	S	K
W01 ¹⁾	110V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	-	43066-4
W03	230V	50Hz	6.9 GPM	46-1860 SUS	58 PSI	S	K
W07	110V	60Hz	7.2 GPM	46-1860 SUS	58 PSI	S	K

¹⁾ standard motor

- 10 **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 **clogging indicator at M2:**
- = without
AOR = AOR.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2.5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2.5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 250. 6VG. 10. B. P. -

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

- 1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 **nominal size:** 250
- 3 - 7 | see type index-filter unit

Changes of measures and design are subject to alteration!

2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR.250	
2	housing cover	1	30615-3	315437
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	¼ BSPF	305003
5	straining screw	1	30631-4	316404
6	O-ring	1	115 x 5	306640 (NBR)
7	electric motor	1	according to type index	
8	pump unit P08	1	NG 20.16	317378
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	18 x 3	304359 (NBR)
12	O-ring	2	52 x 3	314206 (NBR)
13	O-ring	1	32 x 3,5	304378 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to by-pass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability. The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 250.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 $\mu\text{m}_{(c)}$. The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

4. Technical data:

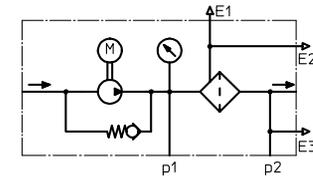
filter-fineness:	4, 5, 7 or 10 $\mu\text{m}_{(c)}$
weight:	approx. 62 lbs.
operating medium:	hydraulic oil based on mineral oil from 46 SUS, other media on request

Classified under the Pressure Vessel Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.

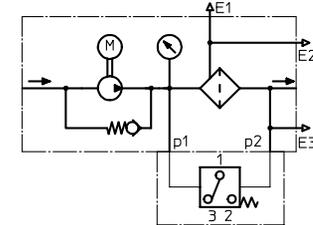
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

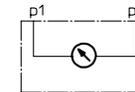
Filter unit without clogging indicator



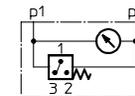
Filter unit with electrical clogging indicator AE30



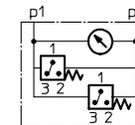
Filter unit with visual clogging indicator AOR, AOC, OP



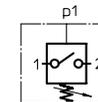
Filter unit with visual-electrical clogging indicator OE1



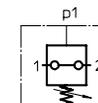
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. Test methods:

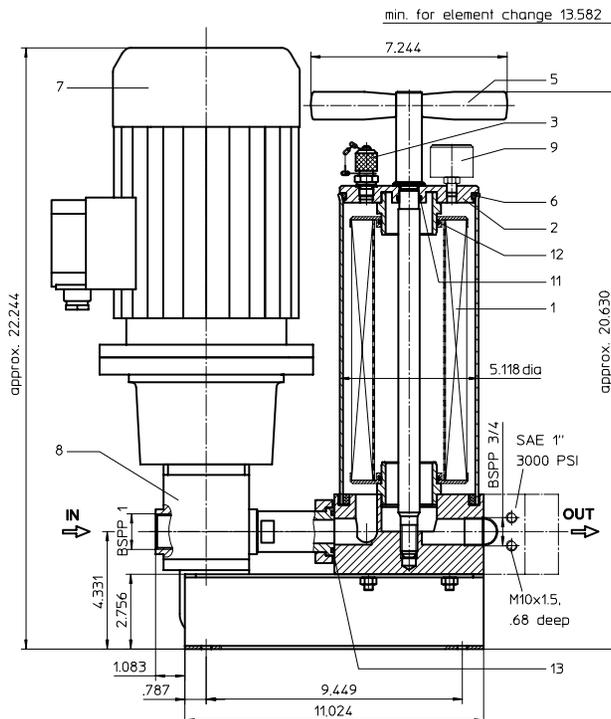
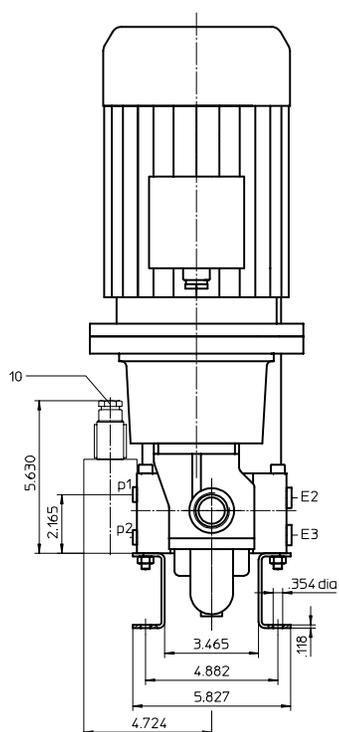
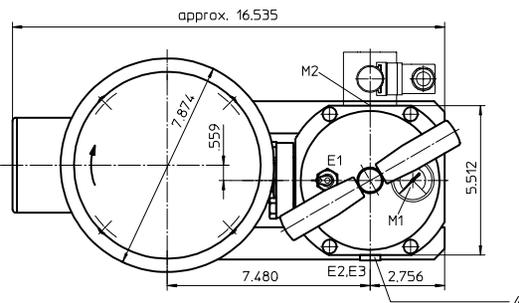
Filter elements are tested according to the following ISO standards:

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

- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St, see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
- p₁ = dirt side
- p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

FILTER UNIT, stationary
Series US 22

1. Type index:

1.1. Filter unit: (ordering example)

US. 22. 6VG. 10. B. P. -. P14. D13. O. AE

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

- 1 **series:**
US = filter unit, stationary
- 2 **nominal size:** 22
- 3 **filter-material and filter-fineness:**
10 VG = 10 µm_(c), 6 VG = 7 µm_(c), 3 VG = 5 µm_(c), 1 VG = 4 µm_(c) Interpor fleece (glass fiber)
10 WVG = 10 µm_(c), 3 WVG = 5 µm_(c) Watersorp-filter element
- 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), by agreement
- 7 **filter element specification:**
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601
- 8 **pump unit:**
P14 = pump unit 14 NG 20.16 (standard-pump unit / setting range 14.5 - 218 PSI)
- 9 **motor: (D = rotary current motor)**

motor	electrical connection	50Hz	60Hz	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D12	230/400V	50Hz	3.0 GPM	46-5580 SUS	218 PSI	S	K	42743-4	
D12	265/460V	60Hz	3.6 GPM	46-4650 SUS	218 PSI	S	K	42743-4	
D13 ¹⁾	230/400V	50Hz	3.0 GPM	46-14000 SUS	102 PSI	-	-	43656-4	
D13 ¹⁾	265/460V	60Hz	3.6 GPM	46-11600 SUS	102 PSI	-	-	43656-4	
D26	400/690V	50Hz	3.0 GPM	46-5580 SUS	102 PSI	-	-	44908-4	
D26	460/790V	60Hz	3.6 GPM	46-4650 SUS	102 PSI	-	-	44908-4	

¹⁾ standard motor

- 10 **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 **clogging indicator at M2:**
- = without
AOR = AOR.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2.5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2.5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 250. 6VG. 10. B. P. -

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

- 1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 **nominal size:** 250
- 3 - 7 | see type index-filter unit

Changes of measures and design are subject to alteration!



2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR. 250	
2	housing cover	1	30615-3	315437
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	1/4 BSW	305003
5	straining screw	1	30631-4	316404
6	O-ring	1	115 x 5	306640 (NBR)
7	electric motor	1	according to type index	
8	pump unit P14	1	NG 20.16	319735
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	18 x 3	304359 (NBR)
12	O-ring	2	52 x 3	314206 (NBR)
13	O-ring	1	32 x 3,5	304378 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to by-pass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability. The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 250.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 $\mu\text{m}_{(c)}$. The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element. The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch "1", cable "1" under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

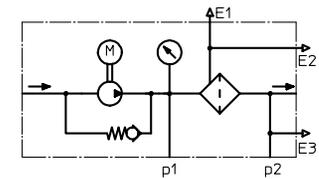
4. Technical data:

filter-fineness: 4, 5, 7 or 10 $\mu\text{m}_{(c)}$
 weight: approx. 77 lbs.
 operating medium: hydraulic oil based on mineral oil from 46 SUS,
 other media on request

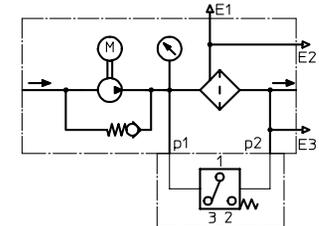
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
 Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

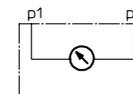
Filter unit without clogging indicator



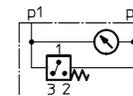
Filter unit with electrical clogging indicator AE30



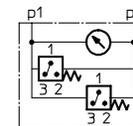
Filter unit with visual clogging indicator AOR, AOC, OP



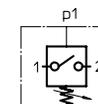
Filter unit with visual-electrical clogging indicator OE1



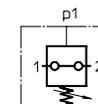
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. Test methods:

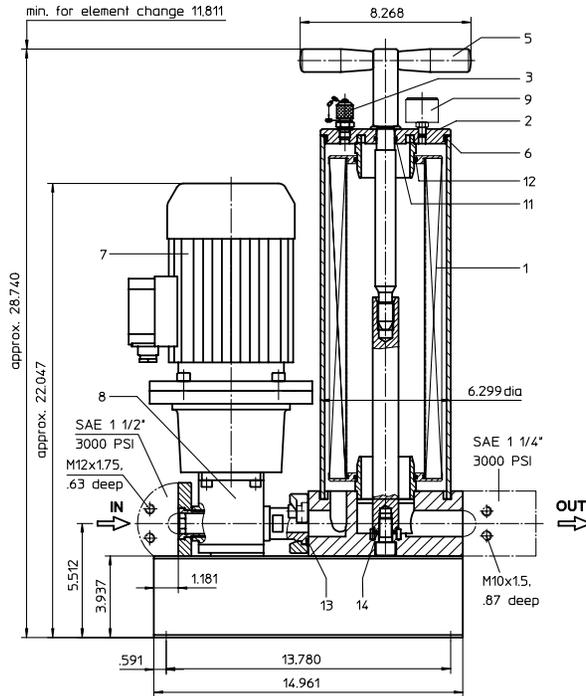
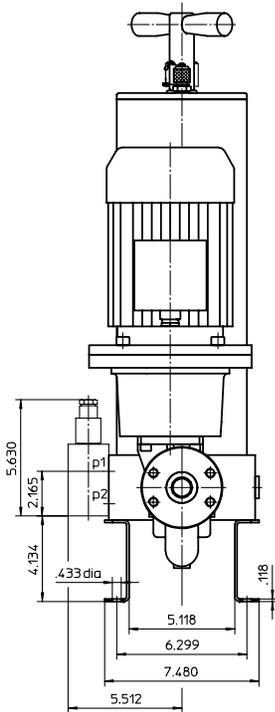
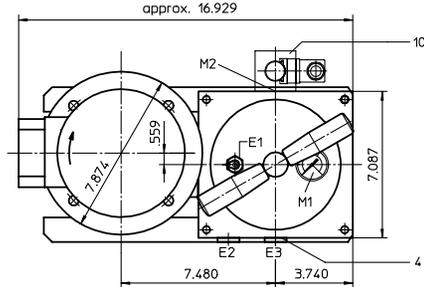
Filter elements are tested according to the following ISO standards:

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

- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St, see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
- p₁ = dirt side
- p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

FILTER UNIT, stationary
Series US 40

1. Type index:

1.1. Filter unit: (ordering example)

US. 40. 6VG. 10. B. P. -. P05. D05. O. AE

1	2	3	4	5	6	7	8	9	10	11
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- 1 **series:**
US = filter unit, stationary
- 2 **nominal size:** 40
- 3 **filter-material and filter-finness:**
10 VG = 10 µm_(c), 6 VG = 7 µm_(c), 3 VG = 5 µm_(c), 1 VG = 4 µm_(c) Interpor fleece (glass fiber)
10 WVG = 10 µm_(c), 3 WVG = 5 µm_(c) Watersorp-filter element
- 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), by agreement
- 7 **filter element specification:**
- = standard
IS06 = see sheet-no. 31601
VA = stainless steel
- 8 **pump unit:**
P05 = pump unit 05, NG 40.25 (standard pump unit / setting range 14.5 to 218 PSI)
- 9 **motor: (D = rotary current motor / W = alternating current motor)**

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D05 ¹⁾	230/400V 50Hz	9.37 GPM	46-1860 SUS	87 PSI	-	-	42549-4
D05 ¹⁾	265/460V 60Hz	11.2 GPM	46-1860 SUS	87 PSI	-	-	42549-4
W10	230V 50Hz	9.37 GPM	46-1860 SUS	87 PSI	S	K	42754-4
W11	110V 60Hz	11.2 GPM	46-1860 SUS	87 PSI	S	K	42877-4

¹⁾ standard motor

- 10 **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 **clogging indicator at M2:**
- = without
AOR = AOR.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2.5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2.5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 630. 6VG. 10. B. P. -

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

- 1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 **nominal size:** 630
- 3 - 7 see type index-filter unit

Changes of measures and design are subject to alteration!



2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR. 630	
2	housing cover	1	30600-3	315492
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	½ BSPPP	304678
5	straining screw	1	30595-3	316312
6	O-ring	1	140 x 6	315392 (NBR)
7	electric motor	1	according to type index	
8	pump unit P05	1	NG 40,25	316292
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	22 x 3	304387 (NBR)
12	O-ring	2	70 x 4	306253 (NBR)
13	O-ring	1	37,69 x 3,53	304353 (NBR)
14	O-ring	1	18 x 3	304359 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to by-pass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability. The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 630.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 $\mu\text{m}_{(0)}$. The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element. The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

4. Technical data:

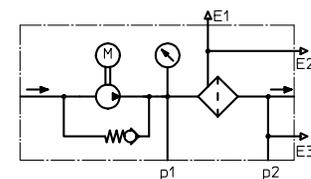
filter-fineness: 4, 5, 7 or 10 $\mu\text{m}_{(0)}$
 weight: approx. 84 lbs.
 operating medium: hydraulic oil based on mineral oil from 46 SUS,
 other media on request

Classified under the Pressure Vessel 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).

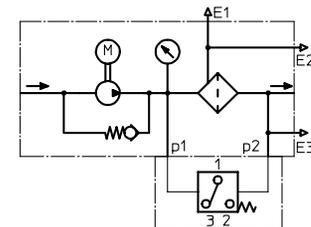
US 4011.1 F

5. Symbols:

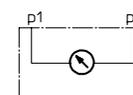
Filter unit without clogging indicator



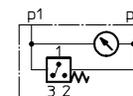
Filter unit with electrical clogging indicator AE30



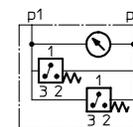
Filter unit with visual clogging indicator AOR, AOC, OP



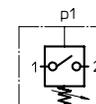
Filter unit with visual-electrical clogging indicator OE1



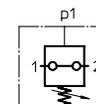
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. Test methods:

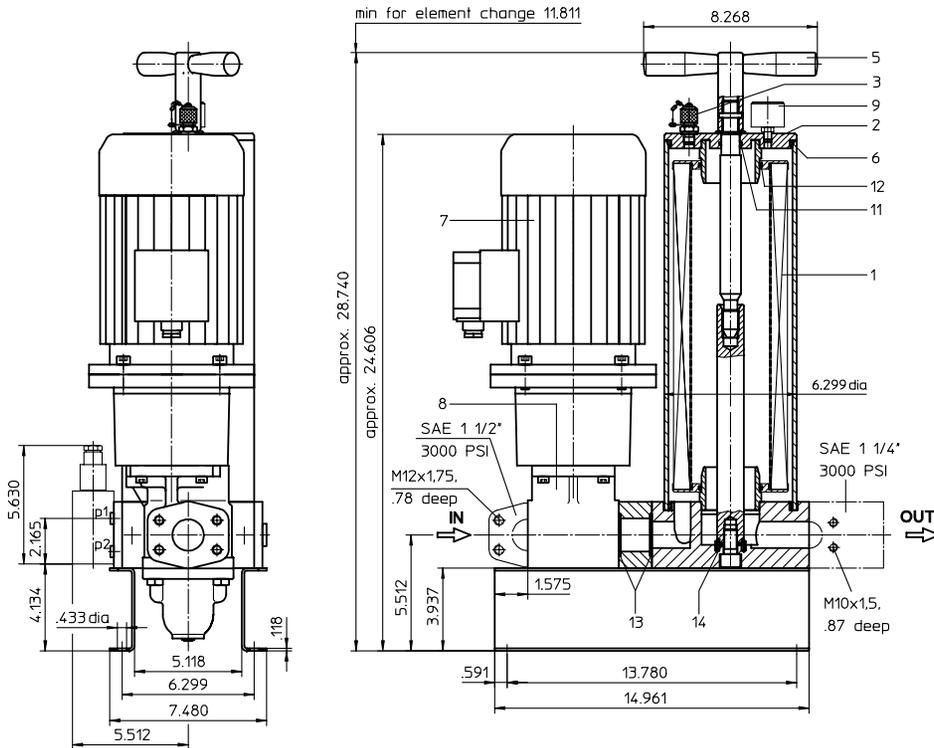
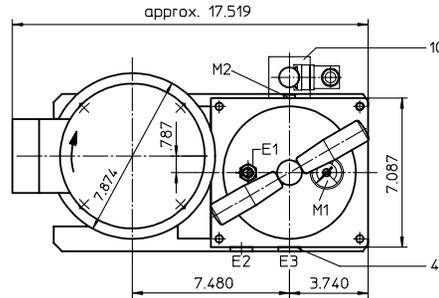
Filter elements are tested according to the following ISO standards:

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

- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St, see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
- p₁ = dirt side
- p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

FILTER UNIT, stationary
Series US 80

Sheet No.
4009.1 E
Sheet 1/2

1. Type index:

1.1. Filter unit: (ordering example)

US. 80. 6VG. 10. B. P. -. P04. D01. O. AE

1	2	3	4	5	6	7	8	9	10	11
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- 1 | **series:**
US = filter unit, stationary
- 2 | **nominal size:** 80
- 3 | **filter-material and filter-finesness:**
10 VG = 10 µm_(e), 6 VG = 7 µm_(e), 3 VG = 5 µm_(e), 1 VG = 4 µm_(e) Interpor fleece (glass fiber)
10 WVG = 10 µm_(e), 3 WVG = 5 µm_(e) Watersorp-filter element
- 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), by agreement
- 7 | **filter element specification:**
- = standard, VA = stainless steel, IS06 = see sheet-no. 31601
- 8 | **pump unit:**
P04 = pump unit 04, NG 80.50 (standard-pump unit / setting range 14.5 -218 PSI)
- 9 | **motor: (D = rotary current motor / W = alternating current motor)**

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D01 ¹⁾	230/400V	50Hz	18.75 GPM	46-1860 SUS	72 PSI	-	41969-4
D01 ¹⁾	265/460V	60Hz	22.45 GPM	46-1860 SUS	72 PSI	-	41969-4
D17	230/400V	50Hz	18.75 GPM	46-1860 SUS	130 PSI	S	K
D17	265/460V	60Hz	22.45 GPM	46-1860 SUS	116 PSI	S	K
D18	230/400V	50Hz	12.54 GPM	46-3720 SUS	58 PSI	-	-
D18	265/460V	60Hz	15.05 GPM	46-3022 SUS	58 PSI	-	-
D31	230/400V	50Hz	18.75 GPM	46-1860 SUS	218 PSI	-	-
D31	265/460V	60Hz	22.45 GPM	46-1860 SUS	218 PSI	-	-
W06	230V	50Hz	18.75 GPM	46-1860 SUS	72 PSI	S	K
W09	110V	60Hz	22.45 GPM	46-1860 SUS	58 PSI	S	K
W12 ¹⁾	110V	60Hz	22.45 GPM	46-1860 SUS	58 PSI	-	43067-4
W18	230V	50Hz	18.75 GPM	46-1860 SUS	130 PSI	S	K

¹⁾ standard motor

- 10 | **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 | **clogging indicator at M2:**
- = without
AOR = AOR.2,5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2,5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2,5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2,5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2,5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2,5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2,5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 630. 6VG. 10. B. P. -

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

- 1 | **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 | **nominal size:** 630
- 3 | - 7 | see type index-filter unit

Changes of measures and design are subject to alteration!



2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR. 630	
2	housing cover	1	30600-3	315492
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	½ BSPP	304678
5	straining screw	1	30595-3	316312
6	O-ring	1	140 x 6	315392 (NBR)
7	electric motor	1	according to type index	
8	pump unit P04	1	NG 80.50	317139
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	22 x 3	304387 (NBR)
12	O-ring	2	70 x 4	306253 (NBR)
13	O-ring	2	45 x 3	304991 (NBR)
14	O-ring	1	18 x 3	304359 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to bypass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability.

The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 630.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 $\mu\text{m}_{(c)}$. The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

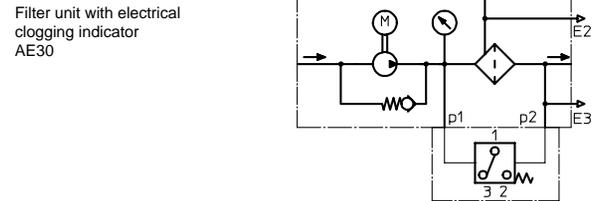
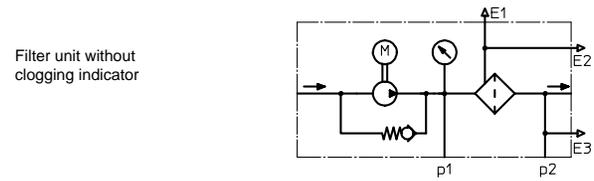
4. Technical data:

filter-fineness:	4, 5, 7 or 10 $\mu\text{m}_{(c)}$
weight:	approx. 130 lbs.
operating medium:	hydraulic oil based on mineral oil from 46 SUS, other media on request

Classified under the Pressure Vessel 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).

5. Symbols:



6. Test methods:

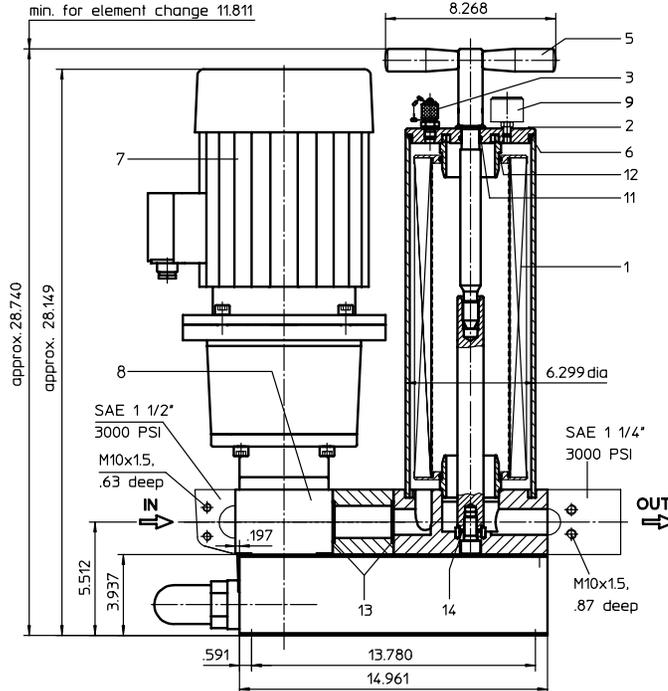
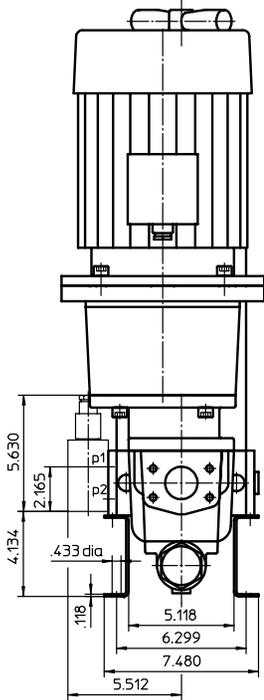
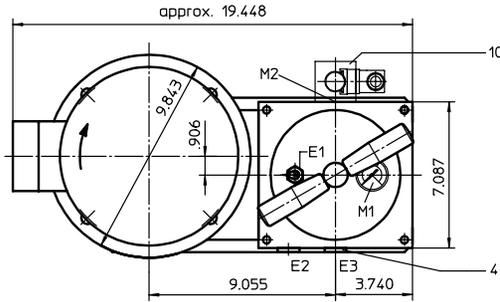
Filter elements are tested according to the following ISO standards:

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

- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St, see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
- p₁ = dirt side
- p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

FILTER UNIT, stationary
Series US 160

1. Type index:

1.1. Filter unit: (ordering example)

US. 160. 6VG. 10. B. P. -. P03. D04. O. AE

1	2	3	4	5	6	7	8	9	10	11
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- 1 **series:**
US = filter unit, stationary
- 2 **nominal size:** 160
- 3 **filter-material and filter-fineness:**
10 VG = 10 µm_(c), 6 VG = 7 µm_(c), 3 VG = 5 µm_(c), 1 VG = 4 µm_(c) Interpor fleece (glass fiber)
10 WVVG = 10 µm_(c), 3 WVVG = 5 µm_(c) Watersorp-filter element
- 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), by agreement
- 7 **filter element specification:**
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601
- 8 **pump unit:**
P03 = pump unit 03, NG 160.100 (standard-pump unit / setting range 58 -116 PSI)
- 9 **motor: (D = rotary current motor)**

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D04 ¹⁾	230/400V 50Hz	37.50 GPM	46-1860 SUS	58 PSI	-	-	42485-4
D04 ¹⁾	265/460V 60Hz	44.90 GPM	46-1860 SUS	58 PSI	-	-	42485-4
D06	110/190V 50Hz	37.50 GPM	46-1860 SUS	58 PSI	-	-	42744-4
D08	400/690V 50Hz	37.50 GPM	46-1860 SUS	116 PSI	-	-	42744-4
D08	460/790V 60Hz	44.90 GPM	46-1860 SUS	116 PSI	-	-	42744-4
D19	400/690V 50Hz	25.10 GPM	46-2790 SUS	58 PSI	-	-	34374-4
D19	460/790V 60Hz	30.11 GPM	46-2790 SUS	58 PSI	-	-	34374-4
D24	400/690V 50Hz	37.50 GPM	46-1860 SUS	116 PSI	-	-	48816-4
D24	460/790V 60Hz	44.90 GPM	46-1860 SUS	116 PSI	-	-	48816-4

¹⁾ standard motor

- 10 **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 **clogging indicator at M2:**
- = without
AOR = AOR.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2.5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2.5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 630. 6VG. 10. B. P. -

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

- 1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 **nominal size:** 630
- 3 - 7 see type index-filter unit

Changes of measures and design are subject to alteration!



2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR_630	
2	housing cover	1	30600-3	315492
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	½ BSPP	304678
5	straining screw	1	30595-3	316312
6	O-ring	1	140 x 6	315392 (NBR)
7	electric motor	1	according to type index	
8	pump unit P03	1	NG 160.100	316275
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	22 x 3	304387 (NBR)
12	O-ring	2	70 x 4	306253 (NBR)
13	O-ring	2	45 x 3	304991 (NBR)
14	O-ring	1	18 x 3	304359 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to bypass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability.

The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 630.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 µm_(c). The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

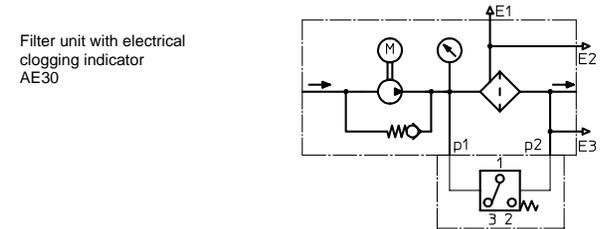
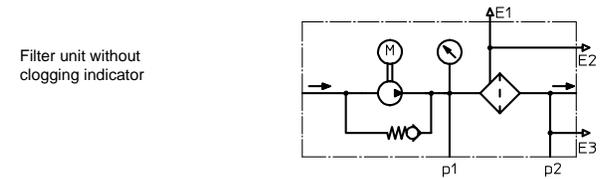
4. Technical data:

filter-fineness:	4, 5, 7 or 10 µm _(c)
weight:	approx. 210 lbs.
operating medium:	hydraulic oil based on mineral oil from 46 SUS, other media on request

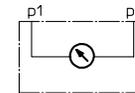
Classified under the Pressure Vessel Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.

Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

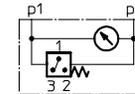
5. Symbols:



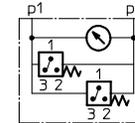
Filter unit with visual clogging indicator AOR, AOC, OP



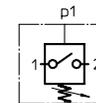
Filter unit with visual-electrical clogging indicator OE1



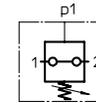
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



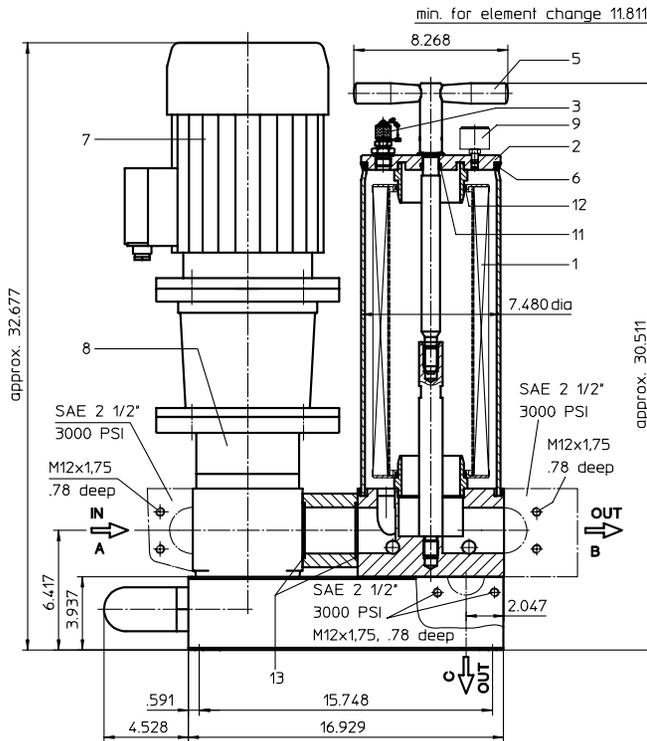
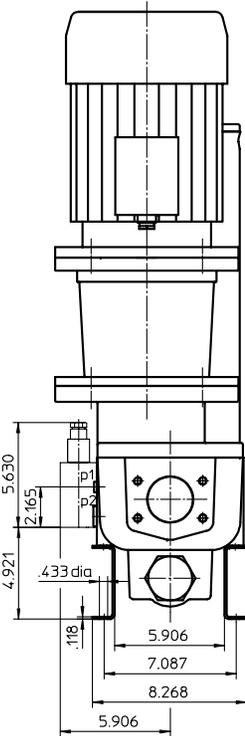
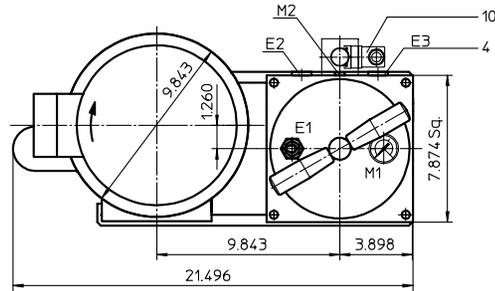
6. Test methods:

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

- preference version -

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.St see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
p₁ = dirt side
p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

FILTER UNIT, stationary
Series US 320

Sheet No.
4012.1 E
Sheet 1/2

1. Type index:

1.1. Filter unit: (ordering example)

US. 320. 6VG. 10. B. P. -. P06. D08. 3. O. AE

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

- 1 series:
US = filter unit, stationary
- 2 nominal size: 320
- 3 filter-material and filter-finness:
10 VG = 10 μm_(c), 6 VG = 7 μm_(c), 3 VG = 5 μm_(c), 1 VG = 4 μm_(c) Interpor fleece (glass fiber)
10 WVG = 10 μm_(c), 3 WVG = 5 μm_(c) Watersorp-filter element
- 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), by agreement
- 7 filter element specification:
- = standard, VA = stainless steel, IS06 = see sheet-no. 31601
- 8 pump unit:
P06 = pump unit 06, NG 320.200 (standard-pump-unit / setting range 58-116 PSI)
- 9 motor: (D = rotary current motor)

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D08 ¹⁾	400/690V	50Hz	75 GPM	46-460 SUS	58 PSI	-	42744-4
D08 ¹⁾	460/790V	60Hz	90 GPM	46-460 SUS	58 PSI	-	42744-4
D24	400/690V	50Hz	75 GPM	46-460 SUS	58 PSI	-	48816-4
D24	460/790V	60Hz	90 GPM	46-460 SUS	58 PSI	-	48816-4

¹⁾ standard motor

10 connection variant:

variant	connection A		connection B		connection C	
	type	size	type	size	type	size
3	FS	9	FS	9	-	-
4	FS	9	FS	9	FS	9

type: FS = flange SAE 3000 PSI
size: 9 = 2 1/2"
- = no connection

- 11 clogging indicator at M1:
- = without
O = visual, 36 PSI
- 12 clogging indicator at M2:
- = without
AOR = AOR.2,5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2,5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2,5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2,5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2,5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2,5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2,5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 1000. 6VG. 10. B. P. -

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

- 1 series:
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 nominal size: 1000
- 3 - 7 see type index-filter unit

Changes of measures and design are subject to alteration!

2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR. 1000	
2	housing cover	1	22496-3	313837
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	½ BSPP	304678
5	straining screw	1	31067-3	316893
6	O-ring	1	140 x 6	315392 (NBR)
7	electric motor	1	according to type index	
8	pump unit P06	1	NG 320.200	316838
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	22 x 3	304387 (NBR)
12	O-ring	2	90 x 4	306941 (NBR)
13	O-ring	2	69,45 x 3,53	305868 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to bypass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability.

The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element to DIN 24550, T4, nominal size 1000.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 µm_(c). The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

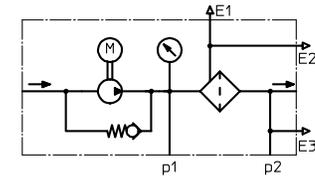
4. Technical data:

filter-fineness: 4, 5, 7 or 10 µm_(c)
 weight: approx. 243 lbs.
 operating medium: hydraulic oil based on mineral oil from 46 SUS,
 other media on request

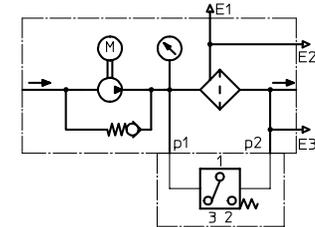
Classified under the Pressure Vessel Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
 Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

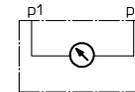
Filter unit without clogging indicator



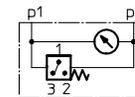
Filter unit with electrical clogging indicator AE30



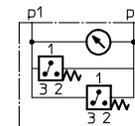
Filter unit with visual clogging indicator AOR, AOC, OP



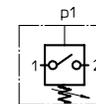
Filter unit with visual-electrical clogging indicator OE1



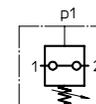
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. 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

2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	1	01NR. 1000	
2	housing cover	1	22496-3	313837
3	mini-measuring connection	1	MA.1.St	305453
4	screw plug	2	½ BSPP	304678
5	straining screw	1	31067-3	316893
6	O-ring	1	140 x 6	315392 (NBR)
7	electric motor	1	according to type index	
8	pump unit P07	1	NG 320.200	316908
9	clogging indicator (series)	1	visual 1.57 dia	315452
10	clogging indicator	1	according to type index	
11	O-ring	1	22 x 3	304387 (NBR)
12	O-ring	2	90 x 4	306941 (NBR)
13	O-ring	2	69,45 x 3,53	305868 (NBR)

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to bypass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability.

The device is equipped with a gear pump driven by an E-motor. The flow conveyed by the geared pump is fed over a filter element according to DIN 24550, T4, nominal size 1000.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 µm_(c). The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump unit in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected E-motor and if the switch-off function of the E-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

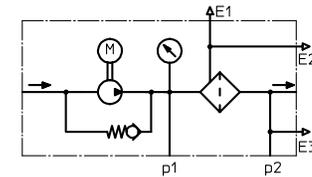
4. Technical data:

filter-fineness:	4, 5, 7 or 10 µm _(c)
weight:	approx. 275 lbs.
operating medium:	hydraulic oil based on mineral oil from 46 SUS, other media on request

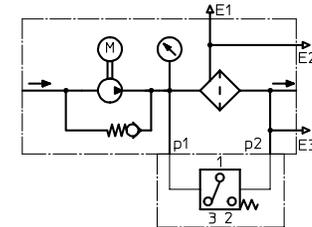
Classified under the Pressure Vessel Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

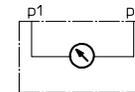
Filter unit without clogging indicator



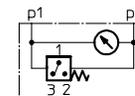
Filter unit with electrical clogging indicator AE30



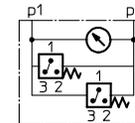
Filter unit with visual clogging indicator AOR, AOC, OP



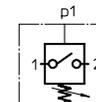
Filter unit with visual-electrical clogging indicator OE1



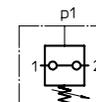
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. Test methods:

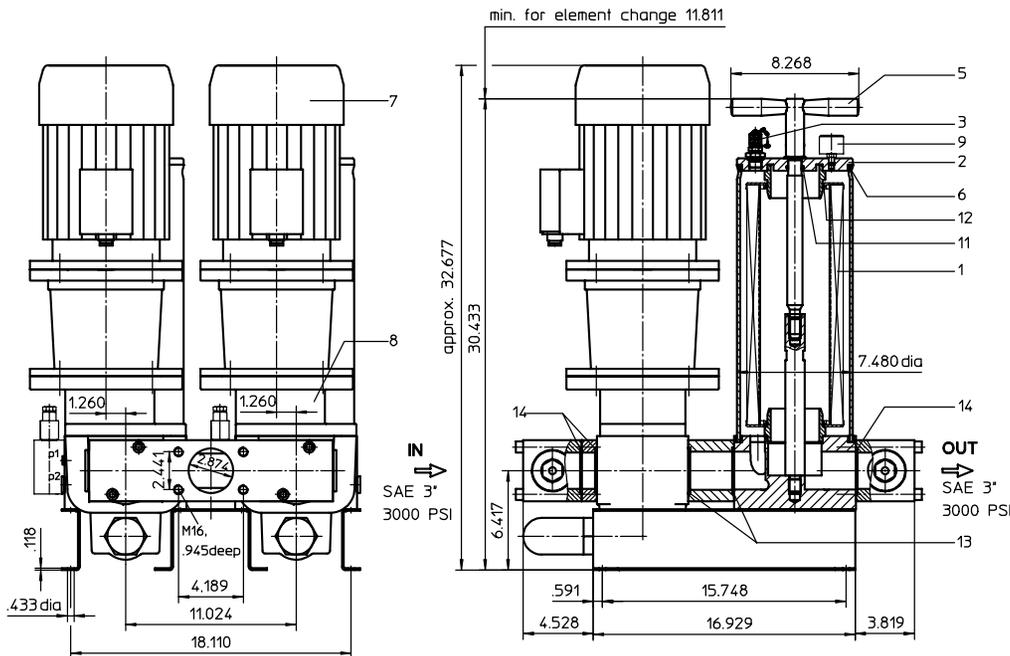
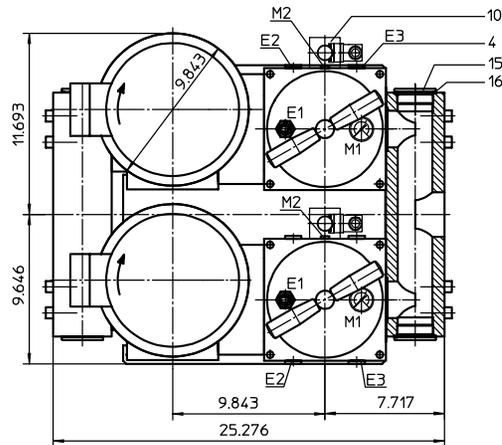
Filter elements are tested according to the following ISO standards:	
ISO 2941	Verification of collapse/burst resistance
ISO 2942	Verification of fabrication integrity
ISO 2943	Verification of material compatibility with fluids
ISO 3723	Method for end load test
ISO 3724	Verification of flow fatigue characteristics
ISO 3968	Evaluation of pressure drop versus flow characteristics
ISO 16889	Multi-pass method for evaluating filtration performance

FILTER UNIT, stationary Series US 640

Sheet No.
4062 B

Assignment of connections and functions:

- E1: venting mini-measuring connection, MA.1.ST see sheet-no.1650
- E2: drainage of filter, dirt side
- E3: drainage of filter, clean side
- M1: measure connection in the housing cover, dirt side
- M2: measure connection at filter housing
p₁ = dirt side
p₂ = clean side



Notice:

Only operate all motors listed on this data sheet in combination with the pump unit specified on the type plate under item 8.

1. Type index:

1.1. Filter unit: (ordering example)

US. 640. 6VG. 10. B. P. -. P06. D08. O. AE

1	2	3	4	5	6	7	8	9	10	11
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- 1 **series:**
US = filter unit, stationary
- 2 **nominal size:** 640
- 3 **filter-material and filter-fineness:**
10 VG = 10 μm_(α), 6 VG = 7 μm_(α), 3 VG = 5 μm_(α), 1 VG = 4 μm_(α) Interpor fleece (glass fiber)
10 WVG = 10 μm_(α), 3 WVG = 5 μm_(α) Watersorp-filter element
- 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), by agreement
- 7 **filter element specification:**
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601
- 8 **pump unit:**
P06 = pump unit 06, NG 320.200 (standard-pump-unit / setting range 58-116 PSI)
- 9 **motor:** (D = rotary current motor)

motor	electrical connection	volume flow	max. viscosity	max. pressure	on/off switch	cable	doc.-no.
D08 ¹⁾	400/690V	50Hz	2x 75 GPM	46-460 SUS	58 PSI	-	42744-4
D08 ¹⁾	460/790V	60Hz	2x 90 GPM	46-460 SUS	58 PSI	-	42744-4
D24	400/690V	50Hz	2x 75 GPM	46-460 SUS	58 PSI	-	48816-4
D24	460/790V	60Hz	2x 90 GPM	46-460 SUS	58 PSI	-	48816-4

¹⁾ standard motor

- 10 **clogging indicator at M1:**
- = without
O = visual, 36 PSI
- 11 **clogging indicator at M2:**
- = without
AOR = AOR.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AOC = AOC.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1606,
AE = AE30.2.5..., electrical at p₁ and p₂, 36 PSI, see sheet-no. 1609
OP = OP.2.5..., visual, at p₁ and p₂, 36 PSI, see sheet-no. 1628
OE = OE.2.5..., visual-electrical, at p₁ and p₂, 36 PSI, see sheet-no. 1628
E1 = E1.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616
E5 = E5.2.5 electrical at p₁, 36 PSI, see sheet-no. 1616

1.2. Filter element: (ordering example)

01NR. 1000. 6VG. 10. B. P. -

1	2	3	4	5	6	7
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- 1 **series:**
01NR. = standard-return-line filter element according to DIN 24550, T4
- 2 **nominal size:** 1000
- 3 - 7 see type index-filter unit

Changes of measures and design are subject to alteration!



2. Spare parts:

item	designation	qty.	dimension	article-no.
1	filter element	2	01NR. 1000	
2	housing cover	2	22496-3	313837
3	mini-measuring connection	2	MA.1.ST	305453
4	screw plug	4	½ BSPP	304678
5	straining screw	2	31067-3	316893
6	O-ring	2	170 x 6	304799 (NBR)
7	electric motor	2	according to type index	
8	pump unit P06	2	NG 320.200	316838
9	clogging indicator (series)	2	visual 1.57 dia	315452
10	clogging indicator	2	according to type index	
11	O-ring	2	22 x 3	304387 (NBR)
12	O-ring	4	90 x 4	306941 (NBR)
13	O-ring	4	69,45 x 3,53	305868 (NBR)
14	O-ring	6	65,09 x 3,53	317621 (NBR)
15	screw plug	4	2 BSPP	310958
16	gasket	4	A 60 x 68	310959

3. Description:

The stationary filter unit is intended for oil maintenance on hydraulic systems.

The area of application comprises:

- secondary flow filtration in addition to the existing operating filter
- secondary flow filtration without the action of the operating filter
- filtration when filling the oil reservoir.

The filter unit must not be used to pump contaminated hydraulic fluids and is therefore designed without a switchover fitting to bypass the filter. The compact structural design on a base plate without pipe satisfies the prerequisites for small dimensions and high reliability.

The device is equipped with two gear pumps driven by two electric-motors. The flow conveyed by the gear pumps is fed over two filter elements according to DIN 24550, T4, nominal size 1000.

Depending on the customer's wishes, the filter fineness is either 4, 5, 7 or 10 µm_(c). The contamination level of the filter element can be read off from a pressure display in the cover of the filter.

At a pressure >36 PSI (red area of the scale field), the filter element is contaminated and it must be replaced with a new filter element.

The filter element can be changed without tools. After removing the straining screw and taking off the housing cover, the filter element is accessible and it can be exchanged. The filter elements are supplied complete with seals. Since it is not possible to clean the elements, the user must always keep an adequate supply of spare elements in stock.

To protect against overpressure, the filter unit is fitted with a safety valve. The initial response pressure difference valve is set according to pressure stated in the table on the type plate under item 9. If a different pressure setting is requested, please state the initial response pressure with respect to the set pressure range of the pump units in the plain text when ordering.

Stationary filter units with motors without combined protective motor switch and ON/OFF switch and without any cable with plug (see switch „-“, cable „-“ under item 9 of the type plate) can be operated without supervision if the electrical connection is fitted with an overload protection corresponding to the current consumption of the selected electric-motor and if the switch-off function of the electric-motor of the electrical clogging indicator is disengaged at 36 PSI.

The line, venting and draining connections are identified according to their function. Drainage is necessary when cleaning the filter unit in connection with the change of filter element, and when setting the medium.

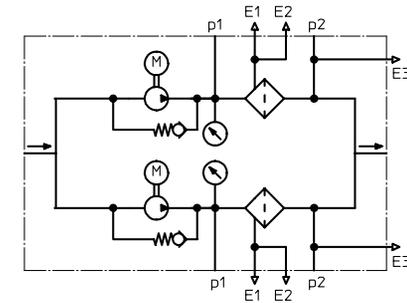
4. Technical data:

filter-fineness: 4, 5, 7 or 10 µm_(c)
 weight: approx. 507 lbs.
 operating medium: hydraulic oil based on mineral oil from 46 SUS,
 other media on request

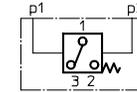
Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.
 Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

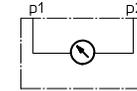
Filter unit without clogging indicator



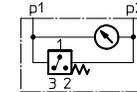
Filter unit with electrical clogging indicator AE30



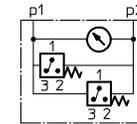
Filter unit with visual clogging indicator AOR, AOC, OP



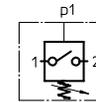
Filter unit with visual-electrical clogging indicator OE1



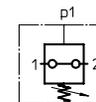
Filter unit with visual-electrical clogging indicator OE2



Filter unit with electrical clogging indicator contact maker E1



Filter unit with electrical clogging indicator contact breaker E5



6. 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