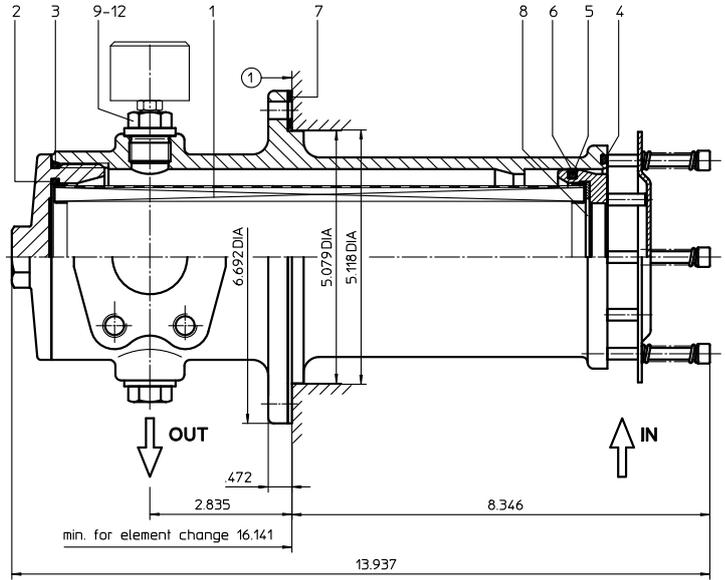
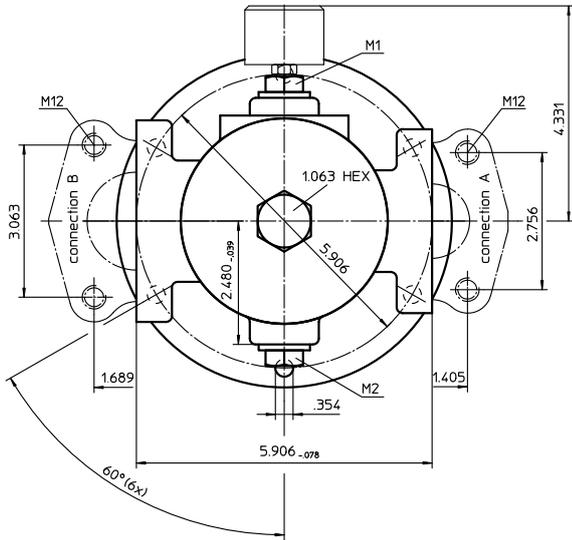


Series AS 220



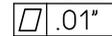
mounting surface



surface quality



flatness tolerance



Weight: approx. 10 lbs.

Dimensions: inches

Designs and performance values are subject to change.

Suction Filter Series AS 220

Description:

The AS suction filters are horizontally or vertically mounted to the reservoir and connected directly to the suction-line. The filter housing consists of high quality aluminum material.

The filter element consists of a 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.

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

The suction filter is easy to service. When releasing the filter lid, a plate valve closes the suction-inlet of the filter and prevents the return flow of dirty oil to the reservoir. When mounted horizontally, it is not possible to drain the reservoir. After cleaning the element, the filter is ready for operation.

Eaton filter elements can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

1. Type index:

1.1. Complete filter: (ordering example)

AS. 220. 40G. - . B. P. - . FS. 8. - . O1. -											
1	2	3	4	5	6	7	8	9	10	11	12

- 1 | **series:**
AS = suction filter
- 2 | **nominal size:** 220
- 3 | **filter-material and filter-fineness:**
40G stainless steel wire mesh
- 4 | **filter element collapse rating:**
- = not specified
- 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 3000 PSI
- 9 | **no. of version:**

version	7	4	8
connection A type size	-	FS	FS
connection B type size	FS	-	FS
	8	-	8

type: FS = SAE-flange 3000 PSI
size: - = no connection
7 = 1 1/2"
8 = 2"
- 10 | **filter housing specification:**
- = standard
- 11 | **clogging indicator at M1:**
- = without
O1 = visual, see sheet-no. 1616
E4.-0,25 = pressure switch, see sheet-no. 1616
- 12 | **clogging indicator at M2:**
possible indicators see position 11 of the type index

To add an indicator to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

1.2. Filter element: (ordering example)

01AS. 220. 40G. - . B. - . -						
1	2	3	4	5	6	7

- 1 | **series:**
01AS. = suction filter element according to company standard
- 2 | **nominal size:** 220
- 3 | - 5 | / 7 | see type index-complete filter
- 6 | **seling material:**
- = without

Accessories:

- SAE-counter flanges, see sheet-no. 1652

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
process connection:	SAE-flange 3000 PSI
housing material:	G-AlSi10Mgwa DIN 1725 (3.2381.61)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	optional
volume tank:	.42 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC according to specific application (see questionnaire sheet-no. 34279-4).

Pressure drop flow curves:

Filter calculation/sizing

The pressure drop of the assembly at a given flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

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

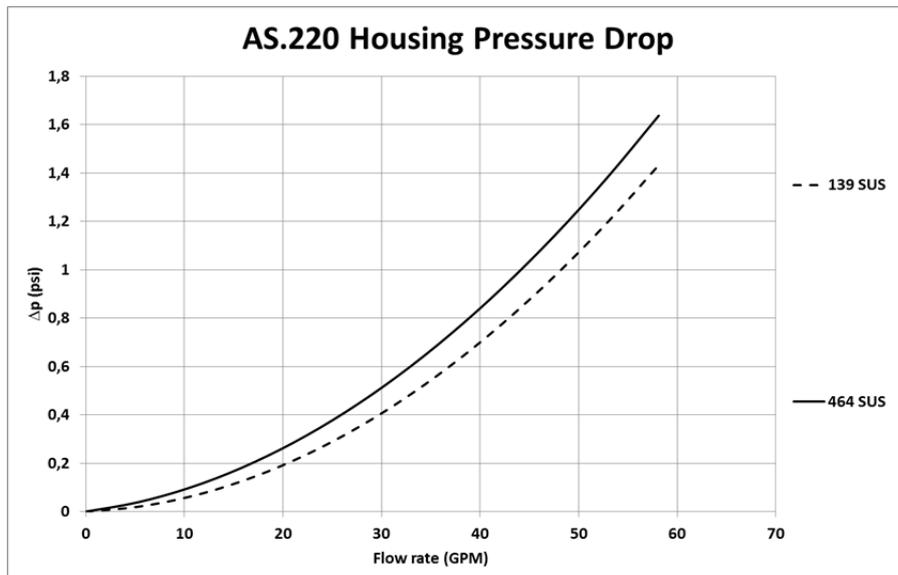
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

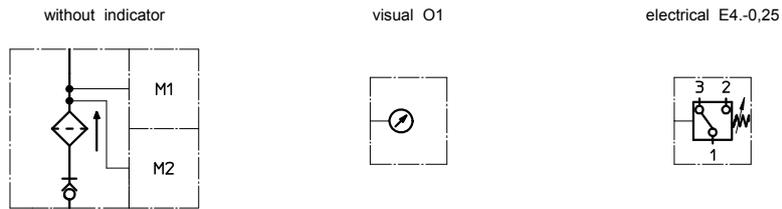
AS	G
	40G
220	0.0491

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm³. The pressure drop changes proportionally to the density.



Symbols:



Spare parts:

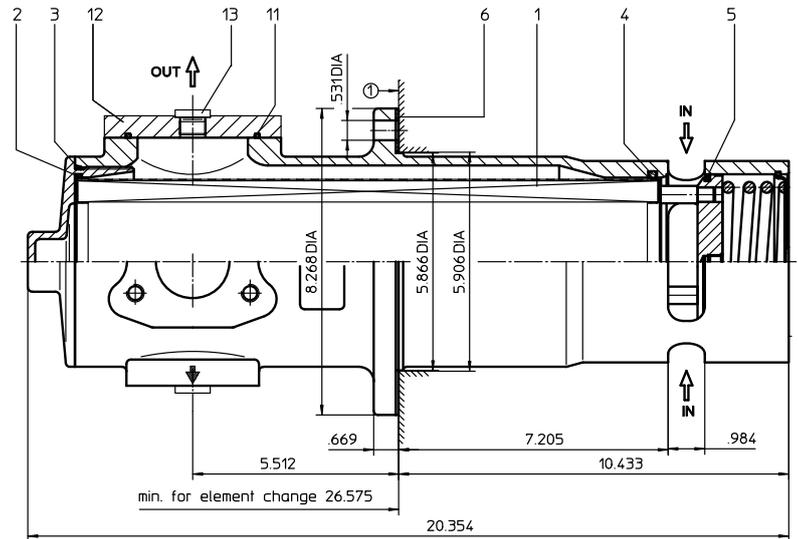
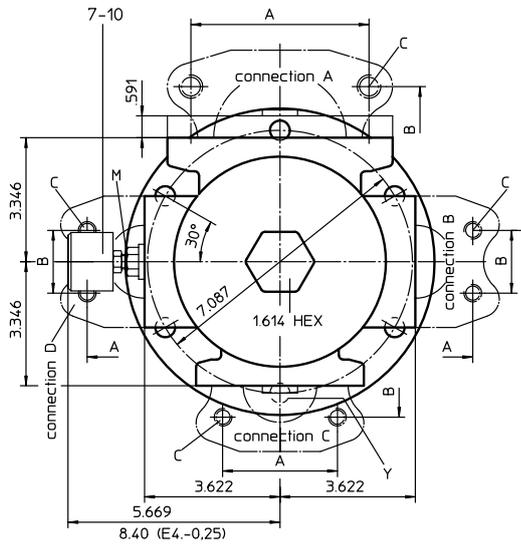
item	qty.	designation	dimension	article-no.	
1	1	filter element	01AS.220...		
2	1	O-ring	75 x 3	302215 (NBR)	304729 (FPM)
3	1	O-ring	88 x 3	304417 (NBR)	310266 (FPM)
4	1	O-ring	96 x 4	305190 (NBR)	308148 (FPM)
5	1	O-ring	78 x 3,5	311610 (NBR)	314696 (FPM)
6	1	sliding ring	20165-4	305194	
7	1	gasket	.079 thick	305135	
8	1	sliding ring	20164-4	305199	
9	2	screw plug	½ BSPP	309730	
10	2	gasket	A 21 x 26	309815	
11	1	clogging indicator, visual	O1	301722	
12	1	clogging indicator, electric	E4.-0,25	301725	

Test methods:

Filter elements are tested according to the following ISO standards:

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

Series AS 632



Dimensions:

connection size	2"	2 1/2"	3"	3 1/2"
dimension A	3.07	3.50	4.18	4.76
dimension B	1.69	2.01	2.44	2.76
thread C	M12, .71 deep	M12, .71 deep	M16, .87 deep	M16 .87 deep

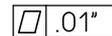
mounting surface



surface quality



flatness tolerance



Weight: approx. 26 lbs.

Dimensions: inches

Designs and performance values are subject to change.

Suction Filter Series AS 632

Description:

The AS suction filters are horizontally or vertically mounted to the reservoir and connected directly to the suction-line. The filter housing consists of high quality aluminum material.

The filter element consists of a 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.

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

The suction filter is easy to service. When releasing the filter lid, a plate valve closes the suction-inlet of the filter and prevents the return flow of dirty oil to the reservoir. When mounted horizontally, it is not possible to drain the reservoir. After cleaning the element, the filter is ready for operation.

Eaton filter elements can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

1. Type index:

1.1. Complete filter: (ordering example)

AS. 632. 40G. -. B. P. -. FS. 11. -. O1

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

- 1 | **series:**
AS = suction filter
- 2 | **nominal size:** 632
- 3 | **filter-material and filter-fineness:**
40G stainless steel wire mesh
- 4 | **filter element collapse rating:**
- = not specified
- 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 3000 PSI
- 9 | **no. of version:**

version	1	5	6	10	11	12	14	21
connection A type size	XY	XY	XY	FS A1	FS A1	FS A1	-	FS A
connection B type size	Y	M	M	FS 8	FS 9	-	FS 8	Y
connection C type size	FS 8	FS 9	FS 9	Y	Y	Y	FS 8	Y
connection D type size	FS 8	FS 9	-	Y	M	M	FS 8	FS 8

type: FS = SAE-flange 3000 PSI **size:** 8 = 2"
M = adapter M18x1,5 – R1/8 9 = 2 1/2"
Y = drain M18x1,5 A = 3"
X = adapter SAE 3" – M18x1,5 A1 = 3 1/2"
- = no connection

- 10 | **filter housing specification:**
- = standard
- 11 | **clogging indicator at M1:**
- = without
O1 = visual, see sheet-no. 1616
E4.-0,25 = pressure switch, see sheet-no. 1616

To add an indicator to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

1.2. Filter element: (ordering example)

01AS. 631. 40G. -. B. -. -

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

- 1 | **series:**
01AS. = suction filter element according to company standard
- 2 | **nominal size:** 631
- 3 | - 5 | / 7 | see type index-complete filter
- 6 | **seling material:**
- = without

Accessories:

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
process connection:	SAE-flange 3000 PSI
housing material:	G-AlSi10Mgwa DIN 1725 (3.2381.61)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	optional
volume tank:	1.6 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC according to specific application (see questionnaire sheet-no. 34279-4).

Pressure drop flow curves:

Filter calculation/sizing

The pressure drop of the assembly at a given flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

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

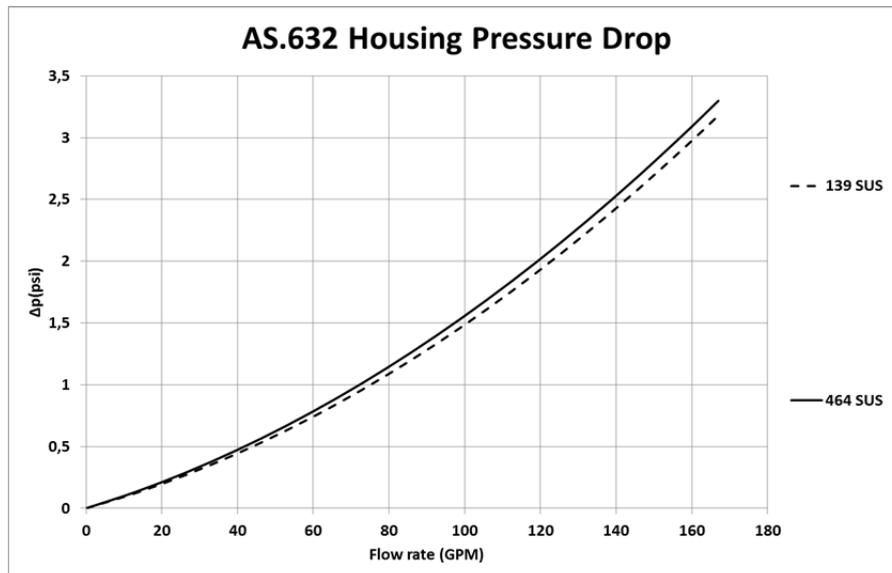
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

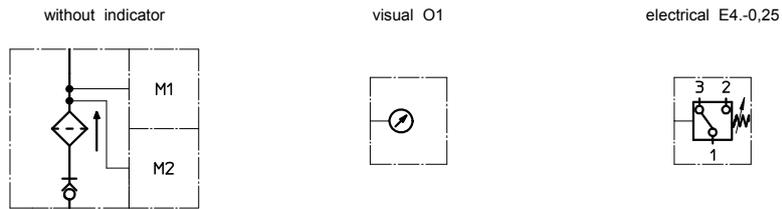
AS	G
	40G
632	0.0193

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm³. The pressure drop changes proportionally to the density.



Symbols:



Spare parts:

item	qty.	designation	dimension	article-no.	
1	1	filter element	01AS.631...		
2	1	O-ring	115 x 3	303963 (NBR)	307762 (FPM)
3	1	O-ring	125 x 3	306025 (NBR)	307358 (FPM)
4	1	O-ring	115 x 5	306640 (NBR)	310287 (FPM)
5	1	O-ring	104,37 x 3,53	304339 (NBR)	304390 (FPM)
6	1	gasket	.078 thick	305160	
7	1	adapter M18 x 1,5 - 1/8 BSPP	30505-4	317114	
8	2	gasket	A18 x 24x1,5	305136	
9	1	clogging indicator, visual	O1	301722	
10	1	clogging indicator, electrical	E4.-0,25	301725	
11	1	O-ring	85,32 x 3,53	305590 (NBR)	306308 (FPM)
12	1	adapter SAE 3" - M18 x 1,5	30294-3	317048	
13	1	screw plug	M18 x 1,5	305193	

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

1. Assembly

The filter is ready to install once it has been removed from the packaging and is placed on a level surface and screwed tightly. Next the protective closures are removed from the connection openings, which must then be connected with the screwed pipe joints of the pipe system.

Attention!

When assembling, it is essential to ensure

- that no dirt, foreign particles or liquids can get into the filter. To do so the complete maintenance process as per item 3 has to be done rapidly. In case of interruption of this process the filter housing has to be closed by means of the screw plug or the filter cover respectively. Both filter and unit concerned have to be marked „Maintenance, not in operation“.
- that the screw-in joint of the pipe system is exactly aligned to the filter connections before screwing commences (screwed pipe joints which are bent or under stress will hamper the connection to the filter and endanger tightness),
- that the filter pot is not lying against the opening, the wall or the floor of the container.

2. Startup

All accessory parts such as the contamination display must be fully installed before startup (power connection). The hydraulic system must be ventilated in accordance with the instructions for the hydraulic components used. After ventilation, the level of liquid in the tank must be above the filter openings "ON" under all operating conditions. The filter is then operational.

3. Maintenance

If the contamination display indicates after the corresponding period of operation that the filter element has reached the limit of its dirt collection capacity, you must replace the filter element as follows:

- Relieve the pressure of the hydraulic system (make sure that the level of fluid is above the level of the filter housing).
- Place collecting basin with capacity of 2 l underneath the screw plug or the filter cover respectively.
- Undo and remove the screw plug or filter lid. (The oil being in the filter pot is flowing into the collecting basin)
- Withdraw the filter element from the filter pot.
- Fit a new or serviced filter element into the filter pot. Only filter elements with a fabric filter material can be cleaned, cf. cleaning instructions sheet no. 21070 and 39448.
- Filter element into the upper part of the filter.
- Fit the screw plug or filter lid into the upper part of the filter and screw tight.

Tightening torques for screw plugs

AS 220	AS 632
80 Nm	100 Nm

The filter is functional again.

4. Additional information

The filter elements must be exchanged completely, i.e. including their seals. If cleaned filter elements are used repeatedly, their you must replace the seals with new ones.

Worn, damaged or ageing seals on the screw plug or filter pot must be replaced with new seal elements during maintenance.

Refer to the relevant documentation for the filter to obtain the descriptions of the spare parts (filter elements, seal elements etc.).

While the filter is open during maintenance (screw plug removed), you must make sure that no dirt or foreign particles can get into the liquid tank.

To avoid environmental damage, make sure that the remaining fluid from the filter pot and the solvents that are used are disposed of properly after maintenance.

5. Service

The service will be performed by

EATON Technologies GmbH
Friedensstr. 41
D-68804 Altlußheim
Germany

phone: +49(0)6205-2094-0
fax: +49(0)6205-2094-40

Special questions about the operation of the filter will also be answered within this area.

Spare parts respectively wearing parts have to be ordered according to the spare part list of the filter-data-sheet.