



# 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)

<b>AS. 220. 40G. - . B. P. - . FS. 8. - . O1. -</b>											
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:**

<b>version</b>	<b>7</b>	<b>4</b>	<b>8</b>
<b>connection A type size</b>	-	FS	FS
<b>connection B type size</b>	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)

<b>01AS. 220. 40G. - . B. - . -</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  $\Delta p$  and the element  $\Delta p$  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/](http://www.eatonpowersource.com/calculators/filtration/)

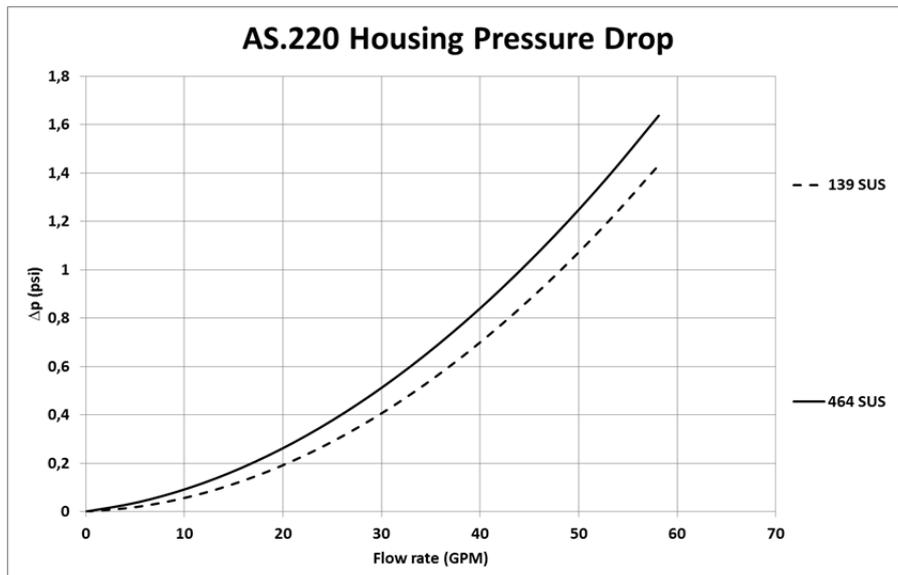
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

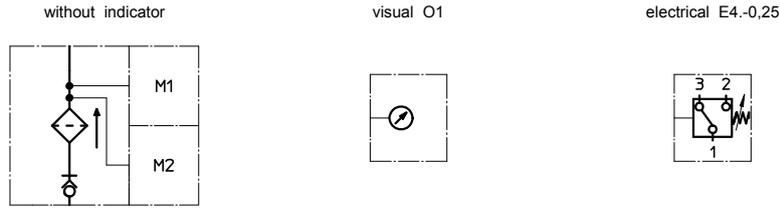
AS	G
	40G
220	0.0491

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. 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

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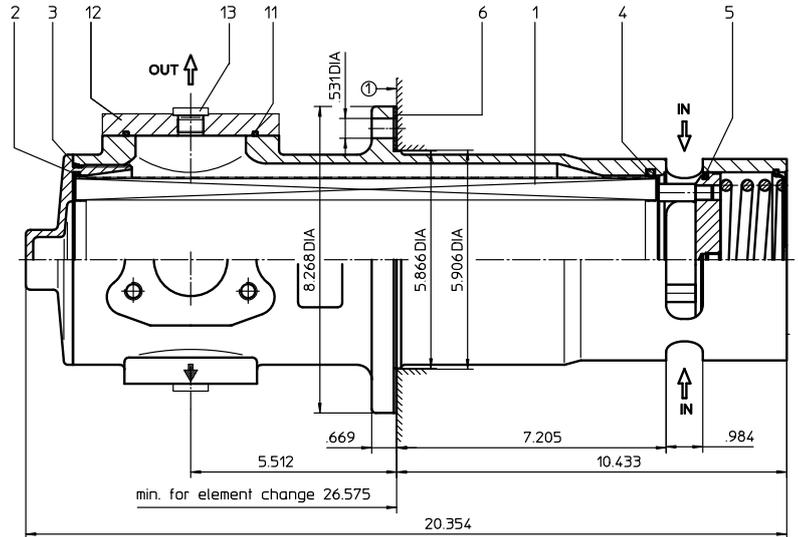
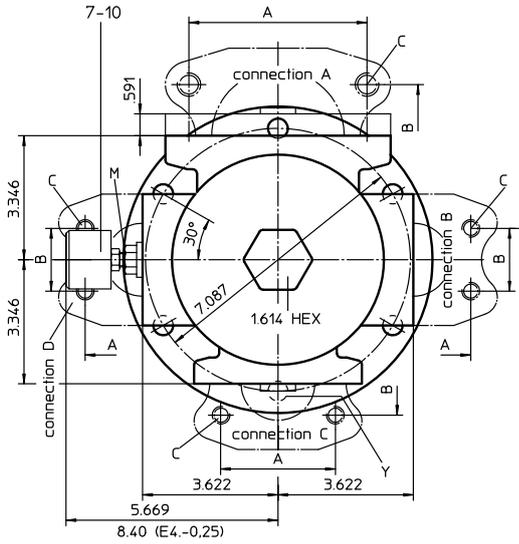
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# Series AS 632



**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 1
- surface quality .12  $\mu$ m  
▽
- flatness tolerance .01"

Weight: approx. 26 lbs.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

# 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.

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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
<b>connection A type size</b>	XY	XY	XY	FS A1	FS A1	FS A1	-	FS A
<b>connection B type size</b>	Y	M	M	FS 8	FS 9	-	FS 8	Y
<b>connection C type size</b>	FS 8	FS 9	FS 9	Y	Y	Y	FS 8	Y
<b>connection D type size</b>	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  $\Delta p$  and the element  $\Delta p$  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/](http://www.eatonpowersource.com/calculators/filtration/)

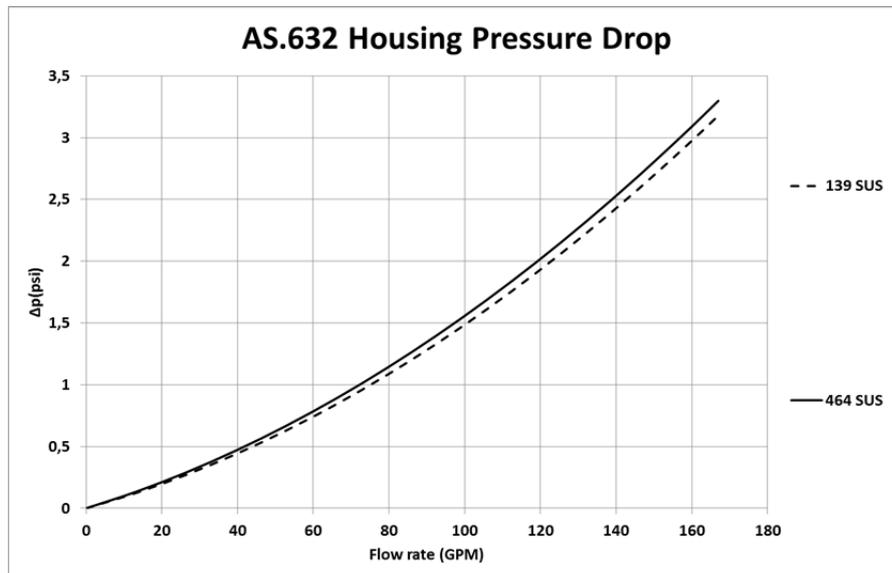
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

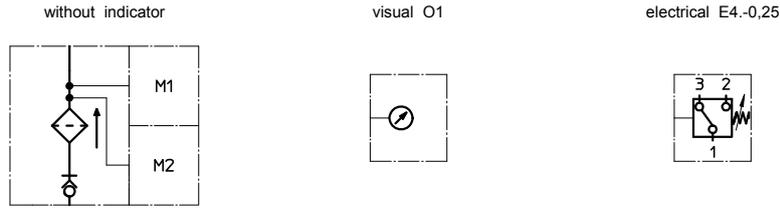
<b>AS</b>	<b>G</b>
	<b>40G</b>
<b>632</b>	0.0193

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. 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

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