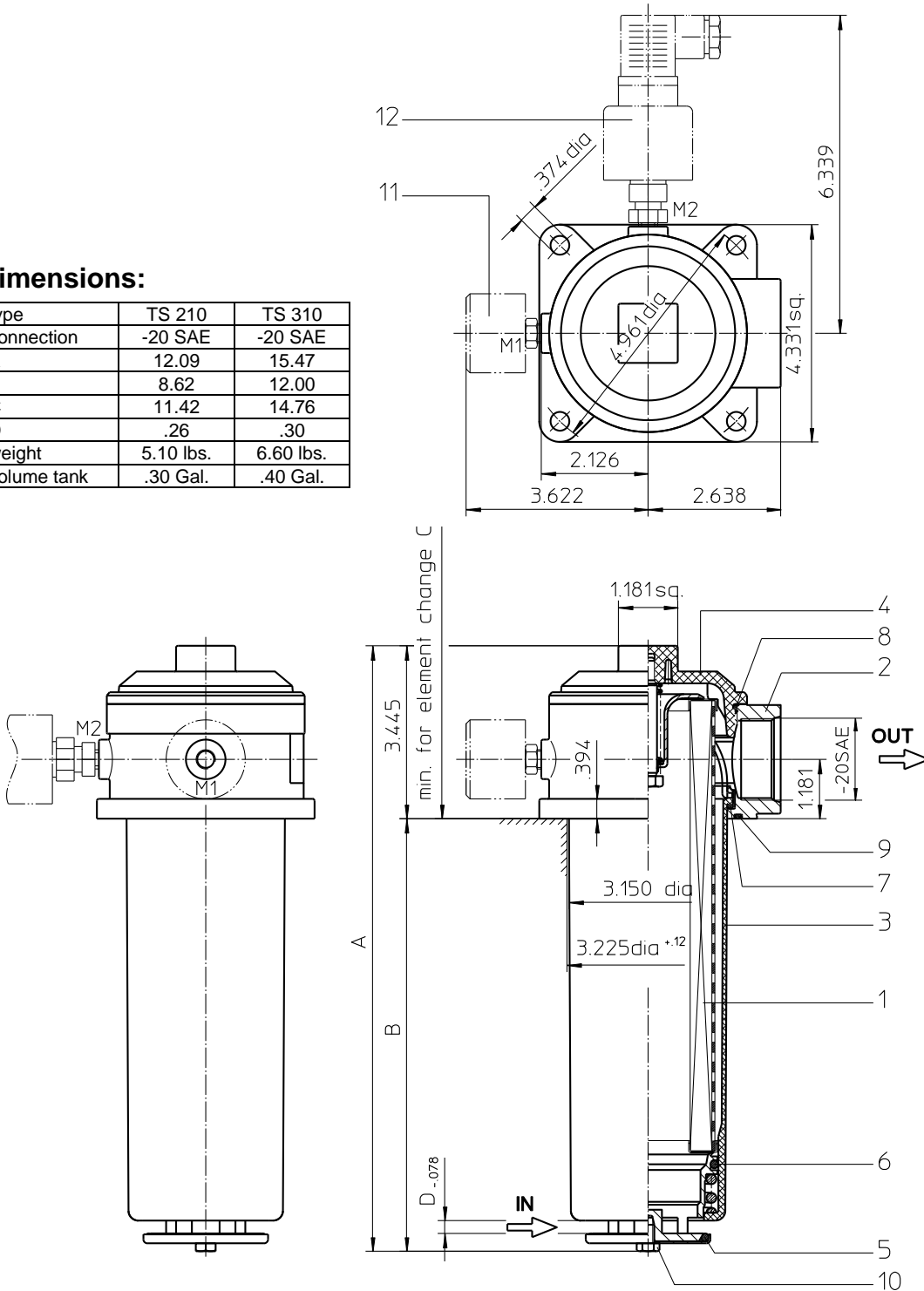


Series TS 210-310

Dimensions:

| type | TS 210 | TS 310 |
|-------------|-----------|-----------|
| connection | -20 SAE | -20 SAE |
| A | 12.09 | 15.47 |
| B | 8.62 | 12.00 |
| C | 11.42 | 14.76 |
| D | .26 | .30 |
| weight | 5.10 lbs. | 6.60 lbs. |
| volume tank | .30 Gal. | .40 Gal. |



Dimensions: inches

Designs and performance values are subject to change!

Suction Filter

Series TS 210-310

Description:

The TS-filters are directly mounted to the reservoir and connected to the suction-line. The suction-area „IN“ must be below the oil level.

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. The flow is from outside to inside.

For cleaning the mesh element or changing the microglass element, remove the cover and take out the element. The mesh elements are not guaranteed to maintain 100% performance after cleaning

Filters finer than 40 µm use the disposable elements made of paper or microglass. Filter elements as fine as 5 µm(c) are available; finer filter elements on request.

Eaton filter elements are known as stable elements which have excellent filtration capabilities and a high dirt retaining capacity, therefore having a long service life. Due to its practical design, the return-line filter is easy to service.

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

Due to its practical design, the return-line filter is easy to service. When releasing the filter cover a plate-shaped valve closes the suction-inlet of the filter bowl and prevents the return flow of dirt oil into the reservoir. For cleaning, the filter bowl together with the filter element can be taken out of the filter head.

Type index:

Complete filter: (ordering example)

TS. 210. 10VG. -. B. P. -. UG. 6. -. -. O1. E4.-0,25

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

1 | **series:**
TS = suction filter for vertical tank-mounting

2 | **nominal size:** 210, 310

3 | **filter material:**
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper

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:**
UG = thread connection

9 | **process connection size:**
6 = -20 SAE

10 | **filter housing specification:**
- = standard

11 | **internal valve:**
- = without
S = with by-pass valve Δp 4.1 PSI

12 | **clogging indicator at M1:**
- = without
O1 = visual, see sheet-no. 1616
E4.-0,25 = pressure switch, see sheet-no. 1616

13 | **clogging indicator at M2:**
possible indicators see position 12 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.

Filter element: (ordering example)

01TS. 210. 10VG. -. B. -. -

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

1 | **series:**
01TS. = suction filter element according to company standard

2 | **nominal size:** 210, 310

3 | - **5** |, **7** | see type index-complete filter

6 | **sealing material:**
- = without

Technical data:

| | |
|----------------------------|---|
| operating temperature: | +14°F to +212°F |
| operating medium | mineral oil, other media on request |
| process connection: | thread connection |
| housing material standard: | AL-casting, filter cover / filter bowl glass fiber reinforced polyamide |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |

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

Pressure drop flow curves:

Filter calculation/sizing

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

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

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

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

For ease of calculation our Filter Selection tool is available online at www.eaton.com/hydraulic-filter-evaluation

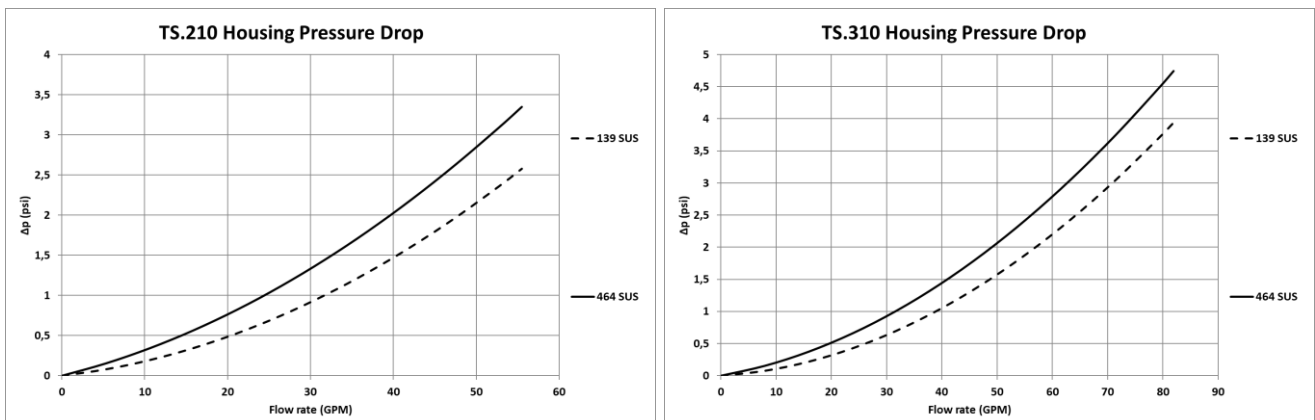
Material gradient coefficients (MSK) for filter elements

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.

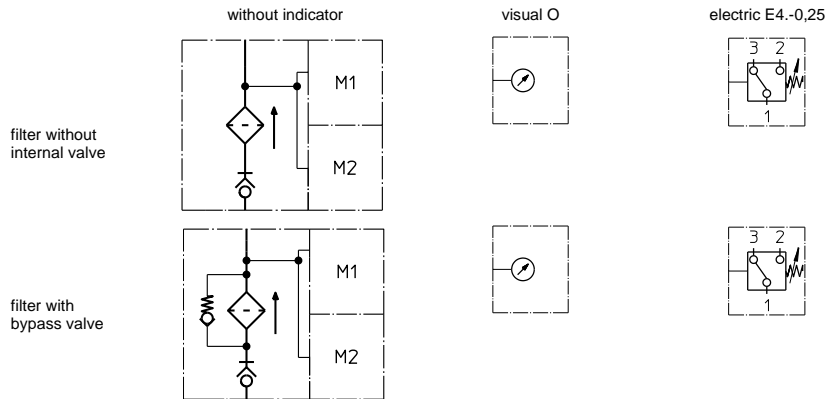
| TS | VG | | | | | G | | | P |
|-----|-------|-------|-------|-------|-------|--------|--------|--------|-------|
| | 3VG | 6VG | 10VG | 16VG | 25VG | 25G | 40G | 80G | 10P |
| 210 | 2.250 | 1.562 | 1.000 | 0.871 | 0.595 | 0.0826 | 0.0612 | 0.0571 | 0.443 |
| 310 | 1.628 | 1.130 | 0.724 | 0.630 | 0.430 | 0.0598 | 0.0443 | 0.0413 | 0.321 |

$\Delta p = f(Q)$ – 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 | dimensions | | Article-no. | |
|------|------|----------------------------|--------------|--------------|--------------|--------------|
| | | | TS 210 | TS 310 | | |
| 1 | 1 | filter element | 01TS. 210... | 01TS. 310... | | |
| 2 | 1 | filter head | | | 304423 | |
| 3 | 1 | filter bowl | | | 304518.1 | |
| 4 | 1 | filter cover | M 90 x 2 | | | |
| 5 | 1 | O-ring | 53 x 4 | | 309143 (NBR) | 332434 (FPM) |
| 6 | 1 | O-ring | 62 x 4 | | 308045 (NBR) | 311472 (FPM) |
| 7 | 1 | O-ring | 75 x 3 | | 302215 (NBR) | 304729 (FPM) |
| 8 | 1 | O-ring | 82 x 3 | | 305191 (NBR) | 305298 (FPM) |
| 9 | 1 | O-ring | 88 x 3 | | 304417 (NBR) | 310266 (FPM) |
| 10 | 1 | sheet metal screw | B 6,3 x 13 | | 316641 | |
| 11 | 1 | clogging indicator, visual | O1 | | 301722 | |
| 12 | 1 | pressure switch, 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 |

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Greater China
No. 7, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Asia-Pacific
100G Pasir Panjang Road
#07-08 Interlocal Centre
Singapore 118523
Tel: +65 6825-1668

Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0



**For more information, please
email us at filtration@eaton.com
or visit www.eaton.com/filtration**

© 2021 Eaton. All rights reserved. All trademarks and registered trademarks are the property of their respective owners. All information and recommendations appearing in this brochure concerning the use of products described herein are based on tests believed to be reliable. However, it is the user's responsibility to determine the suitability for his own use of such products. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Eaton as to the effects of such use or the results to be obtained. Eaton assumes no liability arising out of the use by others of such products. Nor is the information herein to be construed as absolutely complete, since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.