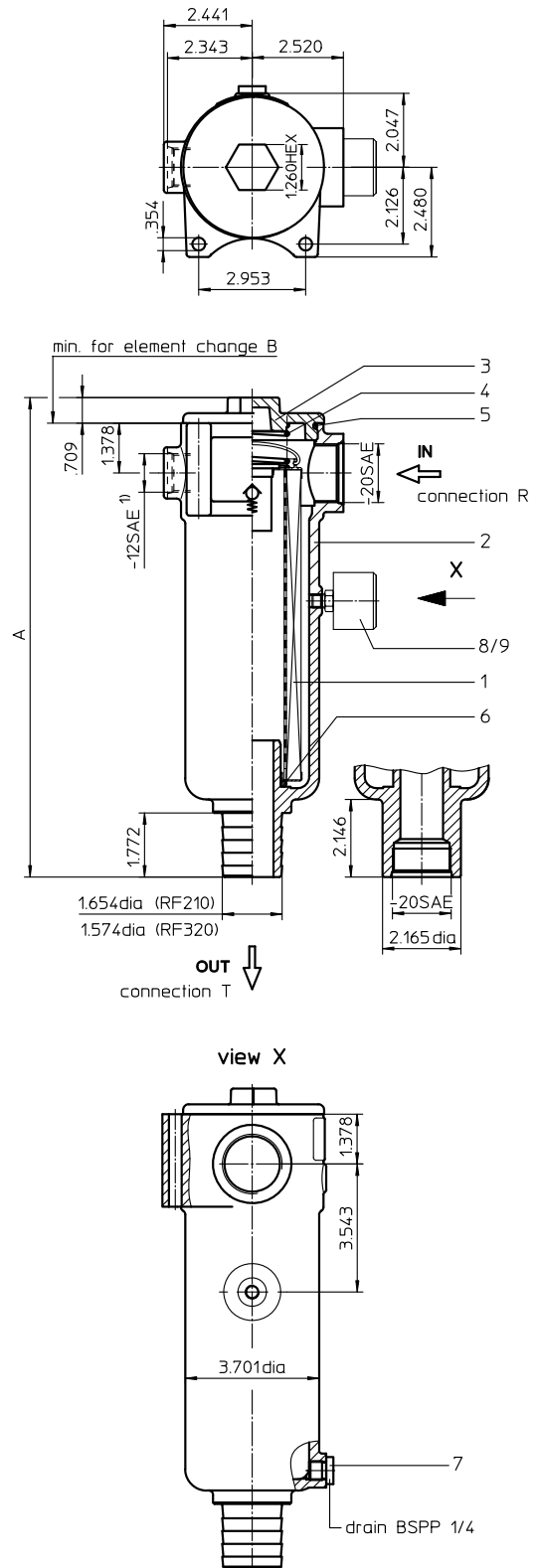


Series RF 210-320 145 PSI



Dimensions:

type	A	B	weight	volume tank
RF 210	13.26	8.07	6.0 lbs.	.30 Gal.
RF 320	16.61	11.41	7.7 lbs.	.45 Gal.

1) additional connection „IN“ max. -12 SAE, by agreement

Return Line Filter

Series RF 210-320

145 PSI

Description:

Return-line filter series RF 210-320 have a working pressure up to 145 PSI. The RF filter is mounted in the return line.

The return pipes at the outlet connection must be less than 39 inches long. The pressure measured at the clogging indicator is the back pressure of the element and the return line hose.

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.

The filter element consists of star-shaped, pleated filter material which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to inside.

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

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.

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.

1. Type index:

1.1. Complete filter: (ordering example)

RF. 210. 10VG. 16. S. P. -. UG. 4. -. O

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

- 1 | **series:**
RF = return-line filter
- 2 | **nominal size:** 210, 320
- 3 | **filter-material:**
80G, 40G, 25G, 10G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
- 4 | **filter element collapse rating:**
16 = Δp 232 PSI
- 5 | **filter element design:**
E = without by-pass valve
S = with by-pass valve, Δp 29 PSI
- 6 | **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 | **filter element specification:** (see catalog)
- = standard
IS06 = for HFC applications, see sheet-no. 31601
- 8 | **connection:**
UG = thread connection
- 9 | **no. of version:**

version	3	4
connection R type	UG	UG
size	6	6
connection T type	UG	SA
size	6	42 or 40

type: UG = thread
SA = hose nozzle

size: 6 = -20 SAE
42 = 1.65 dia (RF 210)
40 = 1.57 dia (RF 320)
- 10 | **filter housing specification:** (see catalog)
- = standard
IS06 = for HFC applications, see sheet-no. 31605
- 11 | **clogging indicator:**
- = without
O = visual, see sheet-no. 1616
E1 = pressure switch, see sheet-no. 1616
E2 = pressure switch, see sheet-no. 1616
E5 = 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)

01E. 210. 10VG. 16. S. P. -. D

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

- 1 | **series:**
01E. = filter element according to company standard
- 2 | **nominal size:** 210, 320
- 3 | - 7 | see type index-complete filter
- 8 | **accessories:**
D = with wire strap

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	thread connection
output:	hose nozzle or thread connection
housing material:	Al-cast, glass fiber reinforced polyamide (filter cover)
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.eatonpowersource.com/calculators/filtration/

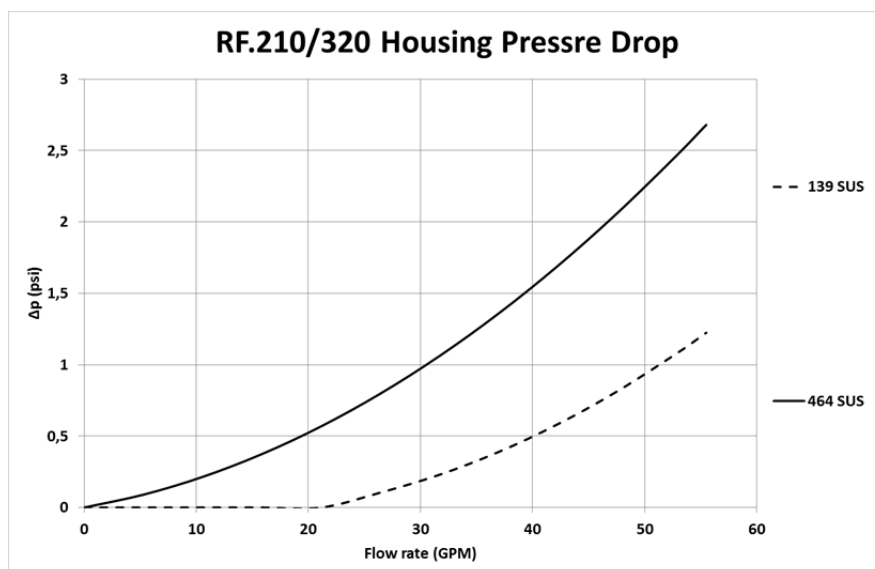
Material gradient coefficients (MSK) for filter elements

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.

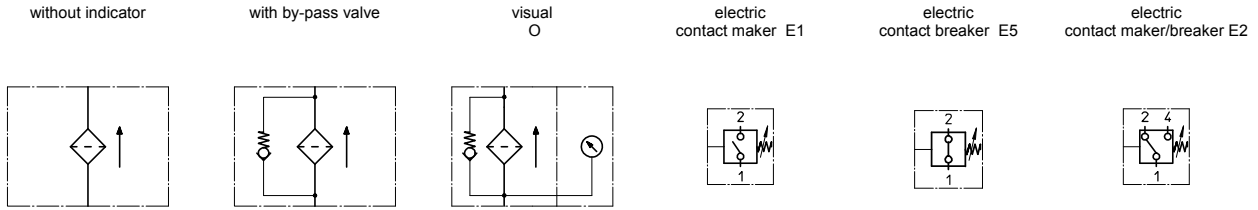
RF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
210	1.600	1.111	0.711	0.619	0.423	0.0588	0.0549	0.0376	0.353
320	1.148	0.797	0.510	0.444	0.304	0.0337	0.0314	0.0215	0.253

$\Delta p = f(Q)$ – 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.	
			RF 210 01E.210...	RF 320 01E.320...		
1	1	filter element	RF 210 01E.210...	RF 320 01E.320...		
2	1	filter housing	NG 210	NG 320		
3	1	screw plug	M90 x 2		301910	
4	1	spring			302144	
5	1	O-ring	82 x 3		305191 (NBR)	305298 (FPM)
6	1	O-ring	40 x 3		304389 (NBR)	304391 (FPM)
7	1	screw plug	1/4 BSPP		305003	
8	1	clogging indicator, visual	O		301721	
9	1	pressure switch, electric	E1, E2 or E5		see sheet-no. 1616	

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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