

# HYDAC

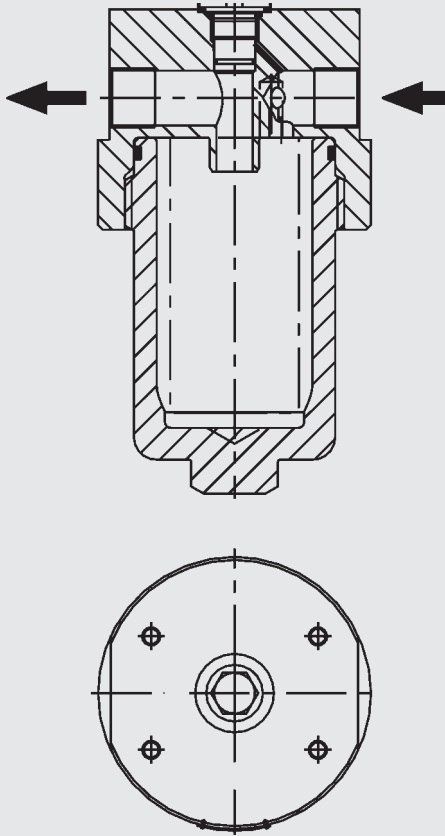
# INTERNATIONAL

## Stainless Steel Pressure Filter EDFR

HYDAC stainless steel pressure filters are designed for use in the chemical industry and in process engineering for filtering contamination from fluids at operating pressures of up to 400 bar max. and at operating temperatures up to approx. 200 °C.



## EDFR



## 1. DESCRIPTION

### 1.1 GENERAL

HYDAC stainless steel pressure filters are inline filters for use in the chemical industry and in process engineering.

To satisfy the demands of diverse applications, they are available in 5 sizes and a variety of sealing materials and filter materials.

Depending on the particular application, reusable stainless steel filter elements are available in either Chemicon® (metal fibre, 1 µm - 20 µm absolute) or wire mesh (mesh width 25 µm - 250 µm). Disposable filter candles are available in Betamicron® (inorganic fibre material, 3 µm - 20 µm).

The element can be changed quickly and simply without removing the filter from the pipe system. The max. permissible operating pressure for HYDAC stainless steel pressure filters is 400 bar at 200 °C for all sizes.

Differential pressure clogging indicators can be fitted to monitor the contamination condition of the filter elements. There is a choice of visual or visual/electrical clogging indicators (see brochure: Clogging Indicators for Process Filters, no. 7.706...).

## 2. TECHNICAL SPECIFICATIONS

### 2.1. GENERAL

#### 2.1.1 Type of construction

Inline filter

#### 2.1.2 Materials

Stainless steel 1.4571 (AISI 316T)

#### 2.1.3 Seals

V = FPM (Viton)

E = EPDM

T = FEP encapsulated O-rings (fluorinated ethylene propylene)

#### 2.1.4 Inline connection

Parallel pipe thread (DIN ISO 228 Part 1)

#### 2.1.5 Connection sizes

Size 060 : G 3/4"

Size 160 : G 1 1/4"

Size 330, 660, 990 : G 1 1/2" (G2 and SAE on request)

#### 2.1.6 Weights (without elements)

Size	Weight
060	8.5 kg
160	14.5 kg
330	34.5 kg
660	50 kg
990	64 kg

#### 2.1.8 Filter housing volume (without element)

Size	Volume
060	0.23 l
160	0.69 l
330	1.62 l
660	2.8 l
990	4.0 l

### 2.2. HYDRAULIC DATA

#### 2.2.1 Operating pressure

all sizes  $p_{max} = 400$  bar  
at  $t = 200$  °C

#### 2.2.2 Permiss. differential pressure across filter element

$\Delta p = 210$  bar

#### 2.2.3 Operating temperature

FPM (Viton) = up to + 200 °C

EPDM = up to + 120 °C

FEP

encapsulated = up to + 200 °C

Stainless

steel (E) = up to + 400 °C

When using a clogging indicator or filter elements in Betamicron®: up to + 100 °C

The boiling temperature of the operating fluid must be higher than the operating temperature at atmospheric pressure.

### 3. SPECIFICATIONS

3.1. MODEL CODE STAINLESS STEEL  
PRESSURE FILTER EDFR  
(also order code for complete filter)

**EDFR - D - 060 - G - 100 - 1 - V - 2- L24**

**Filter type** \_\_\_\_\_

EDFR  
EDFA (only on request)

**Filter material** \_\_\_\_\_

M = Chemicron®  
1 µm - 20 µm absolute  
D = Wire mesh  
25 µm - 250 µm  
nominal  
BH/HC = Betamicron®  
3 µm - 20 µm absolute  
(see brochure:  
Filter Elements,  
no. 7.200../..)

**Size** \_\_\_\_\_

060, 160, 330, 660, 990

**Connection** \_\_\_\_\_

G = threaded

**Filtration rating in µm** \_\_\_\_\_

1, 3, 5, 10, 20 (Chemicron®)  
25, 40, 60, 100, 150, 200, 250 (wire mesh)  
3, 5, 10, 20 (Betamicron®)

**Type of clogging indicator** \_\_\_\_\_

0 = without  
1 = visual clogging indicator (PVD 5 B.1)  
2 = visual/electrical clogging indicator (PVD 5 D.0-L..)  
3 = electrical clogging indicator (PVD 5 C.O)

See brochure: Clogging Indicators for  
Process Filters, No.: 7.706../..

**Material of seals** \_\_\_\_\_

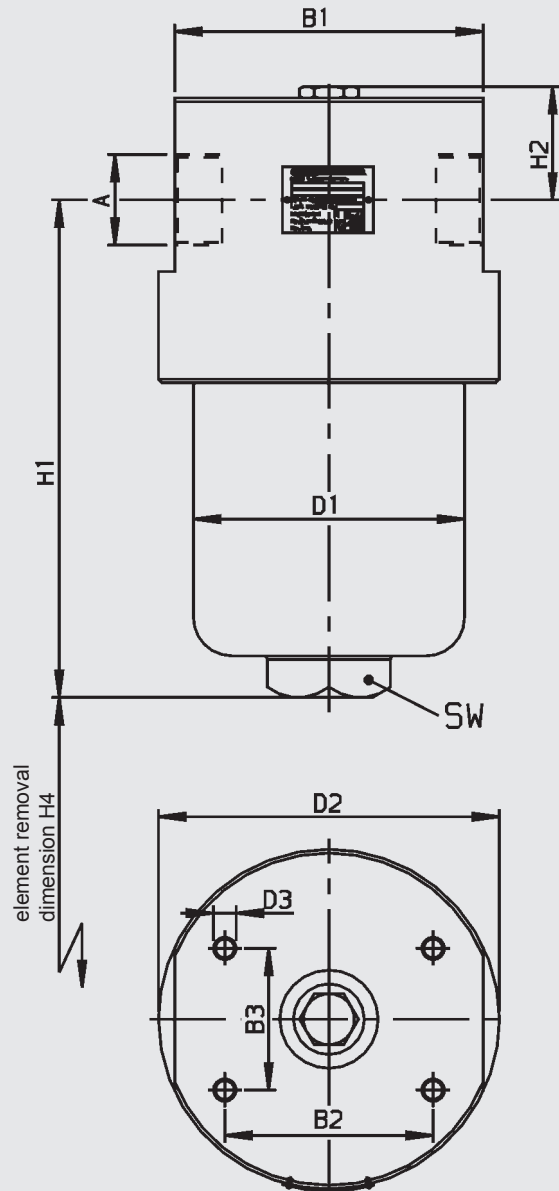
V = FPM (Viton) (max. + 200 °C )  
E = EPDM (max. + 120 °C )  
T = FEP encapsulated (Teflon) (max. + 200 °C )

**Modification number** \_\_\_\_\_

**Supplementary details** \_\_\_\_\_

Voltage for light, visual/electrical clogging indicator  
(L24 or L220)

### 3.2 DIMENSIONS EDFR



Size	Weight	Volume	A	B1	B2	B3	D1	D2	D3	H1	H2	H4	SW
060	8.50 kg	0.23 l	G 3/4	110	60	40	72	120	M 6	139	45	50	27
160	14.50 kg	0.69 l	G 1 1/4	136	80	50	105	150	M 10	197	46	60	32
330	34.50 kg	1.62 l	G 1 1/2	164	110	75	143	180	M 12	263	50	75	46
660	50.00 kg	2.80 l	G 1 1/2	180	110	75	150	180	M 12	425	50	75	41
990	64.00 kg	4.00 l	G 1 1/2	180	110	75	150	180	M 12	594	50	75	41

3.3. MODEL CODE FOR REPLACEMENT ELEMENT  
(also order code)

060 - DR - 100 - D - V

**Size** \_\_\_\_\_  
030, 060, 110, 140  
160, 240, 280  
330, 500, 660, 990

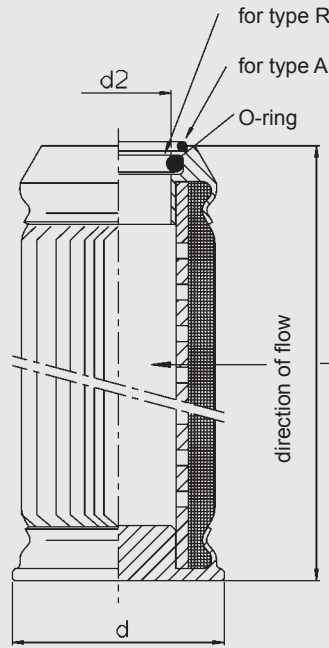
**Type of element** \_\_\_\_\_  
DR suitable for EDFR (up to max. + 200 °C)  
DA suitable for EDFA (up to max. + 400 °C)  
DH suitable for hydraulic filter (up to max. +200 °C)

**Filtration rating  $\mu\text{m}$**  \_\_\_\_\_  
1, 3, 5, 10, 20 (Chemicron®)  
25, 40, 60, 100, 150, 200, 250 (wire mesh)

**Filter material** \_\_\_\_\_  
M = Chemicron® (1.5 - 20  $\mu\text{m}$  absolute)  
D = wire mesh (25 - 250  $\mu\text{m}$  nominal)

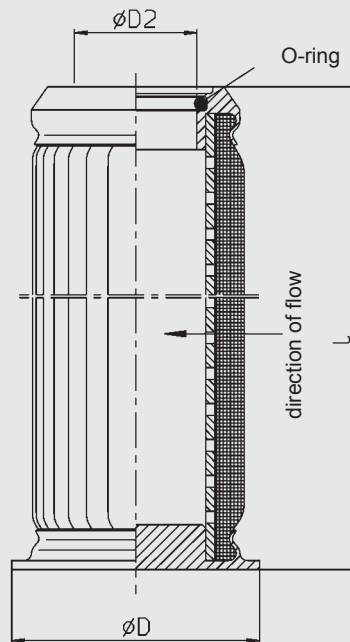
**Material of seals** \_\_\_\_\_  
V = FPM (Viton)  
E = EPDM  
T = FEP encapsulated (Teflon)  
E = stainless steel (DA only)  
other seals on request

3.4. ELEMENT DIMENSIONS  
DR/DA



DA	DR	Nominal size	Area	L	D	D2	O-ring
	x	030	310 cm <sup>2</sup>	93.5	35	12.3	12.37 x 2.62
x	x	060	430 cm <sup>2</sup>	91	44.2	22.1	22 x 3.5
		110	785 cm <sup>2</sup>	160	44.2	2,1	22 x 3.5
x	x	160	1230 cm <sup>2</sup>	129	60	34.1	34 x 3.5
		240	1850 cm <sup>2</sup>	190	60	34.1	34 x 3.5
		280	3775 cm <sup>2</sup>	371	60	34.1	34 x 3.5
x	x	330	2100 cm <sup>2</sup>	180	76.6	48.1	48 x 3
	x	660	4410 cm <sup>2</sup>	349	76.6	48.1	48 x 3
	x	990	6350 cm <sup>2</sup>	518	76.6	48.1	48 x 3

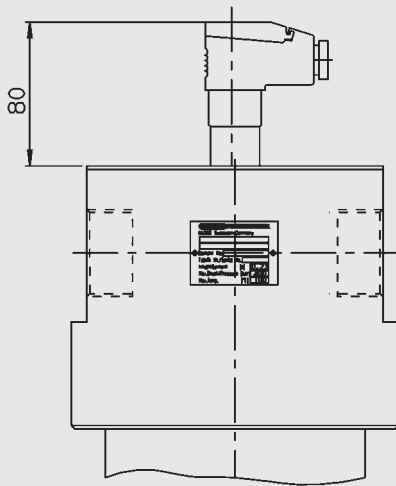
DH  
(SUITABLE FOR HYDRAULIC FILTERS)



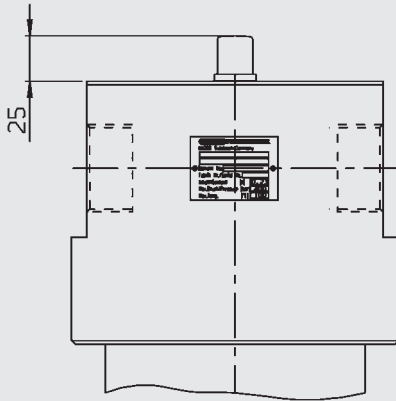
Nominal size	Area	L	ØD	ØD2	O-ring
060	390 cm <sup>2</sup>	83	47	22.1	22 x 3.5
110	770 cm <sup>2</sup>	152.7	47	22.1	22 x 3.5
140	990 cm <sup>2</sup>	193	47	22.1	34 x 3.5
160	945 cm <sup>2</sup>	116	69	34.1	34 x 3.5
240	1475 cm <sup>2</sup>	174.75	69	34,1	34 x 3.5
280	3105 cm <sup>2</sup>	355.75	69	34.1	34 x 3.5
330	2165 cm <sup>2</sup>	163.5	90.5	48.1	48 x 3
500	3430 cm <sup>2</sup>	253	90.5	48.1	48 x 3
660	4515 cm <sup>2</sup>	329	90.5	48.1	48 x 3

3.5. CLOGGING INDICATORS  
EDFR

visual/electrical clogging indicator

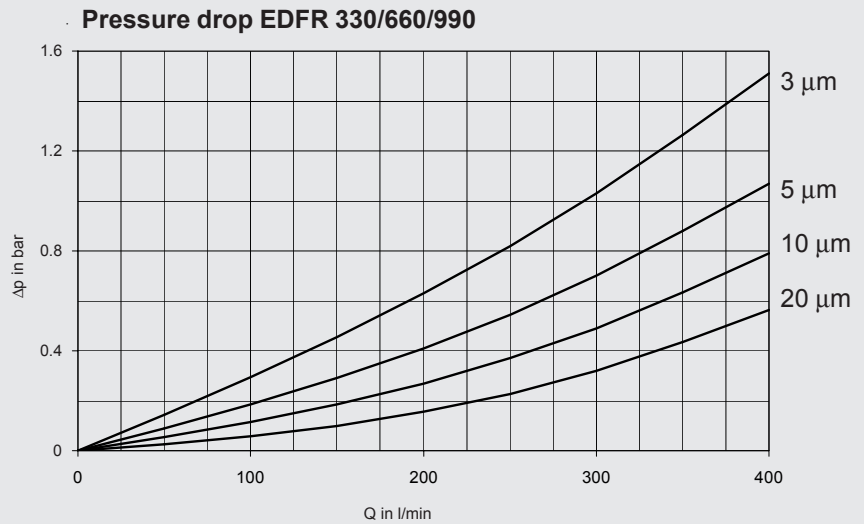
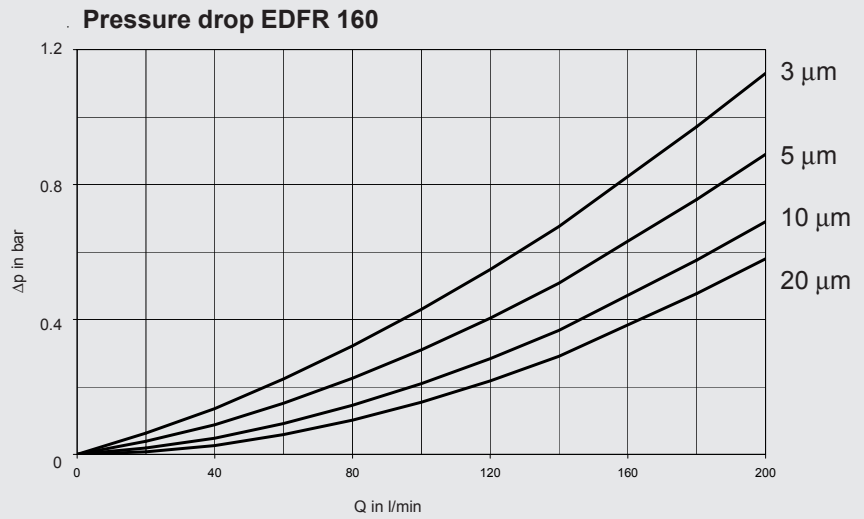
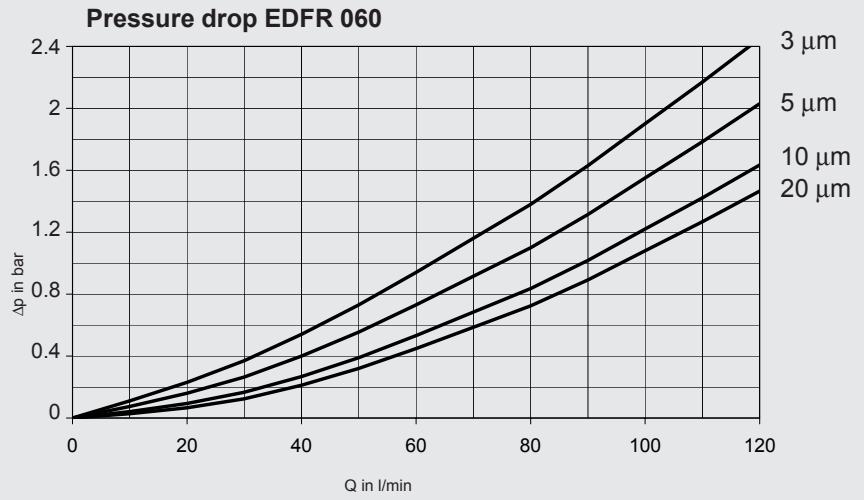


visual clogging indicator



3.6. GRAPHS

The graphs apply to water with a density of 0.997 kg/dm<sup>3</sup> and a viscosity of 1m Pas.



## 4. FILTRATION PERFORMANCE

### 4.1 RETENTION RATES FOR WIRE MESH

#### Nominal retention rate

The filtration ratings given in the model code for this material are based on a factory standard filter test.

This test consists of introducing a large amount of dust (ISO MTD) at the beginning of the filter test and subsequently filtering the contamination particles over 1 hour. The test filter must retain 90 - 95% of the particles larger than the given filtration rating.

### 4.2. RETENTION RATES FOR CHEMICRON® AND BETAMICRON®

#### Absolute retention rate

The rates given in the brochure are determined by the multi-pass test carried out on the HYDAC test rig, following ISO 4572 (multi-pass test for the determination and demonstration of the filtration performance, extended to finest filtration).

In this test at least 99% of all particles larger than the given filtration rating must be retained and this up to the given differential pressure.

A filtration rate of 99% corresponds to a  $\beta_x$  value of 100 ( $\beta_x = 100$ ), which denotes absolute filtration.

## 5. NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.