



## Metal Fibre Filter Elements V

up to 210 bar, filtration rating 3, 5, 10, 20 µm

### 1. METAL FIBRE ELEMENT

#### 1.1 DESCRIPTION

Metal fibre filter elements are used primarily as protective filters in highly dynamic applications.

The filter element is constructed from randomly laid stainless steel wires. This stainless steel wire meshpack which is pleated, produces a low pressure drop and is suitable for all operating fluids.

The "V" metal fibre elements are used in our return line and pressure filters.

#### Additional metal fibre version "VB"

An additional metal fibre filter element offered by HYDAC is the "VB" element. This element is used primarily in test rig systems for test cycles where temperatures exceed 100°C and as working filters in highly dynamic applications. VB filter elements are used mainly in HYDAC pressure filters. (Order code example: 0110 D 005 VB).

#### 1.3 GENERAL DATA

Collapse stability	210 bar
Temperature range	-30 °C to +100 °C For sealing material FPM to -10 °C
Flow direction	From outside to inside
Filtration rating	3, 5, 10, 20 µm (others on request)
Bypass cracking pressure	Pressure filter element ("D"): Without bypass valve as standard Return line filter element ("R"): standard 3 bar (others on request)
Category of filter element	Can be cleaned to extend service life

#### 1.3 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEES, HEPG
- Fire-resistant fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (>50% water content) on request

#### 1.4 CLEANING

Stainless steel wire mesh elements can be cleaned after use. However only a certain level (percentage) of cleaning is achievable.

In order to achieve the best possible result, the elements should be cleaned using specialist equipment.

The cleaning effect cannot however be predicted. It depends greatly on various conditions

- Filtration rating:  
The finer the filter material, the worse the cleaning level
- Operating pressure:  
The higher the operating pressure, the more firmly the contamination particles become embedded in the filter material
- Type of particle:  
For example, if the contamination consists mainly of fibres, the level of cleaning is worse than if it consists of cube-type particles.

In addition it must be noted that with each cleaning process, it is only possible to restore approx. 80-90% of the initial filter area each time, i.e. after 4-5 cleaning cycles, the result might not make economic sense (cleaning costs versus service life).

Further information on cleaning is provided in the operating manual which is available on request.

## 2. MODEL CODE

### 2.1 MODEL CODE FOR STANDARD PRESSURE FILTER ELEMENTS

(Can be used in the following filters: LF, LFF, MDF, DF, DFF, DFFX, DFDK, DF...M P, DF...M A, DF...Q E, DF...MHA, DF...MHE, DFZ, DFP, DFPF)

	0660	D	010	V	/-V
<b>Size</b>	0030, 0060, 0110, 0140, 0160, 0240, 0280, 0330, 0500, 0660, 0990, 1320, 1500				
<b>Type</b>	D Pressure filter element				
<b>Filtration rating in <math>\mu\text{m}</math></b>	003, 005, 010, 020				
<b>Filter material of element</b>	V				
<b>Supplementary details</b>	V FPM (Viton) seal				

### 2.2 MODEL CODE FOR STANDARD RETURN LINE FILTER ELEMENTS

(Can be used in the following filters: RF, RFD, RFL, RFLD, NF, NFD)

	0660	R	010	V	/-V
<b>Size</b>	0030, 0060, 0110, 0160, 0240, 0280, 0330, 0450, 0500, 0580, 0660, 0750, 0850, 0950, 1300, 1700, 2600, 2700				
<b>Type</b>	R Return line filter element				
<b>Filtration rating in <math>\mu\text{m}</math></b>	003, 005, 010, 020				
<b>Filter material of element</b>	V				
<b>Supplementary details</b>	KB without bypass valve V FKM (Viton) seal				

Others on request.

## 3. FILTER CALCULATION / SIZING

The total pressure drop of a filter at a certain flow rate Q is the sum of the housing  $\Delta p$  and the element  $\Delta p$  and is calculated as follows:

$$\Delta p_{\text{total}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}$$

$\Delta p_{\text{housing}}$  = see housing curve in the relevant filter brochure

$$\Delta p_{\text{element}} = Q \cdot \frac{SK^*}{1000} \cdot \frac{\text{viscosity}}{30}$$

(\*see Point 4.1)

## 4. ELEMENT CHARACTERISTICS

### 4.1 GRADIENT COEFFICIENTS FOR FILTER ELEMENTS

The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm<sup>2</sup>/s. The pressure drop changes proportionally to the change in viscosity.

Pressure filter element "D"...V				
Size	3 $\mu\text{m}$	5 $\mu\text{m}$	10 $\mu\text{m}$	20 $\mu\text{m}$
0030	18.4	13.5	7.5	3.6
0060	16.0	9.3	5.4	3.3
0110	8.2	5.6	3.3	2.2
0140	5.8	4.8	3.1	2.3
0160	4.6	3.2	2.3	1.4
0240	3.1	2.5	1.7	1.1
0280	2.3	1.7	1.2	0.8
0330	2.2	1.8	1.2	0.8
0500	1.5	1.2	0.8	0.5
0660	1.1	0.9	0.6	0.4
0990	0.8	0.6	0.4	0.3
1320	0.6	0.5	0.3	0.2
1500	0.3	0.2	0.2	0.1

Pressure filter element "R"...V				
Size	3 $\mu\text{m}$	5 $\mu\text{m}$	10 $\mu\text{m}$	20 $\mu\text{m}$
0030	19.4	14.2	7.9	3.8
0060	15.9	9.3	5.4	3.3
0110	7.6	5.1	3.0	2.0
0160	4.9	3.5	2.4	1.5
0240	3.2	2.6	1.7	1.2
0280	1.4	1.1	0.7	0.5
0330	2.1	1.7	1.1	0.8
0450	1.7	1.3	0.9	0.6
0500	1.5	1.2	0.8	0.5
0580	0.7	0.5	0.3	0.3
0660	1.0	0.8	0.6	0.4
0750	0.6	0.5	0.3	0.2
0850	0.8	0.6	0.4	0.3
0950	0.7	0.6	0.4	0.2
1300	0.5	0.4	0.3	0.2
1700	0.4	0.3	0.2	0.1
2600	0.3	0.2	0.1	0.1
2700	0.2	0.1	0.1	0.1

### 4.2 FILTRATION AREA [CM<sup>2</sup>]

Pressure filter element "D"...	
Size	V
0030	268
0060	318
0110	648
0140	852
0160	1082
0240	1702
0280	3615
0330	2260
0500	3640
0660	4770
0990	4735
1320	6454
1500	13294

Pressure filter element "R"	
Size	V
0030	221
0060	372
0110	758
0160	1071
0240	1685
0280	3578
0330	2081
0450	2652
0500	3182
0580	6732
0660	4659
0750	7956
0850	5999
0950	6813
1300	9520
1700	12297
2600	19424
2700	31175

For information on bypass valve curves, please see Filter Element (Quick Selection) brochure no.: E 7.221../..

## 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.

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