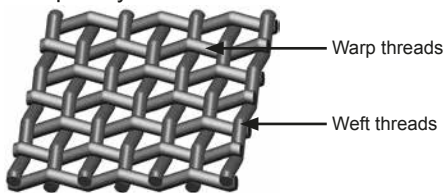# Wire Mesh
Filter Elements W, W/HC
up to 20 bar, filtration rating 25, 50, 100, 200 µm

1. WIRE MESH ELEMENT

1.1 DESCRIPTION

Stainless steel wire mesh filter elements are used in lubrication systems for bearings (e.g. turbine bearings), water filtration, treatment plants for cooling emulsions and as guard filters.

On the W and W/HC filter elements both the warp and weft are equally strong which results in uniform openings in the filter mesh. The pressure drop is lower when filtering with stainless steel wire mesh filter elements. The pleated stainless steel square mesh is supported in single or multiple layers.


Warp threads

Weft threads

Compared to W/HC elements, W elements have a smaller pleat depth.

The W and W/HC stainless steel wire mesh elements are used in our return line and pressure filters.

Dutch weave

HYDAC offers another wire mesh filter element, the Dutch weave filter element "T". This element is primarily used as a protective filter in mining applications.

On Dutch weaves the warp thread is stronger than the weft thread. The weft wires are laid together as closely as possible and this results in a moderate pressure drop during filtration.

Warp threads

Weft threads
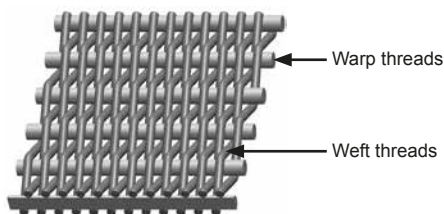
The so-called zero-mesh weaves are only used in pressure filters (Example for order code: 0330 D 050 T).

1.2 GENERAL DATA

Collapse stability	20 bar
Temperature range	-30 °C to +100 °C For sealing material FPM to -10 °C
Flow direction	From outside to inside
Filtration rating	25, 50, 100, 200 µm (others on request)
Bypass cracking pressure	Pressure filter element (**"D"**): Without bypass valve as standard
	Pressure filter element to DIN 24550 (**"DN"**): 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 can only be used with Viton seals
- Fire-resistant fluids HFA, HFB, HFC and HFD as well as operating fluids with a high 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: LPF, LF, LFF, MDF, DF, DFF, DFFX, DFDK)

<div align="right">

0660 D 025 W/HC /-V

</div>

Size
W: 0030, 0060, 0110, 0140, 0160, 0240, 0280,
         0330, 0500, 0660, 0990, 1320, 1500
W/HC: 0060, 0110, 0140, 0160, 0240, 0260, 0280,
         0330, 0500, 0660, 0990, 1320

Type
D   Pressure filter element

Filtration rating in µm
025, 050, 100, 200

Filter material of element
W, W/HC

Supplementary details
V   FPM (Viton) seal
W   suitable for oil-water emulsions (HFA, HFC)

2.2 MODEL CODE FOR PRESSURE FILTER ELEMENTS TO DIN 24550

(Can be used in the following filters: FLN, LFN, LFNF, DFN, DFNF, FLND, FMND)

<div align="right">

0100 DN 025 W/HC /-V

</div>

Size
W: 0040, 0063, 0100 (only for FLND and FMND)
W/HC: 0040, 0063, 0100, 0160, 0250, 0400

Type
DN   Pressure filter element to DIN 24550

Filtration rating in µm
025, 050, 100, 200

Filter material of element
W, W/HC

Supplementary details
V   FPM (Viton) seal
W   suitable for oil-water emulsions (HFA, HFC)

2.3 MODEL CODE FOR STANDARD RETURN LINE FILTER ELEMENTS

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

<div align="right">

0660 R 010 W/HC /-V

</div>

Size
0030, 0060, 0075, 0090, 0110, 0150, 0160, 0165, 0185, 0195, 0210, 0240, 0270, 0280, 0330, 0450,
0500, 0580, 0660, 0750, 0850, 0950, 1300, 1700, 2600, 2700

Type
R   Return line filter element

Filtration rating in µm
025, 050, 100, 200

Filter material of element
W/HC   Collapse stability up to 20 bar

Supplementary details
V   FPM (Viton) seal
W   suitable for oil-water emulsions (HFA, HFC)

3. FILTER CALCULATION / SIZING

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

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

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

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

(*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 mm²/s. The pressure drop changes proportionally to the change in viscosity.

Details for 25, 50, 100, 200 µm

Pressure filter element "D"...		
Size	W	W/HC
0030	3.030	-
0060	0.757	0.757
0110	0.413	0.413
0140	0.324	0.324
0160	0.284	0.284
0240	0.189	0.189
0260	0.131	0.131
0280	0.089	0.089
0330	0.138	0.138
0500	0.091	0.091
0660	0.069	0.069
0990	0.046	0.046
1320	0.035	0.035
1500	0.020	-

Pressure filter element "DN"...		
Size	W	W/HC
0040	0.602	0.727
0063	0.374	0.416
0100	0.232	0.251
0160	-	0.127
0250	-	0.080
0400	-	0.046

Return line filter element "R"...	
Size	W/HC
0030	1.212
0060	0.612
0075	0.362
0090	0.312
0110	0.300
0150	0.185
0160	0.193
0165	0.199
0185	0.907
0195	0.668
0210	0.068
0240	0.123
0270	0.044
0280	0.060
0330	0.195
0450	0.165
0500	0.128
0580	0.065
0660	0.067
0750	0.055
0850	0.052
0950	0.048
1300	0.034
1700	0.025
2600	0.017
2700	0.020

4.2 FILTRATION AREA [CM²]

Pressure filter element "D"...		
Size	W	W/HC
0030	256	-
0060	330	418
0110	672	910
0140	884	1200
0160	857	1144
0240	1348	1911
0280	2862	4264
0330	1795	3133
0500	2891	5107
0660	3795	6958
0990	5431	10091
1320	7378	13916
1500	12966	-

Pressure filter element "DN"...		
Size	W	W/HC
0040	415	427
0063	743	745
0100	1234	1234
0160	-	2439
0250	-	3867
0400	-	6726

Return line filter element "R"...	
Size	W/HC
0030	256
0060	507
0075	857
0090	994
0110	1034
0150	1674
0160	1607
0165	1556
0185	2113
0195	2870
0210	4556
0240	2527
0270	7042
0280	5188
0330	3695
0450	4413
0500	5651
0580	11203
0660	8232
0750	13217
0850	10599
0950	11521
1300	16099
1700	21730
2600	32847
2700	28328

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