Optimicron® Pulse Filter Elements ON/PS / OH/PS

for applications with strong pulsations up to 210 bar, filtration rating 3, 5, 10 and 20 µm

Optimicron® Pulse

1. OPTIMICRON® PULSE ELEMENT

1.1 DESCRIPTION

The new application-specific filter elements in the Optimicron® Pulse series are notable for their special fatigue strength in applications which are subject to extreme pulsations.

Pressure fluctuations in hydraulic systems can be caused, for example, by the movement of cylinder pistons or the charging of accumulators. The frequency of pressure fluctuations varies considerably depending on the application. On injection moulding machines, the movement of the clamping unit causes large pressure fluctuations, often with an extremely high cycle rate. The new HYDAC Optimicron® Pulse filter element can withstand these dynamic stresses. Special flexible materials in the filter mesh pack provide the filter element with a high fatigue strength. Fatigue fractures in the filter mesh pack and penetration of contamination to the clean side are therefore avoided.

The innovative HELIOS pleat geometry creates a free cross-section even at high flow rates and as a result delivers a lower differential pressure.

HELIOS

Additionally, the Optimicron® Pulse filter element is fitted with the tried and tested Stat-Free® technology, which effectively prevents electrostatic discharges in the hydraulic system.

1.2 GENERAL DATA

Collapse stability	ON/PS: 20 bar OH/PS: 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
Bypass cracking pressure	Pressure filter element ("D"): Without bypass valve as standard (bypass valve on request)
Category of filter element	Single use element

1.3 STAT-FREE TECHNOLOGY INCLUDED

As standard, Optimicron® Pulse elements are equipped with the tried-and-tested Stat-Free® technology (to prevent electrostatic charging in the system).
As a result of increasing environmental awareness worldwide, operators are using zinc-free and ashless oils, such as bio oils which have very low conductivity, to a greater extent. In these oils, electrostatic discharges are a common occurrence in the form of sparks for example, on the filter element or in the tank. Depending on the gas composition in and around the tank, sparking can cause deflagrations or explosions. Furthermore, the discharges can cause a chemical reaction in the oil, giving rise to oil ageing products being deposited in the system which in turn can clog up expensive system components. In addition, the filtration efficiency of the filter elements is impaired by sparking due to the holes burned in the filter mesh pack which in turn can lead to reduced retention of system contamination.
The Stat-Free® technology incorporated into Optimicron® Pulse elements slows down the oil ageing described above because the special filter mesh pack design prevents electrical charging in the system. This means that the service life of both the oil and the components can be extended. The Stat-Free® technology prevents the phenomenon of electrostatic charging and therefore the sparking in the system. It can be used in every conceivable application, irrespective of oil type.

1.4 INNOVATIVE OUTER WRAP WITH INCREASED ROBUSTNESS AND IMPROVED DIFFUSER EFFECT FOR PRINTING WITH CUSTOMER LOGO

Since the outer wrap can be printed with the customer logo, it also acts as [illegible]edium for the OEM [illegible]security of the spares [illegible] same time, the user [illegible]f obtaining an original [illegible]cular

benefit: the logo remains perfectly legible even in the contaminated condition.

1.5 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

2. MODEL CODE

2.1 MODEL CODE FOR STANDARD PRESSURE FILTER ELEMENTS

(For use in filters: LF, LFF, LPF, DF, DFF, DF…MHA, DF…MHE, DFZ)

0660 D 010 ON/PS /-V

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

Type
D Pressure filter element

Filtration rating in µm
003, 005, 010, 020

Filter material of element
ON/PS Optimicron® Pulse, collapse stability up to 20 bar
OH/PS Optimicron® Pulse, collapse stability up to 210 bar

Supplementary details
V FPM (Viton) seal

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

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

(*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.

Return line filter element "D"...ON/PS				
Size	3 µm	5 µm	10 µm	20 µm
0030	63.9	25.1	13.0	11.3
0035	23.6	19.0	16.3	9.3
0055	13.7	11.0	8.9	4.8
0060	28.9	20.4	14.5	7.9
0110	14.9	10.7	7.3	3.7
0140	12.8	8.2	5.3	2.9
0160	13.1	8.8	5.5	3.5
0240	8.2	6.1	4.3	2.3
0260	1.7	7.3	4.8	2.5
0280	4.0	3.1	2.0	1.3
0330	8.6	3.9	3.0	1.7
0500	3.0	2.4	1.5	1.1
0660	2.3	1.8	1.1	0.8
0990	2.0	1.2	0.7	0.5
1320	1.1	0.9	0.5	0.4
1500	1.1	0.9	0.5	0.4

Return line filter element "D"...ON/PS				
Size	3 µm	5 µm	10 µm	20 µm
0030	87.5	59.3	34.4	15.5
0035	32.3	26.0	22.3	12.7
0055	18.8	15.1	12.2	6.6
0060	39.6	28.0	19.9	10.8
0110	20.4	14.7	10.0	5.1
0140	17.5	11.2	7.2	4.0
0160	18.0	12.1	7.6	4.8
0240	11.2	8.4	5.9	3.2
0260	2.3	10.0	6.6	3.4
0280	5.5	4.3	2.8	1.8
0330	6.7	5.3	4.1	2.3
0500	4.1	3.3	2.1	1.5
0660	3.1	2.5	1.5	1.1
0990	2.0	1.6	1.0	0.7
1320	1.5	1.2	0.7	0.6
1500	1.5	1.2	0.7	0.6

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 and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

HYDAC Filtertechnik GmbH
Industriegebiet