HYDAC INTERNATIONAL

# Flexmicron Economy
(FM-E)

## Description
The Flexmicron Economy (FM-E) filter elements are spun-spray depth filter elements, manufactured using melt-blown technology.

They are used particularly in applications where an average level of fluid cleanliness is required and they provide a cost-effective solution.

## Applications
- Industrial part washing systems (water-based up to 60 °C)
- Cooling circuits on machinery
- Refineries, chemical industry
- Processes using cooling lubricants

## Special features
- Filtration performance 95%
- Filtration rating 1 ... 90 µm
- Material purity
- End caps welded, not glued
- Wide range of adapters
- Cost-effective
- Materials: polypropylene, polyamide
- Spun spray technology
- Broad range of fluid compatibility
- Market-standard element geometry
- High degree of separation due to graduated depth filter construction
- High contamination retention resulting from effectiveness of depth type filter material
- Silicone-free

## Technical specifications

| General data | |
|---|---|
| Length | 10", 20", 30", 40" |
| Filtration rating | 1 to 90 µm |
| Filtration performance | 95% |

## Model code

N 40 FM-E 005 - PP 1 F

**Element length**
10 = 10"
20 = 20"
30 = 30"
40 = 40"

**Element type**
FM-E= Flexmicron Economy

**Filtration rating**
001 = 1 µm
003 = 3 µm
005 = 5 µm
010 = 10 µm
020 = 20 µm
030 = 30 µm
040 = 40 µm
050 = 50 µm
070 = 70 µm
090 = 90 µm

**Filter material**
PP = Polypropylene
PA = Polyamide

**End cap type**
0 = compression ring (DOE), no cap or seal, element Ø 63 mm
1 = plug-in adapter (1x 222 O-ring), flat end cap, element Ø 64 mm
2 = plug-in adapter (2x 222 O-ring), flat end cap, element Ø 64 mm
10 = gasket (DOE), element Ø 63 mm (only PP as Seal material)
13 = plug-in adapter (2x 222 O-ring), locating spigot, element Ø 64 mm
14 = bayonet (2x 226 O-ring), locating spigot, element Ø 64 mm
others on request

**Seal material**
N = NBR
F = FKM (FPM, Viton®)
E = EPDM
P = polypropylene (compulsory for end cap type 10)
Z = without seal (compulsory for end cap type 0)

Other types of element on request

## R (Resistance) factors

| Filtration rating Water-based | Oil PA fluids | | | |
|---|---|---|---|---|
| | | PP | PA | PP |
| 1 µm | 22 | 37 | 16 | 28 |
| 3 µm | 21 | 29 | 15 | 23 |
| 5 µm | 21 | 20 | 14 | 18 |
| 10 µm | 16 11 | | 13 | 14 |
| 20 µm | 15 | 8 | 12 | 10 |
| 30 µm | 14 7 | | 10 | 8 |
| 40 µm | 12 | 5 | 9 | 6 |
| 50 µm | 10 4 | | 8 | 5 |
| 70 µm | 9 | 3 | 6 | 4 |
| 90 µm | 8 | 2 | 4 | 2 |

Maximum differential pressure $\Delta p_{max}$ and permitted temperature range across the element:

| Fluid temperature | Filter material | |
|---|---|---|
| | PA | PP |
| -10 to 30 °C | 7 bar | 4 bar |
| -10 to 60 °C | 5.5 bar | 2 bar |
| -10 to 100 °C | 3.5 bar | – |

## Sizing

The total pressure drop of the filter at a certain flow rate is the sum of the housing Δp and the element $\Delta p_E$. The housing pressure drop can be determined using the pressure drop curves in the filter housing datasheet. The pressure drop of the elements is calculated using the R factors.

The following calculation is based on clean filter elements.

$$\Delta p_E[bar] = \frac{R \cdot V(mm^2/s) \cdot Q(l/min)}{n \cdot L(inch) \cdot 1000}$$

$\Delta p_E$ = Element pressure drop [bar]
R = R factor
V = Viscosity (mm²/s)
Q = Flow rate (l/min)
n = No. of elements
L = Element length (inch)

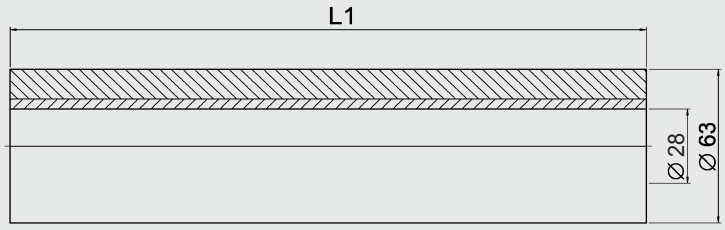
## Maximum permitted flow rate for 1 mm²/s

| Element length | Maximum permitted flow rate |
|---|---|
| 10" | 15 l/min |
| 20" | 30 l/min |
| 30" | 45 l/min |
| 40" | 60 l/min |

Other flow rates on request.

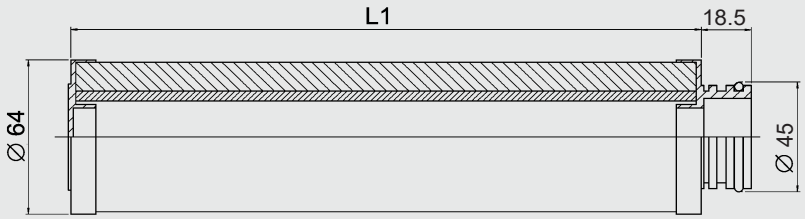
## Dimensions of Flexmicron Economy Elements

Type 0: Compression ring (DOE), no cap or seal



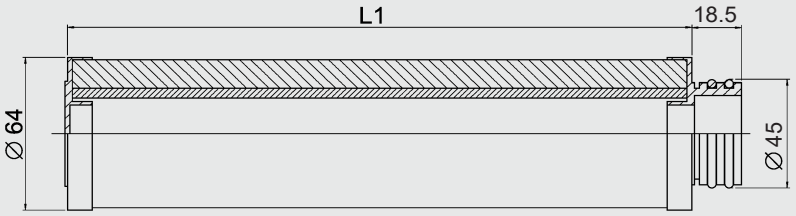

| Code | L1 in mm |
|---|---|
| N10FM-E... | 254 |
| N20FM-E... | 508 |
| N30FM-E... | 762 |
| N40FM-E... | 1016 |

Type 1: Plug-in adapter (1 x 222 O-ring), flat end cap



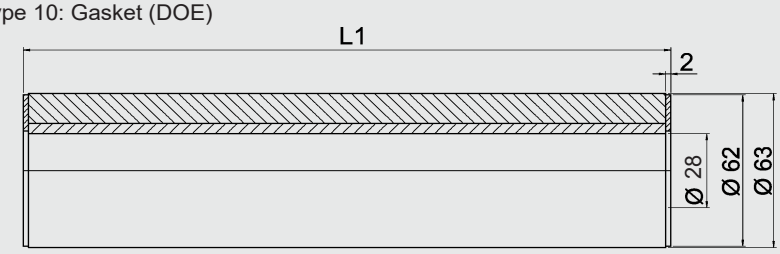

| Code | L1 in mm |
|---|---|
| N10FM-E... | 263 |
| N20FM-E... | 517 |
| N30FM-E... | 771 |
| N40FM-E... | 1025 |

Type 2: Plug-in adapter (2 x 222 O-ring), flat end cap



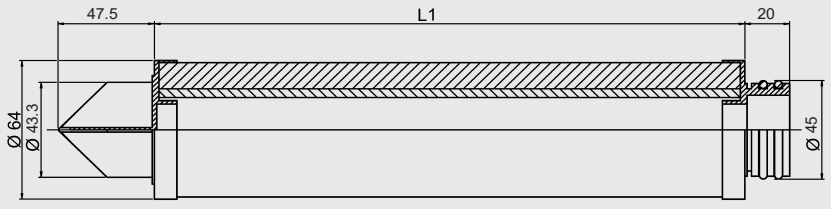

| Code | L1 in mm |
|---|---|
| N10FM-E... | 263 |
| N20FM-E... | 517 |
| N30FM-E... | 771 |
| N40FM-E... | 1025 |

Type 10: Gasket (DOE)



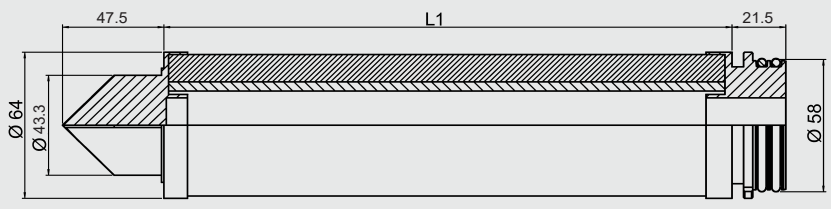

| Code | L1 in mm |
|---|---|
| N10FM-E... | 254 |
| N20FM-E... | 508 |
| N30FM-E... | 762 |
| N40FM-E... | 1016 |

Type 13: Plug-in adapter (2x 222 O-ring), locating spigot




| Code | L1 in mm |
|---|---|
| N10FM-E... | 263 |
| N20FM-E... | 517 |
| N30FM-E... | 771 |
| N40FM-E... | 1025 |

Type 14: Bayonet (2x 266 O-ring), locating spigot




| Code | L1 in mm |
|---|---|
| N10FM-E... | 241 |
| N20FM-E... | 495 |
| N30FM-E... | 749 |
| N40FM-E... | 1003 |

## 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.

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**HYDAC FILTER SYSTEMS GMBH**
Industriegebiet