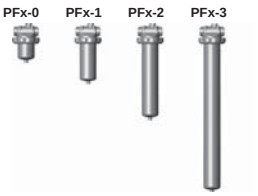
HYDAC INTERNATIONAL

Process Inline Filter
Medium / High Pressure
PFM / PFH



Specifications	
Connection:	G 1“
$Q_{S\ max}$:	8 m³/h
$p_{S\ max}$:	100 bar
Filtration ratings:	1 – 2000 µm

1. GENERAL

Product description
- Stainless steel inline filters
- Separation of solid particles from fluids

Filter element technology
- Filter elements of type “SZ”
- Filter materials:
  - Chemicron® metal fibre fleece: 1 to 20 µm
  - Wire mesh: 25 to 250 µm
  - Wedge wire: 50 to 2000 µm

Product advantages
- Optimum adaptation to the application thanks to different sizes, materials and seal materials
- Clogging monitoring by means of a clogging indicator attached to the filter:
  - Visual
  - Electrical
  - Visual-electrical
- Self-bleeding filter
- Pleated filter elements with large filter area (Chemicron® metal fibre fleece and wire mesh)
- Renewable filter elements save costs for disposal and replacement

Technical data – standard models

Series	Size	Mounting dimension	Material Housing and union nut	Seal material	$p_{S\ max}$ [bar]	$T_{S\ max}$ [°C]	Weight [kg]	Volume [l]
PFM	0	G 1“	Stainless steel (austenitic Cr-Ni-Mo steel)	FPM / FKM	PN 40	200	4.4	0.4
	1						4.9	0.8
	2						5.6	1.6
	3						6.8	3.2
PFH	0				PN 100		4.5	0.4
	1						5.0	0.8
	2						5.7	1.6
	3						6.9	3.2

Technical specifications of filter elements

Size	Filter area [cm²]		Filter materials and filtration ratings [µm]				Permissible differential pressure at the filter element [bar]
	Pleated	Wedge wire	Chemicron® metal fibre fleece end caps crimped	Wire mesh end caps crimped	Wedge wire end caps glued	Wedge wire end caps welded	
SZ-0	676	89	1 3 5 10 20	25 40 60 100 150 200 250	50 100 200 300 500 1000 1500 2000		40
SZ-1	1710	262					
SZ-2	3421	552					
SZ-3	6842	1133					

Max. operating temperatures lower the pressure range:
PFM: $T_{S\ max}$ 200 °C at $p_{S\ max}$ = 32 bar
PFH: $T_{S\ max}$ 200 °C at $p_{S\ max}$ = 80 bar
* The selection of size depends on the level of contamination in the fluid and on the corresponding filter area load.

2. FUNCTION AND SPECIAL FEATURES

FUNCTIONAL PRINCIPLE

- Flow through the filter element is from the outside to the inside
- The separated solids remain on the outer side of the filter element
- Particles being deposited during the filtration causes a loss of pressure
- When the maximum differential pressure has been reached, the filter element is manually exchanged or cleaned
- Once the filter element has been cleaned or exchanged, the filter is ready for operation again

3. CLOGGING INDICATORS*

Type Clogging indicator / differential pressure monitoring	Image	Description
Visual **PVD x B.x**		● Visual display with green / red field ● Automatic reset
Electrical **PVD x C.x**		● Electrical signal when trigger point is reached ● Switch type: normally closed or normally open ● Automatic reset
Visual-electrical **PVD x D.x/-L**		● Lamp for visual display ● Electrical signal (normally closed or normally open) ● Automatic reset

* For clogging indicators, see also separate data sheet.

4. FILTER CALCULATION*

CHECKLIST FOR FILTER CALCULATION

STEP 1: REQUIRED OPERATING DATA

- Observe Pressure Equipment Directive PED 23/97/EC
- Type of operating medium
- Viscosity
- Operating pressure
- Operating temperature
- Flow rate
- Desired filtration rating
- Type of solid particles to be separated
- Solid particle content

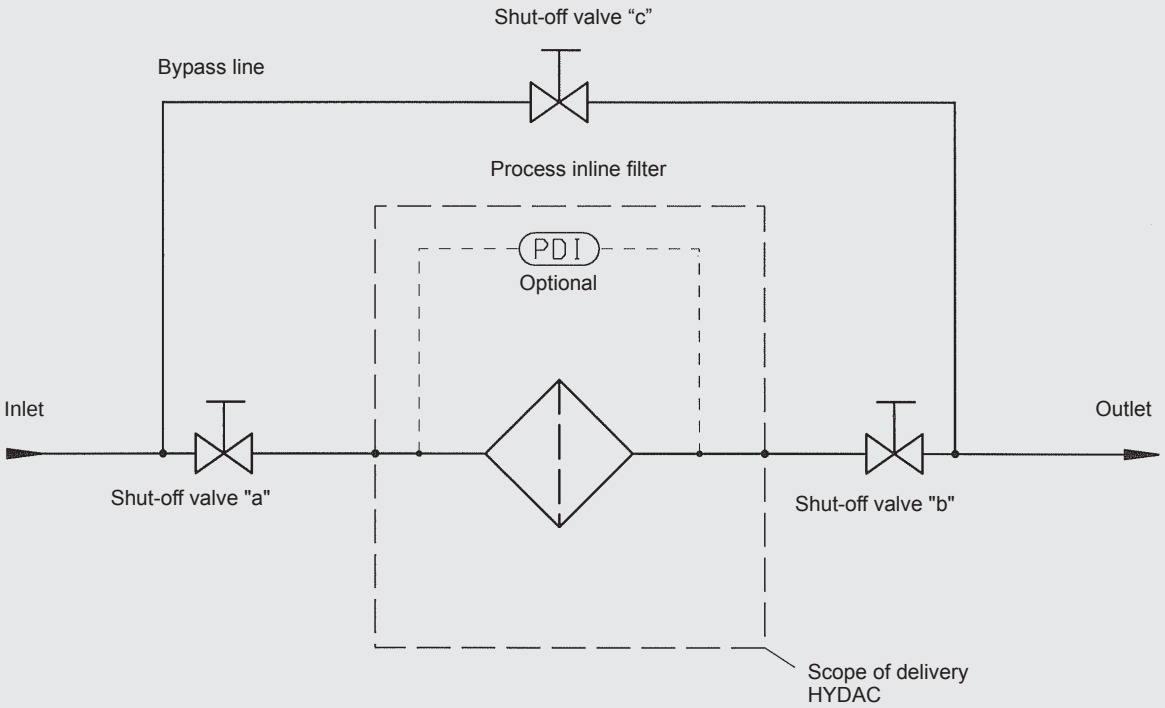
STEP 2: FILTER SIZING

- Configured on basis of pressure drop curves
- The flow velocity of 4 m/s at the flange inlet should not be exceeded

STEP 3: DETERMINING THE FILTRATION RATING

- **As a basic rule:**
  as coarse as possible – as fine as necessary!

CIRCUIT DIAGRAM

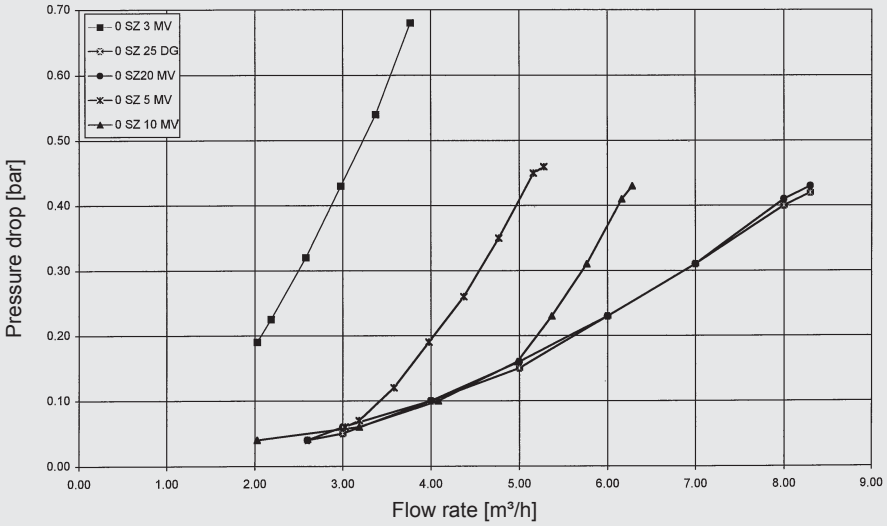


* Please contact our Head Office if you have any queries regarding filter calculation.

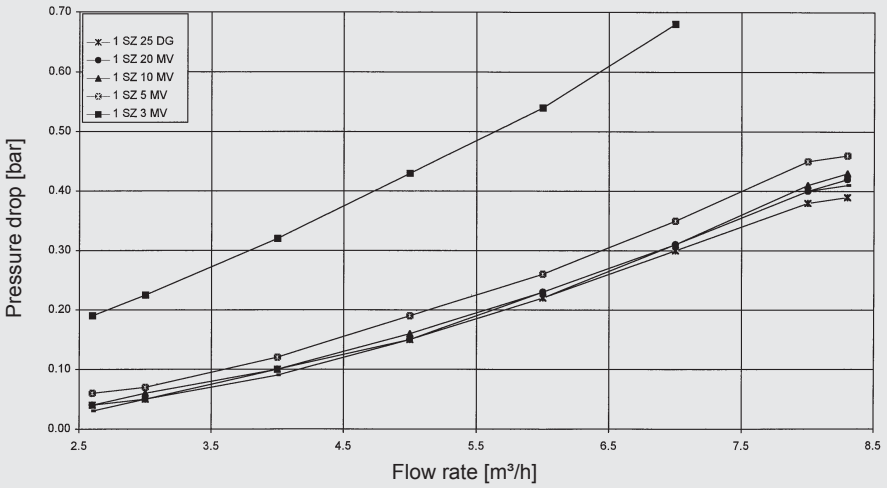
PRESSURE DROP CURVE

(applies for water at 20 °C or for media up to 15 mm²/s)

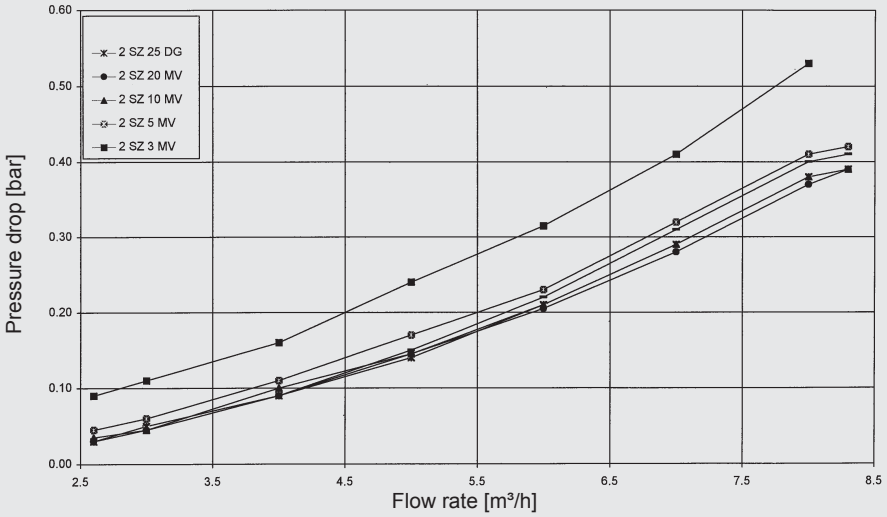
PFM / PFH
Size 0



PFM / PFH
Size 1



PFM / PFH
Size 2 / 3*



* A longer service life can be expected for size 3.

5. FILTER CONFIGURATION*

	Standard	Optional
Flange connections	Threaded connection G 1“, ISO 228	• DIN EN flanges • Others on request
Sealing materials	• FPM / FKM • EPDM • NBR • FEP-coated O-ring	Other sealing materials on request
Differential pressure monitoring	• Visual • Electrical • Visual-electrical	Optionally with cooling line for $T_{s\ max}$ > 100 °C
Filter elements and filter material	• M = Chemicron® metal fibre fleece, end caps crimped • D = wire mesh, end caps crimped • S = wedge wire, end caps glued	• MS = Chemicron® metal fibre fleece with support spring, end caps crimped • DS = wire mesh with support spring, end caps crimped • SW = wedge wire, end caps welded
Documentation	Operating and maintenance instructions	• Manufacturer inspection certificate M in accordance with DIN EN 55350 Part 18 concerning construction and function inspection • Material certificates 3.1 according to DIN EN 10204

* Other versions and customised special solutions after consultation with our Head Office.

6. MODEL CODE

TYPE CODE – FILTER HOUSING PFM / PFH

PFM – 1 – G – 2 – V – 0 – L24 / FE – So

Type
PFM = Filter PN 40
PFH = Filter PN 100

Size
0
1
2
3

Type of connection
G = threaded connection G 1“

Clogging indicator version
0 = none
1 = with visual CI (PVD 2 B.1)
2 = with visual/electrical CI (PVD 2 D.0/-L..)
6 = with electrical CI (PVD 2 C.0)
Permissible temperature range for clogging indicators: -20°C to +100°C

Sealing material
V = FPM / FKM (from -20°C to +200 °C)
E = EPDM (from -60°C to +150 °C)
N = NBR (from -30°C to +110 °C)
T = FEP-coated O-ring (from -20 °C to +200 °C)
Other seals on request

Modification number
0 = the latest version is always supplied – currently “0”

Supplementary details – clogging indicator
L24 = max. switching voltage depending on lamp element, lamp 24V
L48 = max. switching voltage depending on lamp element, lamp 48V
L110 = max. switching voltage depending on lamp element, lamp 110V
L220 = max. switching voltage depending on lamp element, lamp 230V
Applies for visual-electrical CI (PVD 2 D.0/-L..)

Type code – filter element

Further supplementary details
So = code number for special equipment

TYPE CODE – FILTER ELEMENT SZ

SZ – 1 – 20 – M – V

Filter element type

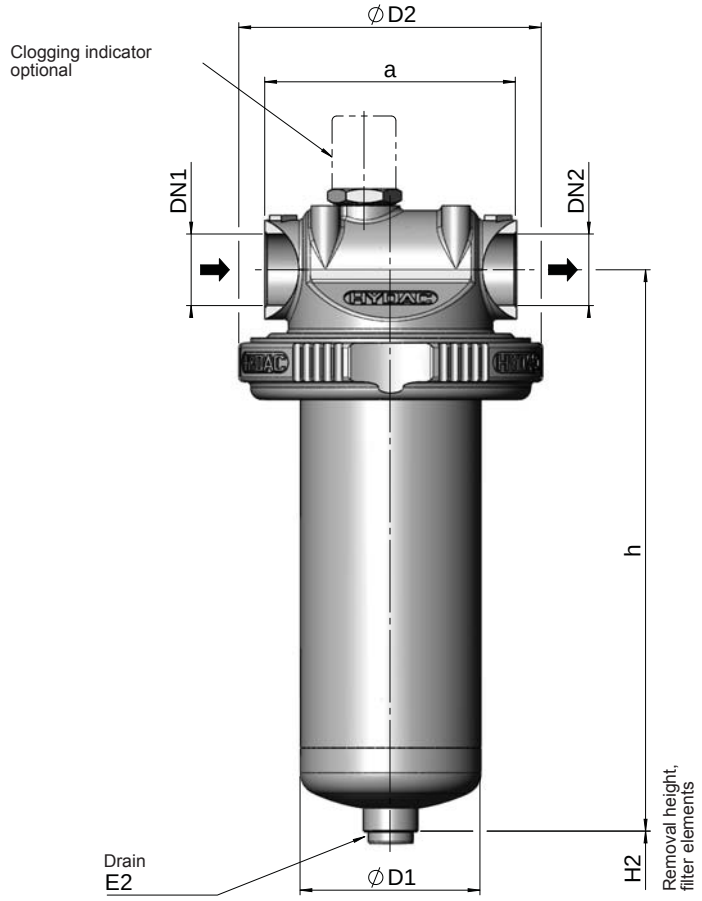
Size
0
1
2
3

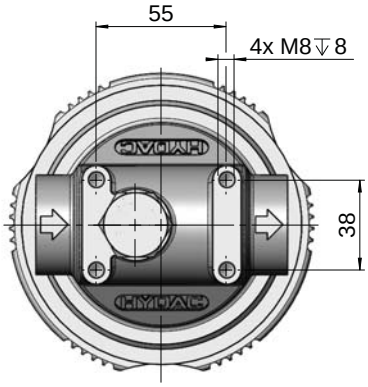
Filtration rating in µm
Chemicron® metal fibre fleece 1 / 3 / 5 / 10 / 20
Wire mesh 25 / 40 / 60 / 100 / 150 / 200 / 250
Wedge wire 50 / 100 / 200 / 300 / 500 / 1000 / 2000

Filter material
M = Chemicron® metal fibre fleece, end caps crimped
MS = Chemicron® metal fibre fleece with support spring, end caps crimped
D = wire mesh, end caps crimped
DS = wire mesh with support spring, end caps crimped
S = wedge wire, end caps glued
SW = wedge wire, end caps welded

Sealing material
V = FPM / FKM (from -20 °C to +200 °C)
E = EPDM (from -60 °C to +150 °C)
N = NBR (from -30 °C to +100 °C)
T = FEP-coated O-ring (from -20 °C to +200 °C)
Other seals on request

7. DIMENSIONS, FILTER



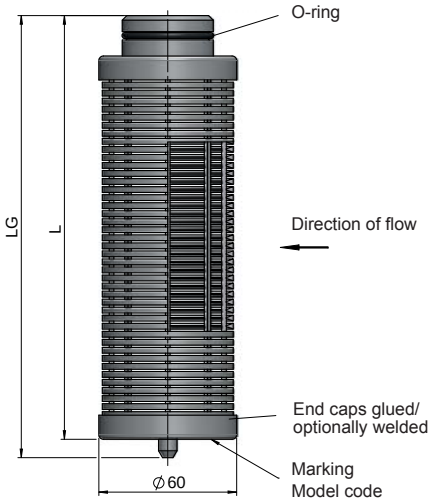


The dimensions quoted are approximations, given in mm.
Subject to technical modifications.

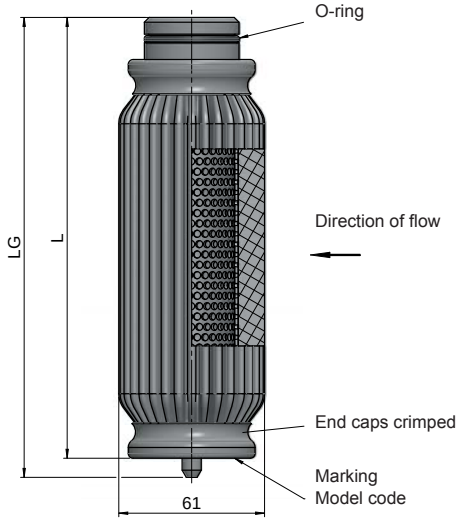
Size	h	D1	a	DN1	DN2	D2	H2	E2
0	139	76	106	G 1“	G 1“	130	35	G 1/4“
1	236							
2	398							
3	723							

7. DIMENSIONS, FILTER ELEMENTS

Wedge wire, filter element



Pleated filter element
Chemicron® metal fibre fleece or wire mesh

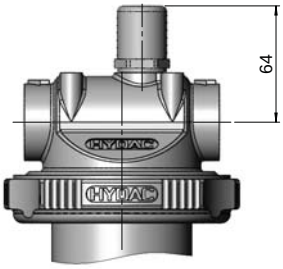


The dimensions quoted are approximations, given in mm.
Subject to technical modifications.

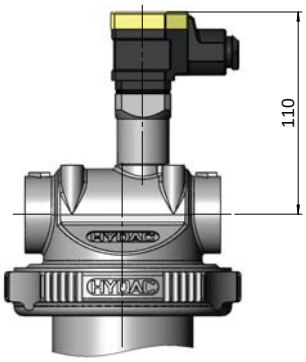
Size	L	LG
0	88	96
1	185	193
2	347	355
3	672	680

8. DIMENSIONS, CLOGGING INDICATORS*

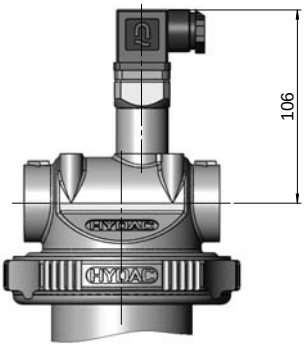
Visual clogging indicator



Visual-electrical clogging indicator



Electrical clogging indicator



* For clogging indicators, see also separate data sheet.