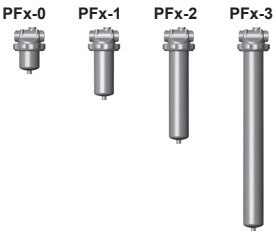
HYDAC INTERNATIONAL

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

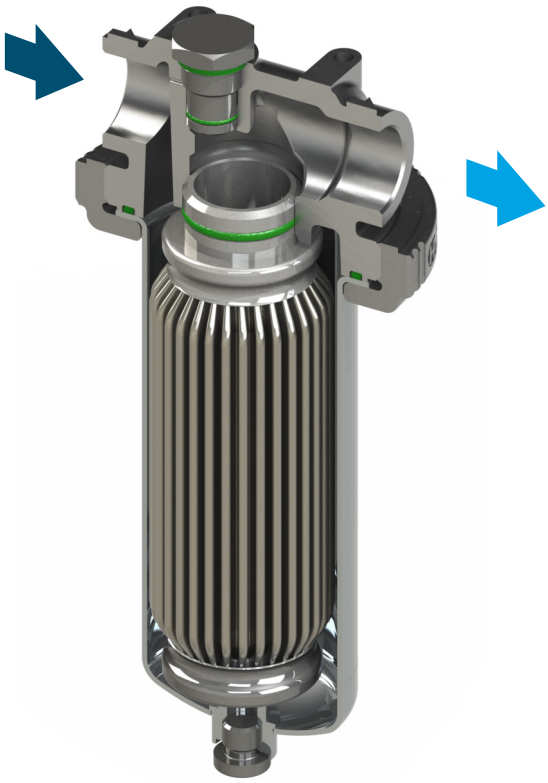
PFH: $T_{S\ max}$ 200 °C at $p_{S\ max}$ = 80 bar

* 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

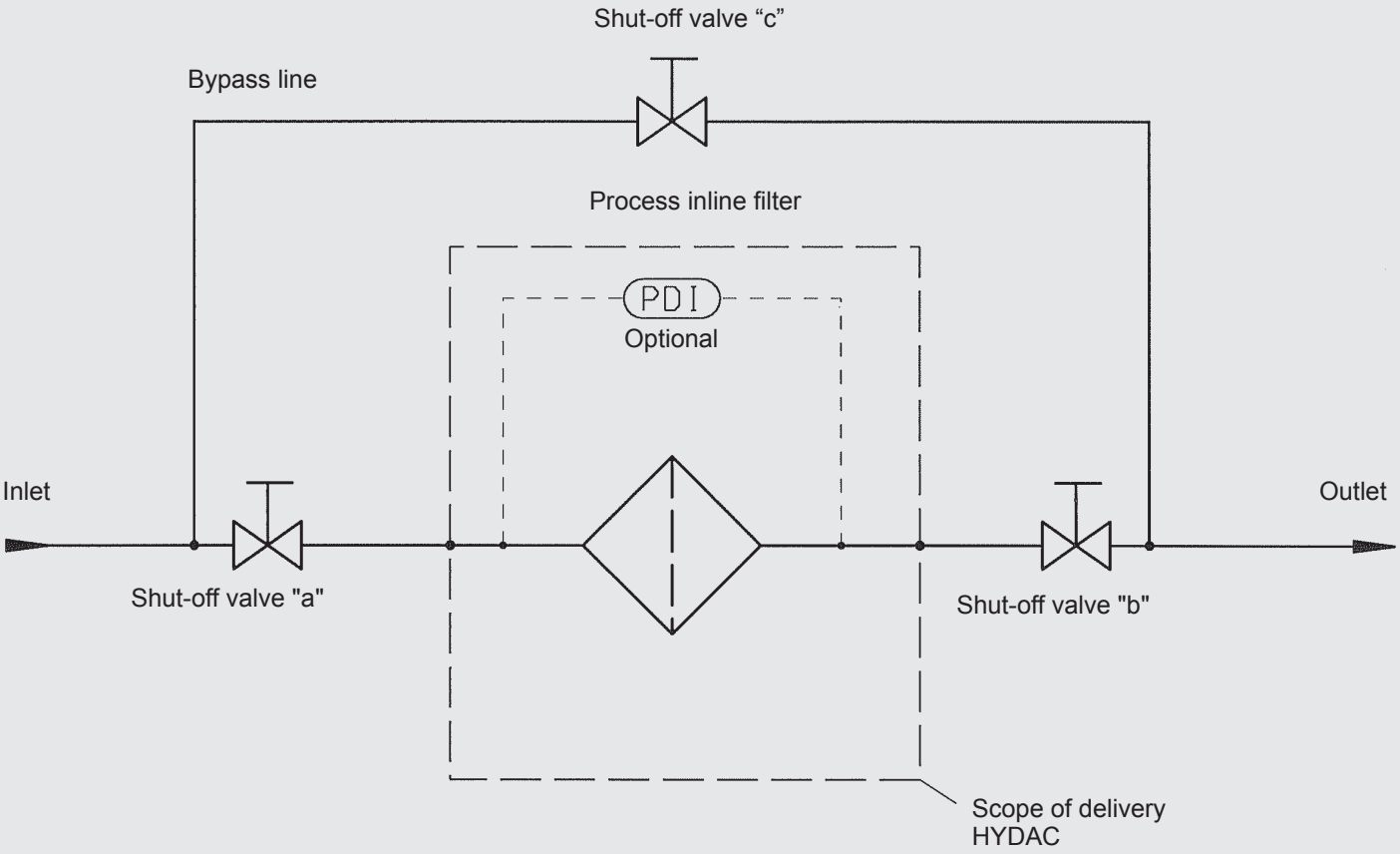
STEP 2: FILTER SIZING

- 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

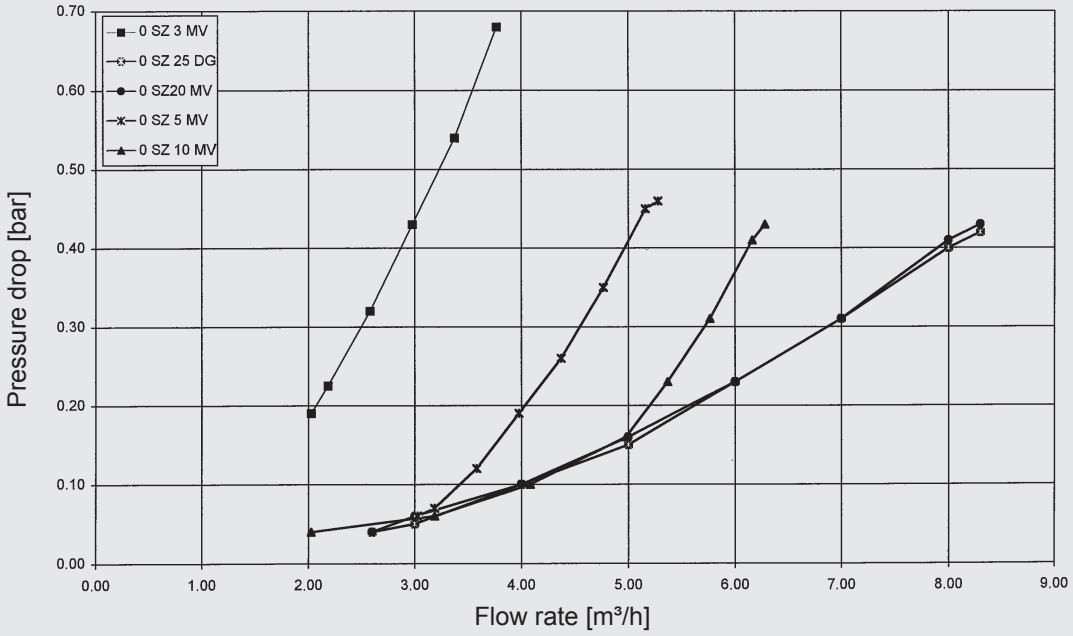


* Please contact our Head Office if you have any queries regarding filter calculation.

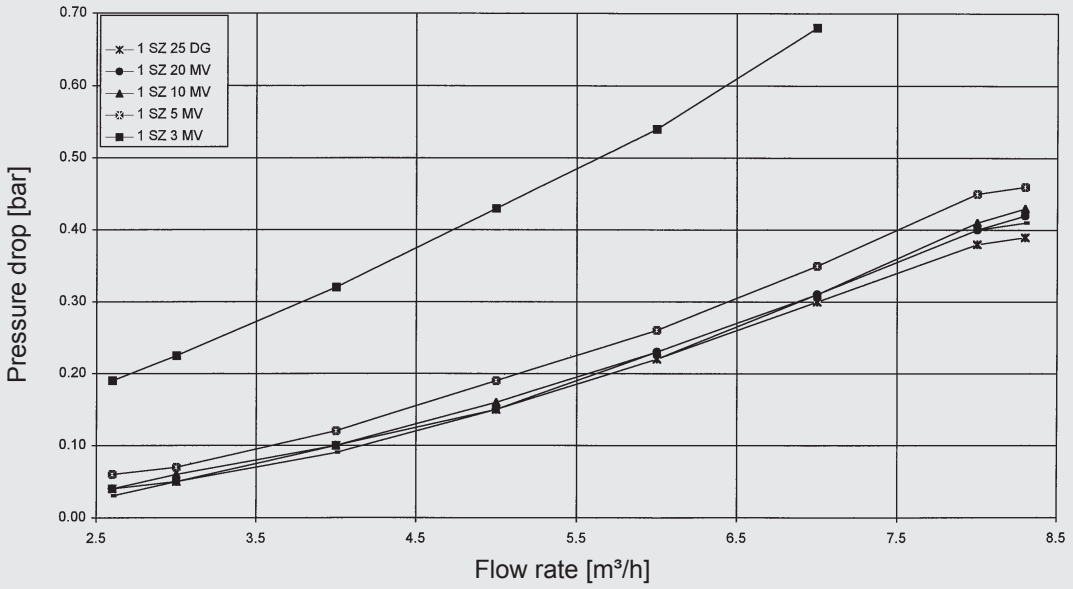
PRESSURE DROP CURVE

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

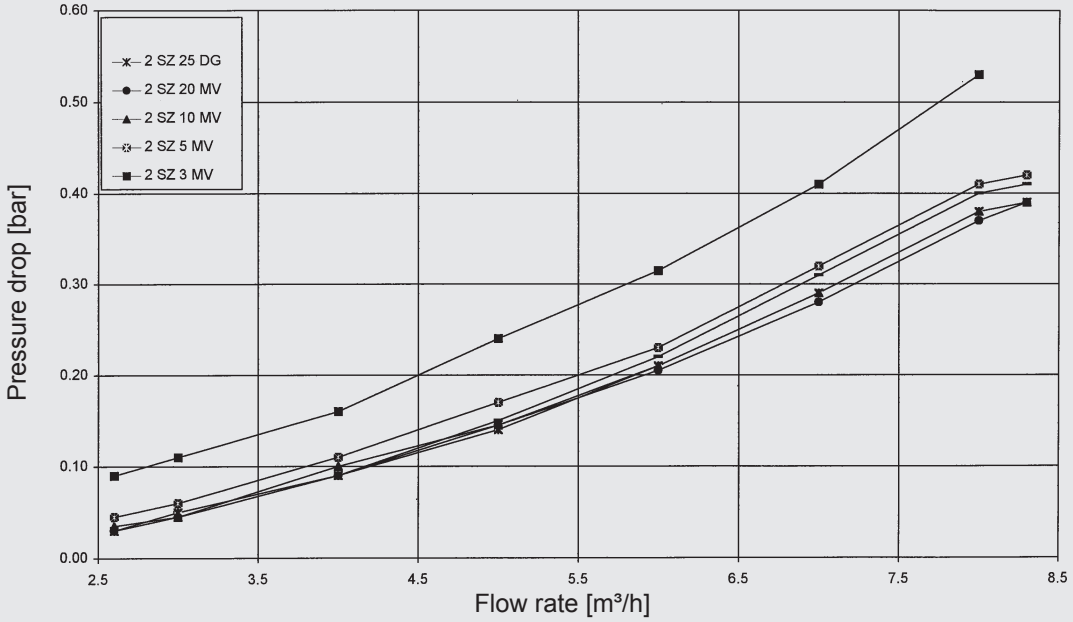
PFM / PFH
Size 0



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

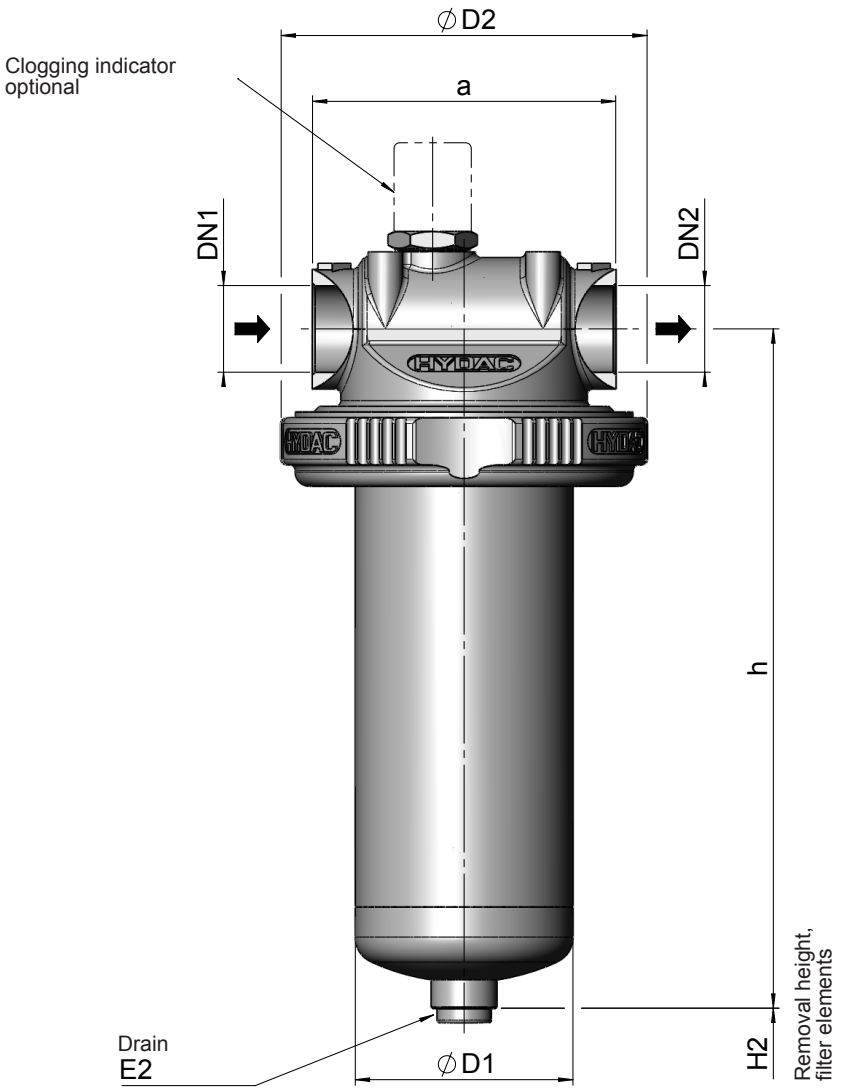
Size
0
1
2
3

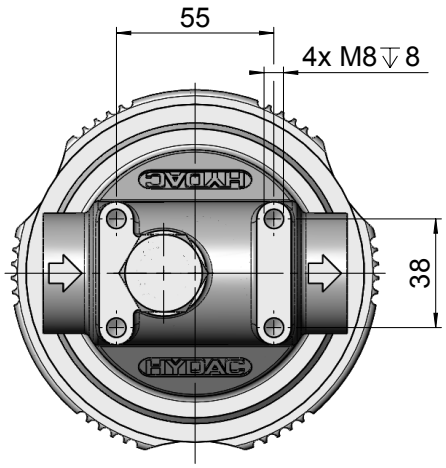
Filtration rating in µm
Chemicron® metal fibre fleece 1 / 3 / 5 / 10 / 20
Wire mesh 25 / 40 / 60 / 100 / 150 / 200 / 250
Wedge wire 50 / 100 / 200 / 300 / 500 / 1000 / 2000

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



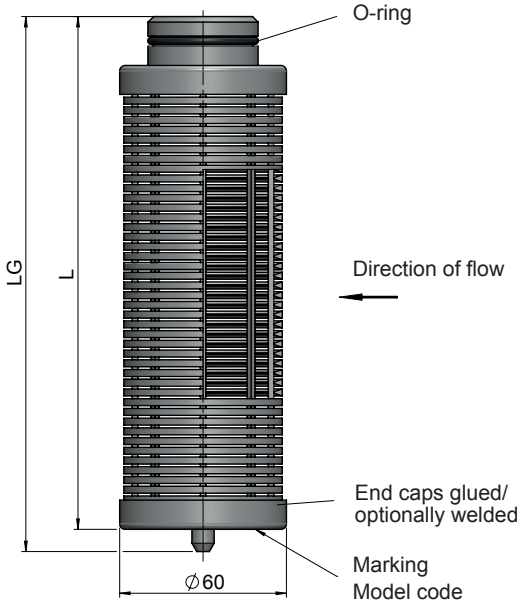


The dimensions quoted are approximations, given in mm.
Subject to technical modifications.

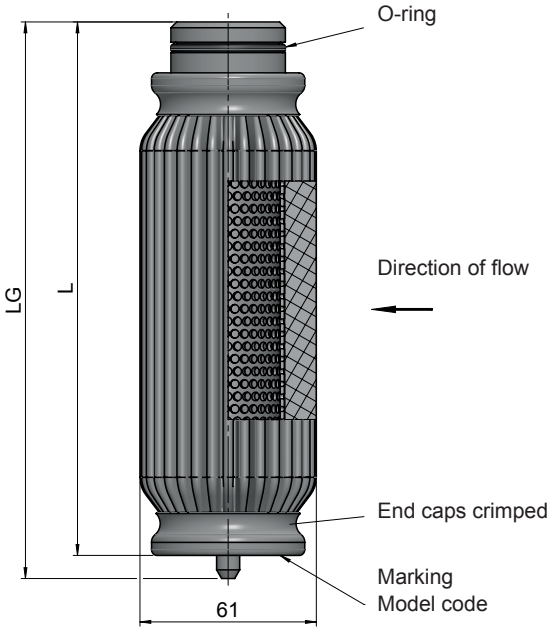
Size	h	D1	a	DN1	DN2	D2	H2	E2
0	139	76	106	G 1“	G 1“	130	35	G 1/4“
1	236							
2	398							
3	723							

7. DIMENSIONS, FILTER ELEMENTS

Wedge wire, filter element



Pleated filter element
Chemicron® metal fibre fleece or wire mesh

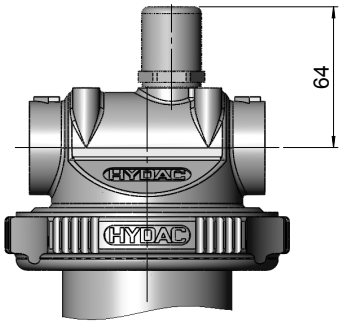


The dimensions quoted are approximations, given in mm.
Subject to technical modifications.

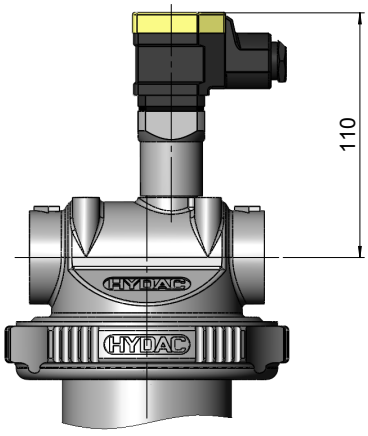
Size	L	LG
0	88	96
1	185	193
2	347	355
3	672	680

8. DIMENSIONS, CLOGGING INDICATORS*

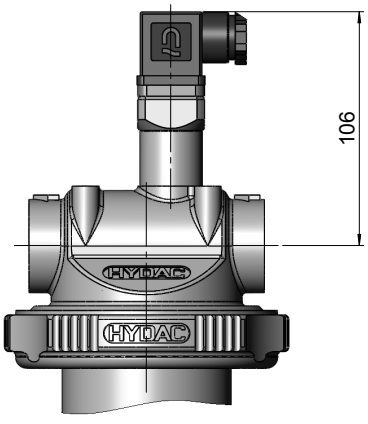
Visual clogging indicator



Visual-electrical clogging indicator



Electrical clogging indicator



* For clogging indicators, see also separate data sheet.

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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