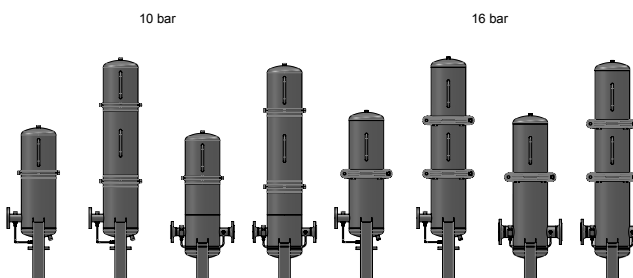


Process Inline Filter PLF1



Specifications	
Nominal size:	DN 50 – DN 150
$Q_{s \text{ max}}$:	200 m ³ /h
$p_{s \text{ max}}$:	16 bar
Filtration ratings:	1–90 µm

1. GENERAL

Product description

- Continuous separation of solid particles from low viscosity fluids such as:
 - Water
 - Cooling lubricants
 - Washing media
 - Machining oils
 - Scrubber water

Filter element technology

- Filter element type "PELF1"
- Filter material: Polyester (PES) or polypropylene (PP)
- Filter element design: pleated or Spun Spray
- Filtration ratings: 1 to 90 µm
- Filter element length: 1-stage or 2-stage variant 20" per filter element
- Sealing material: FPM, NBR, EPDM or silicone

Product advantages

- Very large filter area per filter element
- Compact design with high flow rates
- Significantly better handling than standard disposable filter elements
- Protection of the clean side during element change thanks to fixed support tube
- Modular design gives optimal flexibility in catering for every application
- Low pressure drops due to large cross sections and filter areas
- Short maintenance times
- High contamination retention capacity
- High filtration efficiency
- High media compatibility
- Fully incinerable

Technical data filter housing

Size	Mounting dimension	Materials Filter housing ¹⁾	Seal material	$p_{s \text{ max}}$ [bar]	$T_{s \text{ max}}$ [°C]	Empty weight [kg]	Volume [l]
1-stage	• DN 50 • DN 80	• Stainless steel – E1	• FPM • EPDM	• 10 • 16	90	60	50
2-stage	• DN 100 • DN 150	• Stainless steel – E2	• NBR			95	90

Technical data filter elements

Length	Filter materials ²⁾	Filtration ratings [µm]	Permissible differential pressure at the filter element [bar]
1-stage	• Polyester (PES) ³⁾	• PP = 5 / 10 / 20 / 30 / 40 / 50 / 70	2.5
2-stage	• Polypropylene (PP) ⁴⁾	• PES = 1 / 3 / 5 / 10 / 20 / 30 / 40 / 50 / 70 / 90	

Legend

¹⁾ Materials, filter housing:
E1 = austenitic Cr-Ni steel
E2 = austenitic Cr-Ni-Mo steel

²⁾ Material, end caps:
PA = polyamide
PP = polypropylene

³⁾ Only available in pleated design

⁴⁾ Available in pleated and Spun Spray design

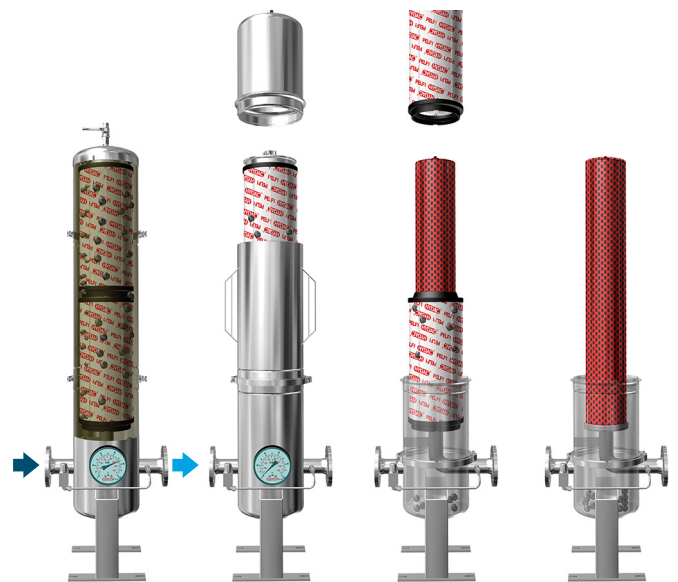
$T_{s \text{ max}}$ PES filter element: 90 °C

$T_{s \text{ max}}$ PP filter element: 60 °C

2. FUNCTION AND SPECIAL FEATURES

FUNCTIONAL PRINCIPLE

- Flow through the filter element is from the outside to the inside
- Particles collect on the outside of the filter element
- The filter elements should be replaced once the maximum permitted differential pressure is reached



Functional principle

LOCKING TECHNOLOGY

- V-clamp for 10 bar filter housing
- Clamp connection for 10 bar filter housing or 16 bar filter housing
 - Reduced installation time when filter elements are exchanged
 - Convenient alignment to the operator side
 - Sealing materials preferably EPDM or NBR
 - Particularly suitable for use in part washers
- Flange connection for 10 bar or 16 bar filter housing
 - Use for special design requirements (e.g. ASME design)

Housing material/ $p_s \text{ max}$ [bar]	V-clamp (2 x M8 screws)	Clamp connection (2 x M27 screws)	Flange connection (12 x M16 screws)
10	E1	• E1	• E1
16	–	• E2	• E2

Locking technology

REPLACEABLE SUPPORT TUBE (OPTIONAL)

- More flexibility – its modular design allows the filter to be extended to meet individual customer requirements
- Optimal adaptation to the particular application
- Particularly suited to meet the requirements of industrial part washers
- Retroactive optimisation when upgrading the system – doubling of maximum service life



PLF1 with clamp connection and replaceable support tube

4. FILTER CALCULATION

PROTECTIVE FILTER

Purpose	<ul style="list-style-type: none"> • Protection of downstream system components • Only in the event of a malfunction of the main filtration stage 				
Filter selection	Based on the flow rate				
Flow rate per filter element	<table border="1"> <tr> <td>Water:</td> <td>Max. 100 m³/h per filter element</td> </tr> <tr> <td>Cooling lubricants / washing media:</td> <td>Max. 50 m³/h per filter element</td> </tr> </table>	Water:	Max. 100 m ³ /h per filter element	Cooling lubricants / washing media:	Max. 50 m ³ /h per filter element
Water:	Max. 100 m ³ /h per filter element				
Cooling lubricants / washing media:	Max. 50 m ³ /h per filter element				
Position of the filter	After upstream filter				
Pre-filtration requirements	Stringent requirements				

WORKING FILTER

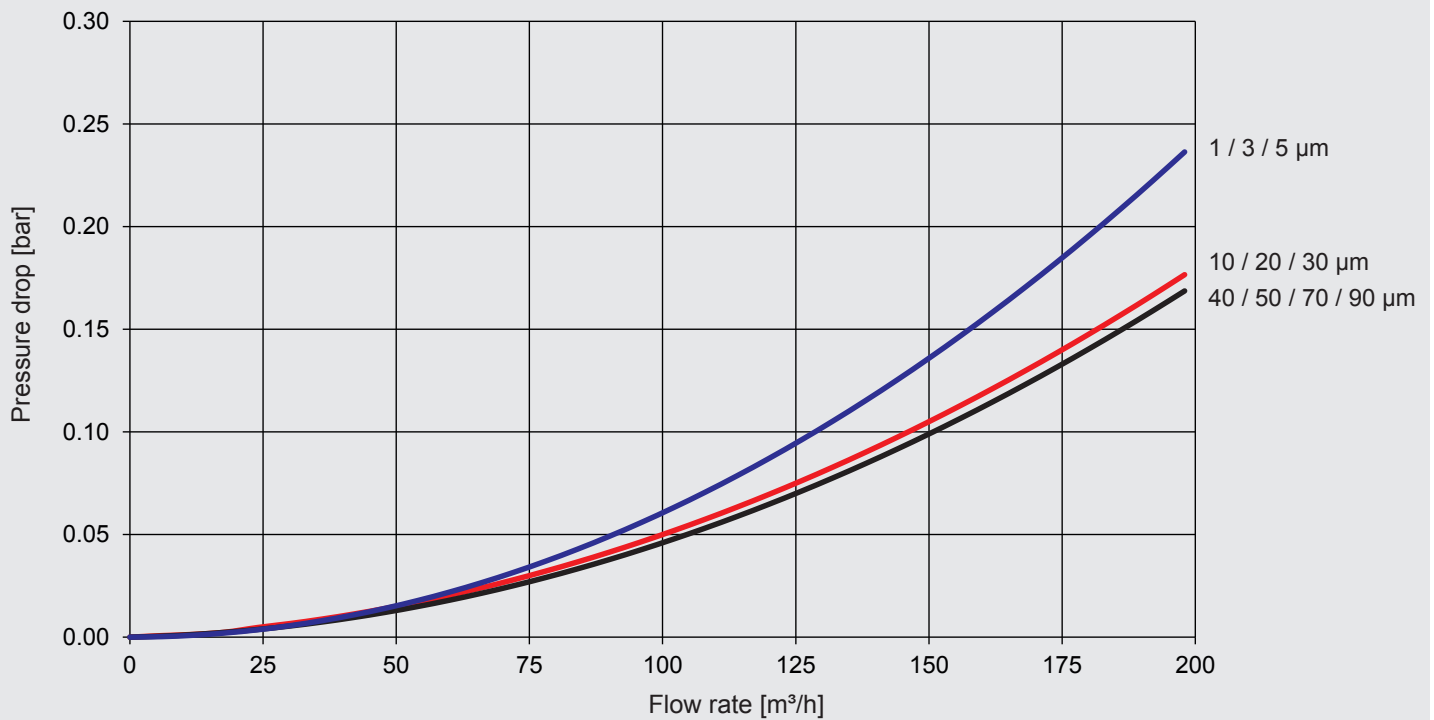
Purpose	Main contamination sink in the fluid system				
Filter selection	Based on the contaminant load and contamination type				
Flow rate per filter element	<table border="1"> <tr> <td>Water:</td> <td>Max. 30 m³/h per filter element</td> </tr> <tr> <td>Cooling lubricants / washing media:</td> <td>Max. 25 m³/h per filter element</td> </tr> </table>	Water:	Max. 30 m ³ /h per filter element	Cooling lubricants / washing media:	Max. 25 m ³ /h per filter element
Water:	Max. 30 m ³ /h per filter element				
Cooling lubricants / washing media:	Max. 25 m ³ /h per filter element				
Position of the filter	Main filter in the fluid system				
Pre-filtration requirements	<table border="1"> <tr> <td>Water:</td> <td>Pre-filtration from 200 to 500 µm</td> </tr> <tr> <td>Cooling lubricants / washing media:</td> <td>Coarse filtration approx. 3000 µm is sufficient</td> </tr> </table>	Water:	Pre-filtration from 200 to 500 µm	Cooling lubricants / washing media:	Coarse filtration approx. 3000 µm is sufficient
Water:	Pre-filtration from 200 to 500 µm				
Cooling lubricants / washing media:	Coarse filtration approx. 3000 µm is sufficient				

5. FILTER CONFIGURATION*

	Standard	Optional
Flange connections	DIN	<ul style="list-style-type: none"> • ASME • JIS
Seal materials Filter housing	<ul style="list-style-type: none"> • FPM • Clamp connection preferably with EPDM or NBR 	<ul style="list-style-type: none"> • NBR • EPDM • Other seal materials on request
Seal materials Filter elements	FPM	<ul style="list-style-type: none"> • NBR • EPDM • Silicone • Other seal materials on request
Differential pressure monitoring	<ul style="list-style-type: none"> • Visual • Visual-electrical • Electrical 	Pressure transmitter (4–20 mA)
Material of filter housing	<ul style="list-style-type: none"> • Stainless steel (E1) austenitic Cr-Ni steel • Stainless steel (E2) austenitic Cr-Ni-Mo steel only in conjunction with clamp connection or flange connection 	<ul style="list-style-type: none"> • Other materials • Glass fibre reinforced tank
Material of filter elements	<ul style="list-style-type: none"> • Polyester (PES), material of end caps: polyamide (PA) • Polypropylene (PP) 	
Documentation	Operating Instructions	<ul style="list-style-type: none"> • Material certificates to DIN EN 10204 • Manufacturer's inspection certificate M DIN 55350-18 • According to customer specification

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

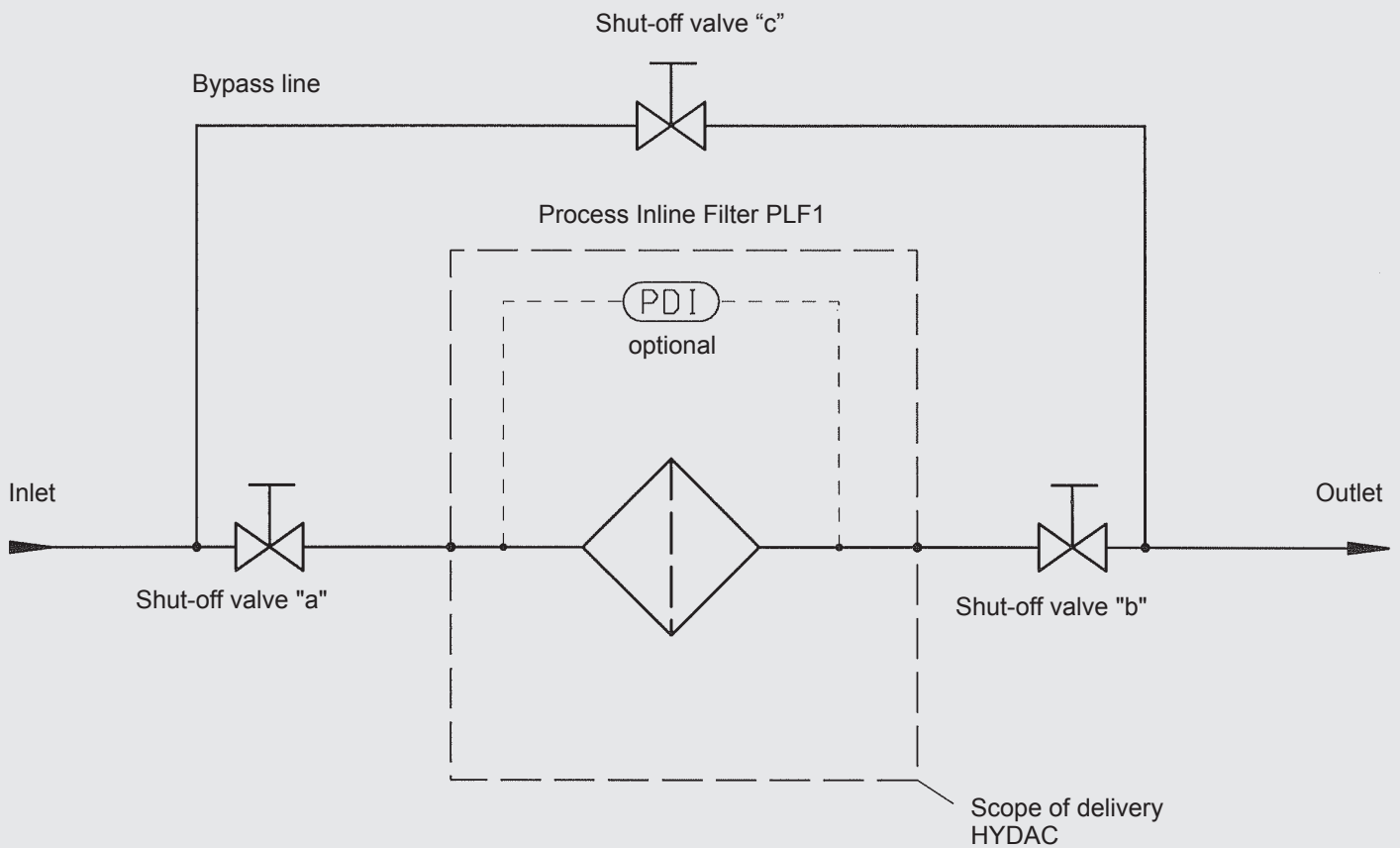
PRESSURE DROP CURVE



Size 1

Configuration for higher flow rates only with agreement from Head Office.

CIRCUIT DIAGRAM



6. MODEL CODE

MODEL CODE PROCESS INLINE FILTER PLF1

PLF1 - 1 - E1 - 1 - C - 1 - 10 - V - 1 - 0 - 0

Type

PLF1

Filter size

1

Housing material

E1 = austenitic Cr-Ni steel
 E2 = austenitic Cr-Ni-Mo steel only in conjunction with flange connection or clamp connection*
 A = for ASME flanges add an A
 J = for JIS flanges add a J

Filter element quantity

1 = size 1 (one-stage)
 2 = size 1 (two-stage)

Connection code

Nominal connection size	Size
C = DIN DN 50 / 2" ASME	1
E = DIN DN 80 / 3" ASME	1
F = DIN DN 100 / 4" ASME	1
K = DIN DN 150 / 6" ASME	1

Length of filter housing

1 = one-stage
 2 = two-stage

Pressure range

10 = PN 10
 16 = PN 16

Sealing material, filter housing

N = NBR
 V = FPM*
 E = EPDM

Clogging indicator

0 = none
 1 = with visual CI (PVD 2B.1)
 2 = with visual/electrical CI (PVD 2D.0/-L...)
 3 = V01 with 2 switching points
 4 = differential pressure gauge in aluminium with 2 adjustable switching contacts
 5 = differential pressure gauge in stainless steel with 2 adjustable switching contacts
 6 = with electrical CI (PVD 2C.0)
 7 = PVL 2 GW.0/-V-110
 8 = PVL 2 GW.0/-V-120

Optional equipment

0 = no additional equipment
 3 = venting ball valve made from austenitic Cr-Ni-Mo steel
 4 = ball valve for draining
 5 = flange
 6 = clamp connection
 7 = replaceable support tube only in conjunction with limited nominal connection sizes DIN DN 50 / 80
 (multiple equipment possible – enter corresponding number combination!)

Product revision index

0

* For vessels made of housing material E2, we recommend using NBR or EPDM as seal material.

MODEL CODE PROCESS INLINE FILTER PELF1

PELF1 - 1 - PL - 005 - PES - PA - V - 1

Filter element type

PELF1

Filter element size

1 = 20"

Filter element type

PL = pleated

SP = Spun Spray

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

PES = polyester

PP = polypropylene

Filter material	Type of filter element	Filtration rating
PP	PL	005 / 010 / 020 / 030 / 040 / 050 / 070
	SP	005 / 020 / 070
PES	PL	001 / 003 / 005 / 010 / 020 / 030 / 040 / 050 / 070 / 090

Material of end caps

PA = polyamide (not for filter element type SP and PP pleated)

PP = polypropylene (not for filter material PES)

Seal material

N = NBR

V = FPM (Viton)

E = EPDM

S = silicone

Technical design

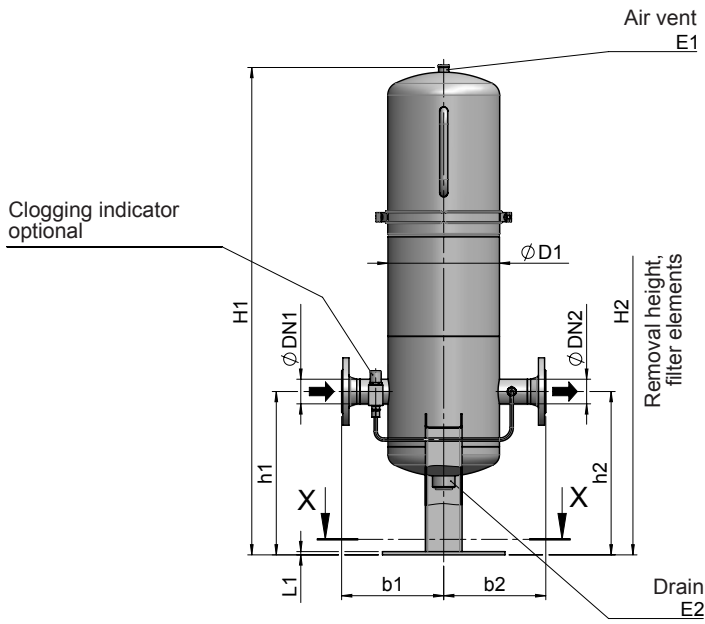
1 = end caps with 2-comp. PUR adhesive (only useable for PES/PL filter element type)

2 = end caps with polyolefin melt (only useable for PP/PL or SP filter element type)

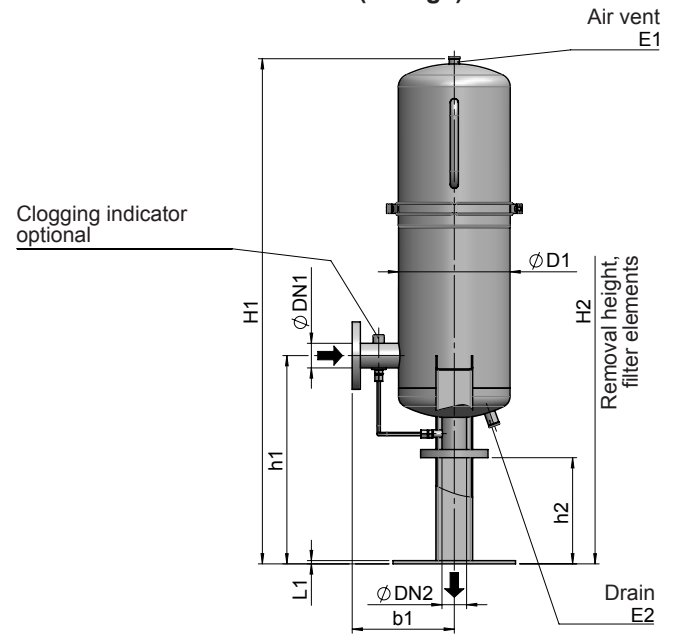
7. DIMENSIONS

PLF1 - 10 bar version

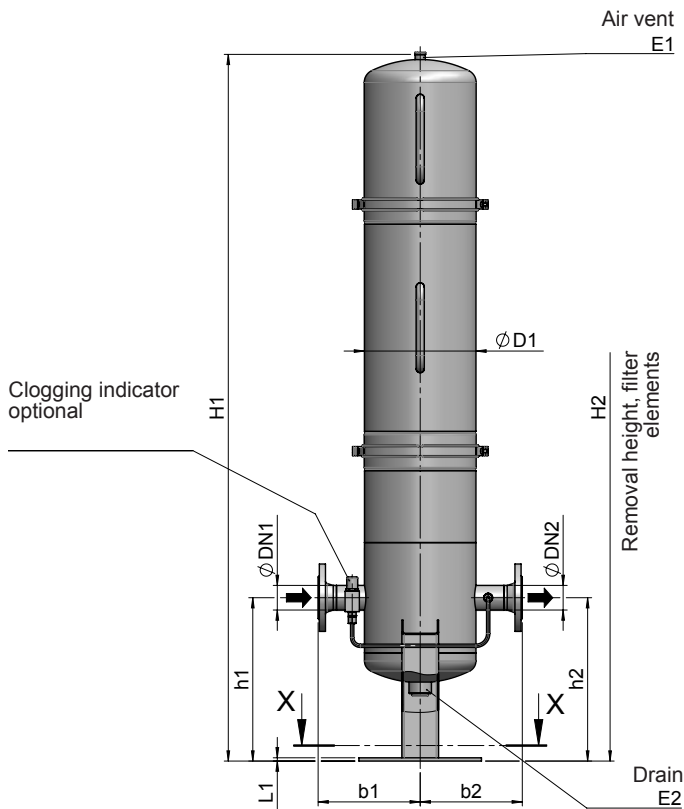
In-line (1-stage)



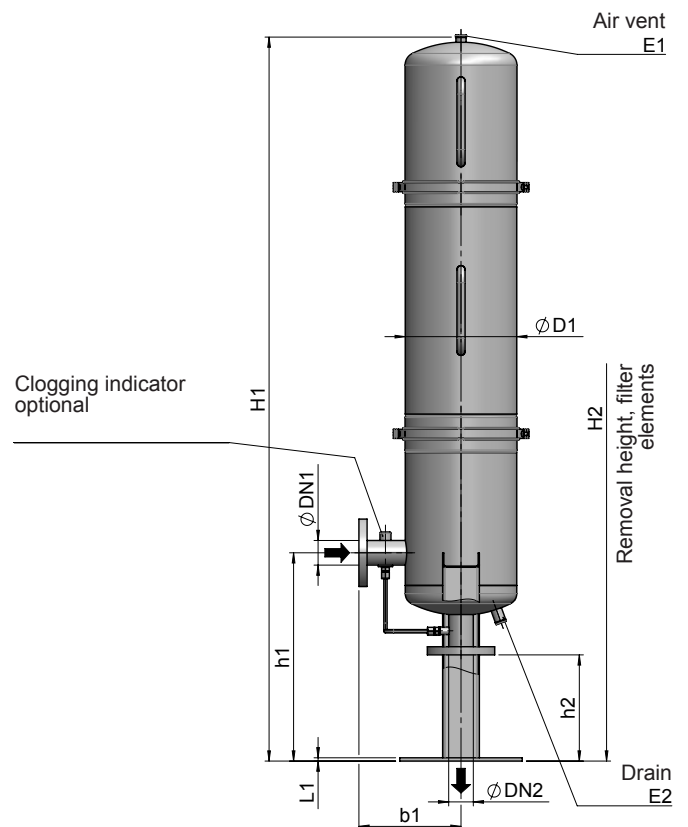
Outlet downwards (1-stage)



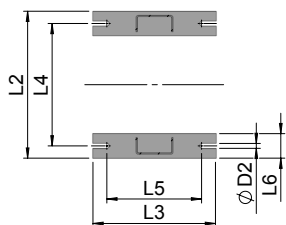
In-line (2-stage)



Outlet downwards (2-stage)



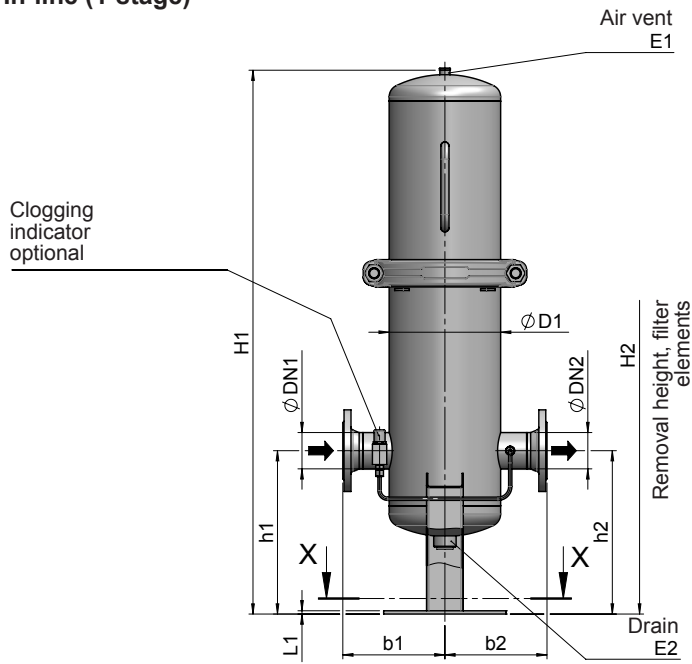
X-X



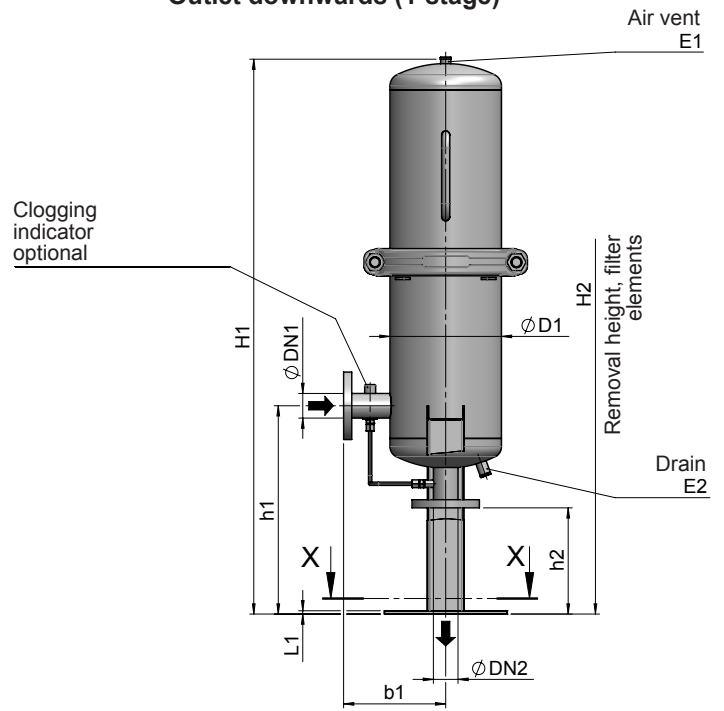
The dimensions quoted have ± 10 mm tolerances. Subject to technical modifications.

PLF1 - 16 bar version

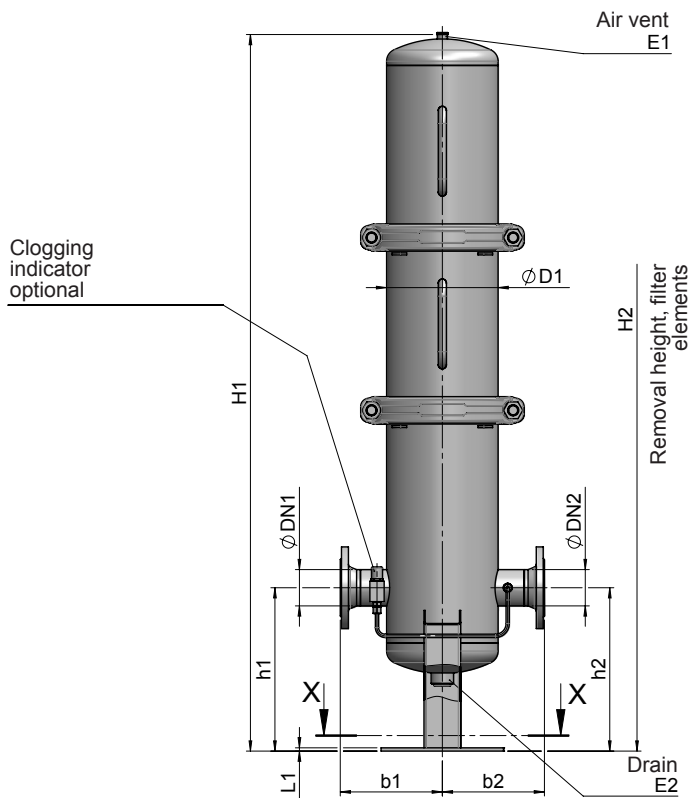
In-line (1-stage)



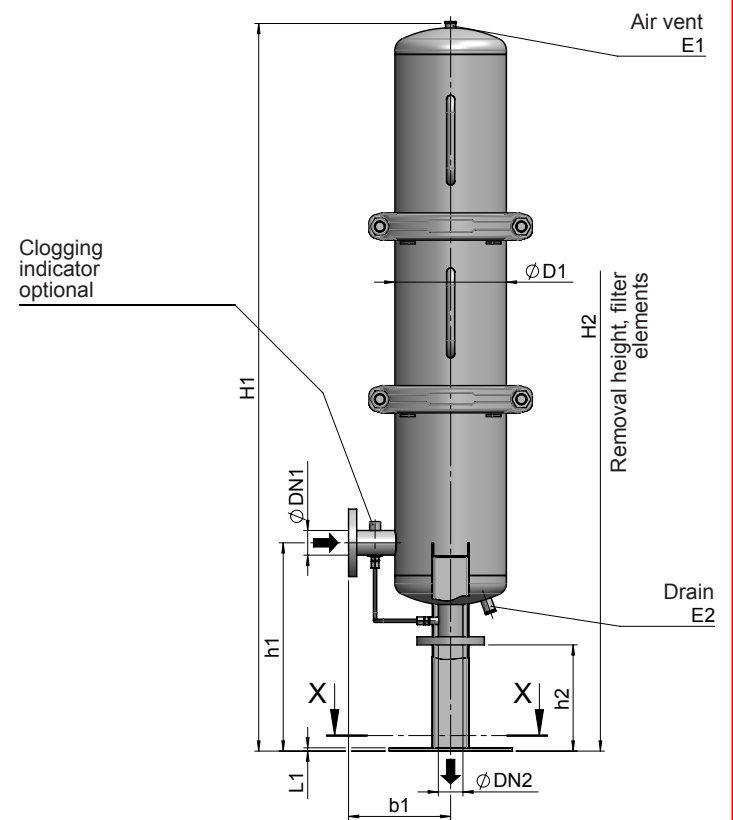
Outlet downwards (1-stage)



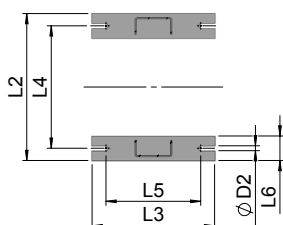
In-line (2-stage)



Outlet downwards (2-stage)



X-X



The dimensions quoted have ± 10 mm tolerances. Subject to technical modifications.

PLF1	H1	H2	h1	h2	b1	b2	DN1	DN2	D1	D2	L1	L2	L3	L4	L5	L6	E1	E2	Vol. [l]
1-stage PN10 In-line	1203	1750																	45
2-stage PN10 In-line	1733	2550	400	400	250	250	50/80 100/150	50/80 100/150	273	12	8	360	300	300	232	60	G 1/2"	G 1"	90
1-stage PN16 In-line	1332	1750																	50
2-stage PN16 In-line	1755	2550			250														90
1-stage PN10*	1242	1750	510	260		-	50/80 100/150	50/80 100/150										G 1/2"	45
2-stage PN10*	1773	2550																	90
1-stage PN16*	1369	1750																	50
2-stage PN16*	1788	2550																	90

* Outlet downwards

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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