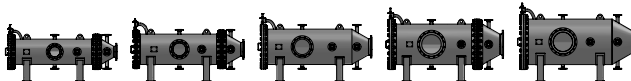


Process inline filter

Work filter PLF2-6HF



Specifications	
Nominal size:	DN 200 - DN 400
Q _{s max} :	1170 m³/h
P _{s max} :	16 bar
Filter ratings:	1 - 90 µm

1. GENERAL INFORMATION

Product description

- **Work filter** for continuous separation of solid concentrations from low-viscosity liquids such as water, cooling lubricants, washing fluids, machining oils, scrubber water

Filter element technology

- Filter element type: Processmicron® PELF-PM-6HF (6" HighFlow)
- Filter material: Polyester (PES) / polypropylene (PP)
- Filter element design: M-fold
- Filtration ratings: 1 to 90 µm
- Filter element length: 20" each filter element, 3-stage filter housing (60")
- Seal material: asbestos-free flat seal, FPM / NBR / EPDM

Product advantages

- Very large filter area per filter element
- Optimised, larger upstream flow area of the filter element for high contamination loads
- Protection of the clean side during filter element replacement thanks to fixed support tube
- Compact design with high flow rates
- Low pressure drops due to large cross sections and surfaces
- Superior handling compared to commonly available disposable filter elements
- Short maintenance times
- High contamination retention capacity
- High separation efficiency
- High fluid compatibility

Technical data, filter housing

Size	Port dimensions	Materials Filter housing ¹⁾	P _s max [bar]	T _s max [°C]	Weight [kg]	Volume [l]
PLF2-3-6HF	DN 200 / 8"	■ Carbon steel	6	■ 60 °C ²⁾	See section 'Dimensions depending on pressure and design code'	360
PLF2-5-6HF	DN 250 / 10"		10			550
PLF2-7-6HF	DN 300 / 12"	■ Stainless steel	16	■ 90 °C ³⁾		765
PLF2-10-6HF	DN 400 / 16"					1060
PLF2-13-6HF	DN 400 / 16"					1330

Technical data, filter elements

Length	Filter materials ⁴⁾	Filtration ratings [µm]	Permissible differential pressure on filter element [bar]
3-stage (3 x 20") ⁶⁾	■ Polyester (PES) ⁵⁾ ■ Polypropylene (PP)	■ PES = 1 / 3 / 5 / 10 / 20 / 30 / 40 / 50 / 70 / 90 ■ PP = 3 / 5 / 10 / 20 / 30 / 40 / 50 / 70	2.5

Key

¹⁾ Filter housing materials:

E1 = Stainless steel 1.4301 / 1.4541 or similar (group 304 / 321)

E2 = Stainless steel 1.4571 or similar (group 316)

²⁾ For coated tanks

³⁾ For stainless steel tanks

⁴⁾ T_{s max} PES filter element: 90 °C

T_{s max} PP filter element: 60 °C

⁵⁾ End cap material: Polyamide

⁶⁾ 1-stage (1 x 20") and 2-stage (2 x 20") tank versions on request

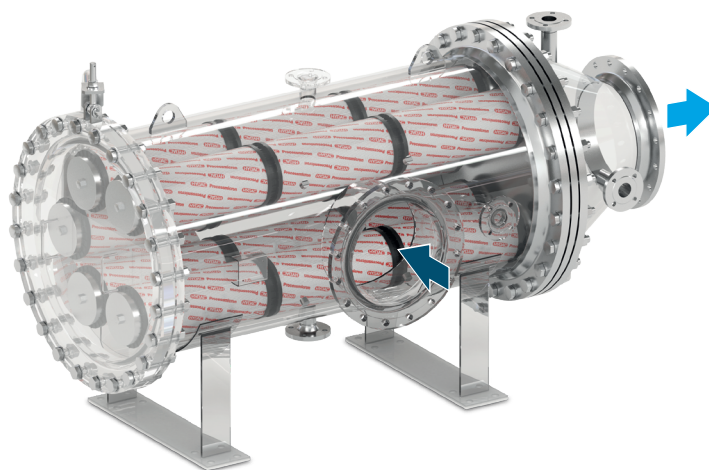
2. FUNCTION AND SPECIAL FEATURES

FUNCTIONAL PRINCIPLE

- The flow through the filter element is from the outside to the inside
- The separated solids remain on the outside of the filter element
- Particles accumulated during the filtration process increase pressure loss
- Filter element replacement when the differential pressure is reached

ACCESSORIES

- Cover swivelling device
- Draining and deaeration ball valves
- Various clogging indicators



3. CLOGGING INDICATORS

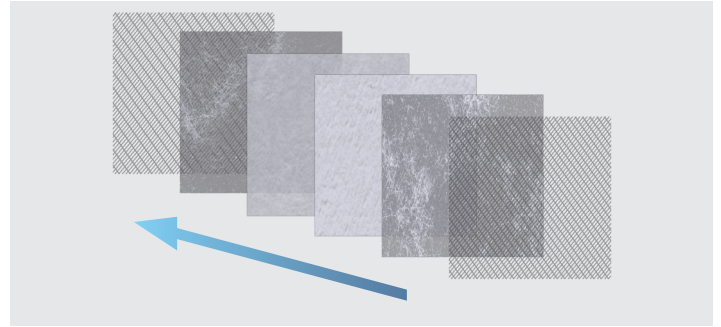
Type Clogging indicator/differential pressure monitoring	Figure	Description
Visual PVD x B.x		■ Visual display by means of green-red field ■ Automatic reset
Electrical PVD x C.x		■ Electrical signal when trigger differential pressure is reached ■ Switch type: NC or NO contact ■ Automatic reset
Visual-electrical PVD x D.x /-L...		■ Visual indication via lamp ■ Electrical signal (NC or NO contact) ■ Automatic reset
Differential pressure gauge DS11		■ Two micro-switches (NC or NO contact) ■ Switch points of the micro-switches can be set from outside ■ Aluminium or brass alloy measuring cell

4. FILTER ELEMENT TECHNOLOGY

The basic design of all Processmicron® filter elements is as follows:

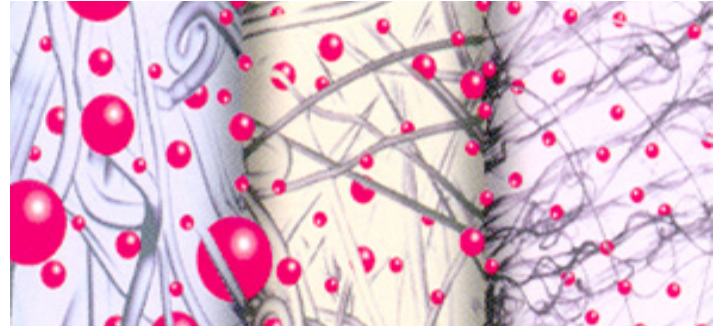
Multi-layer filter mat construction

- Robust and high-quality layered structure
 - ➔ No buckling of filter layers
- High contamination retention
- Low pressure loss



Graduated depth filtration

- High level of cleanliness with a single pass
- High layer thickness of the filtration medium
 - ➔ High storage volumes for contamination

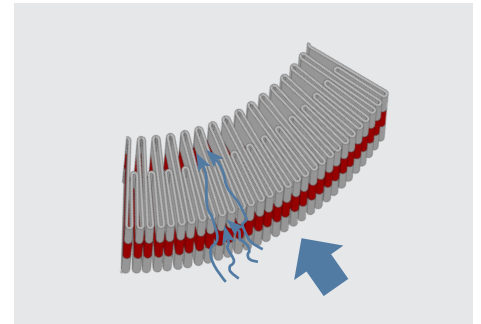


Filter element type:

Processmicron® HighFlow 6"

Working filtration:

- M-fold
- Optimised, larger upstream flow area for high contamination loads



5. CHOOSING THE RIGHT FILTER

WORK FILTER

Purpose	Main contamination sump of the fluid system	
Filter selection	Based on the contamination load and the type of contamination	
Flow rate per filter element	Water:	max. 30 m³/h per filter element
	Cooling lubricants / washing fluids:	max. 25 m³/h per filter element
Filter position	Main filter in the fluid system	
Pre-filtration requirements	Water:	Pre-filtration from 200 to 500 µm
	Cooling lubricants / washing fluids:	Coarse filtration approx. 3000 µm is sufficient

CHECKLIST FOR CHOOSING THE RIGHT FILTER

STEP 1: REQUIRED OPERATING DATA

- Follow the Pressure Equipment Directive (PED) 2014/68/EU
- Type of operating medium
- Viscosity
- Operating pressure
- Operating temperature
- Flow rate
- Desired filtration rating
- Type of solid to be separated
- Solids content

STEP 2: FILTER DIMENSIONS

- Hydraulic determination of the size based on the pressure loss curves
- The initial differential pressure for clean filter elements should not go above a value of 0.2 bar*
- Housing material selection based on the operating data and the operating medium
- Seal material selection based on the operating data and the operating medium
- The flow velocity at the flange inlet must not exceed 4 m/s

STEP 3: FILTRATION RATING DETERMINATION

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

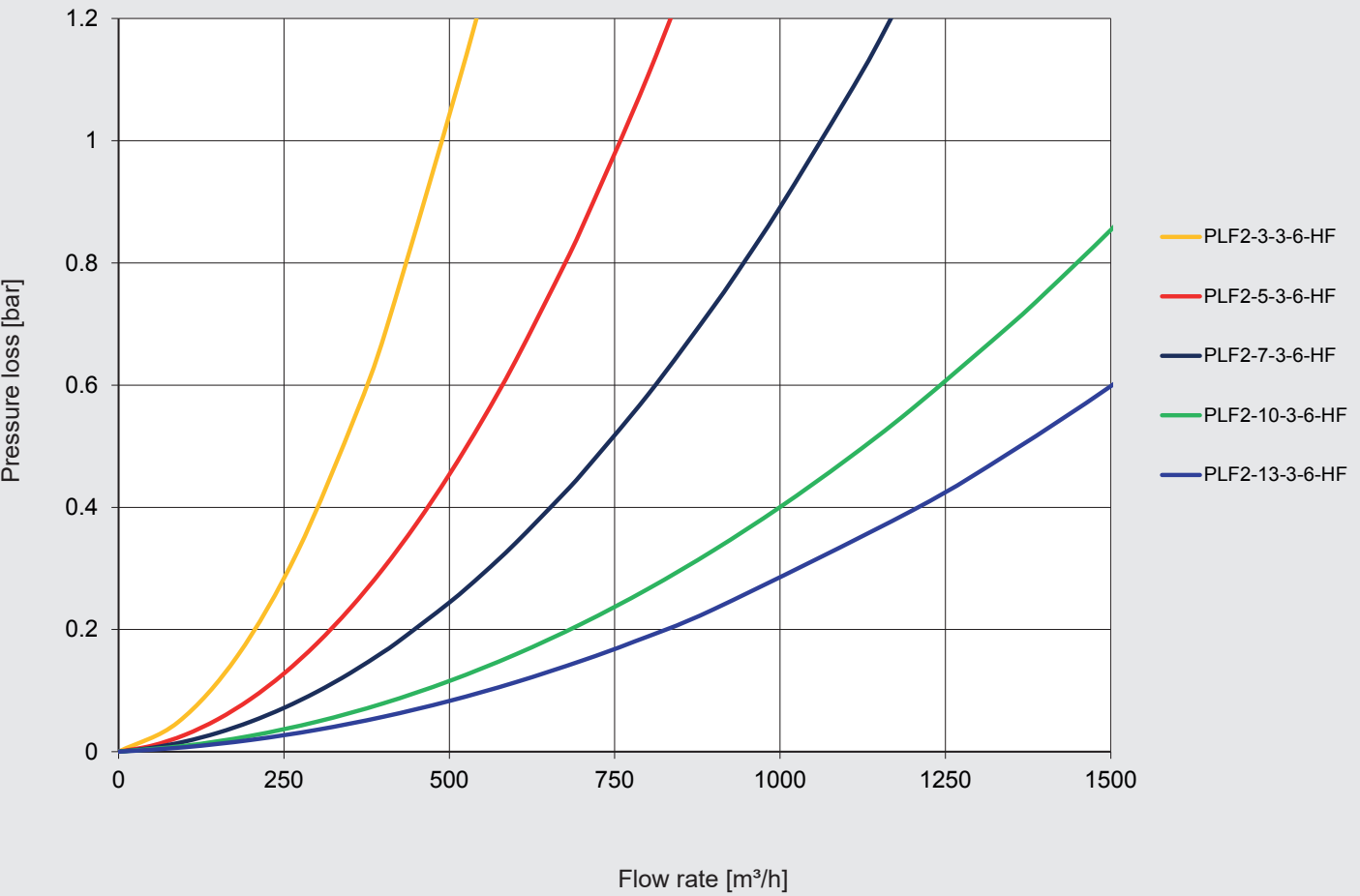
* Higher values possible subject to consultation with the head office.

6. FILTER CONFIGURATION*

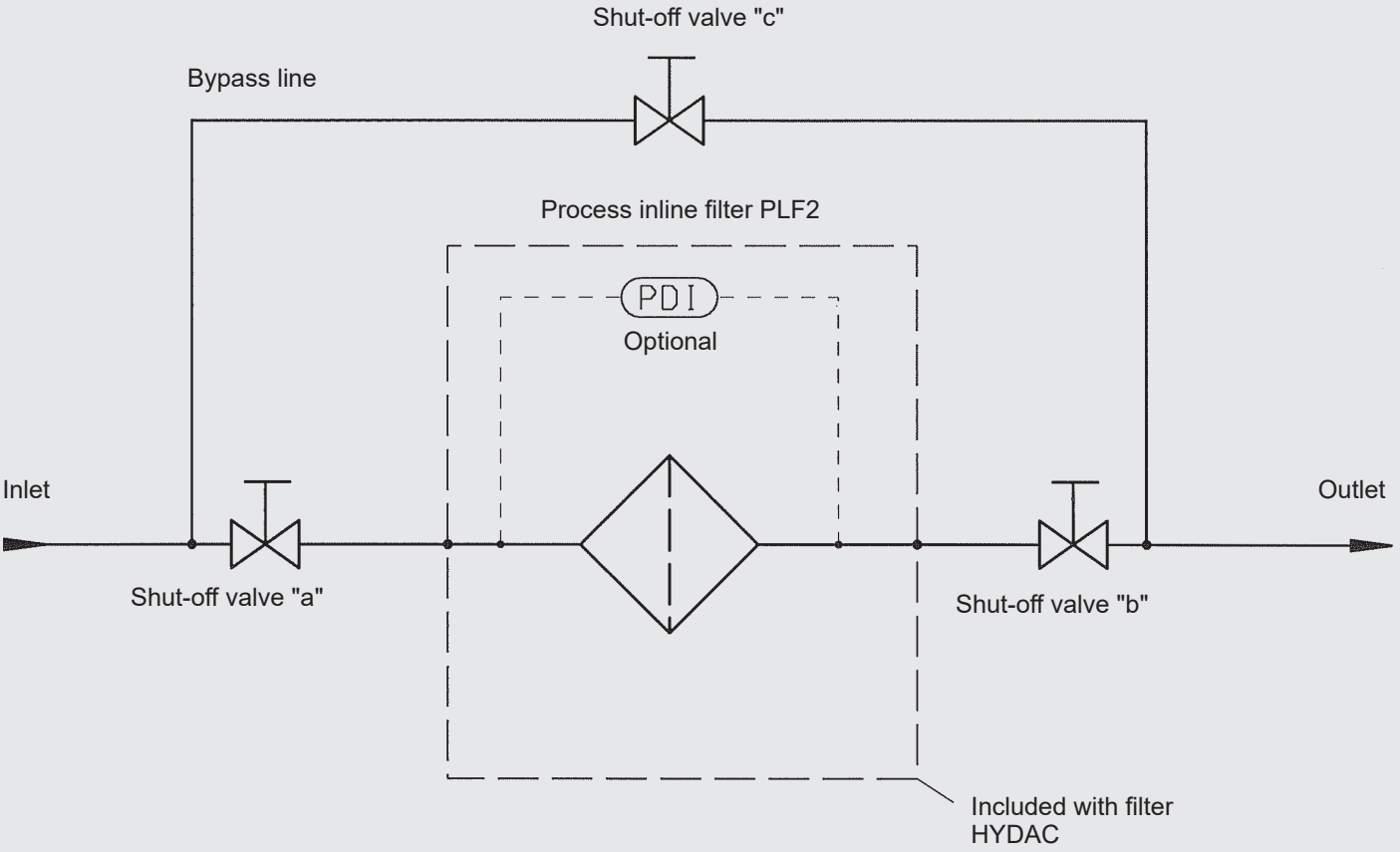
	Standard	Optional
Tank	■ Tank design and tank production compliant with Regulation AD 2000 and, if required, with Pressure Equipment Directive 2014/68/EU ■ ASME VIII Div. 1 Design	■ ASME VIII Div. 1 with ASME stamp ■ EN 13445 ■ Others on request
Flange connections	■ DIN EN ■ ASME	■ JIS ■ Others on request
Filter housing seal material	FPM	Other seal material on request
Filter element seal material	FPM	■ NBR ■ EPDM ■ Silicone ■ Other seal material on request
Differential pressure monitoring	■ Visual ■ Visual-electrical	Pressure transmitter (4 – 20 mA)
Filter housing materials	■ Carbon steel – Stainless steel: 1.4301 / 1.4541 or similar (Group 304 / 321) – Stainless steel: 1.4571 or similar (Group 316)	■ Duplex ■ Super Duplex ■ FRP
External corrosion protection	■ 2-layer coating (does not apply to stainless steel housings) ■ RAL 7040 shade (window grey)	■ Multi-coat paintwork ■ Special paintwork for offshore applications ■ Special paintwork / coatings according to customer specifications
Internal corrosion protection	■ 2K epoxy coating ■ 2K highly cross-linked polyurethane coating	■ Glass flake lining ■ Special paintwork / coatings according to customer specifications ■ Rubber lining
Filter element materials	■ Polyester (PES), polyamide (PA) end cap material ■ Polypropylene (PP)	
Documentation	Operating instructions	■ Material certificates in accordance with EN 10204, 3.1 for the pressurised parts of the tank coming in contact with the fluids ■ Manufacturer's test certificate in acc. with DIN 55350, Part 18 "M" for construction and pressure testing ■ According to customer requirements ■ 3rd parties (TÜV, ABS, Lloyd's, etc.)

* Other versions/features and customer-specific solutions also available subject to prior consultation with our head office.

PRESSURE LOSS GRAPH



PIPING DIAGRAM



7. MODEL CODE

MODEL CODE FOR PROCESS INLINE FILTER PLF2-6HF

PLF2 - 3 - 3 - 6HF - H - E1 - S - L - E1 - 10 - C - 1 - 0 - 0 - So

Filter type

Multi-port filter housings ¹⁾

Filter size

(Analogue number of support tubes for filter elements)

	Filter element size
	6"
3	X
5	X
7	X
10	X
13	X

Filter housing length

- 1 = 1-stage (on request)
- 2 = 2-stage (on request)
- 3 = 3-stage

Filter element diameter and filter element type

6HF = 6" filter element diameter HighFlow (HF)

Filter orientation

- H = horizontal
- V = vertical (on request)

Housing material

- NP = carbon steel, 2K-PUR internal coating
- NG = carbon steel, 3 mm rubber lining (on request)
- E1 = Stainless steel 1.4301 / 1.4541 or similar (group 304 / 321)
- E2 = Stainless steel 1.4571 or similar (group 316)
- SD = Super Duplex (on request)
- D = Duplex (on request)
- A = For ASME flanges with additional "A" suffix
- J = For JIS flanges with additional "J" suffix

Design code

- S = HYDAC Standard (AD 2000)
- A = ASME VIII Div. 1 (material and calculation...)
- U = ASME VIII Div. 1 stamped
- E = EN 13445

Connection type

	Nominal diameter of connection	Filter installation size
		6"
L	DIN DN 200 / 8" ASME	3
M	DIN DN 250 / 10" ASME	5
N	DIN DN 300 / 12" ASME	7
Q	DIN DN 400 / 16" ASME	10 / 13

Inner parts material

- E1 = Stainless steel 1.4301 or similar (group 304)
- E2 = Stainless steel 1.4571 or similar (group 316)
- SD = Super Duplex (on request)
- D = Duplex (on request)

Pressure stages

- 6 = PN 6
- 10 = PN 10
- 16 = PN 16

Seal material

- C = Asbestos-free flat seal
- N = NBR
- V = FPM (Viton)
- E = EPDM

Contamination indicator

- 0 = none
- 1 = with visual VA (PVD 2B.1)
- 2 = with visual-electrical VA (PVD 2D.0/-L24)
- 3 = V01
- 4 = Aluminium differential pressure gauge with 2 adjustable switching contacts
- 5 = Stainless steel differential pressure gauge with 2 adjustable switching contacts
- 6 = with electrical VA (PVD 2C.0)
- 7 = PVL2GW.0/-V-110
- 8 = PVL2GW.0/-V-120

Optional equipment

- 1 = Cover swivelling device (only for horizontal version) / Cover lifting device (only for vertical version)
- 2 = Clamping screws
- 3 = Stainless steel deaeration ball valve
- 4 = Draining flap, DN 50

(Multiple versions possible, please specify the corresponding combination of numbers)

Modification number

Supplementary information

So = code for special equipment

¹⁾ Multi-port filter housing = filter housing with several support tubes

MODEL CODE FOR PROCESSMICRON® FILTER ELEMENT 6" HF

PELF-PM - 6 - HF - 2 - PL - 005 - PES - PA - V - 1

Filter element type

Processmicron®

Filter element diameter

6 = 6" external diameter

Filter element type

HF = HighFlow (6")

Length

2 = 20"

Filter element type

PL = pleated

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	Filter element type	Filtration rating
PP	PL	003 / 005 / 010 / 020 / 030 / 040 / 050 / 070
PES	PL	001 / 003 / 005 / 010 / 020 / 030 / 040 / 050 / 070 / 090

End caps

PA = polyamide

PP = polypropylene (not for "PES" filter material)

Seal material

N = NBR

V = FPM

E = EPDM

S = silicone

Technical execution

1 = Injection moulded end caps with 2-component PUR adhesive (can only be used on filter element type: PL / PES)

2 = Injection moulded end caps with polyolefin melt (can only be used on filter element type: PL / PP)

3 = Injection moulded end caps with IR welding (can only be used for filter element type: PL / PP)

TWO-PIECE FILTER HOUSING, CARBON STEEL

Size	DN1	DN2	b1	b2	h1	h2	h3	I1	I2	I3	H1	L1	L2	L3	L4
PLF2-3-3-6 PN6	200	200	425	350	600	350	350	1250	800	200	1112	1700	2180	2104	805
PLF2-3-3-6 PN10	200	200	425	350	600	350	350	1250	800	200	1125	1700	2198	2118	805
PLF2-3-3-6 PN16	200	200	425	350	600	350	350	1250	800	200	1147	1700	2223	2127	805
PLF2-3-3-6 ASME	8"	8"	425	350	600	350	350	1250	800	200	1140	1700	2319	2226	805
PLF2-5-3-6 PN6	250	250	500	400	650	400	400	1300	850	270	1247	1700	2234	2152	920
PLF2-5-3-6 PN10	250	250	500	400	650	400	400	1300	850	270	1260	1700	2257	2171	920
PLF2-5-3-6 PN16	250	250	500	400	650	400	400	1300	850	270	1289	1700	2280	2179	920
PLF2-5-3-6 ASME	10"	10"	500	400	650	400	400	1300	850	270	1277	1700	2370	2272	920
PLF2-7-3-6 PN6	300	300	550	450	700	450	450	1400	800	300	1349	1700	2296	2204	1015
PLF2-7-3-6 PN10	300	300	550	450	700	450	450	1400	800	300	1368	1700	2307	2217	1015
PLF2-7-3-6 PN16	300	300	550	450	700	450	450	1400	800	300	1375	1700	2354	2244	1015
PLF2-7-3-6 ASME	12"	12"	550	450	700	450	450	1400	800	300	1339	1700	2384	2286	1015
PLF2-10-3-6 PN6	400	400	650	500	750	500	500	1450	850	300	1458	1700	2319	2225	1175
PLF2-10-3-6 PN10	400	400	650	500	750	500	500	1450	850	300	1478	1700	2347	2249	1175
PLF2-10-3-6 PN16	400	400	650	500	750	500	500	1450	850	300	1483	1700	2383	2271	1175
PLF2-10-3-6 ASME	16"	16"	650	500	750	500	500	1450	850	300	1439	1700	2418	2319	1175
PLF2-13-3-6 PN6	400	400	700	550	800	550	550	1500	950	400	1558	1700	2413	2313	1275
PLF2-13-3-6 PN10	400	400	700	550	800	550	550	1500	950	400	1578	1700	2440	2338	1275
PLF2-13-3-6 PN16	400	400	700	550	800	550	550	1500	950	400	1583	1700	2477	2361	1275
PLF2-13-3-6 ASME	16"	16"	700	550	800	550	550	1500	950	400	1549	1700	2532	2423	1275

Size	L5	L6	L7	L8	L9	L10	L11	D1	D2	D3	E1	E2	F1	F2	F3
PLF2-3-3-6 PN6	560	24	15	695	425	960	160	645	508	27	DN50	DN50	1250	550	180
PLF2-3-3-6 PN10	560	28	15	695	425	960	160	670	508	27	DN50	DN50	1250	550	180
PLF2-3-3-6 PN16	560	44	15	695	425	960	160	715	508	27	DN50	DN50	1250	550	180
PLF2-3-3-6 ASME	560	41	15	695	425	960	160	700	508	27	2"	2"	1250	550	180
PLF2-5-3-6 PN6	560	30	15	770	515	1095	190	755	610	27	DN50	DN50	1300	700	180
PLF2-5-3-6 PN10	560	34	15	770	515	1095	190	780	610	27	DN50	DN50	1300	700	180
PLF2-5-3-6 PN16	560	54	15	770	515	1095	190	840	610	27	DN50	DN50	1300	700	180
PLF2-5-3-6 ASME	560	46.1	15	770	515	1095	190	815	610	27	2"	2"	1300	700	180
PLF2-7-3-6 PN6	560	40	15	835	565	1190	210	860	711	27	DN50	DN50	1300	700	180
PLF2-7-3-6 PN10	560	38	15	835	565	1190	210	895	711	27	DN50	DN50	1300	700	180
PLF2-7-3-6 PN16	560	58	15	835	565	1190	210	910	711	27	DN50	DN50	1300	700	180
PLF2-7-3-6 ASME	560	46.2	15	835	565	1190	210	835	711	27	2"	2"	1300	700	180
PLF2-10-3-6 PN6	560	44	15	935	660	1350	250	940	813	30	DN50	DN50	1280	800	180
PLF2-10-3-6 PN10	560	48	15	935	660	1350	250	1015	813	30	DN50	DN50	1280	800	180
PLF2-10-3-6 PN16	560	62	15	935	660	1350	250	1025	813	30	DN50	DN50	1280	800	180
PLF2-10-3-6 ASME	560	49.3	15	935	660	1350	250	975	813	30	2"	2"	1280	800	180
PLF2-13-3-6 PN6	560	52	15	1020	740	1480	280	1175	914	30	DN50	DN50	1280	900	180
PLF2-13-3-6 PN10	560	54	15	1020	740	1480	280	1230	914	30	DN50	DN50	1280	900	180
PLF2-13-3-6 PN16	560	68	15	1020	740	1480	280	1255	914	30	DN50	DN50	1280	900	180
PLF2-13-3-6 ASME	560	65.2	15	1020	740	1480	280	1175	914	30	2"	2"	1280	900	180

The dimensions given here have a tolerance of ± 10 mm.
Subject to technical modifications.

SINGLE-PIECE FILTER HOUSING, STAINLESS STEEL

Size	DN1	DN2	b1	b2	h1	h2	h3	I1	I2	I3	H1	L1	L2	L3	L4
PLF2-3-3-6 PN6*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-3-3-6 PN10*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-3-3-6 PN16*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-3-3-6 ASME*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-5-3-6 PN6	250	250	500	400	650	400	400	1300	850	270	1247	—	2212	2130	920
PLF2-5-3-6 PN10	250	250	500	400	650	400	400	1300	850	270	1260	—	2223	2137	920
PLF2-5-3-6 PN16	250	250	500	400	650	400	400	1300	850	270	1289	—	2240	2139	920
PLF2-5-3-6 ASME	10"	10"	500	400	650	400	400	1300	850	270	1277	—	2266	2272	920
PLF2-7-3-6 PN6	300	300	550	450	700	450	450	1400	800	300	1349	—	2268	2176	1015
PLF2-7-3-6 PN10	300	300	550	450	700	450	450	1400	800	300	1368	—	2270	2180	1015
PLF2-7-3-6 PN16	300	300	550	450	700	450	450	1400	800	300	1375	—	2298	2188	1015
PLF2-7-3-6 ASME	12"	12"	550	450	700	450	450	1400	800	300	1339	—	2336	2238	1015
PLF2-10-3-6 PN6	400	400	650	500	750	500	500	1450	850	300	1458	—	2293	2197	1175
PLF2-10-3-6 PN10	400	400	650	500	750	500	500	1450	850	300	1478	—	2314	2202	1175
PLF2-10-3-6 PN16	400	400	650	500	750	500	500	1450	850	300	1483	—	2331	2217	1175
PLF2-10-3-6 ASME	16"	16"	650	500	750	500	500	1450	850	300	1439	—	2370	2269	1175
PLF2-13-3-6 PN6	400	400	700	550	800	550	550	1500	950	400	1558	—	2385	2285	1275
PLF2-13-3-6 PN10	400	400	700	550	800	550	550	1500	950	400	1578	—	2394	2292	1275
PLF2-13-3-6 PN16	400	400	700	550	800	550	550	1500	950	400	1583	—	2421	2305	1275
PLF2-13-3-6 ASME	16"	16"	700	550	800	550	550	1500	950	400	1549	—	2456	2347	1275

Size	L5	L6	L7	L8	L9	L10	L11	D1	D2	D3	E1	E2	F1	F2	F3
PLF2-3-3-6 PN6*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-3-3-6 PN10*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-3-3-6 PN16*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-3-3-6 ASME*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PLF2-5-3-6 PN6	560	30	15	770	515	1095	190	755	610	27	DN50	DN50	1380	700	180
PLF2-5-3-6 PN10	560	34	15	770	515	1095	190	780	610	27	DN50	DN50	1380	700	180
PLF2-5-3-6 PN16	560	54	15	770	515	1095	190	840	610	27	DN50	DN50	1380	700	180
PLF2-5-3-6 ASME	560	46.1	15	770	515	1095	190	815	610	27	2"	2"	1380	700	180
PLF2-7-3-6 PN6	560	40	15	835	565	1190	210	860	711	27	DN50	DN50	1380	700	180
PLF2-7-3-6 PN10	560	38	15	835	565	1190	210	895	711	27	DN50	DN50	1380	700	180
PLF2-7-3-6 PN16	560	58	15	835	565	1190	210	910	711	27	DN50	DN50	1380	700	180
PLF2-7-3-6 ASME	560	46.2	15	835	565	1190	210	835	711	27	2"	2"	1380	700	180
PLF2-10-3-6 PN6	560	44	15	935	660	1350	250	940	813	30	DN50	DN50	1380	800	180
PLF2-10-3-6 PN10	560	48	15	935	660	1350	250	1015	813	30	DN50	DN50	1380	800	180
PLF2-10-3-6 PN16	560	62	15	935	660	1350	250	1025	813	30	DN50	DN50	1380	800	180
PLF2-10-3-6 ASME	560	49.3	15	935	660	1350	250	975	813	30	2"	2"	1380	800	180
PLF2-13-3-6 PN6	560	52	15	1020	740	1480	280	1175	914	30	DN50	DN50	1380	900	180
PLF2-13-3-6 PN10	560	54	15	1020	740	1480	280	1230	914	30	DN50	DN50	1380	900	180
PLF2-13-3-6 PN16	560	68	15	1020	740	1480	280	1255	914	30	DN50	DN50	1380	900	180
PLF2-13-3-6 ASME	560	65.2	15	1020	740	1480	280	1175	914	30	2"	2"	1380	900	180

The dimensions given here have a tolerance of ± 10 mm.
Subject to technical modifications.

* Only available in two-piece filter housing design

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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