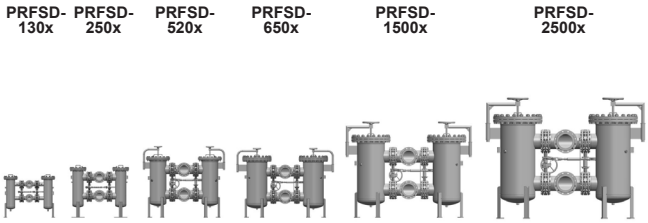
HYDAC INTERNATIONAL

Process double-screen basket filter
PRFSD



Specifications	
Nominal size:	DN 50 – DN 400
$Q_{S\ max}$:	3600 m³/h
$p_{S\ max}$:	16 bar
Filtration ratings:	25 – 10000 µm

1. GENERAL

Product description
- Double-screen basket filter – switchable
- Used as coarse filter, bypass filter or pre-separator

Screen basket technology
- Screen basket inserts with clamp
  - Chemicron® wire mesh 25 to 1000 µm
  - Wedge wire 50 to 3000 µm
  - Perforated plate 3000 to 10000 µm

Product advantages
- High filtration performance
- Simple handling
- Straightforward change-over
- No interruption to operation while the basket is being changed
- Particles cannot enter the clean side when the basket is changed
- Robust filter materials are ideally suited to long-term operation
- Cleanable filter materials
- Low operating costs
- Numerous equipment options

Technical data, filter housing

Size	Port dimensions	Materials			$p_{S\ max}$ [5] [bar]	$T_{s\ min}$ to $T_{s\ max}$ [3] [°C]	Weight [kg]	Volume [l]
		Stainless steel [2]	Carbon steel, Corrosion protection, internal: Without	Carbon steel, Corrosion protection, internal: With				
130x	DN 50 / 80 / 100 / 150	•	•	•	6 / 10 / 16	-10 to +90	200	2x 25
250x	DN 100 / 150 / 200 / 250	•	•	•			300	2x 46
520x	DN 150 / 200 / 250	•	•	•			660	2x 118
650x	DN 200 / 250 / 300	•	•	•			800	2x 225
1500x	DN 250 / 300 / 400	•	•	•			1413	2x 440
2500x	DN 400 [1]	•	•	•			2000	2x 1350

Technical data, screen basket inserts

Series	No. of screen baskets [4]	Screen basket type	Filter area per side part [cm²]	Filter materials and filtration ratings [µm]: Chemicron® wire mesh, reinforced with perforated plate	Filter materials and filtration ratings [µm]: Wedge wire	Filter materials and filtration ratings [µm]: Perforated plate	Permitted differential pressure [bar]
130x	1	SK-3-…	2035	25 40 60 80 100 150 200 250 500 1000	50 100 200 250 300 500 1000 2000 3000	3000 5000 10000	6
250x	1	SK-4-…	2850				
520x	3	SK-3-….	6105				
650x	4	SK-4-….	11400				
1500x	7	SK-4-…	19950				
2500x	5	SK-5-….	37000				

[1] Others on request

[2] Stainless steel: 1.4301 or similar (group 304) / stainless steel 1.4571 or similar (group 316) Internally coated housing $T_{S\ max}$ +60 °C – higher temperature on request

[3] Internally coated housing $T_{S\ max}$ +60 °C – higher temperatures on request

[4] No. per side part

[5] Higher pressure ranges on request

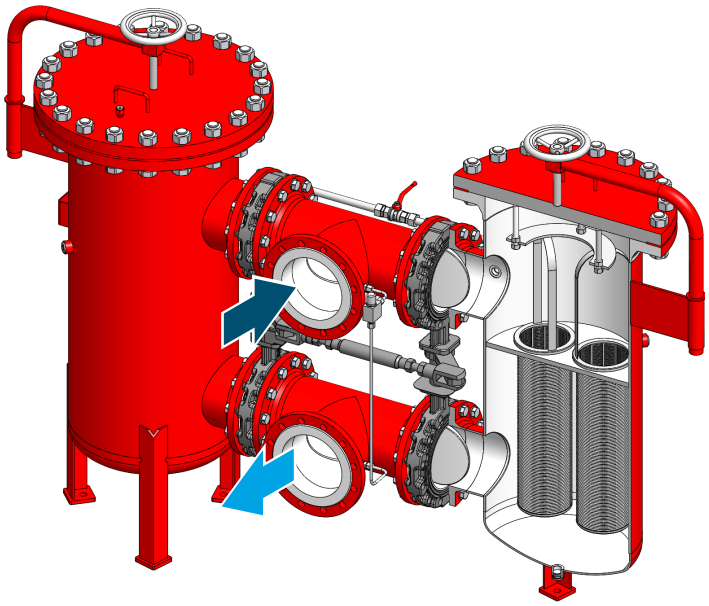
2. FUNCTION AND SPECIAL FEATURES

FUNCTION

- Flow is only through one side of the filter housing during filtration
- Flow through the filter element is from the inside to the outside
- The separated solids remain behind in the screen basket
- Particles being deposited during the filtration causes a loss of pressure
- The flow is switched to the other side of the filter housing at the change-over valve when the maximum differential pressure is reached
- The screen basket can be removed from the free side part
- Clogged screen baskets can easily be emptied and cleaned with the water hose
- Stubborn dirt can be removed with a pressure washer

ACCESSORIES

- Cover plate lifting device
- Drain and vent ball valves
- Various clogging indicators



3. CLOGGING INDICATORS

Type **Clogging indicator/ differential pressure monitoring**	Figure	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
Differential pressure gauge **DS11**		• Two microswitches • 1-pole change-over contacts can be adjusted from outside via reference value scales • Measuring cell in aluminium or stainless steel

4. FILTER CALCULATION*

CHECKLIST FOR FILTER CALCULATION

STEP 1: REQUIRED OPERATING DATA

- Observe the Pressure Equipment Directive 2014/68/EU
- Type of operating medium
- Viscosity
- Operating pressure
- Operating temperature
- Flow rate
- Required filtration rating
- Type of solid substances to be separated
- Solid particle content

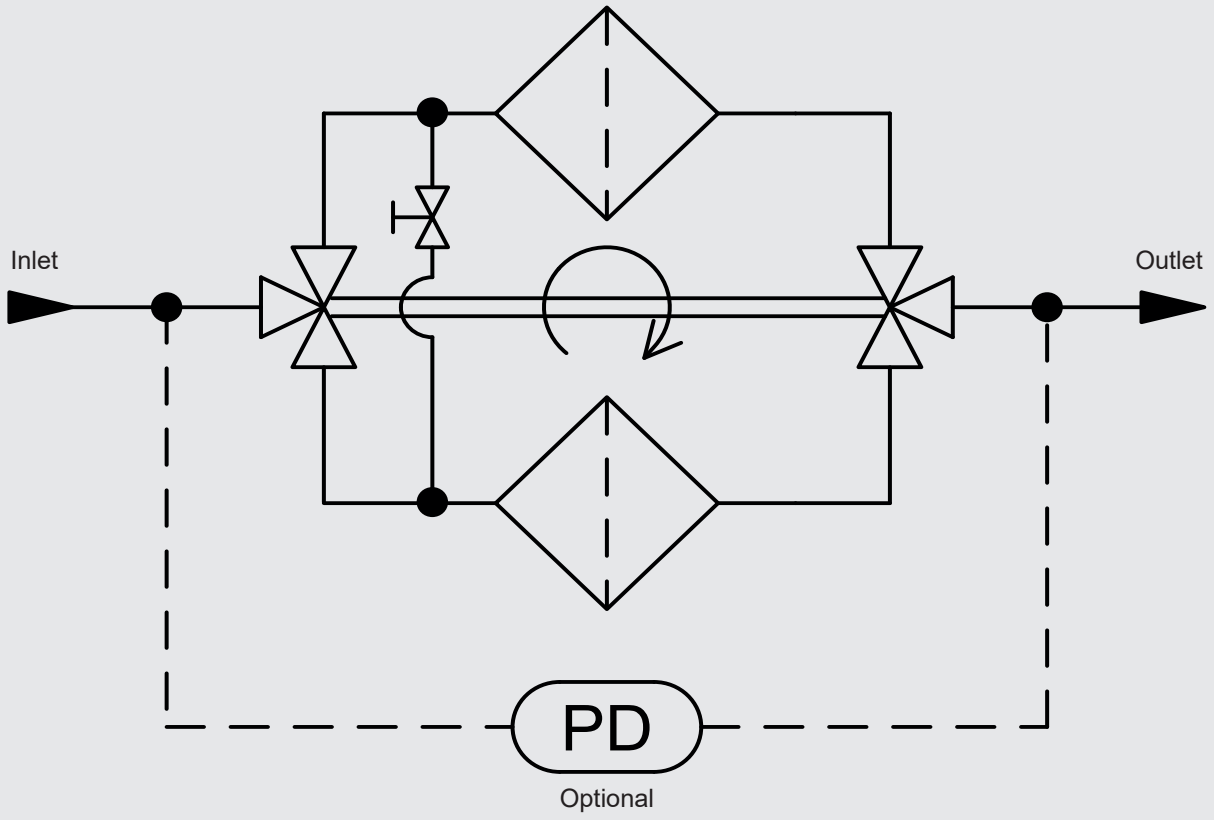
STEP 2: FILTER SIZING

- Hydraulic determination of size on basis of pressure drop curves
- The initial pressure difference for clean screen baskets should not exceed the following values:
  - Operating pressure ≤ 6 bar: 0.2 bar
  - Operating pressure > 6 to 10 bar: 0.3 bar
  - Operating pressure > 10 bar: 0.3 bar to 0.5 bar
- Housing material selected on basis of operating data and operating medium
- Sealing material selected on basis of operating data and operating medium
- Selection of nominal size for inlet and outlet flanges
- Different connection sizes can be selected for each size
- The flow velocity of 4 m/s at the flange inlet should not be exceeded
- Depending on the solid particle content, screen baskets can be deliberately oversized or undersized

STEP 3: DETERMINING THE FILTRATION RATING

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

CIRCUIT DIAGRAM

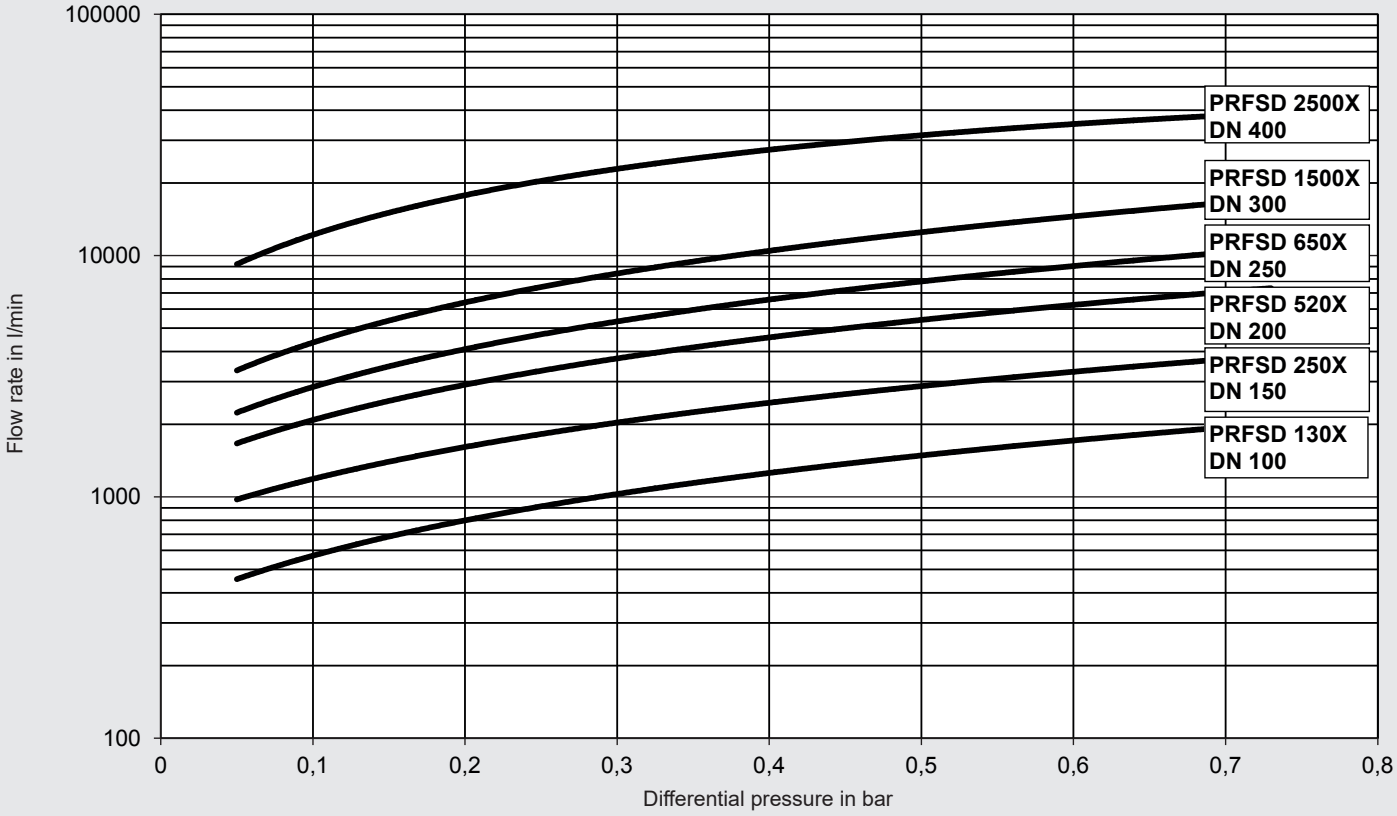


* Please contact our Head Office if you have any queries regarding filter sizing.

PRESSURE DROP CURVE FOR FILTER HOUSING INCL. SCREEN BASKET INSERT

Curves apply to water at 20 °C and other fluids up to a viscosity of 15 mm²/s.
They apply to all filtration ratings.

Exception:
If wedge wires with filtration rating 50 µm are used, 30% must be added to the determined pressure loss.



4. FILTER CONFIGURATION*

	Standard	Optional
Flange connections	• DIN EN • DN 50 to DN 400	ASME
Housing manufacture	AD 2000 technical data sheets / PED 97/23/EC	• ASME VIII Div. 1 with or without U-stamp • EN 13445
Housing materials	• Stainless steel 1.4301 or similar (group 304) • Stainless steel 1.4571 or similar (group 316) • Carbon steel	• Others on request
Corrosion protection, external	2-layer epoxy coating (not applicable to stainless steel housings)	• PUR top coat (colour RAL 7040) • RAL/Munsell colours to customer specification (for carbon steel grades)
Corrosion protection, internal	2K internal epoxy coating (not applicable to stainless steel tanks)	Various multi-layer coatings
Sealing materials	• FPM/FKM • Asbestos-free gasket	Various sealing materials on request, depending on the particular medium
Cover plate lifting device		With cover plate lifting device
Differential pressure monitoring		• Visual • Electrical • Visual-electrical • Differential pressure gauge with two micro-switches
Documentation	Assembly and Operating Instructions	• Acceptance test certificate 3.1 according to DIN EN 10204 for design, pressure and functional testing • Material certificates according to EN 10204, 3.1 for pressure-bearing media-contacting housing parts • Approvals: third parties (TÜV, ABS, Lloyd's, etc.) • Welding version (WPS) / welding procedure test (PQR/WPQ)

* Other versions and customer-specific special solutions after consultation with our Head Office.

6. MODEL CODE

MODEL CODE, PROCESS DOUBLE-SCREEN BASKET FILTER PRFSD

PRFSD – DS – 2500 E1 – A – AF12 – 3000 – 12 – 5 – 3 – 1235467

Filter type

PRFSD	= screen basket filter, duplex change-over

Filter material

D	= Chemicron® wire mesh, reinforced with perforated plate
DS	= Chemicron® wire mesh, reinforced on both sides with perforated plate
S	= wedge wire
L	= perforated plate

Size

130x	= DN 50 / 80 / 100 / 150
250x	= DN 100 / 150 / 200 / 250
520x	= DN 150 / 200 / 250
650x	= DN 200 / 250 / 300
1500x	= DN 250 / 300 / 400
2500x	= DN 400

Final digit x

E1	= housing stainless steel 1.4541 or similar (group 304)
E2	= housing stainless steel 1.4571 or similar (group 316)
4	= housing carbon steel + internal epoxy coating
5	= housing carbon steel without coating

Housing pressure rating

A	= 6 bar
B	= 10 bar
C	= 16 bar
D	= 25 bar (not all sizes)
E	= 40 bar (not all sizes)

Connection code (see table, p. 1)

F	= flange according to DIN with nominal size afterwards, e.g. F100
AF	= flange according to ASME with nominal size in inches afterwards

Filtration rating in µm

Chemicron® wire mesh	= 25 / 40 / 60 / 80 / 100 / 150 / 200 / 250 / 500 / 1000
Wedge wire	= 50 / 100 / 200 / 300 / 500 / 1000 / 2000 / 3000
Perforated plate	= 3000 / 5000 / 10000

Equipment

0	= without additional equipment
1	= cover plate lifting device
2	= vent and drain ball valve

Type of clogging indicator*

0	= no clogging indicator
1	= visual indicator (PVD 2 B.1)
2	= visual and electrical indicator (PVD 2 D.0 /L-...)
4	= visual/analogue clogging indicator made from aluminium with two adjustable contacts (0–4 bar)
5	= visual/analogue clogging indicator made from stainless steel with two adjustable contacts (0–4 bar)
6	= electric differential pressure switch PVD 2 C.0

Modification number

3

Supplementary details

Code number for special equipment

* only one clogging indicator at change-over valve

MODEL CODE, SCREEN BASKET INSERT

SK – 4 – D – 1000 – 0

Screen basket design

Screen basket insert with bracket

Size of screen basket

3
4
5

Filter material

D	= Chemicron® wire mesh, reinforced with perforated plate
DS	= Chemicron® wire mesh, reinforced with perforated plate on both sides
S	= wedge wire
L	= perforated plate (3000 µm and above)

Filtration rating in µm

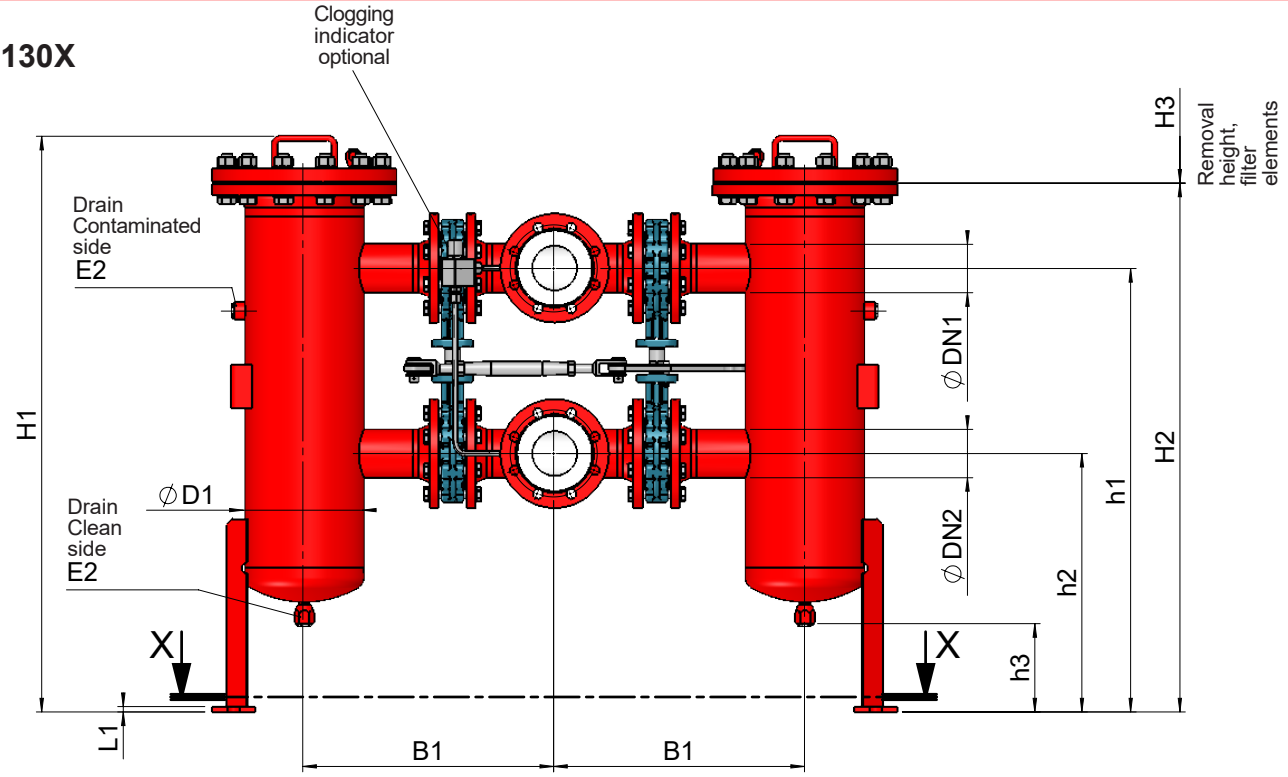
Chemicron® wire mesh	= 25 / 40 / 60 / 80 / 100 / 150 / 200 / 250 / 500 / 1000
Wedge wire	= 50 / 100 / 200 / 300 / 500 / 1000 / 2000 / 3000
Perforated plate	= 3000 / / 5000 / 10000

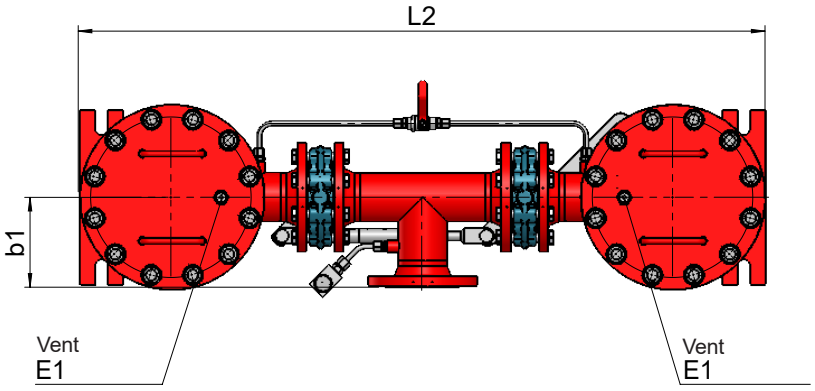
Sealing material

0	= no seal (≥ 500 µm)
K	= asbestos-free gasket (only for S / D / DS version)
V	= FPM / FKM
N	= NBR
E	= EPDM
S	= silicone

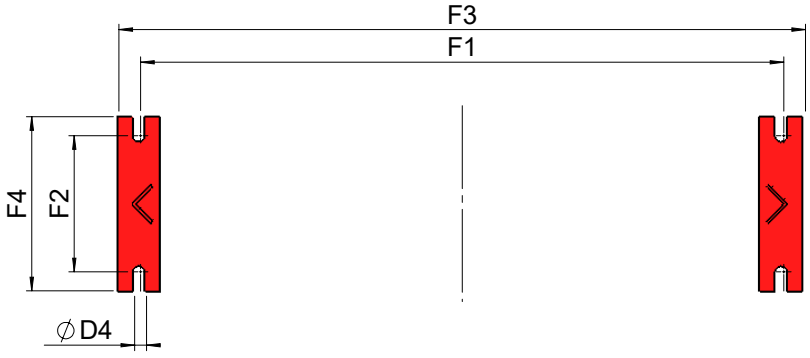
7. DIMENSIONS

PRFSD 130X





X-X

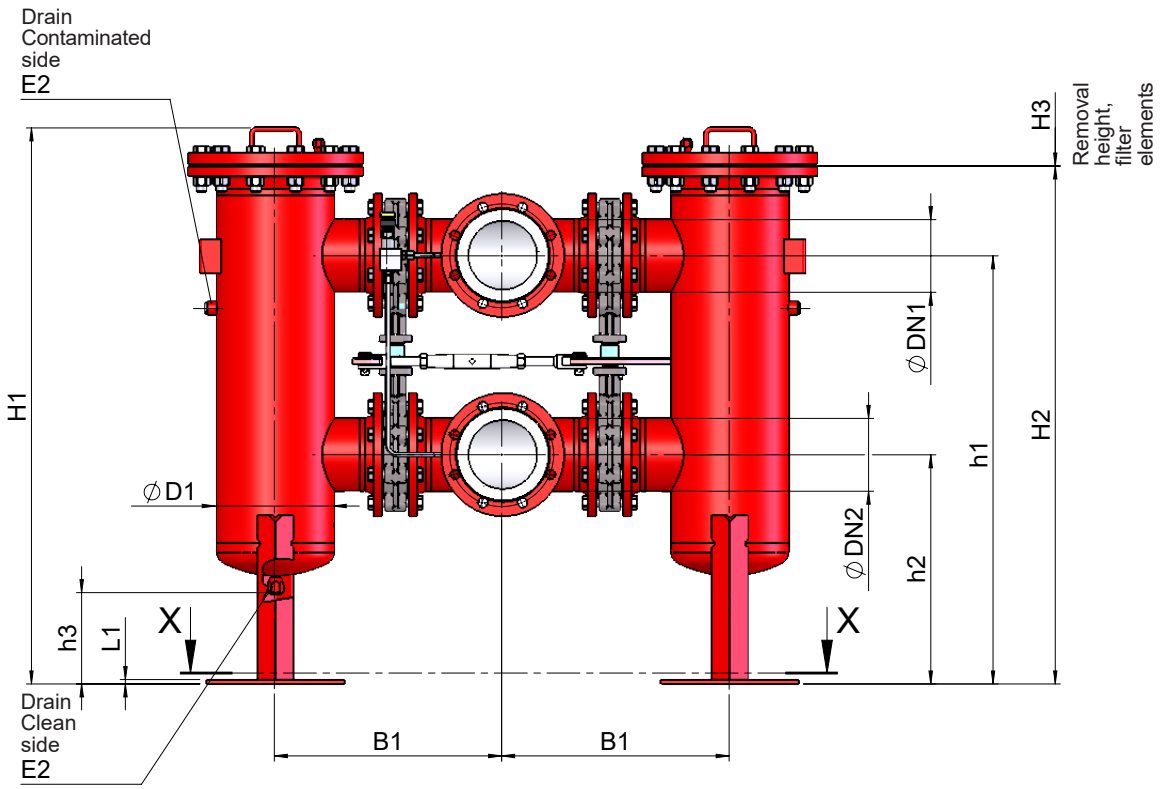


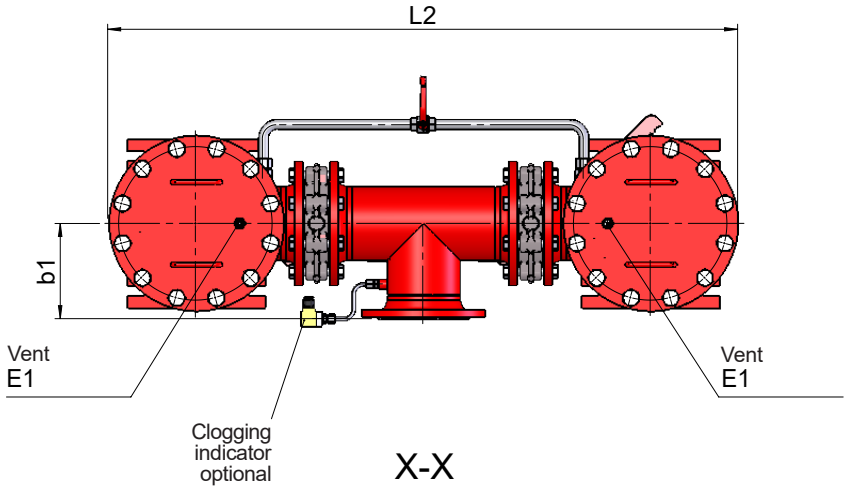
Specifications in millimetres.
Subject to technical modifications.

Size	Change-over valve		DN1	DN2	b1	h1	h2	h3	H1	H2	H3	L1	L2	B1	D1	D4	E1	E2	F1	F2	F3	F4
	Hand lever	Handwheel																				
PRFSD 130x-F50	•		50	50	225	810	520	200	1135	1050	750	10	1180	418	219	22	G1/4	G1/2	1095	250	1175	320
PRFSD 130x-F80	•		80	80	225	860	520	200	1135	1050	750	10	1215	436	219	22	G1/4	G1/2	1130	250	1210	320
PRFSD 130x-F100	•		100	100	225	900	520	200	1185	1100	750	10	1255	457	219	22	G1/4	G1/2	1170	250	1250	320
PRFSD 130x-F150	•		150	150	225	980	520	200	1260	1175	750	10	1305	481	219	22	G1/4	G1/2	1220	250	1300	320

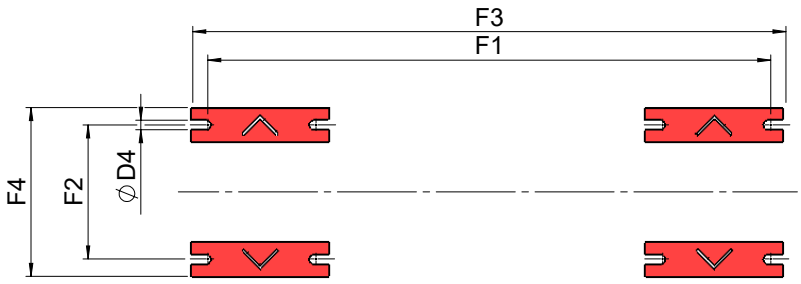
7. DIMENSIONS

PRFSD 250X





X-X

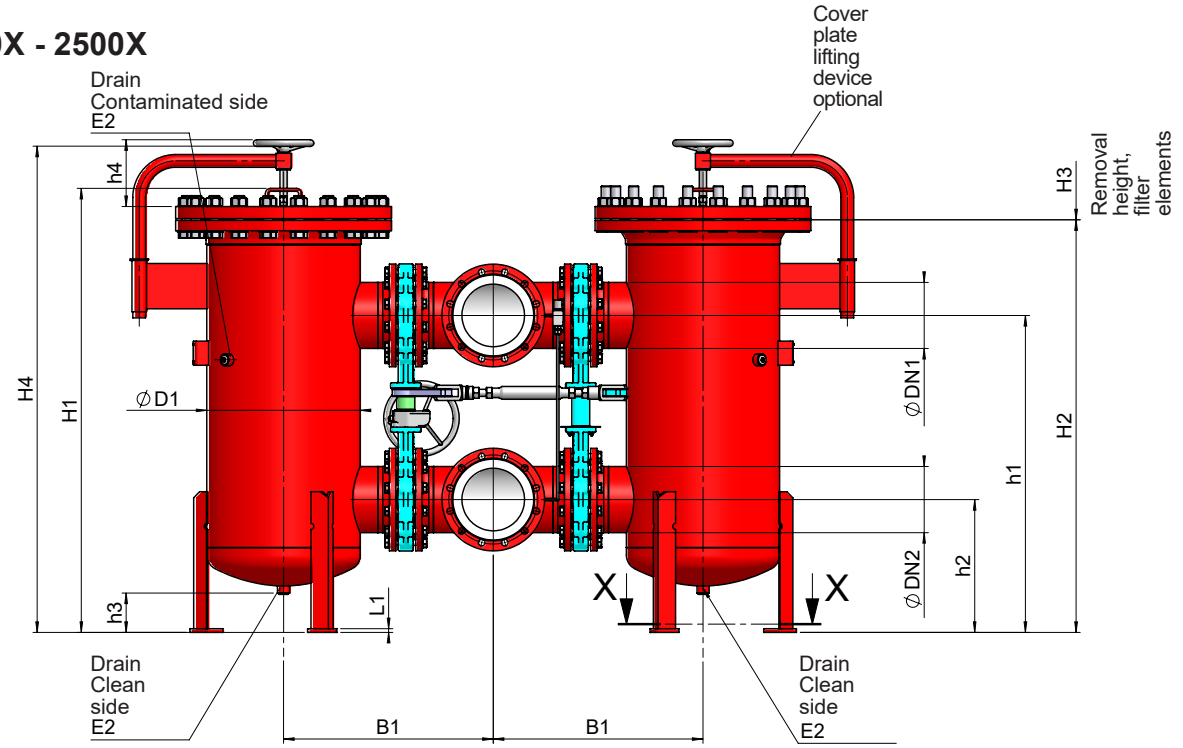


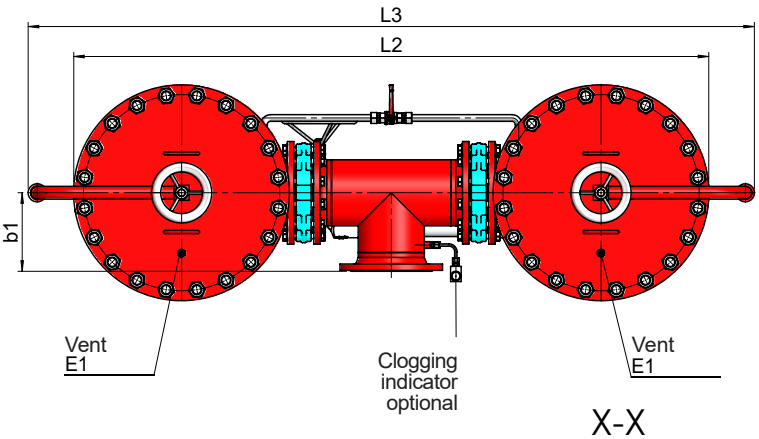
Specifications in millimetres.
Subject to technical modifications.

Size	Change-over valve		DN1	DN2	b1	h1	h2	h3	H1	H2	H3	L1	L2	B1	D1	D4	E1	E2	F1	F2	F3	F4
	Hand lever	Handwheel																				
PRFSD 250x-F100	•		100	100	225	980	600	200	1290	1200	1000	10	1370	482	273	22	G1/4	G1/2	1215	310	1285	390
PRFSD 250x-F150	•		150	150	225	1060	600	250	1360	1270	1000	10	1420	506	273	22	G1/4	G1/2	1265	310	1335	390
PRFSD 250x-F200		•	200	200	300	1210	600	300	1530	1440	1000	10	1545	570	273	22	G1/4	G1/2	1390	310	1460	390
PRFSD 250x-F250		•	250	250	300	1320	600	350	1660	1570	1000	10	1740	668	273	22	G1/4	G1/2	1585	310	1655	390

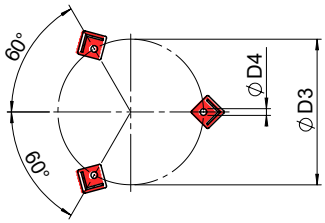
7. DIMENSIONS

PRFSD 520X - 2500X





X-X



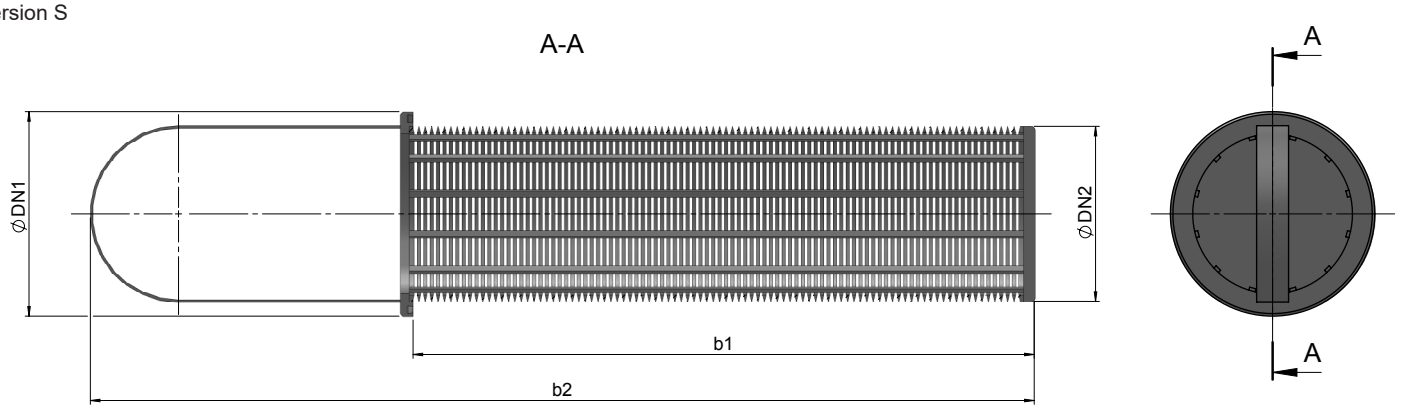
Specifications in millimetres.
Subject to technical modifications.

Size	Change-over valve		DN1	DN2	b1	h1	h2	h3	h4	H1	H2	H3	H4	L1	L2	L3	B1	D1	D3	D4	E1	E2
	Hand lever	Handwheel																				
PRFSD 520x-F150	•		150	150	300	985	525	240	400	1320	1225	750	1660	12	1745	2045	581	406	380	22	G1/4	G3/4
PRFSD 520x-F200		•	200	200	300	1135	525	240	400	1495	1400	750	1835	12	1870	2170	645	406	380	22	G1/4	G3/4
PRFSD 520x-F250		•	250	250	300	1245	525	200	500	1645	1550	750	2085	12	2070	2370	743	406	380	22	G1/4	G3/4
PRFSD 650x-F200		•	200	200	300	1210	600	275	400	1565	1460	1000	1905	12	2155	2455	720	508	480	22	G1/4	G3/4
PRFSD 650x-F250		•	250	250	300	1320	600	275	500	1755	1650	1000	2195	12	2355	2655	818	508	480	22	G1/4	G3/4
PRFSD 650x-F300		•	300	300	350	1375	600	220	600	1805	1700	1000	2355	12	2415	2715	850	508	480	22	G1/4	G3/4
PRFSD 1500x-F250		•	250	250	350	1390	670	250	400	1820	1700	1000	2160	12	2750	3050	918	711	690	22	G1/4	G1
PRFSD 1500x-F300		•	300	300	350	1445	670	250	500	1895	1775	1000	2335	12	2820	3120	953	711	690	22	G1/4	G1
PRFSD 1500x-F400		•	400	400	400	1590	670	200	600	2195	1975	1000	2735	12	2915	3215	1002	711	690	22	G1/4	G1
PRFSD 2500x-F400		•	400	400	400	1870	950	350	400	2400	2275	1750	2740	16	3530	3830	1202	914	858	26	G1/4	G1

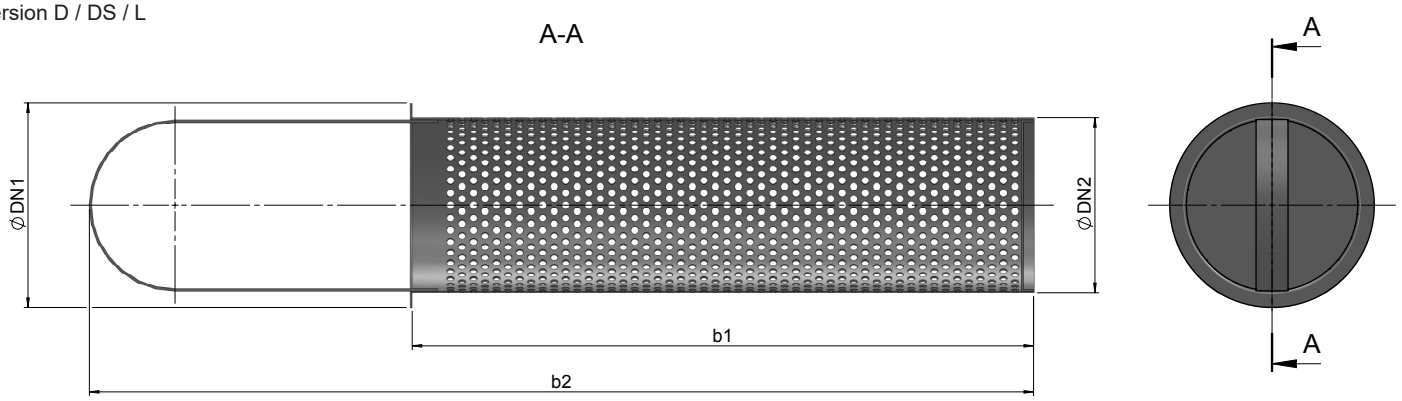
7. DIMENSIONS

SCREEN BASKET INSERT

Version S



Version D / DS / L



Specifications in millimetres.
Subject to technical modifications.

Size	DN1	DN2	b1	b2
SK-3	160	137	486	738
SK-4	187	164	566	913
SK-5	300	260	910	1619

NOTE

The information in this brochure relates to the operating conditions and applications described.
For applications and/or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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