

NAVO  TECH[®]

INŻYNIERIA ŚRODOWISKA

 **PRODUCT
CATALOGUE**

Caution:

NavoTech, a device manufacturer, reserves the right to make changes to the offered products resulting from continuous improvement of the devices, without the need to notify in advance..

The technical solutions contained in this study are the property of NavoTech Inżynieria Środowiska Sp. z o.o.

ul. Pawliczka 22a, 41-800 Zabrze.

The form of this study may be changed only with the written consent of NavoTech Inżynieria Środowiska Sp. z o.o., subject to all legal consequences.

NAVO TECH®

INŻYNIERIA ŚRODOWISKA

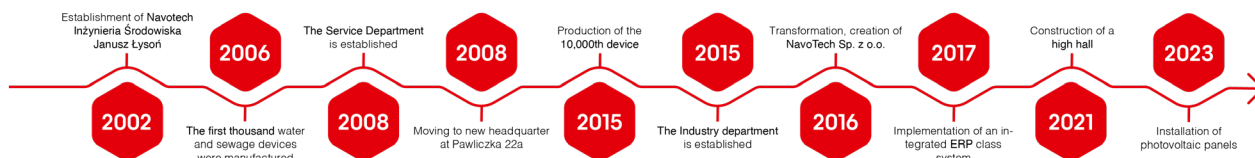
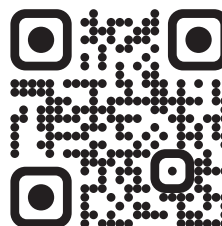
Navotech Inżynieria Środowiska Sp. z o.o. has been present on the market for over 20 years. During this time, we have put into operation several tens of thousands devices, installations and systems. Our mission is to care for the environment and customer satisfaction.

We offer to our clients:

- professional service,
- professional technical and commercial support,
- quality at the highest level,
- devices manufactured according to expectations,
- warranty and post-warranty service.



- Address:
NAVOTECH Inżynieria Środowiska Sp. z o.o.
Alojzego Pawliczka 22a, 41-800 Zabrze
NIP: 648 277 39 49
www.navotech.eu
Tel. +48 32 777 11 44
E-mail: export@navotech.eu





Contents

CHAPTER I	SEPARATION	5
CHAPTER II	RETENTION AND STORAGE	59
CHAPTER III	RAINWATER MANAGEMENT	66
CHAPTER IV	ADDITIONAL EQUIPMENT	76
CHAPTER V	INDUSTRY	82



CHAPTER I

Separation

■ MAK coalescence separators	6
■ SDL lamellar separators	23
■ SL lamellar separators	28
■ Grease and starch separators	38
■ Mineral and organic suspensions sedimentation tanks	44
■ Highly efficient PRIM settling tanks	49
■ Vortex settling tanks	52
■ Acid neutralizers	56

MAK COALESCENCE SEPARATORS

Coalescence separators of petroleum substances

■ INTENDED USE

MAK separators are designed to purify rainwater discharged from roads, parking lots, parking and maneuvering areas as well as technological sewage from car washes, mechanical and repair workshops, gas stations, vehicle parts storage places, etc. The separator retains mineral suspensions such as sand, mud, ash and petroleum substances. Depending on the type of separator, they are intended for installation in green areas or in communication routes.

MAK separators are designed to be operated from ground level without the need to enter the device.

■ PRINCIPLE OF OPERATION

MAK separators are flow devices. In the settling tank part, sedimentation of mineral suspension, sand and mud takes place (for separators with a settling tank).

In addition to the action of gravity, the physical processes of adsorption and coalescence were used in the separation chamber. Oil particles accumulate on the surface of the cellular structures of the coalescing insert (adsorption), where they combine into larger and larger agglomerates (coalescence) and migrate to the surface, creating an oil film. Separators are standardly equipped with closing systems which, after collecting the maximum amount of light liquid, automatically close the separator outlet, thus preventing contamination of the receiver.

■ BASIC STRUCTURE

The MAK separator tank is made of C35/45 concrete or high-density polyethylene. The separator is intended for installation in the ground or free-standing in a frost-free room, well or sewer. Underground devices are adapted for installation in road traffic routes. Internal equipment elements are made of plastic and stainless steel. The proposed separators are easy to install.

The separators are intended for installation in:

- underground green areas,
- underground areas with road traffic,
- underground the area of mining damage,
- free-standing frost-free rooms.

■ ADDITIONAL EQUIPMENT

MAK separators have extensive additional equipment installed depending on the requirements resulting from projects and industry agreements:

- emptying installations facilitating direct cleaning and operation of separators (NT-U),
- additional oil sorption cartridges to obtain above-standard wastewater quality,
- measuring probes for the amount of suspensions and petroleum substances with a sound and/or light alarm system,
- flow rate measurement systems,
- flow regulators,
- return flaps,
- emergency closure on the inlet to the separator,
- gravity ventilation connection if the separator is located inside rooms, halls, etc.

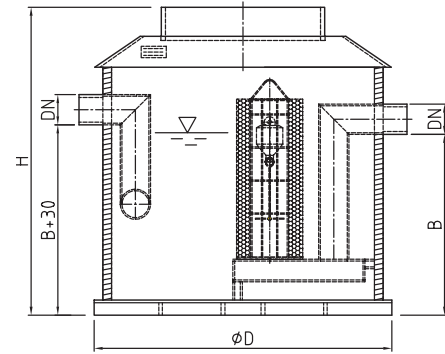
■ ECOLOGICAL EFFECT

The content of petroleum substances in purified sewage flowing from the technological system of MAK separators by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311). The contents of petroleum derivatives with a density of 0.85 [kg/dm³] and of general suspension in the outflow at the rated output: according to EN 858-1:2005+A1:2007.

MAK-PE

1,5 ÷ 100 [l/s]

Coalescing separator with auto-closing
 made of polyethylene



MAK-PE	Nominal flow [l/s]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAK-PE-1,5	1,5	1 000	1 100	660	110	120
MAK-PE-3	3	1 000	1 180	730	160	130
MAK-PE-6	6	1 000	1 580	1 130	160	140
MAK-PE-8	8	1 200	1 610	1 110	160	200
MAK-PE-10	10	1 400	1 440	860	160	250
MAK-PE-15	15	1 400	1 690	1 060	200	270
MAK-PE-20	20	1 400	2 030	1 410	200	320
MAK-PE-25	25	1 400	2 330	1 710	250	350
MAK-PE-30	30	1 700	2 200	1 540	250	410
MAK-PE-35	35	1 700	2 440	1 780	315	450
MAK-PE-40	40	1 900	2 300	1 580	315	540
MAK-PE-45	45	1 900	2 540	1 760	315	590
MAK-PE-50	50	1 900	2 730	1 950	315	630
MAK-PE-60	60	2 100	2 680	1 850	315	780
MAK-PE-70	70	2 400	2 640	1 780	315	870
MAK-PE-80	80	2 400	2 860	2 000	315	940
MAK-PE-90	90	2 400	3 120	2 250	315	1 020
MAK-PE-100	100	2 400	3 370	2 500	315	1 100

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK-PE separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- separation and collection compartment for light liquids,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening with connector for ML600 / ML1000 superstructure.

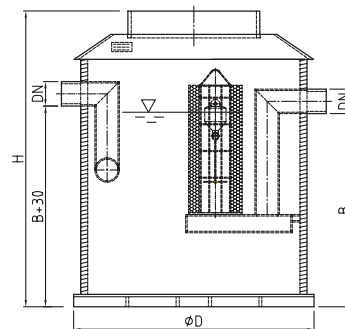
■ NOTE

- the MAK-PE separator should cooperate with a mineral suspension settler with a capacity adapted to local conditions, in accordance with the PN-EN 858-2:2005 standard,
- MAK-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made on the basis of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

MAKO-PE

1,5 ÷ 60 [l/s]

Coalescing separator
with auto-closing,
integrated with the settling tank



MAKO-PE	Nominal flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKO-PE-1,5-0,15	1,5	150	1 000	1 150	710	110	120
MAKO-PE-1,5-0,3	1,5	300	1 000	1 480	1 040	110	140
MAKO-PE-1,5-0,75	1,5	750	1 200	1 860	1 370	110	220
MAKO-PE-3-0,3	3	300	1 000	1 500	1 010	160	130
MAKO-PE-3-0,66	3	660	1 200	1 810	1 260	160	210
MAKO-PE-3-2,5	3	2 500	1 900	2 410	1 680	160	560
MAKO-PE-6-0,6	6	600	1 200	1 730	1 180	160	210
MAKO-PE-6-1,2	6	1 200	1 400	2 110	1 480	160	330
MAKO-PE-6-2,5	6	2 500	1 900	2 420	1 680	160	560
MAKO-PE-6-5,1	6	5 100	2 400	2 890	2 050	160	940
MAKO-PE-8-0,8	8	800	1 200	1 990	1 440	160	230
MAKO-PE-8-1,8	8	1 800	1 700	2 160	1 470	160	400
MAKO-PE-8-2,5	8	2 500	1 900	2 540	1 680	160	560
MAKO-PE-8-5,1	8	5 100	2 400	2 890	2 050	160	940
MAKO-PE-10-1	10	1 000	1 400	1 940	1 310	160	310
MAKO-PE-10-2	10	2 000	1 700	2 430	1 740	160	450
MAKO-PE-10-3	10	3 000	1 900	2 680	1 940	160	620
MAKO-PE-10-5,1	10	5 100	2 400	2 890	2 050	160	940
MAKO-PE-15-1,5	15	1 500	1 700	2 240	1 580	200	420
MAKO-PE-15-3	15	3 000	1 900	2 810	2 110	200	650
MAKO-PE-15-3,5	15	3 500	2 400	2 850	2 050	200	930
MAKO-PE-20-2	20	2 000	1 700	2 540	1 880	200	460
MAKO-PE-20-4	20	4 000	2 400	2 700	1 900	200	880
MAKO-PE-25-2,5	25	2 500	1 900	2 760	2 040	250	630
MAKO-PE-25-5	25	5 000	2 400	3 200	2 400	250	1 040
MAKO-PE-30-3	30	3 000	1 900	2 990	2 280	250	680
MAKO-PE-30-6	30	6 000	2 400	3 530	2 730	250	1 140
MAKO-PE-35-3,5	35	3 500	1 900	3 390	2 680	315	770
MAKO-PE-40-4	40	4 000	2 400	3 130	2 330	315	1 010
MAKO-PE-45-3,7	45	3 700	2 400	2 960	2 100	315	970
MAKO-PE-50-5	50	5 000	2 400	3 360	2 500	315	1 090
MAKO-PE-60-6,1	60	6 100	2 400	3 860	3 000	315	1 250

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK-PE separators are designed to work with the ML superstructure

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquids,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening with connector for ML600 / ML1000 superstructure.

■ NOTE

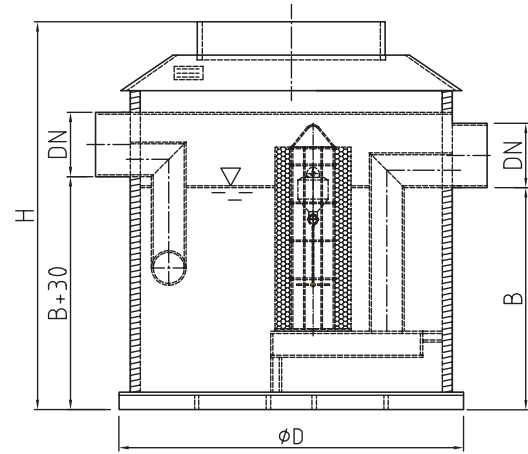
- MAKO-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on the basis of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

MAKH-PE

1,5 ÷ 60 [l/s]

Coalescing separator
with auto-closing
with 10-times storm bypass

Maximum flow 15 ÷ 600 [l/s]



MAKH-PE	Nominal flow [l/s]	Maximum flow [l/s]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKH-PE-1,5/15	1,5	15	900	1 350	660	160	120
MAKH-PE-3/30	3	30	1 200	1 340	730	200	180
MAKH-PE-6/60	6	60	1 200	1 860	1 130	315	230
MAKH-PE-8/80	8	80	1 200	1 900	1 110	315	220
MAKH-PE-10/100	10	100	1 400	1 700	860	315	280
MAKH-PE-15/150	15	150	1 400	1 980	1 060	400	310
MAKH-PE-20/200	20	200	1 400	2 430	1 410	500	370
MAKH-PE-25/250	25	250	1 400	2 730	1 710	500	400
MAKH-PE-30/300	30	300	1 700	2 540	1 540	500	460
MAKH-PE-35/350	35	350	1 700	2 880	1 780	600	520
MAKH-PE-40/400	40	400	1 900	3 120	1 580	600	710
MAKH-PE-45/450	45	450	1 900	2 860	1 760	600	660
MAKH-PE-50/500	50	500	1 900	3 040	1 950	600	700
MAKH-PE-60/600	60	600	2 100	3 410	1 870	600	990

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAKH-PE separators are designed to work with the ML superstructure

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- separation and collection compartment for light liquids,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening with connector for ML600 / ML1000 superstructure.

■ NOTE

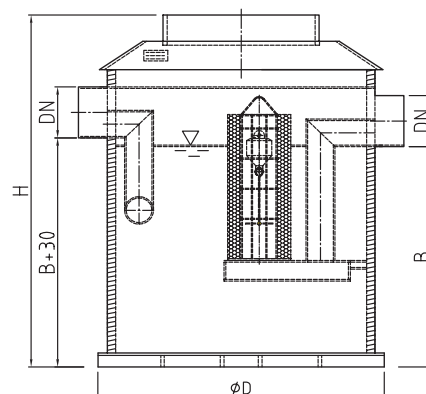
- the MAKH-PE separator should cooperate with a mineral suspension settler with a capacity adapted to local conditions, in accordance with the PN-EN 858-2:2005 standard,
- MAKH-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on the basis of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

MAKOH-PE

1,5 ÷ 60 [l/s]

Coalescing separator
with auto-closing
with 5-times storm bypass
integrated with the settling tank

Maximum flow 8 ÷ 300 [l/s]



MAKOH-PE	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKOH-PE-1,5/8-015	1,5	8	150	1 000	1 300	760	160	130
MAKOH-PE-1,5/8-0,3	1,5	8	300	1 000	1 630	1 090	160	140
MAKOH-PE-1,5/8-0,75	1,5	8	750	1 200	2 020	1 420	160	230
MAKOH-PE-3/15-0,47	3	15	470	1 200	1 670	1 060	200	210
MAKOH-PE-3/15-0,66	3	15	660	1 200	1 950	1 310	200	230
MAKOH-PE-3/15-2,6	3	15	2 600	1 900	2 550	1 740	200	590
MAKOH-PE-6/30-0,6	6	30	600	1 200	1 870	1 230	200	220
MAKOH-PE-6/30-1,2	6	30	1 200	1 400	2 220	1 530	200	340
MAKOH-PE 6/30-2,5	6	30	2 500	1 900	2 550	1 740	200	590
MAKOH-PE 6/30-5,1	6	30	5 100	2 400	3 030	2 130	200	980
MAKOH-PE 8/40-0,8	8	40	800	1 200	2 240	1 490	315	250
MAKOH-PE 8/40-1,6	8	40	1 600	1 700	2 420	1 540	315	440
MAKOH-PE 8/40-2,5	8	40	2 500	1 900	2 660	1 740	315	610
MAKOH-PE 8/40-5,1	8	40	5 100	2 400	3 140	2 130	315	1 020
MAKOH-PE 10/50-1	10	50	1 000	1 400	2 170	1 360	315	340
MAKOH-PE 10/50-2	10	50	2 000	1 700	2 690	1 810	315	490
MAKOH-PE 10/50-3	10	50	3 000	1 900	2 920	2 000	315	670
MAKOH-PE 10/50-5,1	10	50	5 100	2 040	3 100	2 130	315	1 020
MAKOH-PE 15/75-1,5	15	75	1 500	1 700	2 450	1 580	315	450
MAKOH-PE 15/75-3	15	75	3 000	1 900	3 030	2 110	315	690
MAKOH-PE 15/75-4,5	15	75	4 500	2 400	3 070	2 050	315	990
MAKOH-PE 20/100-2	20	100	2 000	1 700	2 750	1 880	315	500
MAKOH-PE 20/100-4	20	100	4 000	2 400	2 920	1 900	315	950
MAKOH-PE 25/125-2,5	25	125	2 500	1 900	3 050	2 040	400	700
MAKOH-PE 25/125-5	25	125	5 000	2 400	3 500	2 400	400	1 130
MAKOH-PE 30/150-3	30	150	3 000	1 900	3 300	2 280	400	750
MAKOH-PE 30/150-6	30	150	6 000	2 400	3 830	2 730	400	1 230
MAKOH-PE 35/175-3,5	35	175	3 500	1 900	3 690	2 680	400	830
MAKOH-PE 40/200-4	40	200	4 000	2 400	3 530	2 330	500	1 140
MAKOH-PE 45/225-3,7	45	225	3 700	2 400	3 240	2 100	500	1 060
MAKOH-PE 50/250-5	50	250	5 000	2 400	3 640	2 500	500	1 180
MAKOH-PE 60/300-6,1	60	300	6 100	2 400	4 140	3 000	500	1 340

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK-PE separators are designed to work with the ML superstructure

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquids,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening with connector for ML600 / ML1000 superstructure.

■ NOTE

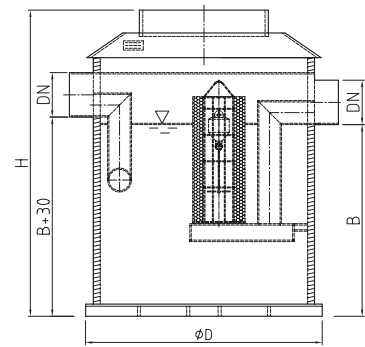
- MAKOH-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on the basis of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on a double-walled PEHD pipe specifying the internal diameter.

MAKOH-PE

3 ÷ 60 [l/s]

Coalescing separator
 with auto-closing
 with 10-times storm bypass
 integrated with the settling tank

Maximum flow 30 ÷ 600 [l/s]



MAKOH-PE	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKOH-PE-3/30-0,47	3	30	470	1 200	1 670	1 060	200	210
MAKOH-PE-3/30-0,66	3	30	660	1 200	1 950	1 310	200	230
MAKOH-PE-3/30-2,6	3	30	2 600	1 900	2 550	1 740	200	590
MAKOH-PE-6/60-0,6	6	60	600	1 200	1 870	1 230	315	220
MAKOH-PE-6/60-1,2	6	60	1 200	1 400	2 220	1 530	315	340
MAKOH-PE 6/60-2,5	6	60	2 500	1 900	2 550	1 740	315	590
MAKOH-PE 6/60-5,1	6	60	5 100	2 400	3 030	2 130	315	980
MAKOH-PE 8/80-0,8	8	80	800	1 200	2 240	1 490	315	250
MAKOH-PE 8/80-1,6	8	80	1 600	1 700	2 420	1 540	315	440
MAKOH-PE 8/80-2,5	8	80	2 500	1 900	2 660	1 740	315	610
MAKOH-PE 8/80-5,1	8	80	5 100	2 400	3 140	2 130	315	1 020
MAKOH-PE 10/100-1	10	100	1 000	1 400	2 170	1 360	315	340
MAKOH-PE 10/100-2	10	100	2 000	1 700	2 690	1 810	315	490
MAKOH-PE 10/100-3	10	100	3 000	1 900	2 920	2 000	315	670
MAKOH-PE 10/100-5,1	10	100	5 100	2 040	3 100	2 130	315	1 020
MAKOH-PE 15/150-1,5	15	150	1 500	1 700	2 450	1 580	315	450
MAKOH-PE 15/150-3	15	150	3 000	1 900	3 030	2 110	315	690
MAKOH-PE 15/150-4,5	15	150	4 500	2 400	3 070	2 050	315	990
MAKOH-PE 20/200-2	20	200	2 000	1 700	2 750	1 880	315	500
MAKOH-PE 20/200-4	20	200	4 000	2 400	2 920	1 900	315	950
MAKOH-PE 25/250-2,5	25	250	2 500	1 900	3 050	2 040	400	700
MAKOH-PE 25/250-5	25	250	5 000	2 400	3 500	2 400	400	1 130
MAKOH-PE 30/300-3	30	300	3 000	1 900	3 300	2 280	400	750
MAKOH-PE 30/300-6	30	300	6 000	2 400	3 830	2 730	400	1 230
MAKOH-PE 35/350-3,5	35	350	3 500	1 900	3 690	2 680	400	830
MAKOH-PE 40/400-4	40	400	4 000	2 400	3 530	2 330	500	1 140
MAKOH-PE 45/450-3,7	45	450	3 700	2 400	3 240	2 100	500	1 060
MAKOH-PE 50/500-5	50	500	5 000	2 400	3 640	2 500	500	1 180
MAKOH-PE 60/600-6,1	60	600	6 100	2 400	4 140	3 000	500	1 340

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK-PE separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquids,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening with connector for ML600 / ML1000 superstructure.

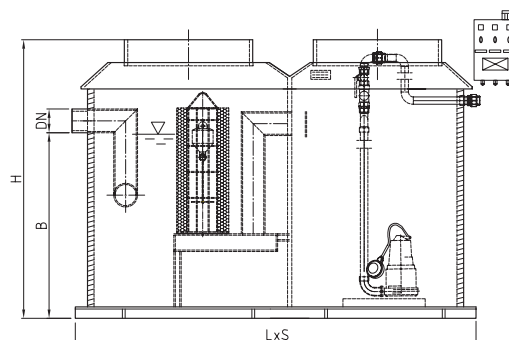
■ NOTE

- MAKOH-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on the basis of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on a double-walled PEHD pipe specifying the internal diameter.

MAK-P

1,5 ÷ 10 [l/s]

Coalescing separator
with auto-closing
with pump chamber
integrated with the settling tank
for underground installation



MAK-P	Nominal flow [l/s]	Settling tank capacity [l]	L [mm]	S [mm]	H [mm]	B [mm]	DN [mm]
MAK-P-1,5-0,15	1,5	150	1 800	900	1 100	790	110/Rp11/4
MAK-P-1,5-0,3	1,5	300	1 800	900	1 300	1 010	110/Rp11/4
MAK-P-3-0,3	3	300	1 900	950	1 300	1 010	110/Rp11/4
MAK-P-3-0,7	3	700	2 200	1 200	1 800	1 295	110/Rp11/4
MAK-P-6-0,6	6	600	2 200	1 200	1 700	1 215	160/Rp11/2
MAK-P-6-1,2	6	1 200	2 600	1 400	2 110	1 510	160/Rp11/2
MAK-P-8-0,8	8	800	2 400	1 200	1 990	1 470	160/Rp2
MAK-P-8-1,8	8	1 800	2 900	1 700	2 160	1 500	160/Rp2
MAK-P-10-1	10	1 000	2 600	1 400	1 940	1 340	160/Rp2
MAK-P-10-2	10	2 000	2 900	1 700	2 430	1 770	160/Rp2

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- hand handle for pulling out the basket and float,
- inspection opening with connector for ML600 superstructure.

PUMP CHAMBER

- inlet connector with a stream breaker,
- inspection opening with connector for ML600 superstructure,
- control system with level sensors*,
- pump hydraulic system*.

■ NOTE

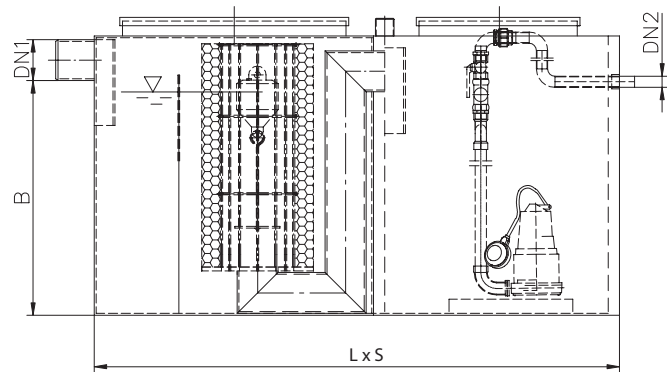
- pump system selected individually according to local conditions
- MAK-P separators with other flows – upon request.

* Upon request

MAK-WP

1,5 ÷ 10 [l/s]

Coalescing separator
with auto-closing
with pump chamber
integrated with the settling tank
for free-standing installation



MAK-WP	Nominal flow [l/s]	Settling tank capacity [l]	L [mm]	H [mm]	H1 [mm]	S [mm]	B1 [mm]	B2 [mm]	DN1 [mm]	DN2 [mm]
MAK-WP-1,5-100	1,5	100	1 000	900	950	800	750	770	110	40
MAK-WP-1,5-400	1,5	400	1 500	900	950	800	750	770	110	40
MAK-WP-3-200	3	200	1 500	900	950	800	730	750	110	40
MAK-WP-3-500	3	500	2 300	900	950	800	730	750	110	40
MAK-WP-6-100	6	100	2 300	900	950	800	700	730	160	50
MAK-WP-6-850	6	850	3 000	1 100	1 150	1 000	800	830	160	50
MAK-WP-8-850	8	850	3 000	1 300	1 350	1 000	1 100	900	160	63
MAK-WP-10-1 000	10	1 000	3 000	1 300	1 350	1 000	1 100	900	160	63

Inspection openings DN300 ÷ DN400 with screw-on covers

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- hand handle for pulling out the basket and float,
- threaded cover for the inspection hole.

PUMP CHAMBER

- inlet connector with a stream breaker,
- threaded cover for the inspection hole,
- control system with level sensors*,
- pump hydraulic system*.

■ NOTE

- pump system selected individually according to local conditions,
 - MAK-P separators with other flows – upon request.
- * Upon request

■ INTENDED USE

MAK-P and MAK-WP separators are intended for free-standing or underground installation in concrete chambers of parking lots and underground garages. The pumping system ensures that the treated sewage is raised to the required height. The separator retains mineral suspensions such as sand, mud and petroleum substances.



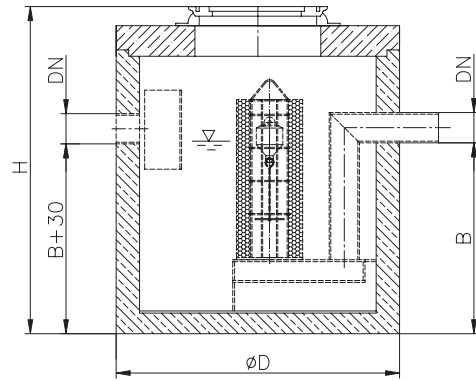
MAK-B

1,5 ÷ 160 [l/s]

Coalescing separator with auto-closing

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAK-B	Nominal flow [l/s]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAK-B-1,5	1,5	1 300	1 800	800	110	3 000
MAK-B-3	3	1 300	1 800	850	160	3 000
MAK-B-6	6	1 300	1 800	1 000	160	3 000
MAK-B-8	8	1 300	2 400	1 200	160	3 500
MAK-B-10	10	1 500	1 850	1 050	160	4 320
MAK-B-15	15	1 500	2 450	1 150	200	5 000
MAK-B-20	20	1 500	2 450	1 500	200	5 000
MAK-B-25	25	1 800	2 350	1 350	250	5 800
MAK-B-30	30	1 800	2 350	1 500	250	5 800
MAK-B-35	35	1 800	2 850	1 650	315	6 900
MAK-B-40	40	1 800	2 850	1 750	315	6 900
MAK-B-45	45	2 300	2 350	1 350	315	8 900
MAK-B-50	50	2 300	2 350	1 400	315	8 900
MAK-B-60	60	2 300	2 850	1 550	315	10 500
MAK-B-70	70	2 300	2 850	1 750	315	10 500
MAK-B-80	80	2 300	2 950	1 950	315	10 600
MAK-B-90	90	2 300	3 100	2 160	315	10 600
MAK-B-100	100	2 800	2 850	1 750	400	11 200
MAK-B-110	110	2 800	2 980	1 850	400	11 350
MAK-B-120	120	2 800	2 980	1 900	400	11 350
MAK-B-130	130	2 800	3 050	2 020	400	11 580
MAK-B-140	140	2 800	3 350	2 150	400	12 300
MAK-B-150	150	2 800	3 550	2 300	400	13 200
MAK-B-160	160	2 800	3 550	2 450	400	13 200

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet hole with a gasket and a stream breaker,
- separation and collection compartment for light liquids,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- the MAK-B separator should cooperate with a mineral suspension settler with a capacity adapted to local conditions, in accordance with the PN-EN 858-2:2005 standard,
- MAK-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- for flow ≥ 40 [l/s] two inspection holes,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe..

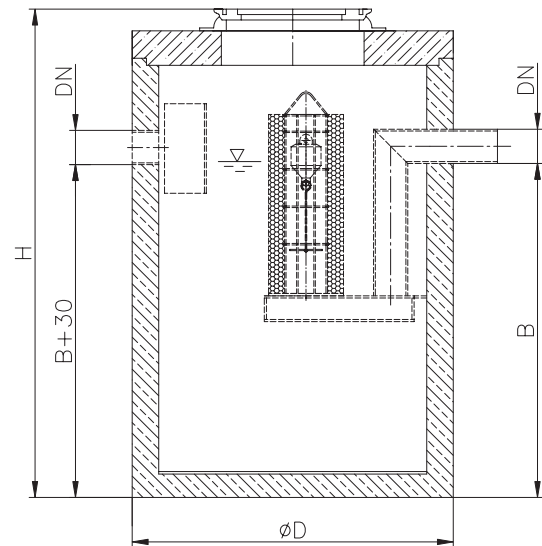
MAKO-B

1,5 ÷ 20 [l/s]

Coalescing separator with auto-closure
integrated with the settling tank

Vertical cylindrical tank:

reinforced concrete: C35/45
 wall thickness: 120 – 150 mm
 cover thickness: 150 – 250 mm
 cast iron hatches: DN 600. Class A÷D



MAKO-B	Nominal flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKO-B-1,5-0,27	1,5	270	1 300	1 800	900	110	3 000
MAKO-B-1,5-0,75	1,5	750	1 300	2 400	1 510	110	3 500
MAKO-B-3-0,3	3	300	1 300	1 800	950	160	3 000
MAKO-B-3-0,65	3	650	1 300	2 400	1 380	160	3 500
MAKO-B-3-1,2	3	1 200	1 500	2 450	1 620	160	5 000
MAKO-B-3-2,5	3	2 500	1 800	2 850	1 970	160	6 900
MAKO-B-3-5	3	5 000	2 300	3 000	2 150	160	10 700
MAKO-B-6-0,6	6	600	1 300	2 450	1 320	160	3 500
MAKO-B-6-1,2	6	1 200	1 500	2 450	1 620	160	5 800
MAKO-B-6-2,5	6	2 500	1 800	2 850	1 970	160	8 900
MAKO-B-6-5,1	6	5 100	2 300	3 050	2 180	160	10 700
MAKO-B-8-0,8	8	800	1 300	2 450	1 580	160	5 000
MAKO-B-8-1,6	8	1 600	1 800	2 350	1 460	160	6 400
MAKO-B-8-2,5	8	2 500	2 300	2 350	1 350	160	8 900
MAKO-B-8-5,1	8	5 100	2 300	3 050	2 180	160	10 700
MAKO-B-10-1	10	1 000	1 500	2 450	1 450	160	5 000
MAKO-B-10-2	10	2 000	1 800	2 650	1 690	160	6 400
MAKO-B-10-3	10	3 000	2 300	2 350	1 510	160	8 900
MAKO-B-10-5,1	10	5 100	2 300	3 050	2 180	160	10 700
MAKO-B-15-1,4	15	1 400	1 800	2 350	1 460	200	5 800
MAKO-B-15-2,3	15	2 300	1 800	2 850	1 970	200	6 900
MAKO-B-15-2,6	15	2 600	2 300	2 350	1 510	200	8 900
MAKO-B-15-5,5	15	5 500	2 800	2 500	1 780	200	10 900
MAKO-B-20-2,1	20	2 100	1 800	2 850	1 840	200	6 900
MAKO-B-20-4,1	20	4 100	2 300	2 850	1 960	200	10 500
MAKO-B-20-6,3	20	6 300	2 800	2 850	1 940	200	11 200

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet hole with a gasket and a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquids,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- MAKO-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on the basis of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on a double-walled PEHD pipe specifying the internal diameter.

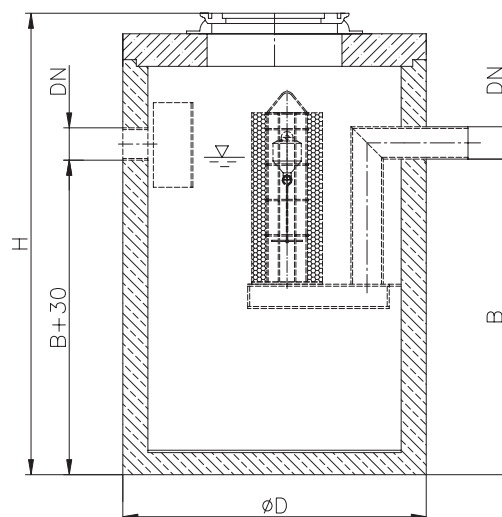
MAKO-B

25 ÷ 100 [l/s]

**Coalescing separator with auto-closure,
integrated with the settling tank**

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAKO-B	Nominal flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKO-B-25-2,2	25	2 200	2 300	2 550	1 550	250	9 000
MAKO-B-25-4,5	25	4 500	2 800	2 850	1 780	250	11 200
MAKO-B-25-7	25	7 000	2 800	3 100	2 280	250	11 580
MAKO-B-30-3	30	3 000	2 300	2 850	1 810	250	10 500
MAKO-B-30-6	30	6 000	2 800	3 000	2 080	250	10 600
MAKO-B-30-7,5	30	7 500	2 800	3 350	2 380	250	12 300
MAKO-B-35-3,5	35	3 500	2 300	3 050	2 120	315	10 700
MAKO-B-35-4,5	35	4 500	2 800	2 850	1 920	315	11 200
MAKO-B-35-7,1	35	7 100	2 800	3 350	2 450	315	12 300
MAKO-B-40-3,8	40	3 800	2 300	3 000	1 980	315	10 600
MAKO-B-40-4,7	40	4 700	2 800	2 650	1 720	315	10 900
MAKO-B-40-7,8	40	7 800	2 800	3 350	2 350	315	12 300
MAKO-B-45-4,4	45	4 400	2 300	3 100	2 160	315	10 700
MAKO-B-45-8,8	45	8 800	2 800	3 650	2 550	315	13 200
MAKO-B-50-5,1	50	5 100	2 800	2 850	1 790	315	11 200
MAKO-B-50-10	50	10 000	2 800	3 850	2 790	315	13 400
MAKO-B-60-6	60	6 000	2 800	3 050	2 080	315	11 590
MAKO-B-60-9	60	9 000	2 800	3 750	2 690	315	13 400
MAKO-B-70-7	70	7 000	2 800	3 450	2 430	315	13 000
MAKO-B-70-9,5	70	9 500	2 800	4 050	2 950	315	14 500
MAKO-B-80-8	80	8 000	2 800	3 850	2 750	315	13 400
MAKO-B-90-9	90	9 000	2 800	4 050	3 050	315	14 500
MAKO-B-100-10,6	100	10 600	2 800	4 250	3 220	315	16 000

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet hole with a gasket and a stream breaker,
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquids,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- MAKO-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- for flow ≥ 40 [l/s] two inspection holes,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

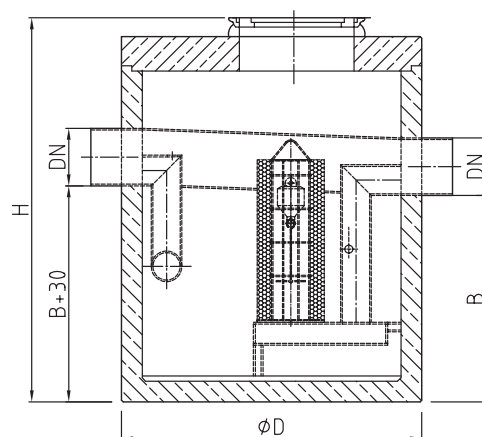
MAKH-B

1,5 ÷ 150 [l/s]

**Coalescing separator with auto-closing
with 5-times storm bypass
Maximum flow 8 ÷ 750 [l/s]**

Vertical cylindrical tank:

reinforced concrete: C35/45
 wall thickness: 120 – 150 mm
 cover thickness: 150 – 250 mm
 cast iron hatches: DN 600. Class A÷D



MAKH-B	Nominal flow [l/s]	Maximum flow [l/s]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKH-B-1,5/8	1,5	8	1 300	1 800	750	160	3 000
MAKH-B-3/15	3	15	1 300	1 800	800	200	3 000
MAKH-B-6/30	6	30	1 300	1 800	1 000	200	3 000
MAKH-B-8/40	8	40	1 300	2 400	1 200	250	3 500
MAKH-B-10/50	10	50	1 500	2 450	950	315	5 000
MAKH-B-15/75	15	75	1 500	2 450	1 150	315	5 000
MAKH-B-20/100	20	100	1 800	2 350	1 250	315	5 800
MAKH-B-25/125	25	125	1 800	2 350	1 350	400	5 800
MAKH-B-30/150	30	150	1 800	2 450	1 450	400	5 900
MAKH-B-35/175	35	175	1 800	2 550	1 550	400	6 100
MAKH-B-40/200	40	200	1 800	2 750	1 750	400	6 700
MAKH-B-45/225	45	225	2 300	2 350	1 180	400	8 900
MAKH-B-50/250	50	250	2 300	2 350	1 280	400	8 900
MAKH-B-60/300	60	300	2 300	2 550	1 500	400	9 000
MAKH-B-70/350	70	350	2 300	2 850	1 730	400	10 500
MAKH-B-80/400	80	400	2 300	2 950	1 950	400	10 600
MAKH-B-90/450	90	450	2 300	3 350	2 160	500	10 900
MAKH-B-100/500	100	500	2 800	2 850	1 750	500	11 200
MAKH-B-110/550	110	550	2 800	3 050	1 850	600	11 580
MAKH-B-120/600	120	600	2 800	3 100	1 900	600	11 580
MAKH-B-130/650	130	650	2 800	3 650	2 020	800	13 200
MAKH-B-140/700	140	700	2 800	3 750	2 150	800	13 400
MAKH-B-150/750	150	750	2 800	3 950	2 300	800	13 600

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- separation and collection compartment for light liquids,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- the MAKH-B separator should cooperate with a mineral suspension settler with a capacity adapted to local conditions, in accordance with the PN-EN 858-2:2005 standard,
- MAKH-B separators with other flows and operating parameters - upon request,
- for flow ≥ 40 [l/s] two inspection holes,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

MAKH-B

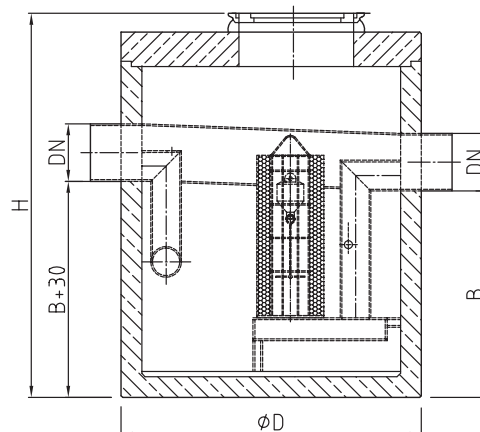
3 ÷ 150 [l/s]

**Coalescing separator with auto-closing
with 10-times storm bypass**

Maximum flow 30 ÷ 1500 [l/s]

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAKH-B	Nominal flow [l/s]	Maximum flow [l/s]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKH-B-3/30	3	30	1 300	1 800	800	200	3 500
MAKH-B-6/60	6	60	1 300	1 900	1 000	315	3 500
MAKH-B-8/80	8	80	1 300	2 045	1 200	315	3 500
MAKH-B-10/100	10	100	1 500	2 450	950	315	5 000
MAKH-B-15/150	15	150	1 500	2 450	1 150	400	5 000
MAKH-B-20/200	20	200	1 800	2 350	1 250	400	5 800
MAKH-B-25/250	25	250	1 800	2 350	1 350	400	5 800
MAKH-B-30/300	30	300	1 800	2 450	1 450	400	5 900
MAKH-B-35/350	35	350	1 800	2 650	1 550	500	6 400
MAKH-B-40/400	40	400	1 800	2 850	1 750	500	6 900
MAKH-B-45/450	45	450	2 300	2 350	1 180	500	8 900
MAKH-B-50/500	50	500	2 300	2 450	1 280	500	8 900
MAKH-B-60/600	60	600	2 300	2 850	1 500	600	10 500
MAKH-B-70/700	70	700	2 300	2 950	1 730	600	10 500
MAKH-B-80/800	80	800	2 300	3 350	1 950	800	10 900
MAKH-B-90/900	90	900	2 300	3 650	2 160	800	11 100
MAKH-B-100/1000	100	1 000	2 800	3 350	1 750	800	12 300
MAKH-B-110/1 100	110	1 100	2 800	3 350	1 850	800	12 300
MAKH-B-120/1 200	120	1 200	2 800	3 350	1 900	800	12 300
MAKH-B-130/1 300	130	1 300	2 800	3 650	2 020	1 000	13 200
MAKH-B-140/1 400	140	1 400	2 800	3 750	2 150	1 000	13 400
MAKH-B-150/1 500	150	1 500	2 800	3 950	2 300	1 000	13 600

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- separation and collection compartment for light liquids,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- the MAKH-B separator should cooperate with a mineral suspension settler with a capacity adapted to local conditions, in accordance with the PN-EN 858-2:2005 standard,
- MAKH-B separators with other flows and operating parameters - upon request.
- for flow ≥ 40 [l/s] two inspection holes,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

MAKOH-B

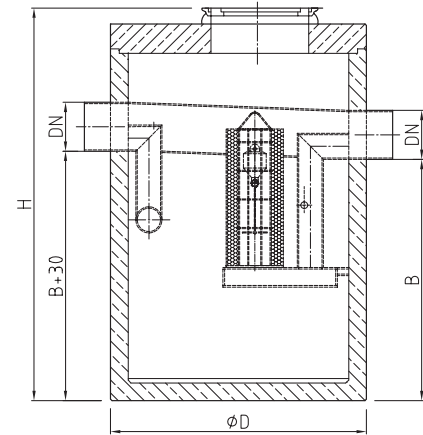
1,5 ÷ 20 [l/s]

**Coalescing separator with auto-closing
with 5-times storm bypass and settling tank**

Maximum flow 8 ÷ 100 [l/s]

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAKOH-B	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKOH-B-1.5/8-0.25	1,5	8	250	1 300	1 800	870	160	3 000
MAKOH-B-1.5/8-0.75	1,5	8	750	1 300	2 400	1 510	160	3 500
MAKOH-B-3/15-0.3	3	15	300	1 300	1 800	950	200	3 000
MAKOH-B-3/15-0.65	3	15	650	1 300	2 400	1 380	200	3 500
MAKOH-B-3/15-1.2	3	15	1 200	1 500	2 450	1 620	200	5 000
MAKOH-B-3/15-2.5	3	15	2 500	1 800	2 850	1 970	200	6 900
MAKOH-B-3/15-5	3	15	5 000	2 300	2 950	2 150	200	10 500
MAKOH-B-6/30-0.6	6	30	600	1 300	2 400	1 320	200	3 500
MAKOH-B-6/30-1.2	6	30	1 200	1 500	2 400	1 620	200	5 000
MAKOH-B-6/30-2.5	6	30	2 500	1 800	2 850	1 970	200	6 900
MAKOH-B-6/30-5.1	6	30	5 100	2 300	2 980	2 180	200	10 600
MAKOH-B-8/40-0.8	8	40	800	1 300	2 400	1 580	250	3 500
MAKOH-B-8/40-1.6	8	40	1 600	1 800	2 350	1 460	250	5 800
MAKOH-B-8/40-2.5	8	40	2 500	2 300	2 350	1 350	250	8 900
MAKOH-B-8/40-5.1	8	40	5 100	2 300	3 050	2 180	250	10 700
MAKOH-B-10/50-1	10	50	1 000	1 500	2 450	1 450	315	3 500
MAKOH-B-10/50-2	10	50	2 000	1 800	2 650	1 690	315	6 400
MAKOH-B-10/50-3	10	50	3 000	2 300	2 450	1 510	315	8 900
MAKOH-B-10/50-5.1	10	50	5 100	2 300	3 100	2 180	315	10 700
MAKOH-B-15/75-1.6	15	75	1 600	1 800	2 450	1 460	315	5 900
MAKOH-B-15/75-2.5	15	75	2 500	1 800	2 950	1 970	315	6 900
MAKOH-B-15/75-3	15	75	3 000	2 300	2 350	1 510	315	9 000
MAKOH-B-15/75-6	15	75	6 000	2 800	2 850	1 780	315	11 200
MAKOH-B-20/100-2.1	20	100	2 100	1 800	2 850	1 840	315	6 900
MAKOH-B-20/100-4.1	20	100	4 100	2 300	3 000	1 960	315	10 600
MAKOH-B-20/100-6.3	20	100	6300	2 800	2 850	1 940	315	11 200

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquid,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- MAKOH-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

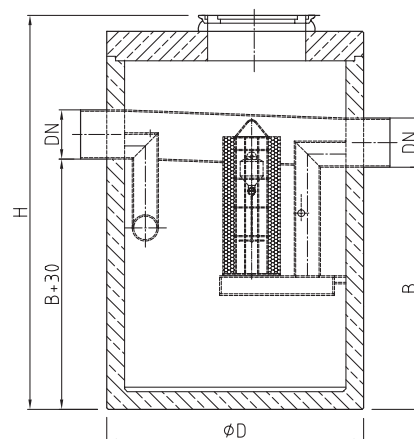
MAKOH-B

25 ÷ 100 [l/s]

**Coalescing separator with auto-closing
with 5-times storm bypass and settling tank
Maximum flow 125 ÷ 500 [l/s]**

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAKOH-B	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKOH-B-25/125-2.5	25	125	2 500	2 300	2 550	1 550	400	9 000
MAKOH-B-25/125-5	25	125	5 000	2 800	2 850	1 780	400	11 200
MAKOH-B-25/125-7.5	25	125	7 500	2 800	3 350	2 280	400	12 300
MAKOH-B-30/150-3	30	150	3 000	2 300	2 850	1 810	400	10 500
MAKOH-B-30/150-6	30	150	6 000	2 800	3 100	2 080	400	11 580
MAKOH-B-30/150-7.5	30	150	7 500	2 800	3 450	2 380	400	13 000
MAKOH-B-35/175-3.5	35	175	3 500	2 300	3 100	2 120	400	10 700
MAKOH-B-35/175-4.5	35	175	4 500	2 800	3 050	1 920	400	11 580
MAKOH-B-35/175-7.1	35	175	7 100	2 800	3 550	2 450	400	13 200
MAKOH-B-40/200-4	40	200	4 000	2 300	2 950	1 950	400	10 600
MAKOH-B-40/200-5	40	200	5 000	2 800	2 850	1 720	400	11 200
MAKOH-B-40/200-8.1	40	200	8 100	2 800	3 350	2 350	400	13 200
MAKOH-B-45/225-4.6	45	225	4 600	2 800	2 850	1 650	400	11 200
MAKOH-B-45/225-9	45	225	9 000	2 800	3 650	2 550	400	13 200
MAKOH-B-50/250-5.1	50	250	5 100	2 800	2 980	1 790	400	11 350
MAKOH-B-50/250-10	50	250	10 000	2 800	3 950	2 790	400	14 500
MAKOH-B-60/300-6	60	300	6 000	2 800	3 100	2 080	400	11 580
MAKOH-B-60/300-9	60	300	9 000	2 800	3 750	2 690	400	13 400
MAKOH-B-70/350-7	70	350	7 000	2 800	3 550	2 430	500	13 200
MAKOH-B-70/350-9.5	70	350	9 500	2 800	4 050	2 950	500	14 500
MAKOH-B-80/400-8.1	80	400	8 100	2 800	3 850	2 750	500	13 400
MAKOH-B-90/450-9	90	450	9 000	2 800	4 250	3 050	500	14 900
MAKOH-B-100/500-10.6	100	500	10 600	2 800	4 450	3 220	500	15 300

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquid,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- MAKOH-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- for flow ≥ 40 [l/s] two inspection holes,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

MAKOH-B

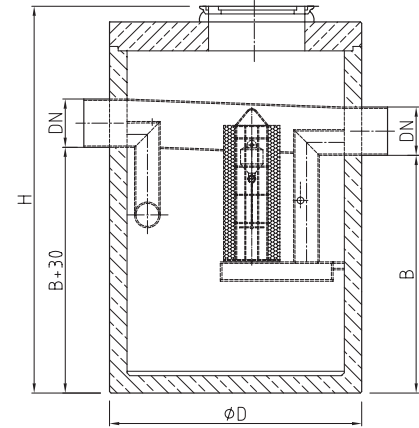
3 ÷ 20 [l/s]

**Coalescing separator with auto-closing
with 10-times storm bypass and settling tank**

Maximum flow 30 ÷ 200 [l/s]

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAKOH-B	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKOH-B-3/30-0.3	3	30	300	1 300	1 800	950	200	3 000
MAKOH-B-3/30-0.65	3	30	650	1 300	2 400	1 380	200	3 500
MAKOH-B-3/30-1.2	3	30	1 200	1 500	2 450	1 620	200	5 000
MAKOH-B-3/30-2.5	3	30	2 500	1 800	2 850	1 970	200	6 900
MAKOH-B-3/30-5	3	30	5 000	2 300	2 950	2 150	200	10 500
MAKOH-B-6/60-0.6	6	60	600	1 300	2 150	1 320	315	3 500
MAKOH-B-6/60-1.4	6	60	1 400	1 800	2 350	1 350	315	5 800
MAKOH-B-6/60-2.5	6	60	2 500	1 800	3 000	1 970	315	6 900
MAKOH-B-6/60-5.1	6	60	5 100	2 300	3 100	2 180	315	10 700
MAKOH-B-8/80-0.8	8	80	800	1 500	2 450	1 260	315	5 000
MAKOH-B-8/80-1.6	8	80	1 600	1 800	2 450	1 460	315	5 900
MAKOH-B-8/80-2.5	8	80	2 500	2 300	2 350	1 350	315	8 900
MAKOH-B-8/80-5.1	8	80	5 100	2 300	3 100	2 180	315	10 700
MAKOH-B-10/100-1	10	100	1 000	1 500	2 450	1 450	315	5 000
MAKOH-B-10/100-2	10	100	2 000	1 800	2 650	1 690	315	6 400
MAKOH-B-10/100-3	10	100	3 000	2 300	2 450	1 510	315	8 900
MAKOH-B-10/100-5.1	10	100	5 100	2 300	3 100	2 180	315	10 700
MAKOH-B-15/150-1.5	15	150	1 600	1 800	2 550	1 460	400	6 100
MAKOH-B-15/150-2.5	15	150	2 500	1 800	3 050	1 970	400	7 100
MAKOH-B-15/150-3	15	150	3 000	2 300	2 550	1 510	400	9 000
MAKOH-B-15/150-6	15	150	6 000	2 800	2 850	1 780	400	11 200
MAKOH-B-20/200-2.1	20	200	2 100	1 800	2 850	1 840	400	6 900
MAKOH-B-20/200-4	20	200	4 000	2 300	2 950	1 950	400	10 600
MAKOH-B-20/200-6.3	20	200	6 300	2 800	3 000	1 940	400	11 350

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquid,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- MAKOH-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

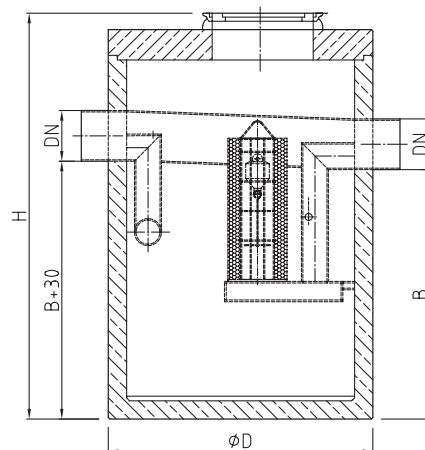
MAKOH-B

25 ÷ 100 [l/s]

**Coalescing separator with auto-closing
with 10-times storm bypass and settling tank
Maximum flow 250 ÷ 1000 [l/s]**

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



MAKOH-B	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	D [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
MAKOH-B-25/250-2.5	25	250	2 500	2 300	2 550	1 550	400	9 000
MAKOH-B-25/250-5	25	250	5 000	2 800	2 850	1 780	400	11 200
MAKOH-B-25/250-7.5	25	250	7 500	2 800	3 350	2 280	400	13 200
MAKOH-B-30/300-3	30	300	3 000	2 300	2 950	1 810	400	10 600
MAKOH-B-30/300-6	30	300	6 000	2 800	3 100	2 080	400	11 580
MAKOH-B-30/300-7.5	30	300	7 500	2 800	3 550	2 380	400	13 200
MAKOH-B-35/350-3.5	35	350	3 500	2 300	3 100	2 120	500	10 600
MAKOH-B-35/350-4.5	35	350	4 500	2 800	3 050	1 920	500	11 580
MAKOH-B-35/350-7.1	35	350	7 100	2 800	3 550	2 450	500	13 200
MAKOH-B-40/400-4	40	400	4 000	2 300	3 000	1 980	500	10 600
MAKOH-B-40/400-5	40	400	5 000	2 800	2 850	1 720	500	11 200
MAKOH-B-40/400-8.1	40	400	8 100	2 800	3 450	2 350	500	13 000
MAKOH-B-45/450-4.6	45	450	4 600	2 800	2 850	1 650	500	11 200
MAKOH-B-45/450-9	45	450	9 000	2 800	3 650	2 550	500	13 200
MAKOH-B-50/500-5.1	50	500	5 100	2 800	2 980	1 790	500	11 350
MAKOH-B-50/500-10	50	500	10 000	2 800	3 950	2 790	500	14 500
MAKOH-B-60/600-6	60	600	6 000	2 800	3 450	2 080	600	13 000
MAKOH-B-60/600-9	60	600	9 000	2 800	3 950	2 690	600	14 500
MAKOH-B-70/700-7	70	700	7 000	2 800	3 750	2 430	600	13 400
MAKOH-B-70/700-9.5	70	700	9 500	2 800	4 250	2 950	600	14 900
MAKOH-B-80/800-8.1	80	800	8 100	2 800	4 250	2 750	800	14 900
MAKOH-B-90/900-9	90	900	9 000	2 800	4 550	3 050	800	15 200
MAKOH-B-100/1000-10.6	100	1 000	10 600	2 800	4 750	3 220	800	15 600

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. MAK separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket),
- integrated sedimentation tank for mineral suspensions,
- separation and collection compartment for light liquid,
- storm bypass pipe, independent of the separator chamber, connected to the nominal outlet,
- cellular coalescing insert with a stainless steel or PP carrying basket,
- auto-closure tared to a density of 0.85 [kg/dm³] connected to the PE outlet connector,
- inspection opening DN600 with a cast iron hatch class A÷D.

■ NOTE

- MAKOH-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- for flow ≥ 40 [l/s] two inspection holes,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SDL LAMELLAR SEPARATORS

Lamella separators of petroleum substances

■ INTENDED USE

SDL lamella separators are used in the treatment of rainwater from street and parking lot drainage, in the treatment of technological wastewater from machinery and heavy industry plants, from gas stations, from manual and automatic car washes, from service stations for passenger cars and trucks, etc.

SDL lamella separators are designed to remove sedimenting mineral suspensions and oil-gasoline substances that cannot be introduced into the receiver, sewage system or local sewage treatment plants.

■ PRINCIPLE OF OPERATION

SDL lamella separators are gravity flow devices. In the sedimentation tank part (if the SDL separator with settling tank is selected) sedimentation of the mineral suspension of sand and mud takes place, which remains in the storage, sludge part.

The physical processes of adsorption, coalescence and sedimentation were used in the separator chamber. Thanks to sedimentation, suspensions are precipitated from the sewage and then, thanks to the lamella insert, oil particles accumulate on the surface of the lamellas (adsorption), where they combine into larger and larger agglomerates (coalescence) and flow to the surface due to gravity. The separator's filter box is made of PEHD polyethylene and tightly connected to the PE drain. PVC material is never used in the oil collection area. The equipment is made of materials resistant to oil and gasoline substances.

■ BASIC STRUCTURE

SDL separator tanks are made in the shape of a monolithic cylinder with a vertical axis, based on high tightness concrete or PE-HD based on a double-walled pipe with high peripheral stiffness..

Lamella inserts are made of PP. The packages are chemically passive material, they do not react with strong acids and bases, they are also resistant to petroleum substances.

■ ADDITIONAL EQUIPMENT

SDL separators have extensive additional equipment installed depending on the requirements resulting from projects and industry agreements:

- emptying installations facilitating direct cleaning and operation of separators (NT-U),
- additional oil sorption cartridges to obtain above-standard wastewater quality,
- measuring probes for the amount of suspensions and petroleum substances with a sound and/or light alarm system,
- flow rate measurement systems,
- flow regulators,
- return flaps,
- emergency closure on the inlet to the separator,
- gravity ventilation connection if the separator is located inside rooms, halls, etc.

■ ECOLOGICAL EFFECT

The content of petroleum substances in purified sewage flowing from the technological system of SDL separators by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311). The contents of petroleum derivatives with a density of 0.85 [kg/dm³] and of general suspension in the outflow at the rated output: according to EN 858-1:2005+A1:2007.



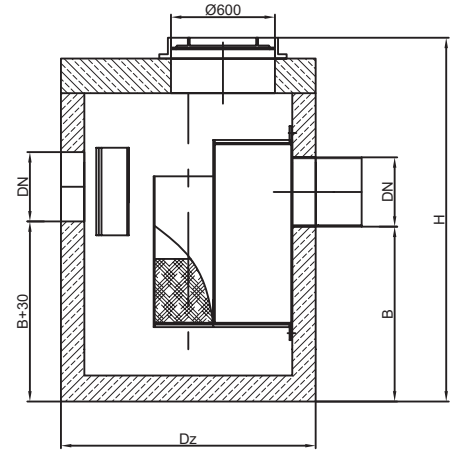
SDL-B

3 ÷ 100 [l/s]

**Lamella separator
with 10-times storm bypass
Maximum flow 30 ÷ 1 000 [l/s]**

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600/800. Class A÷D



SDL-B	Nominal flow [l/s]	Maximum flow [l/s]	Dz [mm]	H [mm]	B [mm]	DN [mm]
SDL-B-3/30	3	30	1 300	2 350	1 000	160 – 400
SDL-B-6/60	6	60	1 300	2 350	1 200	200 – 400
SDL-B-10/100	10	100	1 500	2 350	950	160 – 500
SDL-B-15/150	15	150	1 500	2 350	1 150	200 – 500
SDL-B-20/200	20	200	1 500	2 350	1 250	315 – 500
SDL-B-30/300	30	300	1 800	2 450	1 450	250 – 500
SDL-B-40/400	40	400	1 800	2 850	1 750	315 – 600
SDL-B-50/500	50	500	2 300	2 850	1 500	315 – 600
SDL-B-60/600	60	600	2 300	2 850	1 500	315 – 800
SDL-B-70/700	70	700	2 300	3 050	1 500	315 – 800
SDL-B-80/800	80	800	2 800	3 100	1 610	315 – 800
SDL-B-90/900	90	900	2 800	3 300	1 550	400 – 1 000
SDL-B-100/1000	100	1000	2 800	3 800	1 560	400 – 1 000

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SDL separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet hole with a gasket and a stream breaker,
- separation and collection compartment for light liquid,
- PE filter box with PP lamella insert,
- inspection opening DN600÷800 with cast iron hatch class A÷D,
- internal storm bypass.

■ NOTE

- SDL-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SDL-B with settling tank

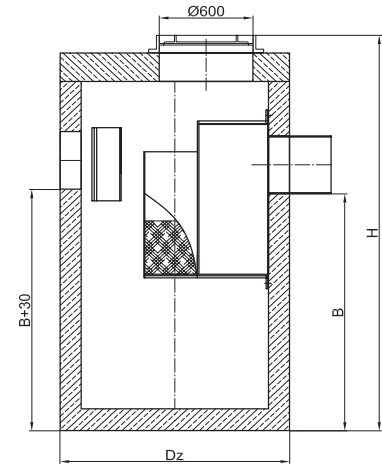
3 ÷ 60 [l/s]

Lamella separator integrated with settling tank with 10-times storm bypass

Maximum flow 30 ÷ 600 [l/s]

Vertical cylindrical tank:

reinforced concrete: C35/45
wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600/800. Class A÷D



SDL-B with settling tank	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	Dz [mm]	H [mm]	B [mm]	DN [mm]
SDL-B-3/30-0,3	3	30	300	1 300	2 550	1 200	200 – 315
SDL-B-3/30-0,65	3	30	650	1 300	2 750	1 655	200 – 315
SDL-B-3/30-1,2	3	30	1 200	1 500	2 850	1 855	200 – 315
SDL-B-3/30-2,5	3	30	2 500	1 800	3 150	2 205	200 – 315
SDL-B-3/30-5	3	30	5 000	2 300	3 450	2 405	200 – 315
SDL-B-6/60-0,6	6	60	600	1 300	2 750	1 565	200 – 400
SDL-B-6/60-1,4	6	60	1 400	1 500	3 050	2 015	200 – 400
SDL-B-6/60-2,5	6	60	2 500	1 800	3 350	2 165	200 – 400
SDL-B-6/60-5,1	6	60	5 100	2 300	3 550	2 365	200 – 400
SDL-B-10/100-1	10	100	1 000	1 500	2 750	1 630	200 – 400
SDL-B-10/100-2	10	100	2 000	1 800	2 950	1 880	250 – 400
SDL-B-10/100-3	10	100	3 000	2 300	2 850	1 730	250 – 400
SDL-B-10/100-5,1	10	100	5 100	2 300	3 250	2 380	250 – 400
SDL-B-15/150-1,6	15	150	1 600	1 500	3 100	2 125	250 – 400
SDL-B-15/150-2,5	15	150	2 500	1 800	2 950	2 180	250 – 400
SDL-B-15/150-3	15	150	3 000	2 300	2 850	1 730	250 – 400
SDL-B-15/150-6	15	150	6 000	2 300	3 450	2 330	250 – 400
SDL-B-20/200-2,1	20	200	2 100	2 300	3 050	1 790	315 – 500
SDL-B-20/200-4	20	200	4 000	2 300	3 550	2 390	315 – 500
SDL-B-20/200-6,3	20	200	6 300	2 800	3 550	2 390	315 – 500
SDL-B-30/300-3	30	300	3 000	2 300	3 350	2 090	250 – 500
SDL-B-30/300-6	30	300	6 000	2 800	3 500	2 340	315 – 500
SDL-B-30/300-7,5	30	300	7 500	2 800	3 800	2 640	315 – 500
SDL-B-40/400-4	40	400	4 000	2 300	3 850	2 500	315 – 500
SDL-B-40/400-5	40	400	5 000	2 300	4 050	2 800	315 – 500
SDL-B-40/400-8,1	40	400	8 100	2 800	4 050	2 850	315 – 600
SDL-B-50/500-5,1	50	500	5 100	2 800	3 450	2 250	315 – 500
SDL-B-50/500-10	50	500	10 000	2 800	4 450	3 250	315 – 500
SDL-B-60/600-6	60	600	6 000	2 800	3 850	2 460	315 – 800
SDL-B-60/600-9	60	600	9 000	2 800	4 450	3 060	315 – 630

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SDL separators are designed to work with the ML-B superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

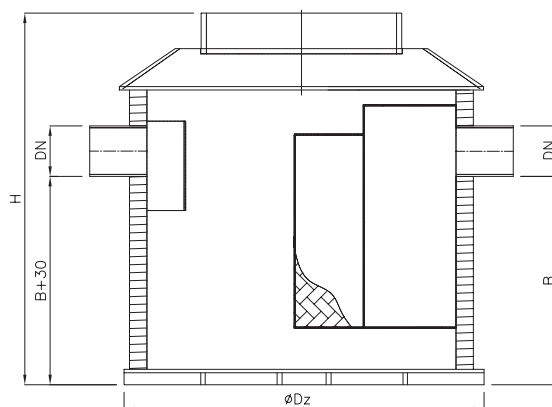
- inlet hole with a gasket and a stream breaker,
- separation and collection compartment for light liquid,
- integrated sedimentation tank for mineral suspensions,
- PE filter box with PP lamella insert,
- inspection opening DN600÷800 with cast iron hatch class A÷D,
- internal storm bypass.

■ NOTE

- SDL-B separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SDL-PE
3 ÷ 100 [l/s]

**Lamella separator
with 10-times storm bypass
Maximum flow 30 ÷ 1 000 [l/s]**



SDL-PE	Nominal flow [l/s]	Maximum flow [l/s]	Dz [mm]	H [mm]	B [mm]	DN max [mm]
SDL-PE-3/30	3	30	1 140	2 200	1 000	400
SDL-PE-6/60	6	60	1 140	2 400	1 200	400
SDL-PE-10/100	10	100	1 350	2 200	950	500
SDL-PE-15/150	15	150	1 350	2 400	1 150	500
SDL-PE-20/200	20	200	1 580	2 600	1 250	500
SDL-PE-30/300	30	300	1 580	2 800	1 450	500
SDL-PE-40/400	40	400	1 680	3 200	1 750	600
SDL-PE-50/500	50	500	2 250	3 000	1 500	600
SDL-PE-60/600	60	600	2 250	3 200	1 500	800
SDL-PE-70/700	70	700	2 250	3 200	1 500	800
SDL-PE-80/800	80	800	2 500	3 800	2 100	800
SDL-PE-90/900	90	900	2 500	4 000	2 100	1 000
SDL-PE-100/1000	100	1 000	2 500	4 000	2 100	1 000

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SDL separators are designed to work with the ML-PE superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- separation and collection compartment for light liquid,
- PE filter box with PP lamella insert,
- inspection opening DN600,
- internal storm bypass.

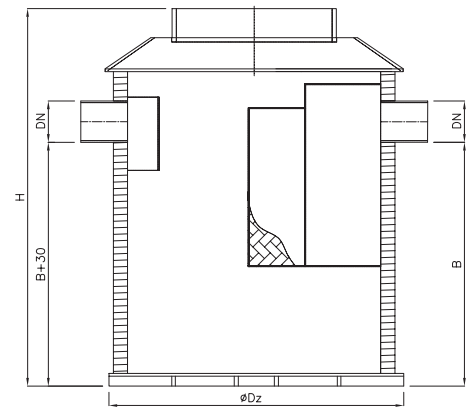
■ NOTE

- possibility of working in flooded conditions,
- SDL-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SDL-PE with settling tank

3 ÷ 50 [l/s]

Lamella separator integrated with settling tank with 10-times storm bypass
Maximum flow 30 ÷ 500 [l/s]



SDL-PE with settling tank	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	Dz [mm]	H [mm]	B [mm]	DN max [mm]
SDL-PE-3/30-0,3	3	30	300	1 140	2 400	1 200	400
SDL-PE-3/30-0,6	3	30	600	1 140	2 800	1 650	400
SDL-PE-6/60-0,6	6	60	600	1 140	2 700	1 560	400
SDL-PE-6/60-1,2	6	60	1 200	1 350	3 200	2 000	400
SDL-PE-10/100-1	10	100	1 000	1 350	2 900	1 600	500
SDL-PE-10/100-2	10	100	2 000	1 680	3 200	1 850	500
SDL-PE-15/150-1,5	15	150	1 500	1 350	3 400	2 120	500
SDL-PE-15/150-3	15	150	3 000	2 250	3 100	1 700	500
SDL-PE-20/200-2	20	200	2 000	2 250	3 100	1 750	500
SDL-PE-20/200-4	20	200	4 000	2 250	3 700	2 350	500
SDL-PE-30/300-3	30	300	3 000	2 250	3 400	2 050	500
SDL-PE-30/300-6	30	300	6 000	2 500	4 300	2 900	500
SDL-PE-40/400-4	40	400	4 000	2 250	4 000	2 500	600
SDL-PE-40/400-8	40	400	8 000	2 500	5 000	3 500	600
SDL-PE-50/500-5	50	500	5 000	2 250	3 700	2 250	600
SDL-PE-50/500-10	50	500	10 000	2 500	5 500	4 000	600

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SDL separators are designed to work with the ML-PE superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- separation and collection compartment for light liquid,
- integrated sedimentation tank for mineral suspensions,
- PE filter box with PP lamella insert,
- inspection opening DN600,
- internal storm bypass.

■ NOTE

- possibility of working in flooded conditions,
- SDL-PE separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 – made on of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SL LAMELLAR SEPARATORS

Lamella separators of petroleum substances

■ INTENDED USE

SL separators are designed to separate petroleum substances (oils, greases, gasoline, etc.). Due to their high throughput, SL type separators are used in rainwater treatment systems from urban catchment systems, rainwater networks of industrial plants, equipment bases, road drainage systems, as well as parking lots, maneuvering areas, etc.

Basic advantages of using SL separators:

- possibility of using complete integrated devices (settling tank and separator) in large urban catchments without losing the efficiency and operating parameters of the entire system,
- possibility of connecting large rain collectors to separators,
- small separator depth with a large working volume of the system,
- for use in areas with road traffic,
- for use in areas with mining damage up to and including category IV,
- for use in sewage systems with a depth of up to 8 m below the ground level.

■ PRINCIPLE OF OPERATION

Sewage treatment in the separator takes place in two stages: sedimentation of the mineral suspension - sand and mud - takes place in the settling chamber. The light liquid separation chamber uses the effects of gravity and the physical processes of adsorption and coalescence. Oil particles accumulate on the surface of multi-stream, parallel lamella sections (adsorption), where they combine into larger and larger agglomerates (coalescence) and migrate on the lower side of the lamella sections towards the surface, creating an oil film. Solid particles such as sand, gravel, etc. fall under the influence of gravity and accumulate at the bottom of the separator, additionally cleaning sewage from suspensions. Separators are standardly equipped with closing systems which, after collecting the maximum amount of light liquid in the separator, automatically close its outflow, thus preventing contamination of the receiver. Separators with the P mark in their name are equipped with a hydraulic bypass independent of the separation chamber. Bypass inside the separator allows for a capacity five or ten times higher than the nominal one without loading the separation compartment with the maximum flow.

■ BASIC STRUCTURE

Polyethylene SL separator tanks - in the shape of a cylinder with a horizontal axis are made of high-density polyethylene PEHD based on structural spiral double-wall pipes with high peripheral stiffness in the range of SN2÷SN8.

Steel SL separator tanks – in the shape of a cylinder with a horizontal axis, made of corrugated steel.

The multi-stream lamella inserts used in the separators are resistant to biological decomposition and the effects of petroleum substances. Separator inspection openings adapted for installation with system manhole super-structures.

■ ADDITIONAL EQUIPMENT

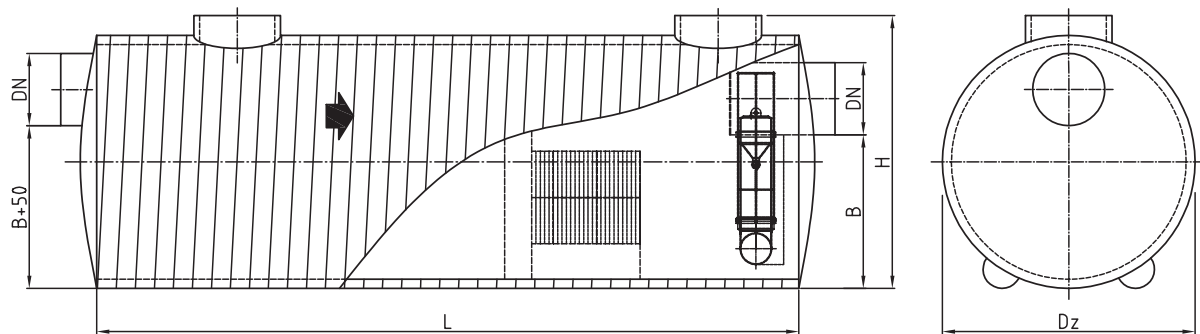
SL separators have extensive additional equipment installed depending on the requirements resulting from projects and official arrangements:

- emptying installations facilitating direct cleaning and operation of separators (NT-U),
- measuring probes for the amount of suspensions and petroleum substances collected in the separator with a sound and/or light alarm system (NT-SET, NT-OS),
- automatic closing on the inlet to the separator,
- flow rate measurement systems with flow regulators,
- return flaps at the outlet of the device.

■ ECOLOGICAL EFFECT

The content of petroleum substances in purified sewage flowing from the technological system of SL separators by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311). The contents of petroleum derivatives with a density of 0.85 [kg/dm³] and of general suspension in the outflow at the rated output: according to EN 858-1:2005+A1:2007.


SL-FOZ-PE
 40 ÷ 300 [l/s]

**Lamella separator
 with auto-closing, integrated with the sedi-
 mentation tank, made of PE-HD polyethylene**


SL-FOZ-PE	Nominal flow [l/s]	Settling tank capacity [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZ-PE-40-4	40	4 000	6 230	1 550	1 675	1 100	315	721
SL-FOZ-PE-40-8	40	8 000	6 960	1 800	1 900	1 335	315	1 070
SL-FOZ-PE-50-5	50	5 000	5 700	1 800	1 900	1 335	315	904
SL-FOZ-PE-50-10	50	10 000	8 700	1 800	1 900	1 335	315	1 300
SL-FOZ-PE-60-6	60	6 000	6 840	1 800	1 900	1 335	315	1 055
SL-FOZ-PE-60-12	60	12 000	8 000	2 000	2 100	1 535	315	1 516
SL-FOZ-PE-70-7	70	7 000	6 120	2 000	2 100	1 535	315	1 211
SL-FOZ-PE-70-14	70	14 000	9 340	2 000	2 100	1 535	315	1 740
SL-FOZ-PE-80-8	80	8 000	7 000	2 000	2 100	1 535	315	1 360
SL-FOZ-PE-80-16	80	16 000	10 670	2 000	2 100	1 535	315	1 960
SL-FOZ-PE-90-9	90	9 000	7 870	2 000	2 100	1 535	315	1 500
SL-FOZ-PE-90-18	90	18 000	9 450	2 200	2 300	1 735	315	2 190
SL-FOZ-PE-100-10	100	10 000	7 280	2 200	2 300	1 650	400	1 750
SL-FOZ-PE-100-20	100	20 000	11 100	2 200	2 300	1 650	400	2 530
SL-FOZ-PE-120-12	120	12 000	8 740	2 200	2 300	1 650	400	2 050
SL-FOZ-PE-120-24	120	24 000	10 730	2 400	2 525	1 875	400	3 020
SL-FOZ-PE-140-14	140	14 000	8 210	2 400	2 525	1 875	400	2 390
SL-FOZ-PE-140-28	140	28 000	12 530	2 400	2 525	1 875	400	3 480
SL-FOZ-PE-160-16	160	16 000	9 400	2 400	2 525	1 875	400	2 700
SL-FOZ-PE-160-32	160	32 000	9 860	2 900	2 950	2 300	400	3 880
SL-FOZ-PE-180-18	180	18 000	7 300	2 900	2 950	2 300	400	2 990
SL-FOZ-PE-180-36	180	36 000	11 140	2 900	2 950	2 300	400	4 330
SL-FOZ-PE-200-20	200	20 000	8 100	2 900	2 950	2 300	400	3 270
SL-FOZ-PE-200-40	200	40 000	12 350	2 900	2 950	2 300	400	4 760
SL-FOZ-PE-250-25	250	25 000	10 580	2 900	2 950	2 200	500	4 155
SL-FOZ-PE-250-50	250	50 000	11 750	3 300	3 375	2 625	500	6 000
SL-FOZ-PE-300-30	300	30 000	11 300	2 900	2 950	2 100	600	5 130
SL-FOZ-PE-300-60	300	60 000	14 650	3 300	3 375	2 525	600	7 360

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML-PE superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR COMPARTMENT

– as described on page 34

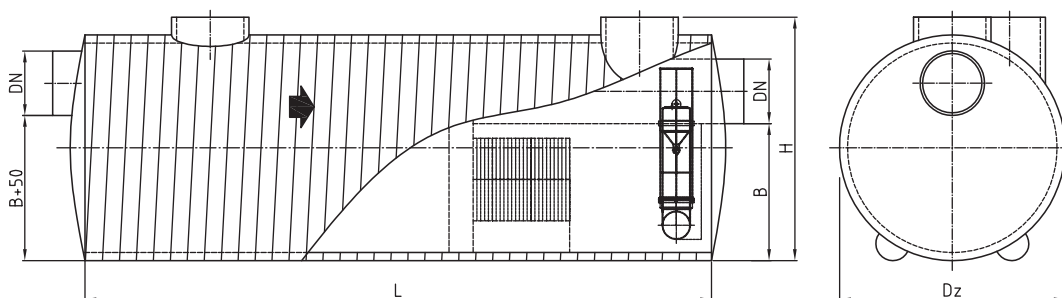
■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SL-FOZP-PE
40 ÷ 90 [l/s]

**Lamella separator
with auto-closing and 5-times bypass integrated with settling tank made of PE-HD polyethylene**

Maximum flow 200 ÷ 450 [l/s]



SL-FOZP-PE	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZP-PE-40/200-4	40	200	4 000	5 420	1 800	1 900	1 150	500	925
SL-FOZP-PE-40/200-8	40	200	8 000	8 270	1 800	1 900	1 150	500	1 320
SL-FOZP-PE-50/250-5	50	250	5 000	6 800	1 800	1 900	1 150	500	1 120
SL-FOZP-PE-50/250-10	50	250	10 000	7 690	2 000	2 100	1 350	500	1 540
SL-FOZP-PE-60/300-6	60	300	6 000	6 040	2 000	2 100	1 350	500	1 260
SL-FOZP-PE-60/300-12	60	300	12 000	9 220	2 000	2 100	1 350	500	1 810
SL-FOZP-PE-70/350-7	70	350	7 000	7 030	2 000	2 100	1 350	500	1 430
SL-FOZP-PE-70/350-14	70	350	14 000	10 730	2 000	2 100	1 350	500	2 070
SL-FOZP-PE-80/400-8	80	400	8 000	8 080	2 000	2 100	1 350	500	1 620
SL-FOZP-PE-80/400-16	80	400	16 000	9 510	2 200	2 325	1 575	500	2 290
SL-FOZP-PE-90/450-9	90	450	9 000	7 030	2 200	2 325	1 575	500	1 760

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML-PE superstructure.


■ BASIC EQUIPMENT OF THE SEPARATOR

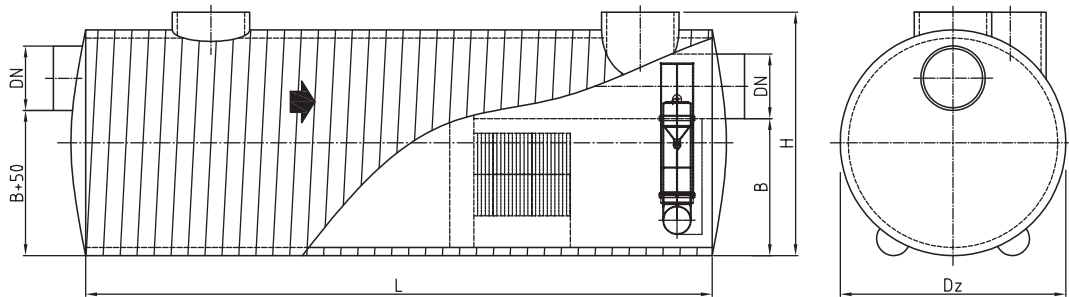
SETTLING TANK AND SEPARATOR COMPARTMENT

– as described on page 34

■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.


SL-FOZP-PE
 40 ÷ 300 [l/s]

**Lamella separator
 with auto-closing and 10-times bypass integrated with
 settling tank made of PE-HD polyethylene**
Maximum flow 400 ÷ 3000 [l/s]


SL-FOZP-PE	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZP-PE-40/400-4	40	400	4 000	5 430	1 800	1 900	1 150	500	930
SL-FOZP-PE-40/400-8	40	400	8 000	8 300	1 800	1 900	1 150	500	1 320
SL-FOZP-PE-50/500-5	50	500	5 000	6 800	1 800	1 900	1 150	500	1 120
SL-FOZP-PE-50/500-10	50	500	10 000	7 690	2 000	2 100	1 350	500	1 540
SL-FOZP-PE-60/600-6	60	600	6 000	6 840	2 000	2 100	1 250	600	1 450
SL-FOZP-PE-60/600-12	60	600	12 000	10 440	2 000	2 100	1 250	600	2 090
SL-FOZP-PE-70/700-7	70	700	7 000	7 750	2 000	2 100	1 250	600	1 610
SL-FOZP-PE-70/700-14	70	700	14 000	9 220	2 200	2 325	1 475	600	2 290
SL-FOZP-PE-80/800-8	80	800	8 000	6 920	2 200	2 325	1 475	600	1 790
SL-FOZP-PE-80/800-16	80	800	16 000	10 560	2 200	2 325	1 475	600	2 580
SL-FOZP-PE-90/900-9	90	900	9 000	9 160	2 200	2 325	1 275	800	2 380
SL-FOZP-PE-90/900-18	90	900	18 000	10 670	2 400	2 525	1 475	800	3 280
SL-FOZP-PE-100/1000-10	100	1 000	10 000	7 790	2 400	2 525	1 475	800	2 490
SL-FOZP-PE-100/1000-20	100	1 000	20 000	11 890	2 400	2 525	1 475	800	3 620
SL-FOZP-PE-120/1200-12	120	1 200	12 000	6 000	2 900	2 950	1 900	800	2 690
SL-FOZP-PE-120/1200-24	120	1 200	24 000	9 160	2 900	2 950	1 900	800	3 870
SL-FOZP-PE-140/1400-14	140	1 400	14 000	8 060	2 900	2 950	1 700	1 000	3 490
SL-FOZP-PE-140/1400-28	140	1 400	28 000	13 000	2 900	2 950	1 700	1 000	5 330
SL-FOZP-PE-160/1600-16	160	1 600	16 000	9 220	2 900	2 950	1 700	1 000	3 930
SL-FOZP-PE-160/1600-32	160	1 600	32 000	14 070	2 900	2 950	1 700	1 000	5 730
SL-FOZP-PE-180/1800-18	180	1 800	18 000	10 360	2 900	2 950	1 700	1 000	4 360
SL-FOZP-PE-180/1800-36	180	1 800	36 000	10 730	3 300	3 375	2 125	1 000	5 810
SL-FOZP-PE-200/2000-20	200	2 000	20 000	11 510	2 900	2 950	1 700	1 000	4 790
SL-FOZP-PE-200/2000-40	200	2 000	40 000	11 890	3 300	3 375	2 125	1 000	6 380
SL-FOZP-PE-250/2500-25	250	2 500	25 000	14 400	2 900	2 950	1 700	1 000	5 880
SL-FOZP-PE-250/2500-50	250	2 500	50 000	14 910	3 300	3 375	2 125	1 000	7 850
SL-FOZP-PE-300/3000-30	300	3 000	30 000	11 720	3 300	3 375	2 125	1 000	6 320
SL-FOZP-PE-300/3000-60	300	3 000	60 000	17 900	3 300	3 375	2 125	1 000	9 310

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML-PE superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR COMPARTMENT

– as described on page 34

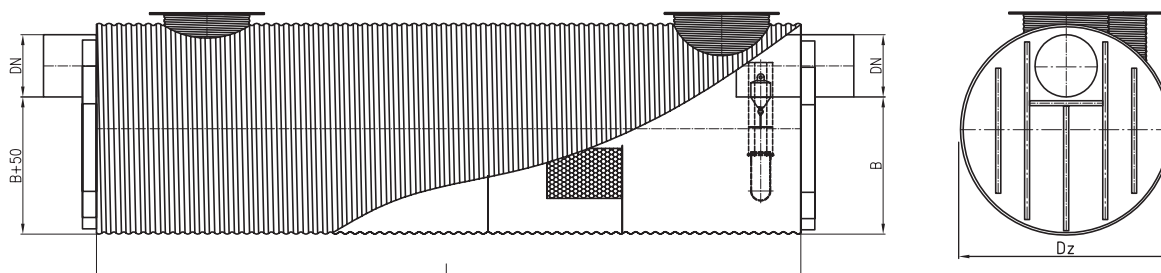
■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SL-FOZ-R
50 ÷ 300 [l/s]

**Lamella separator
with auto-closing, integrated with the sedimentation tank,
made of corrugated steel**

Nominal flow 50 ÷ 300 [l/s]



SL-FOZ-R	Nominal flow [l/s]	Settler tank capacity [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZ-R-50-5	50	5 000	5 700	1 700	1 850	1 285	315	2 120
SL-FOZ-R-50-10	50	10 000	8 700	1 700	1 850	1 285	315	2 870
SL-FOZ-R-60-6	60	6 000	6 840	1 700	1 850	1 285	315	2 410
SL-FOZ-R-60-12	60	12 000	8 000	1 900	2 050	1 485	315	3 100
SL-FOZ-R-70-7	70	7 000	6 120	1 900	2 050	1 485	315	2 580
SL-FOZ-R-70-14	70	14 000	9 340	1 900	2 050	1 485	315	3 480
SL-FOZ-R-80-8	80	8 000	7 000	1 900	2 050	1 485	315	2 830
SL-FOZ-R-80-16	80	16 000	10 670	1 900	2 050	1 485	315	3 850
SL-FOZ-R-90-9	90	9 000	7 870	1 900	2 050	1 485	315	3 070
SL-FOZ-R-90-18	90	18 000	9 450	2 100	2 250	1 685	315	3 980
SL-FOZ-R-100-10	100	10 000	7 280	2 100	2 250	1 600	400	3 970
SL-FOZ-R-100-20	100	20 000	11 100	2 100	2 250	1 600	400	5 380
SL-FOZ-R-120-12	120	12 000	8 740	2 100	2 250	1 600	400	4 500
SL-FOZ-R-120-24	120	24 000	10 730	2 300	2 450	1 800	400	5 870
SL-FOZ-R-140-14	140	14 000	8 210	2 300	2 450	1 800	400	4 840
SL-FOZ-R-140-28	140	28 000	12 530	2 300	2 450	1 800	400	6 600
SL-FOZ-R-160-16	160	16 000	9 400	2 300	2 450	1 800	400	5 330
SL-FOZ-R-160-32	160	32 000	9 860	2 700	2 850	2 200	400	6 750
SL-FOZ-R-180-18	180	18 000	7 300	2 700	2 850	2 200	400	5 520
SL-FOZ-R-180-36	180	36 000	11 140	2 700	2 850	2 200	400	7 370
SL-FOZ-R-200-20	200	20 000	8 100	2 700	2 850	2 200	400	5 900
SL-FOZ-R-200-40	200	40 000	12 350	2 700	2 850	2 200	400	7 950
SL-FOZ-R-250-25	250	25 000	10 580	2 700	2 850	2 100	500	7 100
SL-FOZ-R-300-30	300	30 000	11 300	2 700	2 850	2 000	600	8 400

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML superstructure.


■ **BASIC EQUIPMENT OF THE SEPARATOR**

SETTLING TANK AND SEPARATOR COMPARTMENT

– as described on page 34

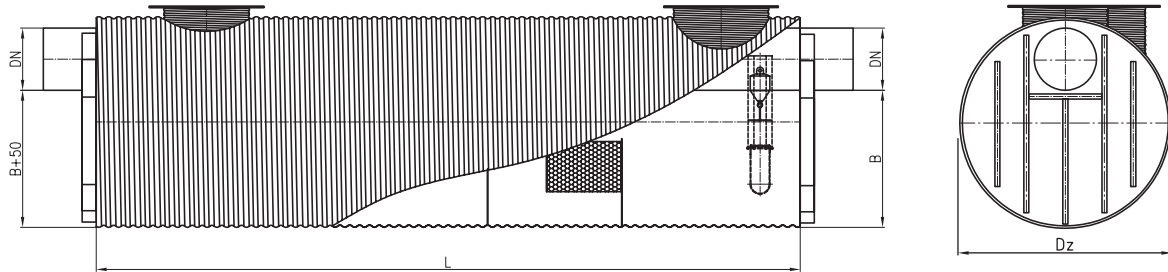
■ **NOTE**

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design.


SL-FOZP-R
 50 ÷ 250 [l/s]

**Lamella separator
with auto-closing and 5-times bypass
integrated with settling tank
made of corrugated steel**

Maximum flow 250 ÷ 1250 [l/s]



SL-FOZP-R	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZP-R-50/250-5	50	250	5 000	6 800	1 700	1 850	1 100	500	2 400
SL-FOZP-R-50/250-10	50	250	10 000	7 690	1 900	2 050	1 300	500	3 020
SL-FOZP-R-60/300-6	60	300	6 000	6 040	1 900	2 050	1 300	500	2 560
SL-FOZP-R-60/300-12	60	300	12 000	9 220	1 900	2 050	1 300	500	3 440
SL-FOZP-R-70/350-7	70	350	7 000	7 030	1 900	2 050	1 300	500	2 830
SL-FOZP-R-70/350-14	70	350	14 000	10 730	1 900	2 050	1 300	500	3 860
SL-FOZP-R-80/400-8	80	400	8 000	8 080	1 900	2 050	1 300	500	3 130
SL-FOZP-R-80/400-16	80	400	16 000	9 510	2 100	2 250	1 500	500	3 400
SL-FOZP-R-90/450-9	90	450	9 000	7 030	2 100	2 250	1 500	500	3 230
SL-FOZP-R-90/450-18	90	450	18 000	10 730	2 100	2 250	1 500	500	4 370
SL-FOZP-R-100/500-10	100	500	10 000	7 790	2 100	2 250	1 500	500	4 150
SL-FOZP-R-100/500-20	100	500	20 000	9 510	2 300	2 450	1 700	500	5 370
SL-FOZP-R-120/600-12	120	600	12 000	7 980	2 300	2 450	1 600	600	4 750
SL-FOZP-R-120/600-24	120	600	24 000	12 180	2 300	2 450	1 600	600	6 460
SL-FOZP-R-140/700-14	140	700	14 000	7 010	2 700	2 850	1 800	800	5 380
SL-FOZP-R-140/700-28	140	700	28 000	10 700	2 700	2 850	1 800	800	7 150
SL-FOZP-R-160/800-16	160	800	16 000	8 000	2 700	2 850	1 800	800	5 850
SL-FOZP-R-160/800-32	160	800	32 000	12 210	2 700	2 850	1 800	800	7 880
SL-FOZP-R-180/900-18	180	900	18 000	9 000	2 700	2 850	1 800	800	6 340
SL-FOZP-R-180/900-36	180	900	36 000	13 750	2 700	2 850	1 800	800	8 620
SL-FOZP-R-200/1000-20	200	1 000	20 000	10 000	2 700	2 850	1 800	800	6 820
SL-FOZP-R-250/1250-25	250	1 250	25 000	13 000	2 700	2 850	1 800	800	8 260

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR COMPARTMENT

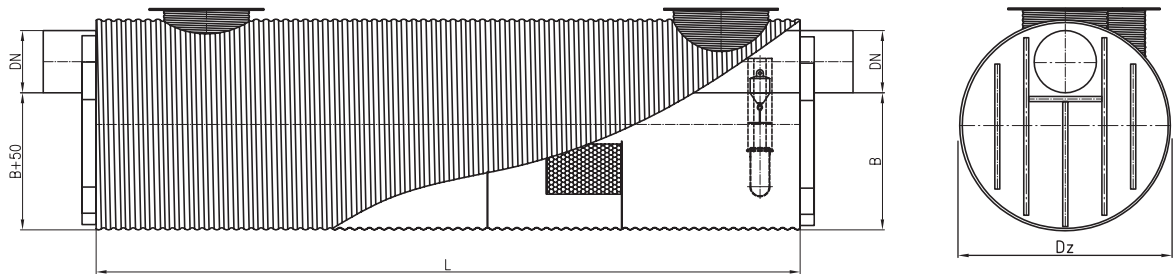
– as described on page 34

■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design.

SL-FOZP-R
50 ÷ 250 [l/s]

**Lamella separator
with auto-closing and 10-times bypass integrated with settling
tank made of corrugated steel
Maximum flow 500 ÷ 2500 [l/s]**



SL-FOZP-R	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZP-R-50/500-5	50	500	5 000	6 800	1 700	1 950	1 100	500	2 400
SL-FOZP-R-50/500-10	50	500	10 000	7 690	1 900	2 050	1 300	500	3 020
SL-FOZP-R-60/600-6	60	600	6 000	6 840	1 900	2 050	1 200	600	2 780
SL-FOZP-R-60/600-12	60	600	12 000	10 440	1 900	2 050	1 200	600	3 780
SL-FOZP-R-70/700-7	70	700	7 000	7 750	1 900	2 050	1 200	600	3 030
SL-FOZP-R-70/700-14	70	700	14 000	9 220	2 100	2 250	1 400	600	3 900
SL-FOZP-R-80/800-8	80	800	8 000	6 920	2 100	2 250	1 400	600	3 200
SL-FOZP-R-80/800-16	80	800	16 000	10 560	2 100	2 250	1 400	600	4 320
SL-FOZP-R-90/900-9	90	900	9 000	9 160	2 100	2 250	1 200	800	3 890
SL-FOZP-R-90/900-18	90	900	18 000	10 670	2 300	2 450	1 400	800	4 880
SL-FOZP-R-100/1000-10	100	1 000	10 000	7 790	2 300	2 450	1 400	800	4 670
SL-FOZP-R-100/1000-20	100	1 000	20 000	11 890	2 300	2 450	1 400	800	6 340
SL-FOZP-R-120/1200-12	120	1 200	12 000	6 000	2 700	2 850	1 800	800	4 890
SL-FOZP-R-120/1200-24	120	1 200	24 000	9 160	2 700	2 850	1 800	800	6 410
SL-FOZP-R-140/1400-14	140	1 400	14 000	8 060	2 700	2 850	1 600	1 000	5 880
SL-FOZP-R-140/1400-28	140	1 400	28 000	13 000	2 700	2 850	1 600	1 000	8 260
SL-FOZP-R-160/1600-16	160	1 600	16 000	9 220	2 700	2 850	1 600	1 000	6 440
SL-FOZP-R-160/1600-32	160	1 600	32 000	14 070	2 700	2 850	1 600	1 000	8 780
SL-FOZP-R-180/1800-18	180	1 800	18 000	10 360	2 700	2 850	1 600	1 000	7 000
SL-FOZP-R-200/2000-20	200	2 000	20 000	11 510	2 700	2 850	1 600	1 000	7 540
SL-FOZP-R-250/2500-25	250	2 500	25 000	14 400	2 700	2 850	1 600	1 000	8 940

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK COMPARTMENT:

- inlet connector with a stream breaker,
- inspection opening of the settling tank,
- a deflector stopping the flow of sediment elements,
- siphoned storm bypass overflow (for SL separators with "P" in the name),
- an elongated chamber leading from the settling tank to the separation compartment.

SEPARATOR COMPARTMENT:

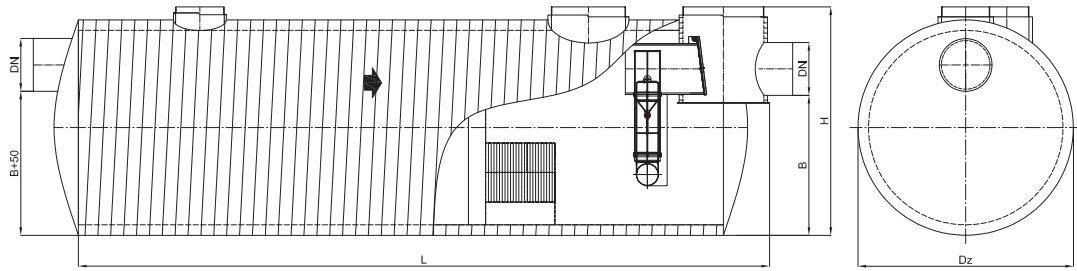
- internal storm bypass pipe, independent of the separator chamber (for SL separators with "P" in the name),
- lamella insert with supporting structure,
- auto-closing valve for nominal flow, tared to a density of 0.85 [kg/dm³], connected to the separator outlet,
- inspection openings of the separator compartment,
- flap valve - SL-FOZ-K, SL-FOZP-K.

■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design.


SL-FOZ-K
 6 ÷ 300 [l/s]

Lamella separator
with auto-closing, integrated with the sedimentation tank and
flap valve section made of PE-HD polyethylene
Nominal flow 6 ÷ 300 [l/s]



SL-FOZ-K	Nominal flow [l/s]	Settler tank capacity [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZ-K-6-0,6	6	600	2 610	1 200	1 250	840	160	220
SL-FOZ-K-6-1,2	6	1 200	3 510	1 200	1 250	840	160	250
SL-FOZ-K-10-1	10	1 000	2 800	1 400	1 450	1 065	160	280
SL-FOZ-K-10-2	10	2 000	3 800	1 400	1 450	1 065	160	340
SL-FOZ-K-15-1,5	15	1 500	3 860	1 400	1 450	1 025	200	340
SL-FOZ-K-15-3	15	3 000	4 120	1 600	1 650	1 225	200	460
SL-FOZ-K-20-2	20	2 000	4 850	1 400	1 450	1 025	200	400
SL-FOZ-K-20-4	20	4 000	5 200	1 600	1 650	1 225	200	550
SL-FOZ-K-30-3	30	3 000	5 300	1 600	1 650	1 175	250	560
SL-FOZ-K-30-6	30	6 000	7 600	1 600	1 650	1 175	250	740
SL-FOZ-K-40-4	40	4 000	7 430	1 600	1 650	1 100	315	720
SL-FOZ-K-40-8	40	8 000	8 160	1 800	1 850	1 335	315	1 090
SL-FOZ-K-50-5	50	5 000	6 900	1 800	1 850	1 335	315	960
SL-FOZ-K-50-10	50	10 000	9 900	1 800	1 850	1 335	315	1 260
SL-FOZ-K-60-6	60	6 000	8 040	1 800	1 850	1 335	315	1 070
SL-FOZ-K-60-12	60	12 000	9 200	2 000	2 100	1 535	315	1 520
SL-FOZ-K-70-7	70	7 000	7 320	2 000	2 100	1 535	315	1 280
SL-FOZ-K-70-14	70	14 000	10 540	2 000	2 100	1 535	315	1 690
SL-FOZ-K-80-8	80	8 000	8 200	2 000	2 100	1 535	315	1 390
SL-FOZ-K-80-16	80	16 000	11 870	2 000	2 100	1 535	315	1 850
SL-FOZ-K-90-9	90	9 000	9 070	2 000	2 100	1 535	315	1 500
SL-FOZ-K-90-18	90	18 000	10 650	2 200	2 350	1 735	315	2 060
SL-FOZ-K-100-10	100	10 000	8 480	2 200	2 350	1 650	400	1 730
SL-FOZ-K-100-20	100	20 000	12 300	2 200	2 350	1 650	400	2 330
SL-FOZ-K-120-12	120	12 000	9 940	2 200	2 350	1 650	400	1 960
SL-FOZ-K-120-24	120	24 000	11 930	2 400	2 550	1 875	400	2 730
SL-FOZ-K-140-14	140	14 000	9 410	2 400	2 550	1 875	400	2 240
SL-FOZ-K-140-28	140	28 000	13 730	2 400	2 550	1 875	400	3 090
SL-FOZ-K-160-16	160	16 000	10 600	2 400	2 550	1 875	400	2 470
SL-FOZ-K-160-32	160	32 000	11 060	2 900	3 050	2 300	400	4 520
SL-FOZ-K-180-18	180	18 000	8 500	2 900	3 050	2 300	400	3 830
SL-FOZ-K-180-36	180	36 000	12 340	2 900	3 050	2 300	400	4 860
SL-FOZ-K-200-20	200	20 000	9 300	2 900	3 050	2 300	400	4 040
SL-FOZ-K-200-40	200	40 000	13 550	2 900	3 050	2 300	400	5 190
SL-FOZ-K-250-25	250	25 000	12 080	2 900	3 050	2 200	500	4 750
SL-FOZ-K-250-50	250	50 000	13 250	3 300	3 500	2 625	500	6 650
SL-FOZ-K-300-30	300	30 000	13 100	2 900	3 050	2 100	600	4 920
SL-FOZ-K-300-60	300	60 000	16 450	3 300	3 500	2 525	600	7 670

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML-PE superstructure

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR COMPARTMENT – as described on page 34

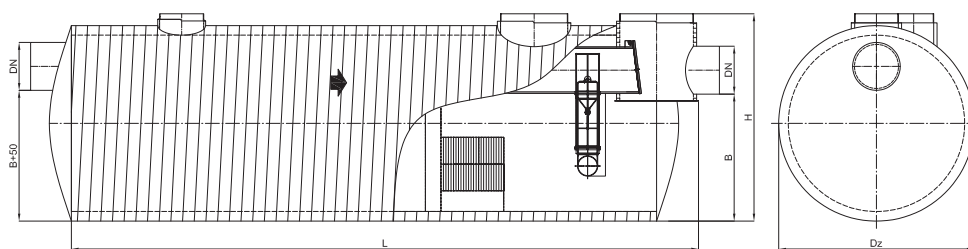
■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

SL-FOZP-K
6 ÷ 300 [l/s]

**Lamella separator
with auto-closing and 10-times bypass integrated with the sedimentation
tank and flap valve section made of PE-HD polyethylene.**

Maximum flow 60 ÷ 3 000 [l/s]



SL-FOZP-K	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZP-K-6/60-0,6	6	60	600	3 370	1 200	1 250	685	315	270
SL-FOZP-K-6/60-1,2	6	60	1 200	4 510	1 200	1 250	685	315	320
SL-FOZP-K-10/100-1	10	100	1 000	3 480	1 400	1 450	910	315	340
SL-FOZP-K-10/100-2	10	100	2 000	4 680	1 400	1 450	910	315	410
SL-FOZP-K-15/150-1,5	15	150	1 500	5 000	1 400	1 450	825	400	470
SL-FOZP-K-15/150-3	15	150	3 000	5 120	1 600	1 650	1 025	400	580
SL-FOZP-K-20/200-2	20	200	2 000	4 620	1 600	1 650	1 025	400	550
SL-FOZP-K-20/200-4	20	200	4 000	6 420	1 600	1 650	1 025	400	690
SL-FOZP-K-30/300-3	30	300	3 000	7 350	1 600	1 650	950	500	850
SL-FOZP-K-30/300-6	30	300	6 000	7 740	1 800	1 850	1 150	500	1 130
SL-FOZP-K-40/400-4	40	400	4 000	6 930	1 800	1 850	1 150	500	1 070
SL-FOZP-K-40/400-8	40	400	8 000	9 800	1 800	1 850	1 150	500	1 370
SL-FOZP-K-50/500-5	50	500	5 000	8 300	1 800	1 850	1 150	500	1 240
SL-FOZP-K-50/500-10	50	500	10 000	9 190	2 000	2 100	1 350	500	1 610
SL-FOZP-K-60/600-6	60	600	6 000	8 640	2 000	2 100	1 250	600	1 460
SL-FOZP-K-60/600-12	60	600	12 000	12 240	2 000	2 100	1 250	600	1 920
SL-FOZP-K-70/700-7	70	700	7 000	9 550	2 000	2 100	1 250	600	1 590
SL-FOZP-K-70/700-14	70	700	14 000	11 020	2 200	2 350	1 475	600	2 110
SL-FOZP-K-80/800-8	80	800	8 000	8 720	2 200	2 350	1 575	600	1 750
SL-FOZP-K-80/800-16	80	800	16 000	12 360	2 200	2 350	1 475	600	2 330
SL-FOZP-K-90/900-9	90	900	9 000	11 560	2 200	2 350	1 275	800	2 230
SL-FOZP-K-90/900-18	90	900	18 000	13 070	2 400	2 550	1 475	800	2 900
SL-FOZP-K-100/1000-10	100	1 000	10 000	10 190	2 400	2 550	1 475	800	2 340
SL-FOZP-K-100/1000-20	100	1 000	20 000	14 290	2 400	2 550	1 475	800	3 150
SL-FOZP-K-120/1200-12	120	1 200	12 000	8 400	2 900	3 050	1 900	800	3 640
SL-FOZP-K-120/1200-24	120	1 200	24 000	11 560	2 900	3 050	1 900	800	4 490
SL-FOZP-K-140/1400-14	140	1 400	14 000	10 760	2 900	3 050	1 700	1 000	4 430
SL-FOZP-K-140/1400-28	140	1 400	28 000	15 700	2 900	3 050	1 700	1 000	5 790
SL-FOZP-K-160/1600-16	160	1 600	16 000	11 920	2 900	3 050	1 700	1 000	4 770
SL-FOZP-K-160/1600-32	160	1 600	32 000	16 770	2 900	3 050	1 700	1 000	6 070
SL-FOZP-K-180/1800-18	180	1 800	18 000	13 060	2 900	3 050	1 700	1 000	5 090
SL-FOZP-K-180/1800-36	180	1 800	36 000	13 430	3 300	3 500	2 125	1 000	6 620
SL-FOZP-K-200/2000-20	200	2 000	20 000	14 210	2 900	3 050	1 700	1 000	5 430
SL-FOZP-K-200/2000-40	200	2 000	40 000	14 590	3 300	3 500	2 125	1 000	7 050
SL-FOZP-K-250/2500-25	250	2 500	25 000	17 100	2 900	3 050	1 700	1 000	6 260
SL-FOZP-K-250/2500-50	250	2 500	50 000	17 610	3 300	3 500	2 125	1 000	8 180
SL-FOZP-K-300/3000-30	300	3 000	30 000	14 420	3 300	3 500	2 125	1 000	7 060
SL-FOZP-K-300/3000-60	300	3 000	60 000	20 600	3 300	3 500	2 125	1 000	9 300

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML-PE superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR COMPARTMENT – as described on page 34

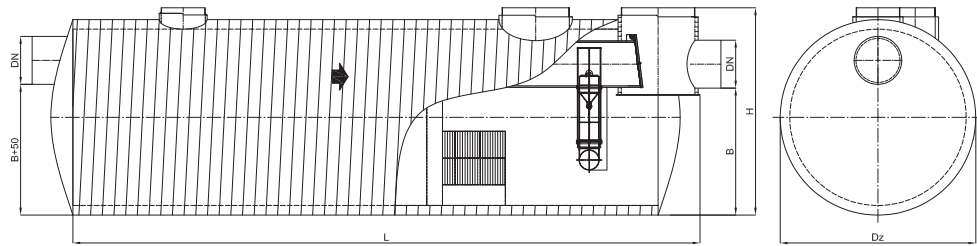
■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.


SL-FOZP-K
 6 ÷ 300 [l/s]

Lamella separator
 with auto-closing and 5-times bypass integrated with the sedimentation tank and flap valve section made of PE-HD polyethylene.

Maximum flow 30 ÷ 1 500 [l/s]



SL-FOZP-K	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	L [mm]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
SL-FOZP-K-6/30-0,6	6	30	600	2 710	1 200	1 250	800	200	230
SL-FOZP-K-6/30-1,2	6	30	1 200	3 660	1 200	1 250	800	200	270
SL-FOZP-K-10/50-1	10	50	1 000	3 480	1 400	1 450	910	315	340
SL-FOZP-K-10/50-2	10	50	2 000	4 680	1 400	1 450	910	315	410
SL-FOZP-K-15/75-1,5	15	75	1 500	4 620	1 400	1 450	910	315	420
SL-FOZP-K-15/75-3	15	75	3 000	4 770	1 600	1 650	1 110	315	530
SL-FOZP-K-20/100-2	20	100	2 000	4 320	1 600	1 650	1 110	315	500
SL-FOZP-K-20/100-4	20	100	4 000	5 960	1 600	1 650	1 110	315	620
SL-FOZP-K-30/150-3	30	150	3 000	6 330	1 600	1 650	1 025	400	700
SL-FOZP-K-30/150-6	30	150	6 000	6 830	1 800	1 850	1 250	400	1 000
SL-FOZP-K-40/200-4	40	200	4 000	6 920	1 800	1 850	1 150	500	1 070
SL-FOZP-K-40/200-8	40	200	8 000	9 770	1 800	1 850	1 150	500	1 370
SL-FOZP-K-50/250-5	50	250	5 000	8 300	1 800	1 850	1 150	500	1 240
SL-FOZP-K-50/250-10	50	250	10 000	9 190	2 000	2 100	1 350	500	1 610
SL-FOZP-K-60/300-6	60	300	6 000	7 540	2 000	2 100	1 350	500	1 430
SL-FOZP-K-60/300-12	60	300	12 000	10 720	2 000	2 100	1 350	500	1 830
SL-FOZP-K-70/350-7	70	350	7 000	8 530	2 000	2 100	1 350	500	1 570
SL-FOZP-K-70/350-14	70	350	14 000	12 230	2 000	2 100	1 350	500	2 040
SL-FOZP-K-80/400-8	80	400	8 000	9 580	2 000	2 100	1 350	500	1 730
SL-FOZP-K-80/400-16	80	400	16 000	11 010	2 200	2 350	1 575	500	2 230
SL-FOZP-K-90/450-9	90	450	9 000	8 530	2 200	2 350	1 575	500	1 860
SL-FOZP-K-90/450-18	90	450	18 000	12 230	2 200	2 350	1 575	500	2 440
SL-FOZP-K-100/500-10	100	500	10 000	9 290	2 200	2 350	1 575	500	1 990
SL-FOZP-K-100/500-20	100	500	20 000	11 010	2 400	2 550	1 775	500	2 640
SL-FOZP-K-120/600-12	120	600	12 000	9 780	2 400	2 550	1 675	600	2 290
SL-FOZP-K-120/600-24	120	600	24 000	13 980	2 400	2 550	1 675	600	3 110
SL-FOZP-K-140/700-14	140	700	14 000	9 410	2 900	3 050	1 900	800	3 930
SL-FOZP-K-140/700-28	140	700	28 000	13 100	2 900	3 050	1 900	800	4 920
SL-FOZP-K-160/800-16	160	800	16 000	10 400	2 900	3 050	1 900	800	4 210
SL-FOZP-K-160/800-32	160	800	32 000	14 610	2 900	3 050	1 900	800	5 340
SL-FOZP-K-180/900-18	180	900	18 000	11 400	2 900	3 050	1 900	800	4 490
SL-FOZP-K-180/900-36	180	900	36 000	16 150	2 900	3 050	1 900	800	5 570
SL-FOZP-K-200/1000-20	200	1 000	20 000	12 400	2 900	3 050	1 900	800	4 770
SL-FOZP-K-200/1000-40	200	1 000	40 000	13 130	3 300	3 500	2 325	800	6 410
SL-FOZP-K-250/1250-25	250	1 250	25 000	15 400	2 900	3 050	1 900	800	5 680
SL-FOZP-K-250/1250-50	250	1 250	50 000	15 740	3 300	3 500	2 325	800	7 380
SL-FOZP-K-300/1500-30	300	1 500	30 000	12 930	3 300	3 500	2 325	800	6 390
SL-FOZP-K-300/1500-60	300	1 500	60 000	18 470	3 300	3 500	2 325	800	8 390

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. SL separators are designed to work with the ML-PE superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

SETTLING TANK AND SEPARATOR COMPARTMENT – as described on page 34

■ NOTE

- SL separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

GREASE AND STARCH SEPARATORS

■ INTENDED USE

Grease separating devices are used in places where excess grease is produced, e.g. in restaurants, mass catering points, meat and food processing plants, etc.

Excessive amounts of grease in sewage systems cause pipes to clog. As a result of biological decomposition, grease form corrosive greasy acids with an unpleasant odor. They cause serious operational problems in sewage treatment plants (e.g. overgrowing of deposits, oxygen deficit).

■ PRINCIPLE OF OPERATION

Grease separating devices use differences in the density of fats and water. The sewage flows through the inlet stub and deflector into a sludge chamber, where precipitation and sedimentation of solids takes place. The flow rate decreases in the separation chamber. Extended retention time causes flotation, cooling, solidification and flotation of fats. Purified sewage is led in the lower part of the separator to the drain stub.

Note: mineral oils, feces and rainwater cannot be introduced into the grease separators. Sludge settling tanks should be used before the actual grease separation chamber.

■ BASIC STRUCTURE

The series of LIPO and SK separators includes:

- devices made of PE polyethylene - for free-standing installation in frost-free places (PE tank roto-formed, do not require additional reinforcements and bands),
- devices made of PE-HD polyethylene - for underground installation, tanks made of double-walled structural PEHD pipes with high peripheral stiffness from SN2 to SN8, possibility of installation in roads with traffic,
- devices made of C35/45 class concrete - for underground installation with a sealing additive ensuring watertightness and frost resistance of the entire tank.

The internal equipment of all separators is made of plastic and acid-resistant steel. The materials used to produce separators are neutral to the environment.

■ ADDITIONAL EQUIPMENT

The series of LIPO and SK separators has extensive additional equipment installed depending on the requirements and needs resulting from projects and industry agreements. Additional equipment includes:

- sewage pumping stations integrated with the separator,
- emptying installations (NT-U) facilitating cleaning and operation of separators,
- automatic device for rinsing the separator walls,
- sludge chambers of increased capacity when excessive amounts of suspensions occur,
- anti-odor filters with carbon insert,
- measuring probes for the amount of suspensions and grease accumulated in the separator, with a sound and/or light alarm system,
- flow rate measurement systems,
- mechanical ventilation.

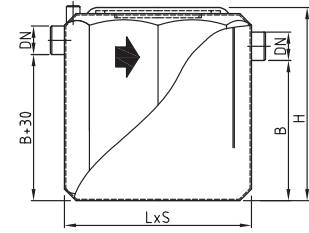
■ ECOLOGICAL EFFECT

The content of grease substances in purified sewage flowing from the technological system of LIPO separators by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311). The construction of the separator according to EN 1825-1:2007).

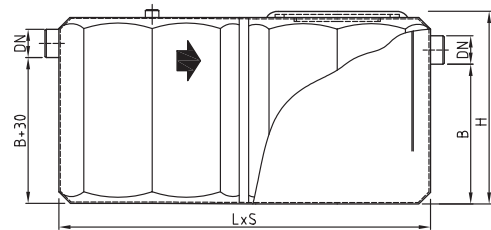
LIPO-PZ

0,2 ÷ 0,5 [l/s]

**Under-sink grease separator
for free-standing installation
made of PE polyethylene**



LIPO-PZ	Nominal flow [l/s]	Total capacity [l]	L [mm]	S [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-PZ-1	0,2	80	440	440	520	380	50	15



LIPO-PZ	Nominal flow [l/s]	Total capacity [l]	L [mm]	S [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-PZ-2	0,5	160	880	440	520	380	50	25

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- grease separation and storage compartment,
- siphoned outlet connector (PE or PVC socket with a gasket),
- separator inspection opening with screw-on cover,
- gravity ventilation connection.

■ NOTE

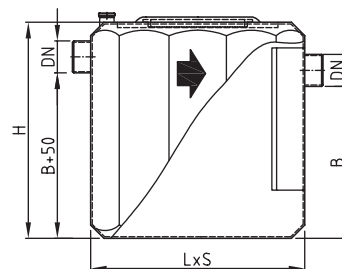
- in case of existing internal and external sewage systems, NavoTech Inżynieria Środowiska offers the selection and implementation of an individual grease separator according to the existing local conditions, project requirements and the investor's utility needs,
- LIPO separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- it is possible to integrate it with the SK starch separator - upon request.



LIPO-W

2 ÷ 10 [l/s]

**Grease separator
for free standing installation
made of PEHD polyethylene**



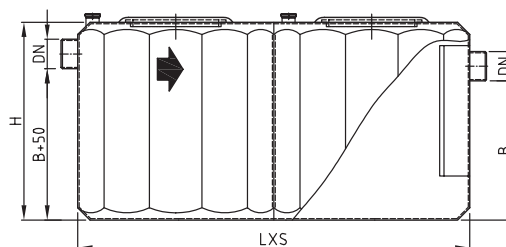
LIPO-W	Nominal flow [l/s]	L [mm]	S [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-W-2	2	800	800	1000	810	110	30
LIPO-W-4	4	1000	1000	1200	1010	110	58
LIPO-W-6	6	1200	1200	1200	960	160	75
LIPO-W-10	10	1400	1400	1540	1340	160	110



LIPO-TW

2 ÷ 10 [l/s]

**Grease separator
for free standing installation
integrated with the settling tank
made of PEHD polyethylene**



LIPO-TW	Nominal flow [l/s]	Settler tank capacity [l]	L [mm]	S [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-TW-2	2	200	1600	800	1000	810	110	70
LIPO-TW-4	4	400	2000	1000	1000	810	110	90
LIPO-TW-6	6	850	2000	1000	1200	960	160	110
LIPO-TW-10	10	1350	2400	1200	1540	1340	160	145

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- grease separation and storage compartment,
- integrated settling tank in LIPO-TW,
- siphoned outlet connector (PE or PVC socket with a gasket),
- separator inspection opening with screw-on cover,
- gravity ventilation connection.

■ NOTE

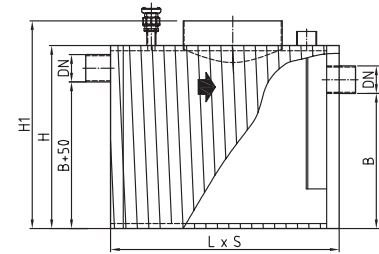
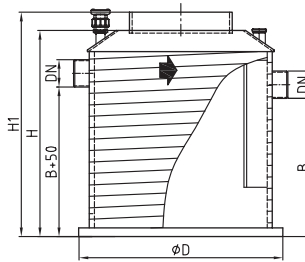
- in case of existing internal and external sewage systems, NavoTech Inżynieria Środowiska offers the selection and implementation of an individual grease separator according to the existing local conditions, project requirements and the investor's utility needs,
- LIPO separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- it is possible to integrate it with the SK starch separator - upon request.



LIPO-PE

2 ÷ 10 [l/s]

**Grease separator
for underground installation
made of PEHD polyethylene**



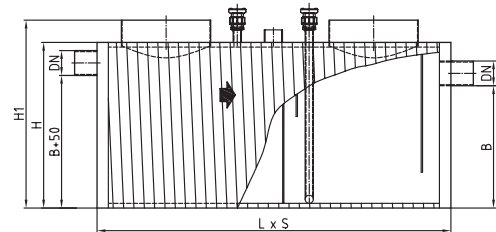
LIPO-PE	Nominal flow [l/s]	Settling tank [l]	Ø D [mm]	H [mm]	L [mm]	S [mm]	B [mm]	DN [mm]
LIPO-2	2	-	900	1 300	-	-	875	110-160
LIPO-2-0,2	2	200	900	1 800	-	-	1 375	110-160
LIPO-2-0,4	2	400	900	2 200	-	-	1 775	110-160
LIPO-4	4	-	1200	1 600	-	-	1 025	110-160
LIPO-4-0,4	4	400	1200	2 150	-	-	1 575	110-160
LIPO-6	6	-	1400	1 750	-	-	1 125	160-200
LIPO-6-0,6	6	600	1400	2 300	-	-	1 675	160-200
LIPO-8	8	-	-	1 500	1 800	1400	940	160-200
LIPO-10	10	-	-	1 500	2 200	1400	940	160-200



LIPO-T

2 ÷ 20 [l/s]

**Grease separator
for underground installation
integrated with settling tank
made of PEHD polyethylene**



LIPO-T	Nominal flow [l/s]	Settling tank [l]	L [mm]	S [mm]	H / H1 [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-T-2 *	2	250	1 600	900	900/1 050	620	110	73
LIPO-T-2A	2	500	2 400	900	900/1 050	620	110	107
LIPO-T-4 *	4	450	2 000	1 130	1 125/1 280	780	160	95
LIPO-T-4A	4	900	3 000	1 130	1 125/1 280	780	160	142
LIPO-T-6	6	850	2 100	1 350	1 350/1 500	990	160	150
LIPO-T-6A	6	1 700	3 150	1 350	1 350/1 500	990	160	220
LIPO-T-8	8	1 350	2 900	1 350	1 350/1 500	990	160	180
LIPO-T-8A	8	2 700	4 350	1 350	1 350/1 500	990	160	230
LIPO-T-10	10	1 500	2 600	1 580	1 580/1 730	1 150	200	220
LIPO-T-10A	10	3 000	3 900	1 580	1 580/1 730	1 150	200	270
LIPO-T-15	15	2 000	3 600	1 580	1 580/1 730	1 150	200	290
LIPO-T-20	20	3 000	5 000	1 580	1 580/1 730	1 150	200	380

* - means 1 inspection hole in the separator. Without a star, means 2 inspection holes.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- grease separation and storage compartment,
- integrated settling tank in LIPO-T, - siphoned outlet connector (PE or PVC socket with a gasket),
- separator inspection opening with screw-on cover - gravity ventilation connection.

■ NOTE

- in case of existing internal and external sewage systems, NavoTech Inżynieria Środowiska offers the selection and implementation of an individual grease separator according to the existing local conditions, project requirements and the investor's utility needs,
- LIPO separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- it is possible to integrate it with the SK starch separator - upon request.



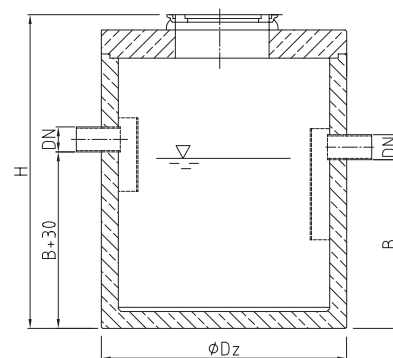
LIPO-B

2 ÷ 18 [l/s]

**Grease separator
for underground installation
made of C35/45 concrete**

Vertical cylindrical tank:

wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



LIPO-B	Nominal flow [l/s]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-B-2	2	1 300	1 450	770	110÷160	2 200
LIPO-B-4	4	1 500	1 750	1 000	110÷160	3 100
LIPO-B-7	7	1 800	1 850	1 090	160÷200	4 500
LIPO-B-10	10	2 300	1 850	1 000	160÷200	7 150
LIPO-B-14	14	2 800	1 850	1 050	160÷200	12 000
LIPO-B-18	18	2 800	1 950	1 120	200÷250	16 200

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. LIPO separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- grease separation and storage compartment,
- siphoned outlet connector (PE or PVC socket with a gasket),
- inspection opening DN600÷800 with cast iron hatch class A÷D.

■ NOTE

- in case of existing internal and external sewage systems, NavoTech Inżynieria Środowiska offers the selection and implementation of an individual grease separator according to the existing local conditions, project requirements and the investor's utility needs,
- LIPO separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- it is possible to integrate it with the SK starch separator - upon request.

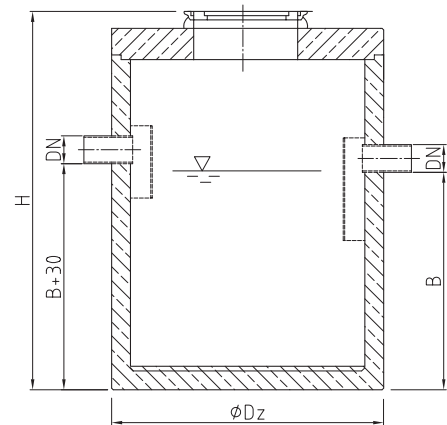
LIPO-BO

2 ÷ 18 [l/s]

**Grease separator
for underground installation
integrated with a settling tank
made of C35/45 concrete**

Vertical cylindrical tank:

wall thickness: 120 – 150 mm
cover thickness: 150 – 250 mm
cast iron hatches: DN 600. Class A÷D



LIPO-BO	Nominal flow [l/s]	Settler tank capacity [l]	Dz [mm]	H [mm]	B [mm]	DN [mm]	Weight [kg]
LIPO-BO -2/200	2	200	1 300	1 850	1 050	110÷160	2 200
LIPO-BO -2/400	2	400	1 300	2 050	1 300	110÷160	2 400
LIPO-BO -2/600	2	600	1 300	2 350	1 560	110÷160	2 700
LIPO-BO -4/400	4	400	1 500	2 250	1 480	110÷160	4 150
LIPO-BO -4/800	4	800	1 500	2 450	1 750	110÷160	4 250
LIPO-BO -7/700	7	700	1 800	2 150	1 320	160÷200	4 600
LIPO-BO -7/1400	7	1 400	1 800	2 450	1 720	160÷200	5 100
LIPO-BO -10/1 000	10	1 000	2 300	2 150	1 330	160÷200	8 150
LIPO-BO -10/2 000	10	2 000	2 300	2 350	1 620	160÷200	8 150
LIPO-BO -14/1 400	14	1 400	2 800	2 050	1 250	160÷200	12 700
LIPO-BO -14/3 400	14	3 400	2 800	2 350	1 620	160÷200	15 200
LIPO-BO -18/1 800	18	1 800	2 800	2 250	1 420	200÷250	15 200
LIPO-BO -18/4 500	18	4 500	2 800	2 950	2 120	200÷250	18 300

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. LIPO separators are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SEPARATOR

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- grease separation and storage compartment,
- integrated settling tank,
- siphoned outlet connector (PE or PVC socket with a gasket),
- inspection opening DN600÷800 with cast iron hatch class A÷D.

■ NOTE

- in case of existing internal and external sewage systems, NavoTech Inżynieria Środowiska offers the selection and implementation of an individual grease separator according to the existing local conditions, project requirements and the investor's utility needs,
- LIPO separators with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- it is possible to integrate it with the SK starch separator - upon request.

MINERAL AND ORGANIC SUSPENSIONS SEDIMENTATION

■ INTENDED USE

Sedimentation tanks are used in:

- separation of mineral suspensions from rainwater from roads, parking lots, parking and maneuvering areas and technological sewage from car washes, mechanical workshops, repair gas stations, vehicle parts storage areas, etc. Mineral suspensions such as sand, mud, ashes and floating solids, e.g. bags, bottles,;
- the separation of organic suspensions sedimenting from domestic and technological sewage. In places where they are excessively produced, e.g. in restaurants, catering establishments, meat and food processing plants, etc.

Depending on the project requirements, settling tanks can be used for development in green areas or in communication routes (roads, maneuvering areas).

■ PRINCIPLE OF OPERATION

The sedimentation tank is a flow device. In the process of separation of suspensions, the difference in the density of water and the separated suspension is used. Mineral suspensions fall to the bottom of the tank, solid suspensions, lighter than water, are collected in the upper part of the settling tanks. The separation system is designed for operation and service from ground level without the need to enter the settling tank. The operating system of settling tanks supports the separation of light liquids such as petroleum substances and grease.

■ Highly efficient PRIM settling tanks

Highly-efficient PRIM settling tanks are used in places particularly loaded with mineral suspension (e.g. mines, gravel pits, cement plants). PRIM sedimentation tanks use a decantation process that shortens the liquid phase purification time. The process efficiency for the nominal load allows for the reduction of approx. 90% of the suspension with an equivalent diameter of 0.2 mm and approx. 50% with an equivalent diameter of 0.12 mm (for the specific gravity of the suspension ≥ 19 kN/m³).

■ BASIC STRUCTURE

OK-PN, OK-PZ, PRIM-PE - settling tanks made of polyethylene – settling tanks in the shape of a cylinder with a vertical or horizontal axis are made of high-density polyethylene PEHD based on structural spiral double-wall pipes with high peripheral stiffness SN2÷SN8. The proposed settling tanks are easy to install and environmentally friendly. Internal equipment elements are made of plastic and stainless steel.

OK-B, OKB-C, PRIM-B - settling tanks made of C35/45 concrete – settling tanks in the shape of a cylinder with a vertical axis or a cuboid shape are made of C35/45 class concrete with a sealing additive that guarantees watertightness and frost resistance of the entire tank. Internal equipment elements are made of plastic and stainless steel. Upon request, settling tanks can be made of structural or acid-resistant steel.

■ ADDITIONAL EQUIPMENT

Slurry settling tanks have extensive additional equipment installed depending on the requirements resulting from designs and official arrangements:

- emptying installations (NT-U) facilitating cleaning and operation of separators,
- measuring probes for the amount of suspensions and grease accumulated in the separator, with a sound and/or light alarm system,
- flap valve,
- flow rate measurement systems, flow regulators,
- auto-closing.

■ NOTE

- settling tanks designed to work with petroleum substances, grease and starch separators,
- the selection of the size of the settling tank is determined using the guidelines presented in the EN-858 standard, also taking into account local operating conditions,
- settling tanks with other dimensions or volumes - upon request.



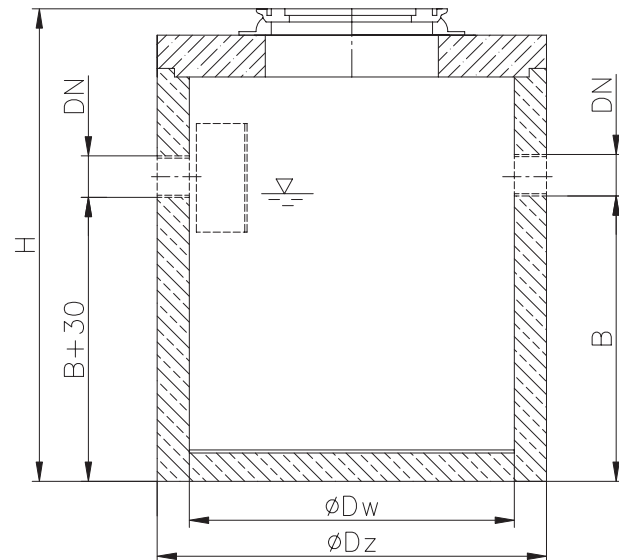
OK-B

500 ÷ 10 300 [l]

Mineral suspension sedimentation tank

Vertical cylindrical tank:

reinforced concrete: C35/45
 wall thickness: 120 – 150 mm
 cover thickness: 150 – 250 mm
 cast iron hatches: DN 600. Class A÷D



OK-B	Active capacity Vc [l]	Inner diameter Dw [mm]	Outer diameter Dz max [mm]	H [mm]	B [mm]	DN max [mm]
OK-B-0,5-1	500	1 000	1 300	1 550+DN	900	315
OK-B-0,6-1	600	1 000	1 300	1 650+DN	1 000	315
OK-B-0,7-1	700	1 000	1 300	1 750+DN	1 100	315
OK-B-0,8-1	800	1 000	1 300	1 850+DN	1 200	315
OK-B-1-1	1 000	1 000	1 300	2 150+DN	1 500	315
OK-B-1,1-1	1 100	1 000	1 300	2 250+DN	1 600	315
OK-B-1,2-1	1 200	1 000	1 300	2 350+DN	1 700	315
OK-B-1,3-1	1 300	1 000	1 300	2 450+DN	1 800	315
OK-B-0,6-1,2	600	1 200	1 500	1 350+DN	700	500
OK-B-0,8-1,2	800	1 200	1 500	1 550+DN	900	500
OK-B-0,9-1,2	900	1 200	1 500	1 650+DN	1 000	500
OK-B-1-1,2	1 000	1 200	1 500	1 750+DN	1 100	500
OK-B-1,1-1,2	1 100	1 200	1 500	1 850+DN	1 200	500
OK-B-1,1-1,2	1 100	1 200	1 500	1 850+DN	1 200	500
OK-B-1,2-1,2	1 200	1 200	1 500	1 950+DN	1 300	500
OK-B-1,5-1,2	1 500	1 200	1 500	2 150+DN	1 500	500
OK-B-1,6-1,2	1 600	1 200	1 500	2 250+DN	1 600	500
OK-B-1,7-1,2	1 700	1 200	1 500	2 350+DN	1 700	500
OK-B-1,8-1,2	1 800	1 200	1 500	2 450+DN	1 800	500
OK-B-0,7-1,5	700	1 500	1 800	1 250+DN	600	600
OK-B-0,9-1,5	900	1 500	1 800	1 350+DN	700	600
OK-B-1,2-1,5	1 200	1 500	1 800	1 550+DN	900	600
OK-B-1,4-1,5	1 400	1 500	1 800	1 650+DN	1 000	600
OK-B-1,6-1,5	1 600	1 500	1 800	1 750+DN	1 100	600
OK-B-1,6-1,5	1 600	1 500	1 800	1 750+DN	1 100	600
OK-B-1,8-1,5	1 800	1 500	1 800	1 850+DN	1 200	600
OK-B-1,8-1,5	1 800	1 500	1 800	1 850+DN	1 200	600
OK-B-2,1-1,5	2 100	1 500	1 800	2 050+DN	1 400	600
OK-B-2,3-1,5	2 300	1 500	1 800	2 150+DN	1 500	600
OK-B-2,5-1,5	2 500	1 500	1 800	2 250+DN	1 600	600
OK-B-2,7-1,5	2 700	1 500	1 800	2 350+DN	1 700	600
OK-B-2,7-1,5	2 700	1 500	1 800	2 350+DN	1 700	600
OK-B-2,8-1,5	2 800	1 500	1 800	2 450+DN	1 800	600
OK-B-3,2-1,5	3 200	1 500	1 800	2 650+DN	2 000	600
OK-B-3,4-1,5	3 400	1 500	1 800	2 750+DN	2 100	600
OK-B-3,5-1,5	3 500	1 500	1 800	2 850+DN	2 200	600

OK-B	Active capacity Vc [l]	Inner diameter Dw [mm]	Outer diameter Dz max [mm]	H [mm]	B [mm]	DN max [mm]
OK-B-3,7-1,5	3 700	1 500	1 800	2 950+DN	2 300	600
OK-B-2,8-2	2 800	2 000	2 300	1 850+DN	1 100	800
OK-B-3,1-2	3 100	2 000	2 300	1 950+DN	1 200	800
OK-B-3,8-2	3 800	2 000	2 300	2 150+DN	1 400	800
OK-B-4,1-2	4 100	2 000	2 300	2 250+DN	1 500	800
OK-B-4,4-2	4 400	2 000	2 300	2 350+DN	1 600	800
OK-B-4,7-2	4 700	2 000	2 300	2 450+DN	1 700	800
OK-B-4,7-2	4 700	2 000	2 300	2 450+DN	1 700	800
OK-B-5-2	5 000	2 000	2 300	2 550+DN	1 800	800
OK-B-5,7-2	5 700	2 000	2 300	2 750+DN	2 000	800
OK-B-6-2	6 000	2 000	2 300	2 850+DN	2 100	800
OK-B-6,3-2	6 300	2 000	2 300	2 950+DN	2 200	800
OK-B-6,6-2	6 600	2 000	2 300	3 050+DN	2 300	800
OK-B-7,4-2,5	7 400	2 500	2 800	2 450+DN	1 700	1 000
OK-B-7,9-2,5	7 900	2 500	2 800	2 550+DN	1 800	1 000
OK-B-8,8-2,5	8 800	2 500	2 800	2 750+DN	2 000	1 000
OK-B-9,3-2,5	9 300	2 500	2 800	2 850+DN	2 100	1 000
OK-B-9,8-2,5	9 800	2 500	2 800	2 950+DN	2 200	1 000
OK-B-10,3-2,5	10 300	2 500	2 800	3 050+DN	2 300	1 000

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

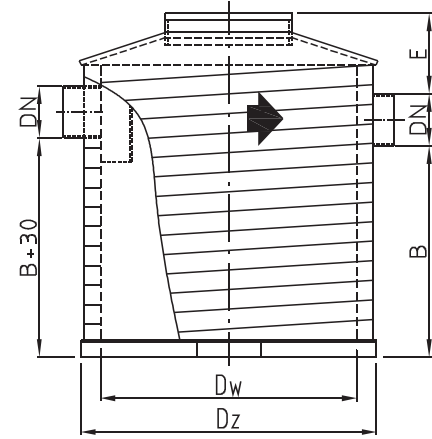
■ BASIC EQUIPMENT OF THE SETTLING TANK :

- concrete tank with cover, class C35/45,
- openings with tight inlet/outlet passages,
- stream breaker,
- inspection opening Ø 600 with a cast iron hatch, class A÷D.

Internal equipment elements are made of plastic or 0H18N9 stainless steel.

■ NOTE

- in case of existing internal and external sewage systems, NavoTech Inżynieria Środowiska offers the selection and implementation of an individual settling tank according to the existing local conditions, project requirements and the investor's utility needs,
- OK-B sedimentation tanks with other operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design.


OK-PN
300 ÷ 11 000 [l]
Mineral suspension sedimentation tank
**Vertical cylindrical tank
for underground installation
made of PE-HD polyethylene**


OK-PN	Active capacity Vc [l]	Inner diameter Dw [mm]	Outer diameter Dz max [mm]	H [mm]	B [mm]	DN max [mm]
OK-PN-0,3-0,8	300	800	900	850 + DN	600	200
OK-PN-0,6-0,8	600	800	900	1 450 + DN	1 200	200
OK-PN-0,8-0,8	800	800	900	1 850 + DN	1 600	200
OK-PN-1,0-0,8	1 000	800	900	2 250 + DN	2 000	200
OK-PN-1,4-1,0	1 400	1 000	1 200	2 150 + DN	1 800	315
OK-PN-1,6-1,0	1 600	1 000	1 200	2 450 + DN	2 050	315
OK-PN-1,8-1,0	1 800	1 000	1 200	2 650 + DN	2 300	315
OK-PN-2,0-1,2	2 000	1 200	1 400	2 250 + DN	1 780	400
OK-PN-2,3-1,2	2 300	1 200	1 400	2 500 + DN	2 050	400
OK-PN-2,6-1,2	2 600	1 200	1 400	2 750 + DN	2 300	400
OK-PN-2,8-1,2	2 800	1 200	1 400	2 950 + DN	2 500	400
OK-PN-3,0-1,2	3 000	1 200	1 400	3 150 + DN	2 670	400
OK-PN-3,3-1,2	3 300	1 200	1 400	3 350 + DN	2 930	400
OK-PN-3,5-1,2	3 500	1 200	1 400	3 500 + DN	3 110	400
OK-PN-3,8-1,4	3 800	1 400	1 700	3 000 + DN	2 500	400
OK-PN-4,0-1,4	4 000	1 400	1 700	3 150 + DN	2 620	400
OK-PN-4,6-1,4	4 600	1 400	1 700	3 500 + DN	3 000	400
OK-PN-4,8-1,4	4 800	1 400	1 700	3 650 + DN	3 140	400
OK-PN-5,0-1,6	5 000	1 600	1 800	3 100 + DN	2 510	400
OK-PN-5,5-1,6	5 500	1 600	1 800	3 150 + DN	2 760	400
OK-PN-5,7-1,6	5 700	1 600	1 800	3 400 + DN	2 940	400
OK-PN-6,0-1,6	6 000	1 600	1 800	3 600 + DN	3 080	400
OK-PN-6,4-1,8	6 400	1 800	2 000	3 250 + DN	2 610	600
OK-PN-6,8-1,8	6 800	1 800	2 000	3 450 + DN	2 780	600
OK-PN-7,0-1,8	7 000	1 800	2 000	3 500 + DN	2 860	600
OK-PN-7,6-1,8	7 600	1 800	2 000	3 750 + DN	3 090	600
OK-PN-8,0-2,0	8 000	2 000	2 260	3 300 + DN	2 650	600
OK-PN-8,5-2,0	8 500	2 000	2 260	3 450 + DN	2 810	600
OK-PN-9,0-2,0	9 000	2 000	2 260	3 650 + DN	2 970	600
OK-PN-10,0-2,2	10 000	2 200	2 500	3 600 + DN	2 860	600
OK-PN-11,0-2,2	11 000	2 200	2 500	3 850 + DN	3 020	600

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK

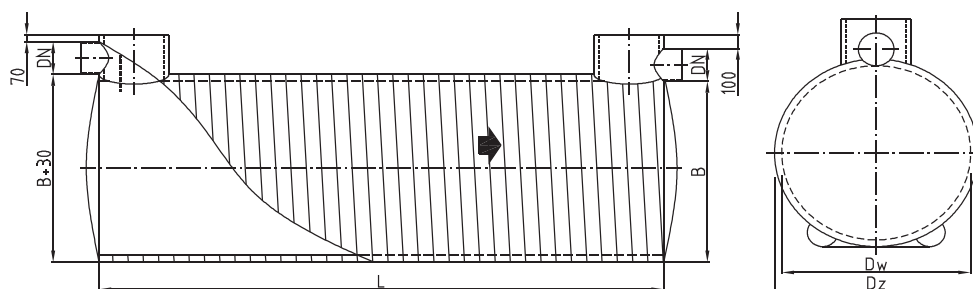
- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- separation and collection compartment for suspensions,
- PE drain connector with a partition stopping floating solids,
- inspection opening \varnothing 600 DN with connector for ML superstructure.



OK-PZ

3 000 ÷ 67 000 [l]

Mineral suspension sedimentation tank for underground installation made of PE-HD polyethylene



OK-PZ	Active capacity Vc [l]	Inner diameter Dw [mm]	Outer diameter Dz max [mm]	L [mm]	B [mm]	DN max [mm]
OK-PZ-3,0-1,0	3 000	1 000	1 200	4 000	1 500	160
OK-PZ-5,0-1,0	5 000	1 000	1 200	6 000	1 500	160
OK-PZ-6,0-1,0	6 000	1 000	1 200	8 000	1 500	160
OK-PZ-8,0-1,0	8 000	1 000	1 200	10 000	1 500	160
OK-PZ-10,0-1,0	10 000	1 000	1 200	12 500	1 500	160
OK-PZ-5,0-1,2	5 000	1 200	1 400	4 000	1 700	200
OK-PZ-7,0-1,2	7 000	1 200	1 400	6 000	1 700	200
OK-PZ-9,0-1,2	9 000	1 200	1 400	8 000	1 700	200
OK-PZ-11,0-1,2	11 000	1 200	1 400	10 000	1 700	200
OK-PZ-14,0-1,2	14 000	1 200	1 400	12 500	1 700	200
OK-PZ-6,0-1,4	6 000	1 400	1 700	4 000	2 000	400
OK-PZ-9,0-1,4	9 000	1 400	1 700	6 000	2 000	400
OK-PZ-12,0-1,4	12 000	1 400	1 700	8 000	2 000	400
OK-PZ-15,0-1,4	15 000	1 400	1 700	10 000	2 000	400
OK-PZ-19,0-1,4	19 000	1 400	1 700	12 500	2 000	400
OK-PZ-12,0-1,6	12 000	1 600	1 800	6 000	2 100	400
OK-PZ-16,0-1,6	16 000	1 600	1 800	8 000	2 100	400
OK-PZ-20,0-1,6	20 000	1 600	1 800	12 000	2 100	400
OK-PZ-25,0-1,6	25 000	1 600	1 800	12 500	2 100	400
OK-PZ-15,0-1,8	15 000	1 800	2 000	6 000	2 300	500
OK-PZ-20,0-1,8	20 000	1 800	2 000	8 000	2 300	500
OK-PZ-25,0-1,8	25 000	1 800	2 000	10 000	2 300	500
OK-PZ-32,0-1,8	32 000	1 800	2 000	12 500	2 300	500
OK-PZ-19,0-2,0	19 000	2 000	2 260	6 000	2 560	800
OK-PZ-25,0-2,0	25 000	2 000	2 260	8 000	2 560	800
OK-PZ-31,0-2,0	31 000	2 000	2 260	12 000	2 560	800
OK-PZ-39,0-2,0	39 000	2 000	2 260	12 500	2 560	800
OK-PZ-32,0-2,6	32 000	2 600	2 950	6 000	3 250	1 000
OK-PZ-43,0-2,6	43 000	2 600	2 950	8 000	3 250	1 000
OK-PZ-53,0-2,6	53 000	2 600	2 950	10 000	3 250	1 000
OK-PZ-67,0-2,6	67 000	2 600	2 950	12 500	3 250	1 000

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- separation and collection compartment for suspensions,
- PE drain connector with a partition stopping floating solids,
- inspection opening \varnothing 600 with connector for ML600/ML1000 superstructure,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

HIGHLY EFFICIENT PRIM SETTLING TANKS

■ INTENDED USE

PRIM multi-stream decanter suspension separators are used to treat rainwater and technological wastewater from industrial plants producing mineral suspensions that are difficult to settle (ash, scrubbers, etc.).

■ ADVANTAGES

- possibility of use in a wide range of applications,
- high structural strength of the tank,
- lamella technology guaranteeing high cleaning efficiency over the entire flow range,
- an extensive range of types of devices with a vertical and horizontal axis,
- for large devices with a horizontal axis, significantly shallower excavations necessary to install the device,
- compatibility with collectors with nominal diameters exceeding 1500 mm,
- low operating costs,
- resistance to chemicals found in rainwater and sewage.

■ PRINCIPLE OF OPERATION

The PRIM multi-stream decanter suspension separator is a highly efficient decanter equipped with a lamella insert. The device is equipped with a sedimentation set of interconnected lamella packages made of plastic, ensuring adequate durability at low weight and quick and effective separation of sediments on a much smaller surface than required in conventional settling tanks. The sewage is separated and directed into lamella packs, creating many streams in which the suspension thickens and slides into the settling part opposite to the direction of sewage flow. Sedimentation on lamellas guarantees the process of continuous separation of particles of different sizes and different masses, improves the settling rate, which results in a reduction of the total capacity, unlike static sedimentation devices, where the settling rate is low and large-volume tanks are required.

Lamella inserts are made of PP. The packages are chemically passive, do not react with strong acids and bases, and are also resistant to petroleum substances.

■ BASIC STRUCTURE

PRIM-PE - settling tanks in the shape of a cylinder with a horizontal axis are made of high-density polyethylene PEHD based on structural spiral double-wall pipes with high peripheral stiffness SN2÷SN8. The proposed settling tanks are easy to install and environmentally friendly. Internal equipment elements are made of plastic and stainless steel.

PRIM-B - settling tanks in the shape of a cylinder with a vertical axis shape are made of C35/45 class concrete with a sealing additive that guarantees watertightness and frost resistance of the entire tank. Internal equipment elements are made of plastic and stainless steel. Upon request, settling tanks can be made of structural or acid-resistant steel.

■ ECOLOGICAL EFFECT

The content of general suspension in purified sewage flowing from the technological system of PRIM settling tanks by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311). The contents of general suspension in the outflow at the rated output: according to EN 858-1:2005+A1:2007

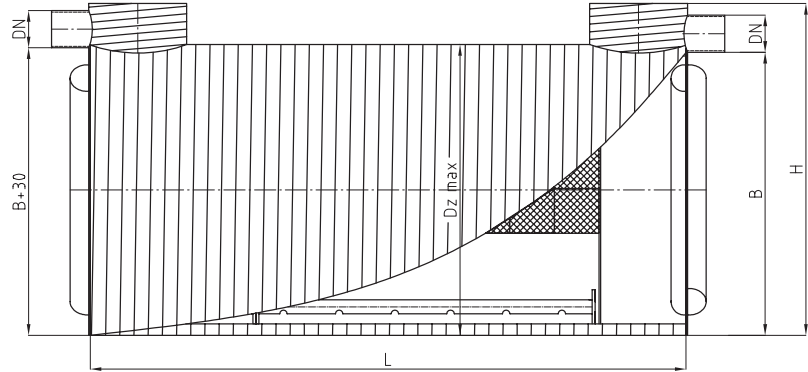


PRIM-PE

2 000 ÷ 60 000 [l]

High-efficiency settling tank

tank with a horizontal axis intended for underground installation
made of PE-HD polyethylene



PRIM-PE	Active volume Vos [l]	DN [mm]	Outer diameter Dz [mm]	L [mm]	H [mm]	B [mm]	Weight [kg]
PRIM-PE-2-1	2 000	110 ÷ 160	1 200	1 800	1 350+DN	1 250	470
PRIM-PE-2,5-1,2	2 500	110 ÷ 160	1 400	2 200	1 350+DN	1 250	740
PRIM-PE-3-1,2	3 000	110 ÷ 200	1 400	2 650	1 350+DN	1 250	665
PRIM-PE-4-1,4	4 000	110 ÷ 200	1 600	2 600	1 600+DN	1 500	820
PRIM-PE-5-1,4	5 000	110 ÷ 200	1 600	3 300	1 600+DN	1 500	1 150
PRIM-PE-6-1,6	6 000	110 ÷ 400	1 800	3 000	1 800+DN	1 700	1 480
PRIM-PE-8-1,6	8 000	110 ÷ 400	1 800	4 000	1 800+DN	1 700	1 970
PRIM-PE-10-1,8	10 000	110 ÷ 400	2 000	4 000	2 000+DN	1 900	1 860
PRIM-PE-14-1,8	14 000	110 ÷ 400	2 000	5 500	2 000+DN	1 900	2 800
PRIM-PE-18-2,2	18 000	110 ÷ 500	2 400	5 000	2 400+DN	2 300	3 680
PRIM-PE-22-2,2	22 000	110 ÷ 500	2 400	6 000	2 400+DN	2 300	3 750
PRIM-PE-28-2,4	28 000	110 ÷ 600	2 600	6 000	2 600+DN	2 500	4 560
PRIM-PE-40-2,4	40 000	110 ÷ 600	2 600	9 000	2 600+DN	2 500	5 690
PRIM-PE-48-2,4	48 000	110 ÷ 800	2 600	11 000	2 600+DN	2 500	6 200
PRIM-PE-60-2,4	60 000	110 ÷ 800	2 600	12 500	2 600+DN	2 500	7 150

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK

- inlet connector (PE or PVC socket with a gasket), with a stream breaker,
- separation and collection compartment for suspensions,
- PE drain connector with a partition stopping floating solids,
- PE filter box with PP lamella insert,
- inspection opening \varnothing 600 with connector for ML600/ML1000 superstructure.

■ NOTE

- PRIM-PE separators with other flows and operating parameters - upon request,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe,
- emptying system - upon request.

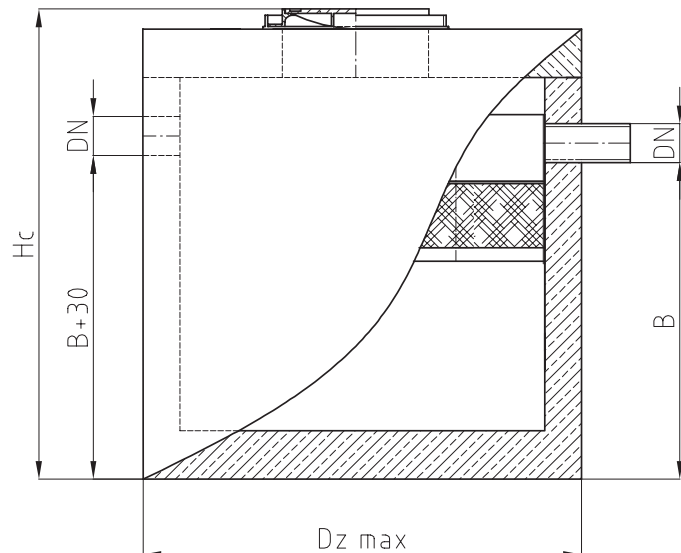


PRIM-B

2 000 ÷ 28 000 [l]

High-efficiency settling tank

Vertical cylindrical tank
 made of C35/45 class concrete
 intended for underground installation



PRIM-B	Active volume Vos [l]	DN [mm]	Diameter Dz [mm]	Hc [mm]	B [mm]	Weight [kg]
PRIM-B-2-1,5	2 000	110 ÷ 160	1 800	1 650	1 300	3 860
PRIM-B-2,5-1,5	2 500	110 ÷ 160	1 800	2 000	1 600	4 300
PRIM-B-3-1,5	3 000	110 ÷ 200	1 800	2 400	1 900	4 900
PRIM-B-4-2	4 000	110 ÷ 200	2 300	2 000	1 500	7 200
PRIM-B-5-2	5 000	110 ÷ 315	2 300	2 500	1 800	7 600
PRIM-B-6-2	6 000	110 ÷ 400	2 300	2 800	2 100	8 000
PRIM-B-8-2,5	8 000	110 ÷ 400	2 800	2 600	1 800	10 360
PRIM-B-10-2,5	10 000	110 ÷ 400	2 800	2 800	2 200	10 900
PRIM-B-14-3	14 000	110 ÷ 400	3 300	3 000	2 300	14 800
PRIM-B-18-3	18 000	110 ÷ 500	3 300	3 400	2 700	16 200
PRIM-B-22-3	22 000	110 ÷ 500	3 300	4 200	3 400	18 200
PRIM-B-28-3	28 000	110 ÷ 600	3 300	5 000	4 200	20 500

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK

- tank with cover, concrete class C35/45,
- inlet opening with a tight passage, deflector, PE outlet stub,
- PE filter box with PP lamella insert,
- inspection opening Ø 600 with cast iron hatch class A÷D.

■ NOTE

- PRIM-B separators with other flows and operating parameters - upon request,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe,
- emptying system - upon request.

VORTEX SETTLING TANKS OK-WIR

■ INTENDED USE

OK-WIR settling tanks are used to purify rainwater from squares, plants, parking lots, linear drainage and other places with contaminated rainwater.

OK-WIR sedimentation tanks are designed to remove sedimenting mineral suspensions and oil-gasoline substances that cannot be introduced into the receiver, sewage system or local sewage treatment plants.

■ PRINCIPLE OF OPERATION

The class I vortex separator according to PN-EN 858 is a flow device. In the settling tank, sedimentation of mineral suspension, sand and mud takes place. The sewage is directed tangentially to the perimeter of the chamber, which gives it a swirling motion. The centrifugal force of the swirling movement separates the solids into the sedimentation tank and then the sewage is directed to the drainage chamber through a centrally located drainage connection.

■ BASIC STRUCTURE

Settling tanks in the shape of a cylinder with a vertical axis or a cuboid shape are made of C35/45 class concrete with a sealing additive that guarantees watertightness and frost resistance of the entire tank. Internal equipment elements are made of plastic and stainless steel. Upon request, settling tanks can be made of structural or acid-resistant steel.

■ ADDITIONAL EQUIPMENT

OK-WIR settling tanks have extensive additional equipment installed depending on the requirements resulting from projects and industry agreements:

- emptying installations facilitating direct cleaning and operation of devices,
- additional oil sorption cartridges to obtain above-standard sewage quality,
- measuring probes for the amount of suspensions and petroleum substances collected in the sedimentation tank with a sound and/or light alarm system (NT-SET),
- flow rate measurement systems,
- flow regulators,
- flap valves,
- emergency closure on the inlet to the sedimentation tank,
- gravity or mechanical ventilation connection if the separator is located inside rooms, halls, etc.

■ ECOLOGICAL EFFECT

The content of petroleum substances in purified sewage flowing from the technological system of SL separators by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311). The contents of petroleum derivatives with the density of 0.85 [kg/dm³] and of general suspension in the outflow at the rated output: according to PN-EN 858-1:2005+A1:2007

OK-WIR-1K

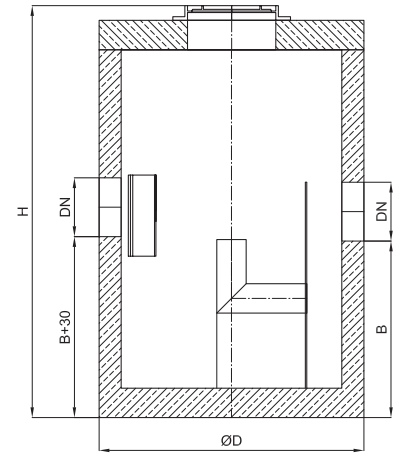
3 ÷ 540 [l/s]

1-chamber vortex settling tank
with 10-times storm bypass

Maximum flow 30 ÷ 5400 [l/s]

Vertical cylindrical tank:

reinforced concrete: C35/45
 wall thickness: 120 – 150 mm
 cover thickness: 150 – 250 mm
 cast iron hatches: DN 600. Class A÷D



OK-WIR-1K	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank capacity [l]	D [mm]	H [mm]	B [mm]	DN max [mm]
OK-WIR-3/30-1K	3	30	600	1 300	1 950	950	315
OK-WIR-6/60-1K	6	60	600	1 300	1 950	950	315
OK-WIR-10/100-1K	10	100	1 580	1 500	2 750	1 600	500
OK-WIR-15/150-1K	15	150	1 520	1 500	2 700	1 540	500
OK-WIR-20/200-1K	20	200	2 200	1 800	2 700	1 450	600
OK-WIR-30/300-1K	30	300	3 000	1 800	3 150	1 900	600
OK-WIR-40/400-1K	40	400	4 000	2 300	2 900	1 450	800
OK-WIR-50/500-1K	50	500	6 380	2 800	3 250	1 500	1 000
OK-WIR-60/600-1K	60	600	6 380	2 800	3 250	1 500	1 000
OK-WIR-70/700-1K	70	700	8 100	2 800	3 600	1 850	1 000
OK-WIR-80/800-1K	80	800	8 100	2 800	3 600	1 850	1 000
OK-WIR-90/900-1K	90	900	10 040	3 300	3 570	1 620	1 200
OK-WIR-100/1000-1K	100	1 000	10 040	3 300	3 570	1 620	1 200
OK-WIR-110/1100-1K	110	1 100	11 310	3 300	3 750	1 800	1 200
OK-WIR-120/1200-1K	120	1 200	14 100	3 300	4 150	2 200	1 200
OK-WIR-130/1300-1K	130	1 300	14 100	3 300	4 150	2 200	1 200
OK-WIR-140/1400-1K	140	1 400	14 100	3 300	4 150	2 200	1 200
OK-WIR-260/2600-1K	260	2 600	36 300	5 300	4 450	2 100	1 400
OK-WIR-360/3600-1K	360	3 600	36 300	5 300	4 450	2 100	1 400
OK-WIR-480/4800-1K	480	4 800	48 030	5 900	4 750	2 200	1 600
OK-WIR-540/5400-1K	540	5 400	54 900	6 300	4 750	2 200	1 600

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure

■ BASIC EQUIPMENT OF THE SETTLING TANK:

- settling tank with a separate settling chamber,
- inlet opening with a tight passage and a directional stream breaker,
- WIR type vortex insert with PE bulkhead,
- outlet opening with a tight passage,
- inspection opening Ø600 with a cast iron hatch, class A-D.

■ NOTE

- OK-WIR-1K settling tanks with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design.



OK-WIR-2K

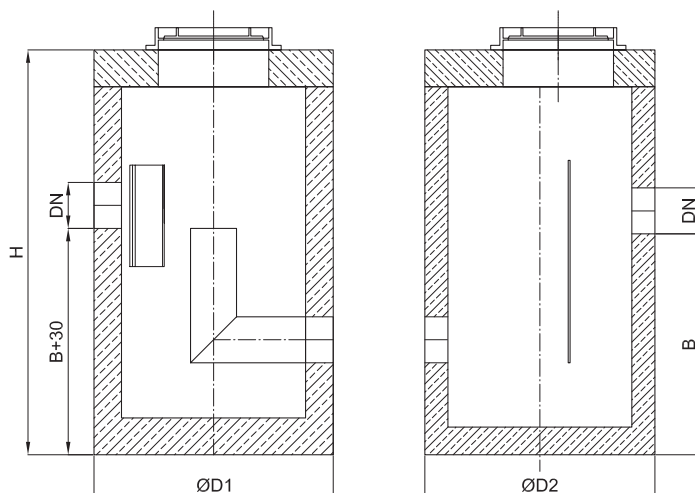
3 ÷ 560 [l/s]

**2-chamber vortex settling tank
with 10-times storm bypass**

Maximum flow 30 ÷ 5600 [l/s]

Vertical cylindrical tanks:

reinforced concrete: C35/45
wall thickness: 120 - 150 [mm]
cover thickness: 150 - 250 [mm]
cast iron hatches: DN 600
Class A÷D



OK-WIR-2K	Nominal flow [l/s]	Maxium flow [l/s]	Settling tank [l]	D1 [mm]	D2 [mm]	H [mm]	B [mm]	DN max [mm]
OK-WIR-3/30-2K	3	30	1 070	1 300	1 300	1 950	880	400
OK-WIR-6/60-2K	6	60	1 070	1 300	1 300	1 950	880	400
OK-WIR-10/100-2K	10	100	2 860	1 500	1 300	2 850	1 690	500
OK-WIR-15/150-2K	15	150	2 860	1 500	1 300	2 850	1 690	500
OK-WIR-20/200-2K	20	200	2 860	1 500	1 300	2 850	1 690	500
OK-WIR-30/300-2K	30	300	4 120	1 800	1 500	2 900	1 620	600
OK-WIR-40/400-2K	40	400	5 550	2 300	1 500	2 750	1 500	600
OK-WIR-50/500-2K	50	500	5 640	2 300	1 500	2 800	1 520	600
OK-WIR-60/600-2K	60	600	8 690	2 300	1 800	3 450	1 970	800
OK-WIR-70/700-2K	70	700	8 480	2 800	1 800	2 950	1 470	800
OK-WIR-80/800-2K	80	800	11 480	2 800	1 800	3 400	1 920	800
OK-WIR-90/900-2K	90	900	11 480	2 800	1 800	3 400	1 920	800
OK-WIR-100/1000-2K	100	1 000	11 480	2 800	1 800	3 400	1 920	800
OK-WIR-110/1100-2K	110	1 100	16 850	3 300	2 300	3 600	1 850	1 000
OK-WIR-120/1200-2K	120	1 200	16 850	3 300	2 300	3 600	1 850	1 000
OK-WIR-130/1300-2K	130	1 300	20 930	3 300	2 300	4 000	2 250	1 000
OK-WIR-140/1400-2K	140	1 400	20 930	3 300	2 300	4 000	2 250	1 000
OK-WIR-150/1500-2K	150	1 500	20 930	3 300	2 300	4 000	2 250	1 000
OK-WIR-160/1600-2K	160	1 600	20 930	3 300	2 300	4 000	2 250	1 000
OK-WIR-300/3000-2K	300	3 000	82 220	5 300	2 800	5 500	3 550	1 200
OK-WIR-360/3600-2K	360	3 600	89 460	5 300	3 300	5 900	3 550	1 400
OK-WIR-480/4800-2K	480	4 800	106 190	5 900	3 300	5 900	3 550	1 400
OK-WIR-560/5600-2K	560	5 600	118 400	6 300	3 300	5 900	3 550	1 400

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK:

- settling tank with a separate settling chamber,
- inlet opening with a tight passage and a directional stream breaker,
- WIR type vortex insert with PE bulkhead,
- outlet opening with a tight passage,
- inspection opening Ø600 with a cast iron hatch, class A-D.

■ NOTE

- OK-WIR-2K settling tanks with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design.

OK-WIR-2K-L

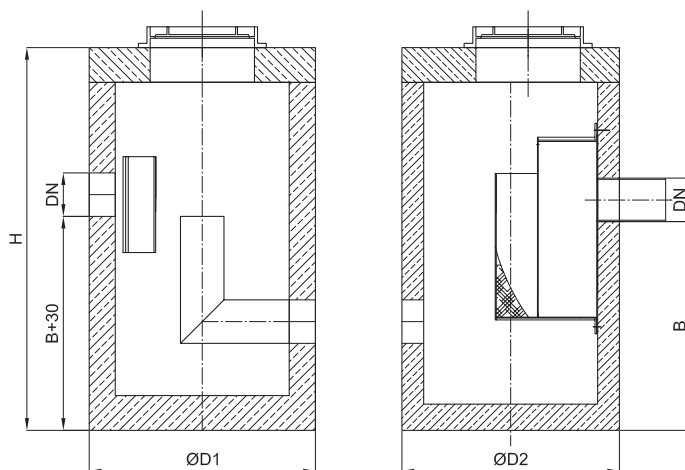
3 ÷ 560 [l/s]

**2-chamber vortex settling tank
with 10-times storm bypass
and lamella insert**

Maximum flow 30 ÷ 5600 [l/s]

Vertical cylindrical tanks:

reinforced concrete: C35/45
 wall thickness: 120 - 150 [mm]
 cover thickness: 150 - 250 [mm]
 cast iron hatches: DN 600 ÷ 800
 Class A÷D



OK-WIR-2K-L	Nominal flow [l/s]	Maximum flow [l/s]	Settling tank [l]	D1 [mm]	D2 [mm]	H [mm]	B [mm]	DN max [mm]
OK-WIR-3/30-2K-L	3	30	1 570	1 300	1 300	2 250	1 200	400
OK-WIR-6/60-2K-L	6	60	1 570	1 300	1 300	2 250	1 200	400
OK-WIR-10/100-2K-L	10	100	2 150	1 500	1 500	2 300	1 150	500
OK-WIR-15/150-2K-L	15	150	2 150	1 500	1 500	2 300	1 150	500
OK-WIR-20/200-2K-L	20	200	2 830	1 500	1 500	2 600	1 450	500
OK-WIR-30/300-2K-L	30	300	4 420	1 800	1 800	2 600	1 450	500
OK-WIR-40/400-2K-L	40	400	7 610	2 300	1 800	3 000	1 750	600
OK-WIR-50/500-2K-L	50	500	8 800	2 300	2 300	2 850	1 600	600
OK-WIR-60/600-2K-L	60	600	8 800	2 300	2 300	3 050	1 600	800
OK-WIR-70/700-2K-L	70	700	11 270	2 300	2 800	3 050	1 600	800
OK-WIR-80/800-2K-L	80	800	13 740	2 800	2 800	3 050	1 600	800
OK-WIR-90/900-2K-L	90	900	13 740	2 800	2 800	3 350	1 600	1 000
OK-WIR-100/1000-2K-L	100	1 000	13 740	2 800	2 800	3 350	1 600	1 000
OK-WIR-110/1100-2K-L	110	1 100	22 160	3 300	2 800	3 800	2 050	1 000
OK-WIR-120/1200-2K-L	120	1 200	22 160	3 300	2 800	3 800	2 050	1 000
OK-WIR-130/1300-2K-L	130	1 300	26 150	3 300	3 300	4 000	2 050	1 200
OK-WIR-140/1400-2K-L	140	1 400	26 150	3 300	3 300	4 000	2 050	1 200
OK-WIR-150/1500-2K-L	150	1 500	28 270	3 300	3 300	4 150	2 200	1 200
OK-WIR-160/1600-2K-L	160	1 600	28 270	3 300	3 300	4 150	2 200	1 200
OK-WIR-300/3000-2K-L	300	3 000	78 540	5 300	5 300	4 550	2 200	1 400
OK-WIR-360/3600-2K-L	360	3 600	82 470	5 300	5 300	4 650	2 300	1 400
OK-WIR-480/4800-2K-L	480	4 800	146 070	5 900	5 300	5 850	3 500	1 400
OK-WIR-560/5600-2K-L	560	5 600	158 100	6 300	5 300	5 850	3 500	1 400

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the separator is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK:

- settling tank with a separate settling chamber,
- inlet opening with a tight passage and a directional stream breaker,
- WIR type vortex insert with PE bulkhead,
- tank with PE lamella filter box,
- PE outlet connector,
- inspection opening Ø600/800 with a cast iron hatch, class A-D.

■ NOTE

- OK-WIR-2K-L settling tanks with other flows and operating parameters - upon request,
- optionally, other connection diameters are possible - according to the design,
- connections up to DN500 - made of a PEHD pipe specifying the external diameter of the pipe,
- connections from DN600 - made on the basis of a double-walled, structural PEHD pipe specifying the internal diameter of the pipe.

KPH ACID NEUTRALIZERS

■ **INTENDED UDE**

KPH type acid neutralizers produced by our company are used to neutralize acids contained in sewage and are intended for installation in sewage connections to rooms where there is a risk of spilling mineral acids, e.g. battery rooms, laboratories, etc. If the neutralized sewage contains excessive amounts of solid pollutants, before the device an additional preliminary sedimentation chamber (settler) should be planned and installed.

Sanitary and rainwater sewage should not be introduced into the neutralizer.

■ **PRINCIPLE OF OPERATION**

KPH acid neutralizers are flow devices. The sewage flows to the sludge part where sedimentation of the mineral suspension takes place. Then the sewage enters the neutralization chamber. The neutralizing element is natural calcium carbonate placed in the baskets, on which a chemical reaction occurs, resulting in the formation of water-insoluble sulphates. After neutralization, sewage is led in the upper part of the basket to the drain stub.

■ **BASIC STRUCTURE**

KPH devices are made of a double-walled PE-HD pipe with high peripheral stiffness. Depending on its parameters, the neutralizer is made in the shape of a horizontal or vertical well. The material from which the neutralizer is made is exceptionally resistant to the most aggressive acids and bases and can be used in a wide temperature range.

The devices are easy to install, light and environmentally friendly. The internal equipment elements are made of PE material and acid-resistant steel. KPH neutralizers are intended for underground installation in green areas and passageways or for free-standing installation in frost-free rooms.

■ **ECOLOGICAL EFFECT**

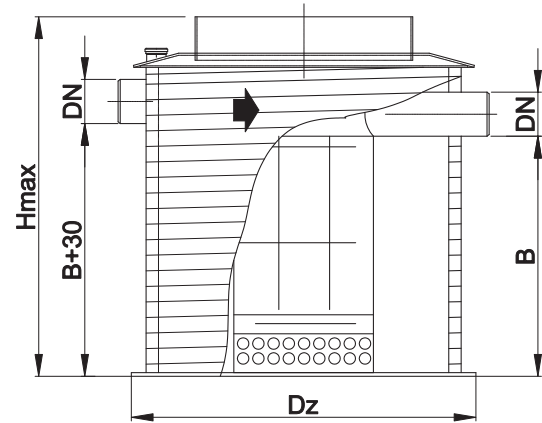
The pH of purified sewage flowing from the technological system of SL separators by NavoTech Inżynieria Środowiska meets the requirements of the Regulation of the Minister of Maritime Economy and Inland Navigation of July 12, 2019. On substances particularly harmful to the aquatic environment and the conditions to be met when introducing sewage into water or land, as well as when discharging rainwater or meltwater into water or water facilities (Dz. U. 2019 poz. 1311).



KPH

Active capacity 250 ÷ 1200 [l]

Neutralizer made of PE-HD
for underground installation



KPH	Active capacity* [l]	Number of baskets [kpl]	Dz [mm]	H max [mm]	B [mm]	DN [mm]
KPH-01	250	1	950	800	500	160
KPH-02	400	1	950	1 100	800	160
KPH-03	620	1	1 150	1 300	800	160
KPH-04	860	2	1 150	1 500	1 155	160
KPH-05	1 200	3	1 350	2 480	1 830	160

*devices with larger capacities on individual request.

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the neutralizer is connected. Settling tanks are designed to work with the ML superstructure.

■ BASIC EQUIPMENT OF THE SETTLING TANK:

- inlet connector (PE or PVC socket with a gasket), with a stream breaker
- connector for ML-PE superstructure
- Self-supporting PE basket with mineral filling
- deflector protecting against the flow of decanting elements
- outlet stub connected to the mineral deposit socket
- gravity ventilation connection

■ ADDITIONAL EQUIPMENT

- pH measurement system with alarm system,
- emergency chemical dosing systems for pH correction,
- mechanical ventilation systems,
- pump systems integrated with the neutralizer.



CHAPTER II

Retention and storage

■ ROK-PE tanks made of structural PEHD pipes	60
■ ROK-R tanks made of spirally corugated steel pipes	62
■ RET tanks.....	64

ROK-PE TANKS MADE OF STRUCTURAL PEHD PIPES

■ INTENDED USE

ROK-PE tanks made of double-walled polyethylene structural pipes are most often used for underground installation. The high peripheral stiffness of the system allows the tanks to be installed deep underground (up to 10 m), in places with high groundwater, in traffic routes or in the zone of mining damage.

ROK-PE tanks are used for:

- storage, rainwater retention,
- storage facilities for storing water for fire-fighting purposes,
- storage for drinking water, PZH certificate,
- storage for social and domestic sewage,
- process, storage in open technical and industrial installations: water treatment plants, water and sewage treatment plants,
- elements of water and sewage installations, e.g. pumping stations, sewage treatment plants, separators, measuring wells, etc.

They can be used as underground, above-ground and partially submerged tanks.

■ BASIC STRUCTURE

Double-walled cylindrical tanks with a horizontal axis, for underground and above-ground installation, made of PEHD based on double-walled pipes with technical approvals from IBDIM, ITB, and GIG opinion. The inner and outer coats are two dependent layers that are not directly adjacent to each other, creating a durable I-beam section at the joints of the uniform rectangular profile.

Due to the increased thermal insulation properties of the double-walled structure, the tanks are resistant to periodic ground freezing and remain highly flexible at low and negative temperatures, making it possible to install them in the ground freezing zone with little cover. The connections of the tank elements (pipes, fittings, bottoms, partitions) are made using polyethylene extrusion welding technology. The tanks are neutral to the natural environment and do not require additional protective coatings or other maintenance procedures. Man-hole, inspection and inspection chimneys are made of PE structural pipes identical to the tank material. These elements can be delivered integrated with the tank jacket or installed on the construction site in a socket. The way ROK-PE tanks are made guarantees their complete tightness.

The smallest devices from the series do not require the use of lifting equipment for unloading and assembly. The tanks do not require additional protective coatings or other maintenance procedures.

KRAJOWA OCENA TECHNICZNA ITB-KOT-2020/1371 has been issued for ROK-PE tanks

This technical assessment was issued in accordance with the regulation of the Minister of Infrastructure and Construction of November 17, 2016 on national technical assessments (Dz. U. z 2016 .r, poz. 1968) by Instytut Techniki Budowlanej in Warsaw.

■ ADVANTAGES OF USE

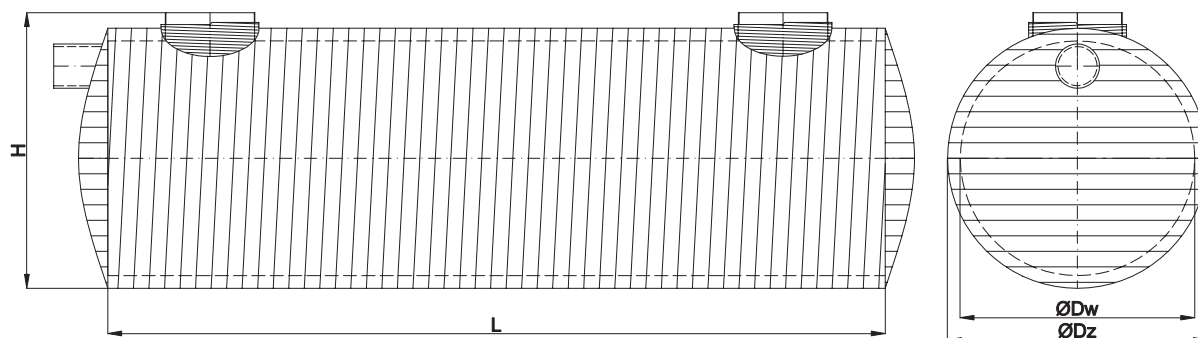
- complete resistance to corrosion,
- complete tightness (especially for welded joints),
- increased reliability and safety of use (double wall),
- high chemical resistance, complete resistance to UV radiation,
- possibility of foundation in difficult ground conditions, possibility of use in the road, under the parking lot, in areas affected by mining exploitation,
- quick installation in all conditions,
- durability and low weight.



ROK-PE

1,6 ÷ 127,2 [m³]

tank with a horizontal axis for underground installation, made of PE-HD polyethylene



ROK-PE	Inner diameter Dw [mm]	Outer diameter Dz [mm]	L [mm]	H [mm]	Total capacity Qc [m ³]	Capacity of 1 m of tank Q1 [m ³ /mb]
ROK-1-Q-PE	1 000	1 130	2 ÷ 18	1 230	1,6 ÷ 14,1	0,78
ROK-1,2-Q-PE	1 200	1 355	2 ÷ 18	1 455	2,3 ÷ 20,3	1,13
ROK-1,4-Q-PE	1 400	1 683	2 ÷ 18	1 783	3,1 ÷ 27,7	1,54
ROK-1,5-Q-PE	1 500	1 746	3 ÷ 18	1 846	5,3 ÷ 31,8	1,77
ROK-1,6-Q-PE	1 600	1 809	3 ÷ 18	1 909	6,0 ÷ 36,2	2,01
ROK-1,8-Q-PE	1 800	2 036	3 ÷ 18	2 136	7,6 ÷ 45,8	2,55
ROK-2-Q-PE	2 000	2 259	3 ÷ 18	2 359	9,4 ÷ 56,5	3,14
ROK-2,2-Q-PE	2 200	2 487	5 ÷ 18	2 587	19,0 ÷ 68,4	3,80
ROK-2,4-Q-PE	2 400	2 682	5 ÷ 18	2 782	22,6 ÷ 81,4	4,52
ROK-2,6-Q-PE	2 600	2 940	5 ÷ 18	3 040	26,5 ÷ 95,5	5,30
ROK-3-Q-PE	3 000	3 360	5 ÷ 18	3 460	35,3 ÷ 127,2	7,07

Q in the tank designation means its total volume according to Qc.

■ TANK EQUIPMENT

The basic and additional equipment of the tanks is selected individually according to the requirements of a given project, the investor's needs and local conditions. The most frequently used additional equipment for tanks includes:

- flanged, threaded or bare connection stubs, arranged according to the design guidelines,
- additional tank inspection holes of different sizes and spacing,
- flow regulators mounted on the tank outlet,
- pump systems,
- control and measurement equipment such as: level probes, flow measurement and regulation, pH value measurement, check and shut-off valves,
- internal partitions and siphons with deflectors, ladders and work platforms,
- mountings and supporting structures of working units, e.g.: submersible pumps, filter cartridges, dosing pumps, mixers, etc.
- system superstructures of inspection chimneys to the ground level.

■ NOTE

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the tank is connected. Settling tanks are designed to work with the ML superstructure.

In the case of tanks combined into systems or with lengths exceeding the permissible transport lengths, the tanks are connected at the construction site from segments.

The working volume of a set of tanks arranged in a system can be several thousand cubic meters.

ROK-R TANKS MADE OF SPIRALLY CORRUGATED STEEL PIPES

■ INTENDED USE

ROK-R tanks made of spirally corrugated steel pipes are used for underground installation. The tanks can be used in or outside the driving lanes and can also be built in areas affected by mining damage, categories I-IV. The maximum depth of the tank foundation below ground level depends on the tank diameter and foundation conditions. The minimum cover of the tank in the enclosed area is 0.6 m.

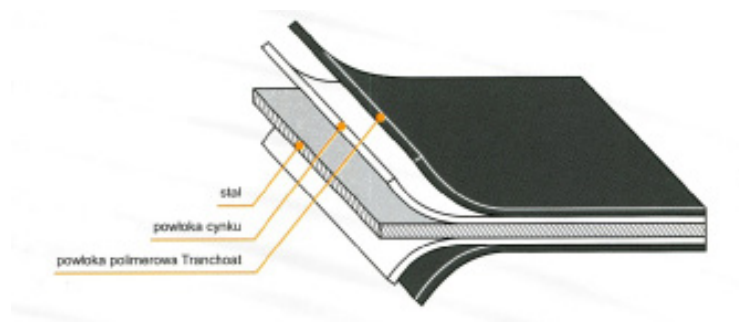
CAUTION! The reaction of the stored medium should be in the range of $3 \leq \text{pH} \leq 12$, and the specific resistance (resistivity) should be greater than $\rho > 100 [\Omega \cdot \text{cm}]$. Organic solvents must not be introduced into ROK-R tanks.

ROK-R series tanks are used as tanks:

- storage, rainwater retention,
- storage facilities for storing water for fire-fighting purposes,
- storage for drinking water, PZH certificate,
- elements of water and sewage installations, e.g. pumping stations, settling tanks, separators, measuring wells, etc.

■ BASIC CONSTRUCTION

The tanks are made of spirally corrugated steel pipes, protected against corrosion with a layer of zinc in accordance with the PN-EN 10346 standard and additionally with a double-sided polymer coating in accordance with PN-EN 10169 or a paint coating with a thickness of 250 μm , which significantly increases anti-corrosion resistance..



Due to their excellent material properties, they are very suitable for the construction of devices constantly exposed to contact with flowing and standing water. They are an excellent alternative to expensive and labor-intensive modular and "wet-cast" reinforced concrete tanks. Steel spiral pipes with very high strength parameters, in cooperation with the ground, can carry significant loads. Thanks to this, steel spiral pipes and tanks made of them can work in the ground at considerable depths for a long time.

KRAJOWA OCENA TECHNICZNA ITB-KOT-2020/1371 has been issued for ROK-R tanks.

This technical assessment was issued in accordance with the regulation of the Minister of Infrastructure and Construction of November 17, 2016 on national technical assessments (Dz. U. z 2016 .r, poz. 1968) by Instytut Techniki Budowlanej in Warsaw.

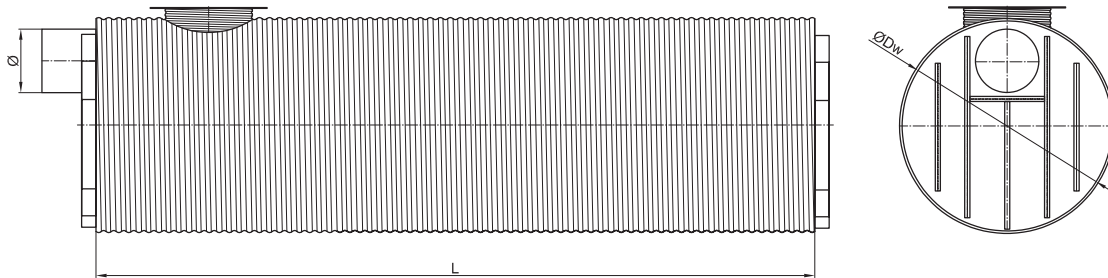
■ ADVANTAGES OF USE

- high corrosion resistance,
- possibility of foundation in difficult ground conditions,
- possibility of use in the road, under the parking lot, in areas affected by mining,
- quick installation in all conditions,
- durability and low weight,

ROK-R

1,6 ÷ 173,2 [m³]

A tank with a horizontal axis for underground installation, made of spirally corrugated steel pipes.



ROK-R	Internal diameter Dw [mm]	L [mm]	Total volume Qc [m ³]	Capacity of 1 m of tank Q1 [m ³ /mb]
ROK-1-Q-R	1 000	2 ÷ 18	1,6 ÷ 14,1	0,78
ROK-1,2-Q-R	1 200	2 ÷ 18	2,3 ÷ 20,3	1,13
ROK-1,3-Q-R	1 300	2 ÷ 18	2,7 ÷ 23,9	1,33
ROK-1,4-Q-R	1 400	2 ÷ 18	3,1 ÷ 27,7	1,54
ROK-1,5-Q-R	1 500	3 ÷ 18	5,3 ÷ 31,8	1,77
ROK-1,6-Q-R	1 600	3 ÷ 18	6,0 ÷ 36,2	2,01
ROK-1,7-Q-R	1 700	3 ÷ 18	6,8 ÷ 40,8	2,27
ROK-1,8-Q-R	1 800	3 ÷ 18	7,6 ÷ 45,8	2,55
ROK-1,9-Q-R	1 900	3 ÷ 18	8,5 ÷ 51,0	2,84
ROK-2-Q-R	2 000	3 ÷ 18	9,4 ÷ 56,5	3,14
ROK-2,1-Q-R	2 100	3 ÷ 18	10,4 ÷ 62,3	3,46
ROK-2,2-Q-R	2 200	5 ÷ 18	19,0 ÷ 68,4	3,80
ROK-2,3-Q-R	2 300	5 ÷ 18	20,8 ÷ 74,7	4,16
ROK-2,4-Q-R	2 400	5 ÷ 18	22,6 ÷ 81,4	4,52
ROK-2,5-Q-R	2 500	5 ÷ 18	24,5 ÷ 88,3	4,91
ROK-2,6-Q-R	2 600	5 ÷ 18	26,5 ÷ 95,5	5,31
ROK-2,7-Q-R	2 700	5 ÷ 18	28,6 ÷ 103,0	5,73
ROK-2,8-Q-R	2 800	5 ÷ 18	30,8 ÷ 110,8	6,16
ROK-2,9-Q-R	2 900	5 ÷ 18	33,0 ÷ 118,8	6,61
ROK-3-Q-R	3 000	5 ÷ 18	35,3 ÷ 127,2	7,07
ROK-3,5-Q-R	3 500	5 ÷ 18	48,1 ÷ 173,2	9,62

The Q in the tank designation indicates its total volume.

NOTE

The dimensions of the superstructure are selected according to the design of the sewage recess in the place where the tank is connected. Settling tanks are designed to work with the ML superstructure.

In the case of tanks combined into systems or with lengths exceeding the permissible transport lengths, the tanks are connected at the construction site from segments.

The working volume of a set of tanks arranged in a system can be several thousand cubic meters.

TANK EQUIPMENT – as described on page 61

RET TANKS

■ INTENDED USE

RET tanks are designed for storing rainwater and sewage. They can be used as elements of the following systems: sewage treatment plants, rainwater recovery, irrigation and infiltration, water treatment. The tanks are intended for installation underground in green areas not subject to road traffic, and under certain conditions they can also be used as free-standing tanks.

Single RET tanks can create batteries of tanks with significant capacity, interconnected by gravity overflows.

■ BASIC STRUCTURE

RET tanks are made of high-density polyethylene, stabilized against UV rays. The rotational molding process produces monolithic and homogeneous products, i.e. without joints, with high strength and impact resistance. At the edges and transitions, the walls are thickened by approximately 50%. Using selected, non-toxic raw materials for the production of tanks guarantees defect-free products. Polyethylene is exceptionally resistant to the most aggressive acids and alkalis and can be used in a wide temperature range.

The tanks are light and easy to keep clean, with very smooth, easily washable external and internal surfaces.

KRAJOWA OCENA TECHNICZNA ITB-KOT-2020/1371 has been issued for RET tanks.

This technical assessment was issued in accordance with the regulation of the Minister of Infrastructure and Construction of November 17, 2016 on national technical assessments (Dz. U. z 2016 .r, poz. 1968) by Instytut Techniki Budowlanej in Warsaw.

■ ADVANTAGES OF USE

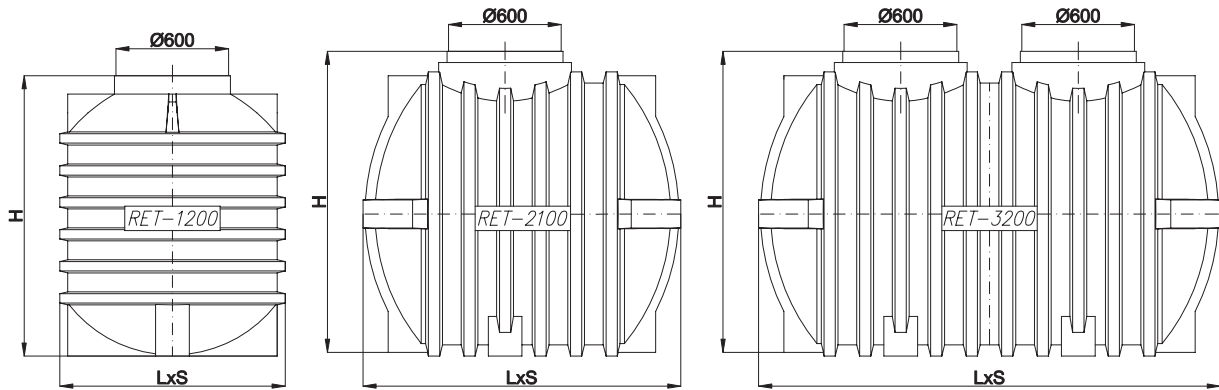
- complete resistance to corrosion,
- complete tightness,
- high chemical resistance, complete resistance to UV radiation,
- quick installation in all conditions,
- durability and low weight,
- easy to keep clean.



RET

1 200 ÷ 3 200 [l]

for underground installation
made of polyethylene



RET	DN MAX [mm]	Length L [mm]	Width S [mm]	Height H [mm]	Capacity [l]	Weight [kg]
RET-1200	200	1 200	1 120	1 500	1 200	65
RET-2100	200	1 710	1 520	1 630	2 100	92
RET-3200	200	2 470	1 520	1 630	3 200	132

RET system inspection superstructures with an internal diameter of Ø 600 mm with a PE cover are used for tank inspection openings.

■ Standard and additional equipment

Tanks used according to the customer's needs are equipped with:

- inlet and/or outlet stubs in the upper part with diameters up to 200 mm (and optionally at the bottom of the tank),
- other technological connections according to the customer's needs (water connections, ventilation, cable entries for pumps or fill level sensors located inside),
- system inspection chimneys Ø 600mm, H - 850mm, with PE cover,
- partitions, deflectors and siphons,
- PE basket with insert in the case of sewage treatment plants,
- accessories and modules for rainwater recovery installations,
- sewage treatment modules (drainage, biological active sludge),
- pumping, regulating and measuring elements: pumps, level sensors, flow regulators, fittings.



CHAPTER III

Rainwater management

■ NT-BAS drainage chambers	67
■ DRP flow regulators	69
■ KP flaps	70
■ ProFlex rubber valves	73

NT-BAS DRAINAGE CHAMBER

■ INTENDED USE

NT-BAS type drainage chambers are used in rainwater management systems from building roofs or hardened surfaces (terraces, parking lots, streets, green areas).

Drainage chambers are used for:

- **infiltration of rainwater into the ground:** in infiltration systems, the calculated amount of rainwater is retained in the system and infiltrated into the ground, which is why these systems are usually designed as drainless,
- **rainwater retention:** systems are designed for the volume of water that must be temporarily retained in the system and then discharged to the receiver with a specified volume.
- **stopping the first wave of rain:** the designed system should retain the first 13 - 25 mm of precipitation for a given catchment area. A flow greater than the first stream may be directed to a stormwater system or other receiving system.

■ PRINCIPLE OF OPERATION

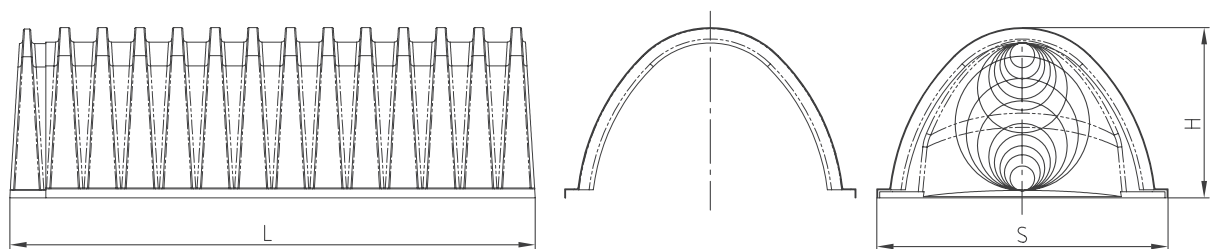
NT-BAS drainage chambers are made of PE-HD in light and heavy versions. Light drainage chambers (marked with symbol A) are designed to carry the loads of pedestrian traffic. Heavy drainage chambers (marked with symbol D) are designed to carry the loads of road traffic with a permissible axle load of 14.5 tons. Inlet and outlet pipes with a max. diameters for BAS 1.2 – 310 mm and for BAS 2.6 – 630 mm.

■ ADVANTAGES OF USE

Advantages of using NT-BAS drainage chambers:

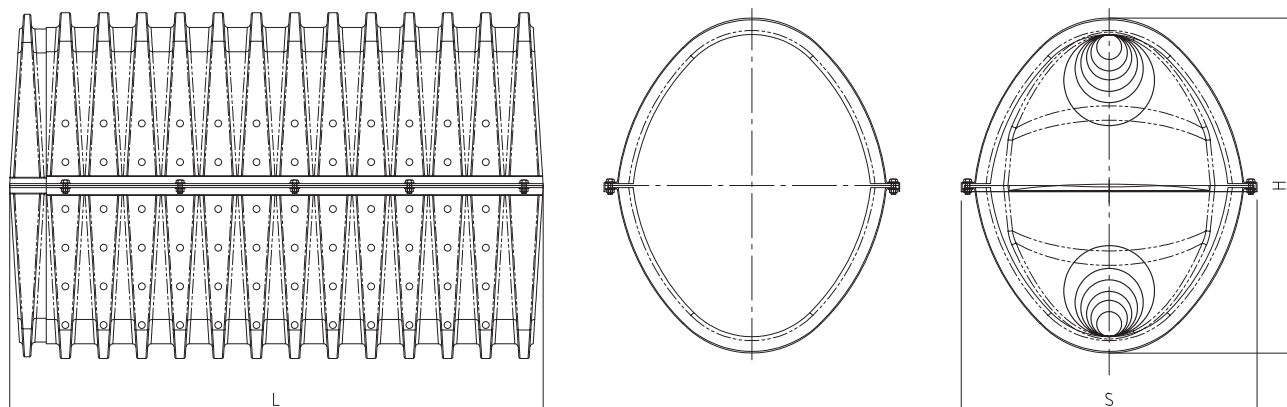
- possibility of using the system for various solutions and combinations: infiltration, retention, storage,
- an alternative to other rainwater management solutions (e.g. infiltration boxes),
- large capacity of a single chamber and the possibility of creating a system of any capacity,
- high structural strength of the system,
- easy, quick and safe installation of the system in the trench,
- possibility of internal inspection and service of the drainage chamber system,
- resistance to high and low temperatures,
- resistance to chemicals found in rainwater and sewage,
- possibility of expanding the existing system or relocation.

■ NT-BAS



NT-BAS	Length L [mm]	Width S [mm]	Height H [mm]	Chamber capacity [m ³]	Min. chamber volume with backfill [m ³]
NT-BAS – 1,2-A	2 300	860	410	0,41	0,90
NT-BAS – 2,6-A	2 345	1 300	760	1,20	2,10
NT-BAS – 1,2-D	2 300	860	410	0,41	0,90
NT-BAS – 2,6-D	2 345	1 300	760	1,20	2,10
Cover NT-BAS – 1,2A	235	840	400	–	–
Cover NT-BAS – 2,6A	360	1 280	745	–	–
Cover NT-BAS – 1,2D	235	840	400	–	–
Cover NT-BAS – 2,6D	360	1 280	745	–	–

■ **NT-BAS-DUO**



NT-BAS	Length L [mm]	Width S [mm]	Height H [mm]	Chamber capacity [m ³]	Min. chamber volume with bacfill [m ³]
NT-BAS-DUO - 1,2-A	2 300	860	800	0,82	1,60
NT-BAS-DUO - 2,6-A	2 345	1 300	1 450	2,40	3,90
NT-BAS-DUO - 1,2-D	2 300	860	800	0,82	1,60
NT-BAS-DUO - 2,6-D	2 345	1 300	1 450	2,40	3,90
Cover NT-BAS-DUO - 1,2A	235	840	780	-	-
Cover NT-BAS-DUO - 2,6A	360	1 280	1 420	-	-
Cover NT-BAS-DUO - 1,2D	235	840	780	-	-
Cover NT-BAS-DUO - 2,6D	360	1 280	1 420	-	-

■ **Technical assistance**

We offer the following technical materials to support interested parties:

- A computational program for the selection of NT-BAS drainage chambers, where after entering the basic operating parameters, we automatically obtain the size of the system with the arrangement of the chambers, list of materials and the estimated cost of the system.,
- technical guide "DESIGN AND INSTALLATION OF THE NT-BAS AND NT-BAS-DUO DRAINAGE CHAMBER SYSTEM", which describes in detail the rainwater management system using the NT-BAS drainage chambers.



DRP FLOW REGULATORS

- **DRP rainwater flow regulators** due to the irregular nature of rainfall and flow changes, are used mainly in the construction of storm sewage systems in which installed water and sewage treatment devices may be exposed to periodic hydraulic overloads, which may cause their incorrect operation or damage and contamination of the environment. This problem can be solved by using retention tanks, the NT-BAS drainage chamber system and overflow systems equipped with DRP flow regulators.

The proprietary NavoTech solutions used in DRP regulators ensure flow equalization and have a positive effect on the operation of built-in purification devices. The DRP flow regulator can be installed directly in retention tanks or in an intermediate well at the outlet from the retention tank. DRP flow regulators are made of high-density polyethylene. Thanks to the use of such material in the production of DRP regulators, they are resistant to aggressive environmental conditions, do not corrode, do not require additional protective coatings or any maintenance procedures. The material of the regulators is neutral to the environment.

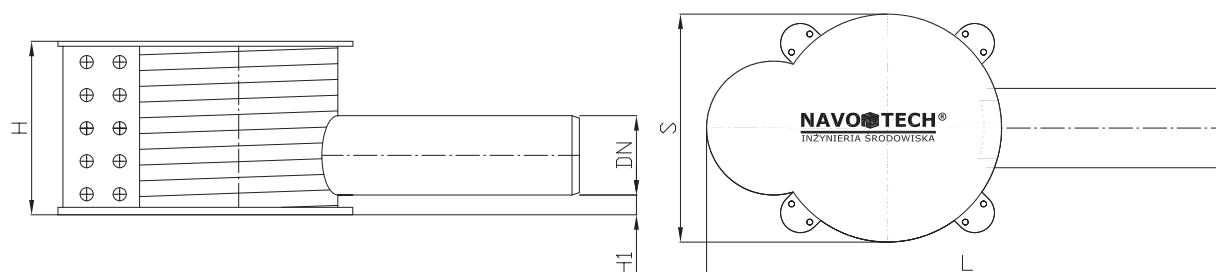
- NavoTech offers flow regulators in the nominal flow range from 0,5 [l/s] to 100 [l/s], for larger flows regulators are selected upon request.
- The following rainwater management elements manufactured by NavoTech are dedicated to work with DRP flow regulators: ROK retention tanks, NAVO water pumping stations, NT-BAS drainage chambers, Proco check valves and KP valves.

DRP

5 ÷ 100 [l/s]

Throttling flow regulator

Material: PEHD



DRP-NG	Flow	Height	Legth	Width	Connection diameter	Outlet height
	Q [l/s]	H [mm]	L [mm]	S [mm]	DN [mm]	H1 [mm]
DRP-NG-0,1-1	0,1 – 1	350	1 240	460	110 – 250	40
DRP-NG-1,1-2	1,1 – 2	350	1 240	460	110 – 250	40
DRP-NG-2,1-4	2,1 – 4	350	1 240	460	110 – 250	40
DRP-NG-4,1-7	4,1 – 7	350	1 240	460	110 – 250	40
DRP-NG-7,1-14	7,1 – 14	350	1 240	460	110 – 250	40
DRP-NG-14,1-20	14,1 – 20	350	1 240	460	110 – 250	40
DRP-NG-20,1-30	20,1 – 30	350	1 240	460	110 – 250	40
DRP-NG-30,1-50	30,1 – 50	600	1 540	700	160 – 400	50
DRP-NG-50,1-70	50,1 – 70	600	1 540	700	160 – 400	50
DRP-NG-70,1-100	70,1 – 100	600	1 540	700	250 – 400	70

Note: regulators also individually selected on request.

KP FLAPS

■ INTENDED USE

KP flaps are used to open and close the flow in pipe channels in one direction, preventing reverse flow if the sewage level behind the flap rises. Flaps can only be installed on a gravity pipeline.

■ PRINCIPLE OF OPERATION

The non-return flap opens automatically in the direction of flow under the influence of the pressure of the liquid inside the pipeline. When the liquid pressure behind the one-way non-return flap (e.g. in the receiver) increases to a value higher than the pressure in the supply pipeline, the closing disc of the non-return flap is automatically closed.

■ BASIC STRUCTURE

The bodies and moving parts of KP flaps are made of PE, additionally, the structure uses stainless steel connectors and seals made of oil-resistant rubber. The construction of KP flaps allows them to be connected to various types of plastic pipes using butt welding, using spigot ends and sleeves, as well as to pipes made of various materials with flanged connections. The design of the flaps, depending on the channel slope and the liquid flow speed, allows it to be opened when the pipe is filled to 5-15% of the pipe diameter.

All flaps marked as KP-X-XXX are made on the basis of a solid (pressure) polyethylene pipe, where D1 is the external diameter.

All flaps marked as KPS-X-XXX are made on the basis of a structural polyethylene pipe, where D1 is the internal diameter.

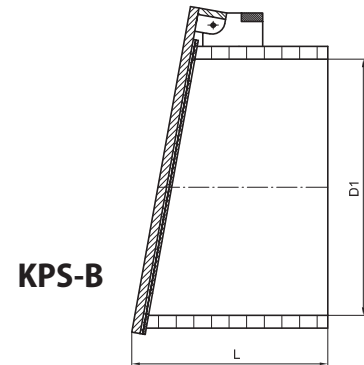
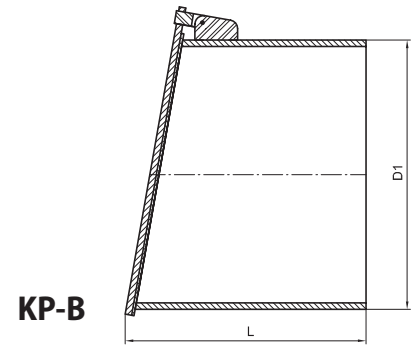
■ ADVANTAGES OF USE

- light and durable construction,
- corrosion resistance,
- no need for maintenance and surface protection,
- spigot and flanged connections,
- availability in a wide range of diameters,
- possible structural modification of any type of flap



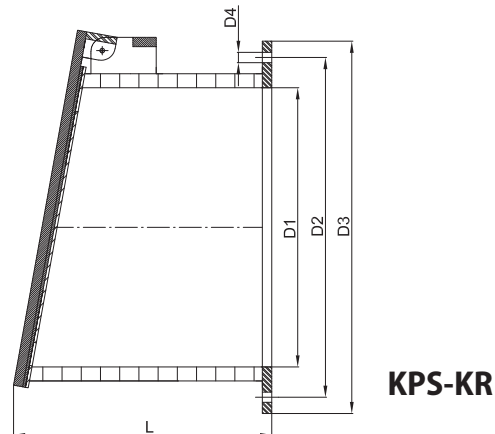
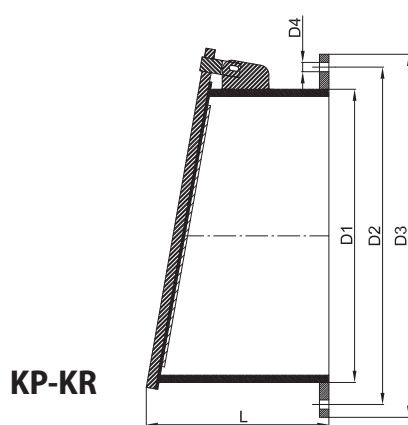
■ **Bare return flaps KP-B, KPS-B**

KP	Pipe diameter D1 [mm]	Length L [mm]
KP-B-011	110	200
KP-B-016	160	230
KP-B-020	200	240
KP-B-025	250	250
KP-B-031	315	330
KP-B-040	400	350
KP-B-050	500	370
KP-B-063	630	390
made on a structural pipe:		
KPS-B-050	500	540
KPS-B-060	600	640
KPS-B-080	800	690
KPS-B-100	1 000	740



* Possibility of making flaps with larger diameters (on request).

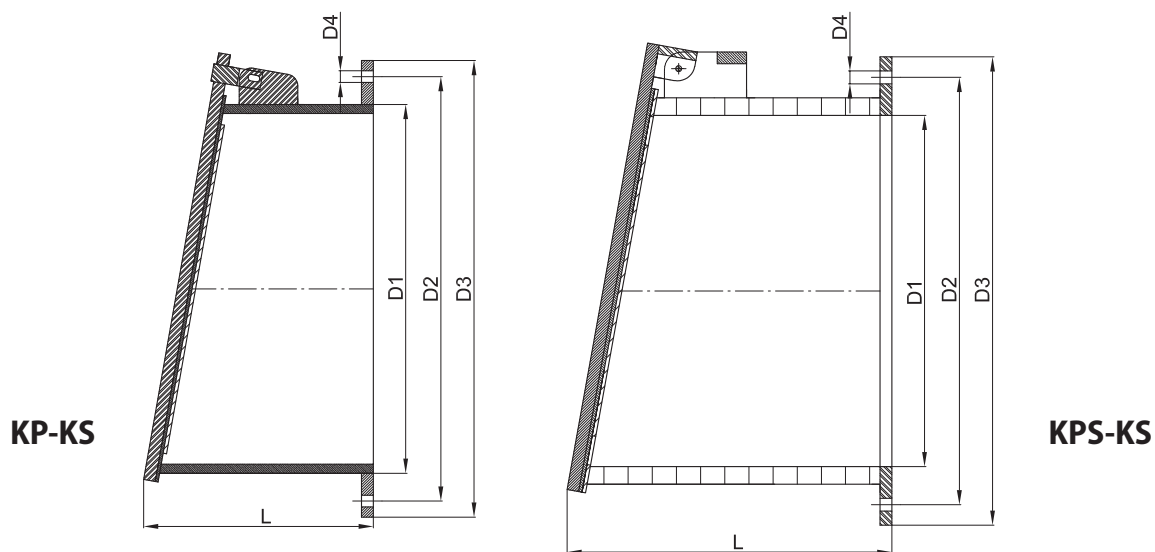
■ **Flanged return flaps for installation on the pipeline KP-KR i KPS-KR**



KP	Pipe diameter D1 [mm]	Length L [mm]	Flange diameter D3 [mm]	Pitch diameter D2 [mm]	Hole diameter D4 [mm]	Number of holes
KP-KR-011	110	200	175	150	18	8
KP-KR-016	160	230	285	240	22	8
KP-KR-020	200	240	340	295	22	8
KP-KR-025	250	250	395	350	22	12
KP-KR-031	315	330	445	400	22	12
KP-KR-040	400	350	565	515	26	16
KP-KR-050	500	370	670	620	26	20
KP-KR-063	630	390	780	725	30	20
made on a structural pipe:						
KPS-KR-050	500	540	700	650	26	20
KPS-KR-060	600	640	800	730	30	20
KPS-KR-080	800	690	1 030	960	33	24
KPS-KR-100	1 000	740	1 250	1180	36	28

* Possibility of making flaps with larger diameters (on request).

■ Flanged return flaps for wall mounting KP-KS, KPS-KS



KP	Pipe diameter D1 [mm]	Length L [mm]	Flange diameter D3 [mm]	Pitch diameter D2 [mm]	Hole diameter D4 [mm]	Number of holes
KP-KS-011	110	200	175	150	13	6
KP-KS-016	160	230	285	240	14	5
KP-KS-020	200	240	340	295	16	5
KP-KS-025	250	250	395	350	16	8
KP-KS-031	315	330	445	400	16	8
KP-KS-040	400	350	565	515	18	10
KP-KS-050	500	370	670	620	18	10
KP-KS-063	630	390	780	725	20	12
made on a structural pipe:						
KPS-KS-050	500	540	700	650	18	10
KPS-KS-060	600	640	800	730	22	14
KPS-KS-080	800	690	1 030	960	22	16
KPS-KS-100	1 000	740	1 250	1 180	26	16

* Possibility of making flaps with larger diameters (on request).

Note: sewage network check valves – available on individual request

PROFLEX CHECK VALVE

INTENDED USE

The Proflex rubber check valve is a cost effective way to control back pressures from sewage treatment plants, outfalls and tidal operations. They are fully passive flow device requiring neither maintenance nor any outside sources of power or manual assistance to operate. The Proflex rubber duckbill check valves provide backflow protection from occurrences including sewage slurries, outfalls to seas fronts from heavy rainfall activity, land erosion due to back flow conditions, invasion of saltwater to freshwater pond.

■ PRINCIPLE OF OPERATION

Flow check valves in pipelines permit liquids to flow one way in a single direction only and prevent the flow reversing. The correct flow pressure forces the check valve open whilst reverse flow causes the valve to close.

Flow check valves open at a designed minimum flow, or cracking pressure, for the valve to begin to operate.

Installs range from residential to industrial and commercial location.

Rubber check valves are made to work with ultra-quiet operation, do not warp or freeze and are designed to prevent standing water and eliminate trapped solids.



■ BASIC STRUCTURE

Each valve is carefully constructed using the finest of engineered materials by some of the most experienced rubber technicians in the industry. All check valves are engineered in precise detail to ensure proper operation and will provide years of unhindered operation and trouble free service.

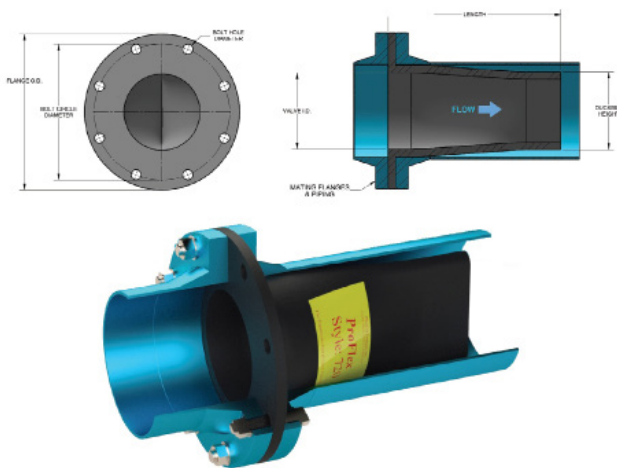
Rubber Check Valves will not freeze or deform and function solely on the inlet and back pressures which will be present in each unique application.

■ ADVANTAGES OF USE

Advantages of using ProFlex Series 700 valves:

- abrasion-resistant construction,
- very quiet operation without shocks,
- unique design ensures opening with minimal overpressure,
- complete protection against reverse flow,
- requiring no maintenance or energy supply,
- they do not deform and do not freeze,
- resistant to devastation (no steel elements),
- protect against odors,
- prevent rodents from entering the installation,
- enable operation in a wide temperature range,
- special designs possible to fit concrete pipes.

■ **Style 720: Flanged In-line**

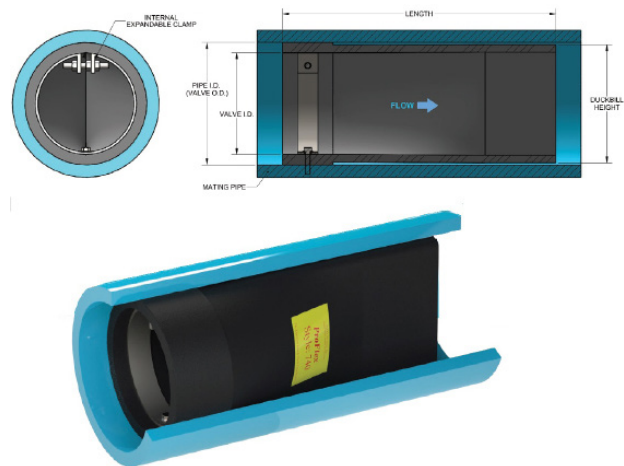


Style 720: Flanged In-line: zDesigned to fit directly inside of an existing pipe. Supplied with a flat face rubber flange which allows installation between existing pipe flanges eliminating the requirement for a valve body.

Diameter range: from 50 to 1 800 [mm]

Diameter [mm]	Standard Valve Dimensions ProFlex 720		Max. Working Pressure [psi]	Weight [kg]
	Length [mm]	Width [mm]		
50	184	32	125	1,40
80	229	57	125	1,80
100	254	98	100	3,60
125	330	124	75	4,50
150	368	149	75	5,40
200	381	171	75	5,90
250	533	250	50	13,20
300	660	302	50	16,80
350	686	305	50	18,60
400	813	356	50	22,70
450	737	451	25	71,70
500	864	502	25	106,10
600	1 118	603	25	139,70
700	1 194	687	25	164,20
750	1 245	737	25	189,10
800	1 372	787	25	206,00
900	1 499	889	25	226,30
1 050	1 676	1 041	25	330,70
1 200	1 880	1 194	25	342,00
1 350	1 905	1 346	25	368,80
1 500	2 108	1 499	25	437,30
1 800	2 515	1 803	25	510,30

■ **Style 740: Slip In-Line**

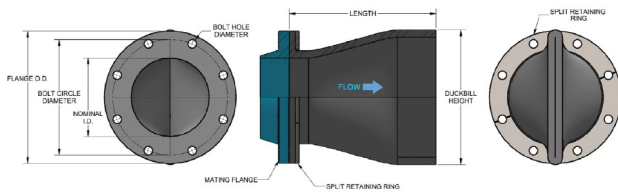


Style 740: Slip In-Line: designed to slip directly inside of an existing pipe. Supplied with a stainless steel expandable clamp to secure it in place.

Diameter range: from 50 to 1 800 [mm]

Diameter [mm]	Standard Valve Dimensions ProFlex 740			Max. Working Pressure [psi]	Weight [kg]
	Inner diameter [mm]	Length [mm]	Width [mm]		
50	32	171	48	125	1,8
80	57	229	73	125	2,72
100	80	317	98	100	3,63
125	100	406	124	75	5,4
150	125	343	149	75	6,35
200	168	483	200	75	8,2
250	219	533	251	50	12,7
300	250	686	302	50	19,5
350	292	711	349	50	24,9
400	343	787	401	50	41,8
450	387	838	451	25	68,9
500	432	889	502	25	107,0
600	521	940	603	25	136,1
700	622	1 168	686	25	165,1
750	673	1 295	737	25	191,9
800	724	1 473	787	25	211,4
900	826	1 600	889	25	227,2
1 050	972	1 651	1 041	25	330,2
1 200	1 073	1 880	1 194	25	345,6
1 350	1 276	1 956	1 346	25	371,9
1 500	1 422	2 159	1 499	25	439,5
1 800	1 727	2 591	1 803	25	494,0

■ **Style 710: Flanged**

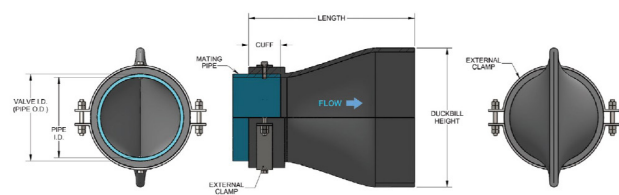


Style 710: Flanged: designed to bolt directly to existing flanges or new installations. The style 710 can be installed in either vertical or horizontal applications.

Diameter range: from 50 to 1 800 [mm]

Diameter [mm]	Standard Valve Dimensions ProFlex710		Weight [kg]
	Length [mm]	Width [mm]	
25	102	54	0,68
40	127	67	0,79
50	165	99	1,36
65	191	118	1,90
80	216	140	3,18
100	254	188	4,08
125	305	223	5,44
150	330	267	6,35
200	381	350	10,43
250	423	432	13,15
300	483	499	20,87
350	533	629	29,03
400	610	674	38,20
450	661	756	49,44
500	867	819	62,14
600	1 067	1 093	75,75
700	1 143	1 169	117,94
750	1 194	1 245	143,79
800	1 346	1 296	151,05
900	1 473	1 040	204,12
1 050	1 575	1 683	371,04
1 200	1 829	1 893	455,87
1 350	1 880	1 988	594,22
1 500	2 083	2 159	655,45
1 800	2 489	2 667	719,41

■ **Style 730: Sleeve Type**



Style 730: Sleeve Type: designed to easily slip over an existing pipe, and is affixed with heavy-duty stainless steel clamps. Can be installed in either a vertical or horizontal application.

Diameter range: from 50 to 1 800 [mm]

Diameter [mm]	Standard Valve Dimensions ProFlex 730			Weight [kg]
	Length [mm]	Cuff Width [mm]	Width [mm]	
25	102	25	54	0,23
40	127	25	67	0,34
50	203	38	98	0,68
65	191	51	117	0,79
80	216	76	140	1,81
100	318	76	184	2,27
125	356	76	222	3,18
150	457	102	267	5,44
200	508	102	349	8,16
250	483	102	432	9,07
300	711	152	498	21,77
350	762	152	584	27,22
400	813	152	660	34,02
450	838	152	752	52,16
500	914	203	819	63,05
600	1 194	203	991	87,09
700	1 118	203	1 168	82,10
750	1 168	254	1 245	121,11
800	1 346	254	1 295	149,23
900	1 524	254	1 473	199,13
1 050	1 549	305	1 683	337,02
1 200	1 829	305	1 892	431,83
1 350	1 880	305	1 988	549,76
1 500	2 057	305	2 159	596,48
1 800	2 489	358	2 667	690,38

CHAPTER IV

Additional equipment

■ Superstructure fo devices made of PE-HD polyethylene	77
■ FANT antiodor filter	78
■ Alarm devices for separators	79
■ NT-U separator emptying system	81

SUPERSTRUCTURE OF DEVICES MADE OF PE-HD POLYETHYLENE

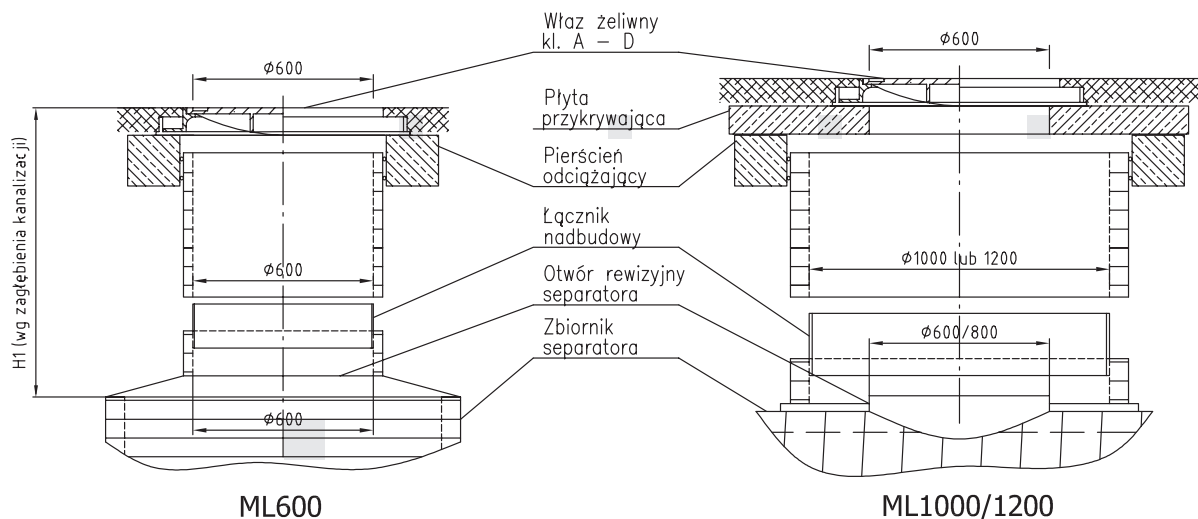
ML600, ML1000, ML1200 SUPERSTRUCTURE

■ INTENDED USE

Building and superstructure, to the ground elevation, inspection holes of separators and settling tanks made of polyethylene.

■ STANDARD AND ADDITIONAL EQUIPMENT

- inspection column made of PE-HD,
- closing cover made of PE-HD (on request),
- cast iron hatch \varnothing 600 class A15 to D400 according to PN-EN 124:2000 (on request),
- relief ring when using a heavy type manhole (on request),
- concrete cover plate with a hole for a cast iron hatch (on request),
- ML1000 and ML1200 superstructures can be equipped with steps or a manhole ladder (on request).

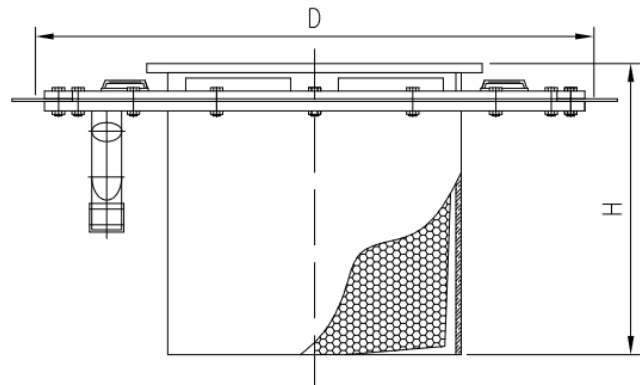


■ EXAMPLE OF MARKING

In the marking of the ML superstructure for the project or implementation, we provide the following: type of superstructure, required H1 recesses, load class of the hatch, e.g. "ML600-1500-D".

FANT ANTIODOR FILTER MADE OF PE-HD/PP

installation under the hatch
Made of PE-HD/PP



■ INTENDED USE

The basic task of FANT anti-odor filters is to reduce and neutralize unpleasant odors emanating from sewage systems such as: network and home sewage pumping stations, septic tanks for sewage and waste, home sewage treatment plants, sanitary and rainwater sewage wells, food processing plants, expansion wells.

■ PRINCIPLE OF OPERATION

In water and sewage systems, polluted air escapes from inspection chimneys through the previously installed FANT anti-odor filter. The FANT filter uses an activated carbon sorption bed. It is formed coal, produced from hard coal using the steam gas method. Its surface is modified with potassium iodide. This coal is used primarily to remove sulfur compounds, especially H₂S, from gases. It is characterized by high adsorption capacity, very good mechanical strength and high sorption capacity.

■ BASIC STRUCTURE

The accessories of FANT filters are made of PE or PP plastic, sewage-resistant rubber and stainless steel. The proposed devices are easy to install (do not require the use of lifting devices) and are neutral to the natural environment. Innovative solutions for the sorption insert and water drainage system were used in the construction. FANT anti-odor filters are intended for installation in rainwater and sanitary sewage systems in inspection chimneys in an under-entry system.

FANT	D [mm]	H [mm]	Carbon volume V [l]
FANT-W-800	800	320	23
FANT-W-600	600	320	20
FANT-W-400	400	320	16
FANT-W-315	315	300	10

ALARM DEVICES FOR SEPARATORS

■ NT-SET:

Alarm devices for separators of petroleum substances

The NT-SET device monitors the thickness of the separated layer of oil, gasoline or grease in the separators and triggers an alarm when the separator needs to be emptied.

The device can be configured to meet individual user requirements.

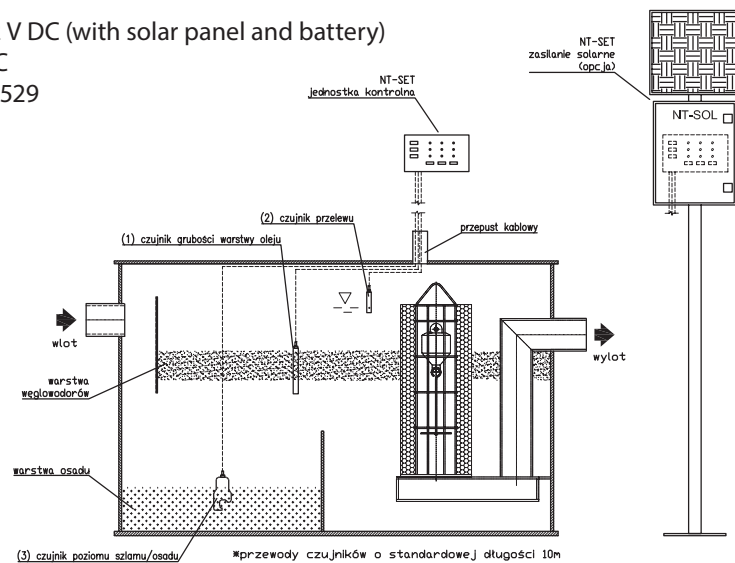
It is possible to connect up to three monitoring sensors in any configuration:

- (1) oil layer thickness sensor
- (2) overflow sensor, maximum water level in the device
- (3) sludge/sediment level sensor at the bottom of the device

Powering the device: 230 V AC or 12 V DC (with solar panel and battery)

Working temperature: -20 °C ... +60 °C

Degree of protection: IP65 wg EN 60529



■ NT-LIP:

Alarm devices for grease separators

The NT-LIP device controls the thickness of the separated grease layer in accordance with the EN 1825 standard. The sensor detects the grease layer that accumulates in the separator and signals the need to empty it when it is overflowing.

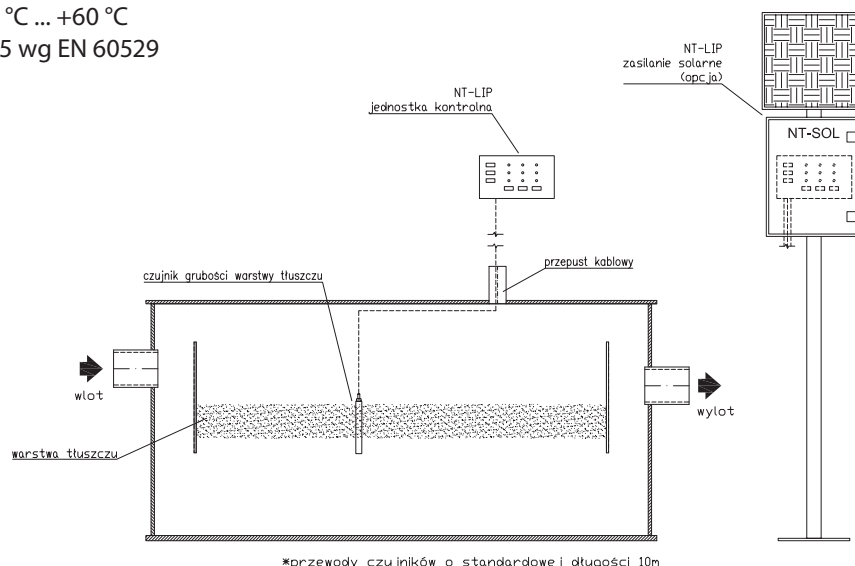
The system consists of the following elements:

- control unit
- sensor with 10m cable

Powering the device: 230 V AC or 12 V DC (with solar panel and battery)

Working temperature: -20 °C ... +60 °C

Degree of protection: IP65 wg EN 60529



■ NT-OIL:

Mobile device for measuring the amount of petroleum substances

The NT-OIL-3 manual measuring device is used to determine the thickness of the layer of floated oils in petroleum substance separators.

Measuring the thickness of the layer of oil retained in the separator allows you to estimate the volume of oil necessary to be removed by the service company. NT-OIL-3 allows you to measure the thickness of the oil derivatives layer without having to enter the separator.

Work parameters:

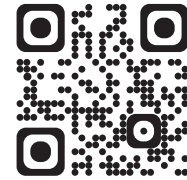
Measurement accuracy: 1,0 cm.

Minimum thickness of the measured oil layer: 1,0 cm.

Maximum thickness of the measured oil layer: 50,0 cm.

The length of the ruler in the standard version: 1,9 m.

Length of the device in the extended version: 3,8 m.



Principle of operation



■ NT-OSI:

Mobile device for measuring the sediment layer

The NT-OSI-3 manual measuring device is used to determine the thickness of the mineral suspension layer in tanks connected to rainwater and sanitary sewage systems.

Measuring the thickness of the suspension layer retained in the tank allows you to estimate its volume necessary to be removed by the service company. NT-OSI-3 allows you to measure the thickness of the mineral suspension layer without having to enter the tank.

Work parameters:

Measurement accuracy: 1,0 cm.

The minimum thickness of the measured mineral deposit layer: 3,0 cm.

Maximum thickness of the measured mineral deposit layer: 80,0 cm.

Length of the device in the standard version: 3,0 m.

Length of the device in the extended version: 4,0 m.



Principle of operation

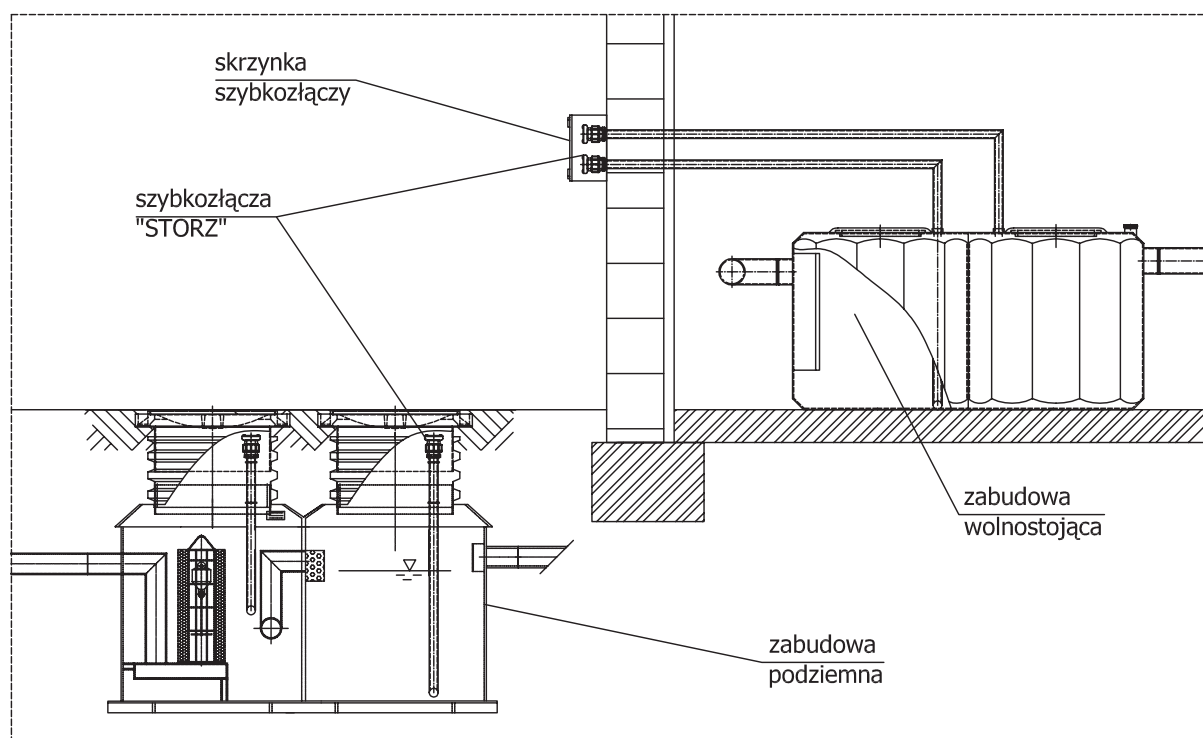
NT-U SEPARATOR EMPTYING SYSTEMS

In places where access to the separator for servicing is difficult, use NT-U emptying systems.

Emptying systems are intended for use in various types of separators of oil, grease, starch, etc. NT-U systems ensure the possibility of emptying the separation chamber of the oil and fat separated from water, as well as the possibility of removing sediment from the settling tank accumulated during operation.

■ BASIC EQUIPMENT OF THE SYSTEM

- polyethylene connectors leading outside the separator, optionally with diameters DN 50 / 63 / 110,
- quick connectors that can be brought out to ground level and located in a convenient place for access and connection of a slurry tanker,
- optional quick connector box for installation in the ground or on the building wall.



Method of marking separators with a draining system: the symbol of a separator equipped with a draining system should be supplemented with "U" at the end of the marking.



ROZDZIAŁ VII

Industry

TANKS – GENERAL INFORMATION

The main product, and at the same time the basis for many investments, are free-standing tanks.

Depending on their use, free-standing tanks are divided into:

- storage
- process
- technological

The construction material of the tank is selected individually at the device selection stage.

The basic construction materials from which we make tanks are:

- polyethylene – PE100, PE100-RC
- polypropylene – PP
- polyvinyl chloride – PVC

Thanks to a large range of construction materials, we are able to offer an appropriate tank in terms of the medium to be stored (e.g. aggressive, toxic, corrosive media) and the temperature of both the medium and the surroundings. In the version that meets the requirements of the ATEX directive, the tanks are made of materials (PE, PP) in the electrically conductive version

Due to their construction, free-standing tanks are divided into:

- cylindrical – NT-TOR
- rectangular – NT-TOP

We make tanks in various configurations:

- flat, sloping or conical bottom
- flat or conical roof
- open tanks (without roof)

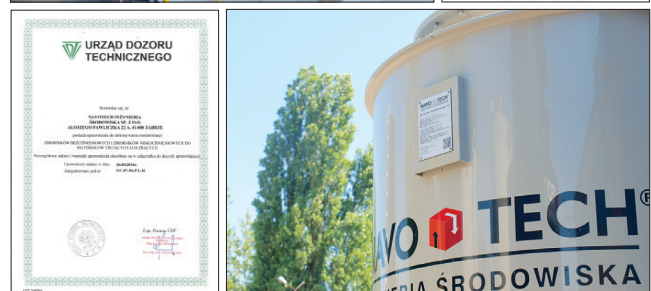
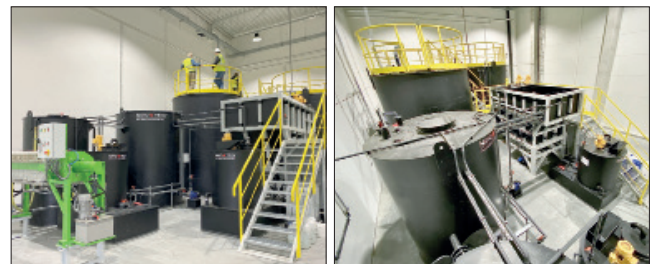
We make tank bodies using technologies:

- butt-welded plate sheets (NT-TOR, NT-TOP)
- based on winding tubes (NT-TOR)

NavoTech Inżynieria Środowiska as a manufacturer of polyethylene tanks, it has a current hygienic certificate, which allows us to use our devices for storing water intended for human consumption.

We deliver tanks to the construction site, prepared entirely in our plant, or, if necessary, we weld them on site.

As an additional service, we also offer technological assembly.



NT-TOR – CYLINDRICAL TANKS



Free-standing cylindrical tanks can serve as a storage, process and technological tanks.

Storage tanks are designed and built to hold various types of media (including aggressive media - poisonous and corrosive).

Storage tanks usually have volumes ranging from several to 100 m³. Typically, these are tanks with diameters ranging from 1000 to 4000 [mm] and heights from 1000 to 8000 [mm]. According to the individual needs of our customers, we are able to produce tanks with parameters beyond the standard dimensions.

The tanks can work individually or in groups - as storage systems.

In the case of tanks storing media classified as aggressive - poisonous or corrosive - we produce the tanks under strict supervision of the Office of Technical Inspection and deliver them with full documentation enabling registration of the device at the local branch of the Office of Technical Inspection.

Tanks subject to supervision are delivered in:

- single-layer
- double-walled (separating insert)
- with spillage tub

Process tanks are designed and built as devices that are elements of process (production) lines or implement one technological process as a whole.

The most common functions of tanks are:

- technological reactors
- averaging tanks
- mixers
- dosing stations
- intermediate/buffer tanks
- others according to technological requirements

Before leaving the factory, manufactured tanks are subjected to structure and tightness testing. The tests carried out are confirmed by appropriate protocols.

The tanks can work both outdoors and indoors.



NT-TOP – RECTANGULAR TANKS

Rectangular tanks can serve as both storage and process tanks. The main advantage of cuboidal structures is the ability to make maximum use of the available space to maximize the working volume.

The tanks are made of sheets of plates reinforced with external profiles. These profiles transfer the loads occurring in the tank and can be made of:

- plastic profiles
- steel profiles protected against corrosion (zinc coatings, paint coatings, facing with PE, PP or PE/PP boards)
- profiles made of stainless and acid-resistant steel

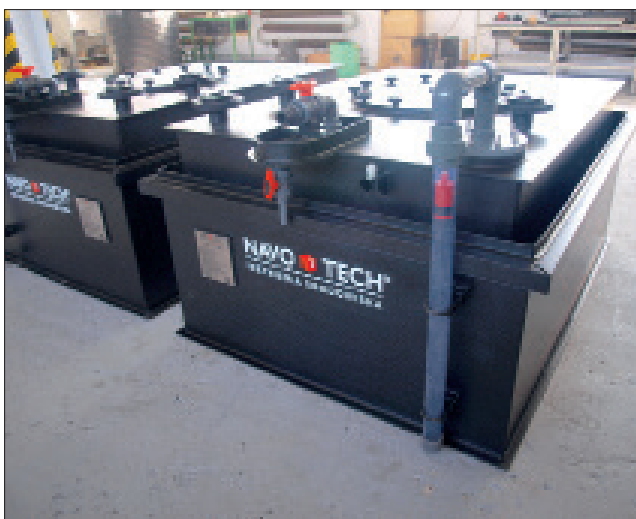
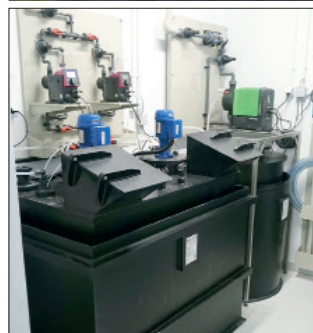
Tank profiles may have the form of integrated clamps mounted directly on the tank wall or an external, self-supporting "cage" into which the tank jacket is inserted.

The tanks can be made in single or multi-chamber versions.

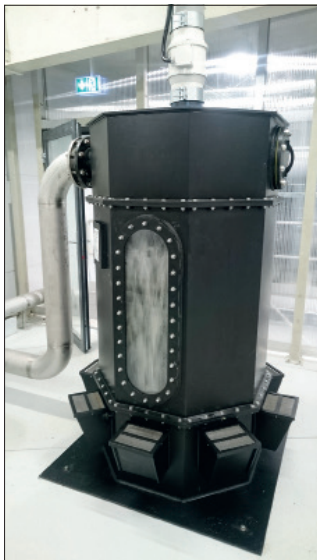
A separate group of rectangular tanks are technological bathtubs and additional elements (baskets, etc.) used e.g. in the broadly understood galvanic industry.

Before leaving the factory, manufactured tanks are subjected to structure and tightness tests, which are confirmed by appropriate protocols.

The tanks can work both outdoors and indoors.



DESORBERS, AERATORS, ABSORBERS, SEPARATORS



Desorbers and aerators, as devices using counter-current flow of water and air, are mainly responsible for:

- aeration (oxygenation) of water
- iron removal from water
- removal of dissolved gases from water (ag. CO₂; H₂S; NH₃)

The devices are entirely made of corrosion-resistant materials: plastics and/or stainless/acid-resistant steel. These materials have the necessary certificates and approvals for contact with drinking water.

The tower body most often consists of several segments to facilitate disassembly and cleaning of the bed. The inspection/revision opening allows to constantly monitor the cleanliness of the device's interior.

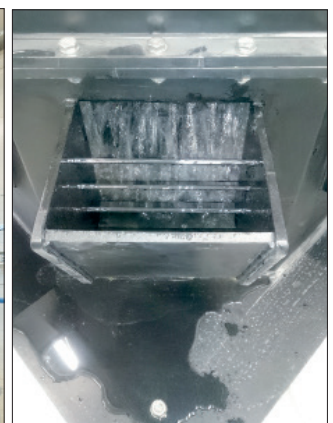
We deliver the devices in convenient configurations:

- aeration column/tower
- aeration column/tower equipped with a storage tank
- column/tower with a tank and an aeration blower

In many technological and storage processes, it is necessary to purify gases before emitting them into the atmosphere. These are most often vapors from the stored medium and technological gases generated during various types of processes. For this purpose NavoTech Inżynieria Środowiska produces:

- bubble absorbers
- absorbers with activated carbon filter

Free-standing separators for suspensions and petroleum substances are produced on the basis of NT-TOP tanks. These devices are used in many production plants.



pH CORRECTION STATION

Wherever sewage is produced with a reaction different from the expected one or in industries requiring the use of a medium with an appropriate pH, pH correction stations are used..

Based on the value read by the pH probe installed at the place of the process - the system automation selects and doses the appropriate dose of correcting reagents - until the expected pH level is achieved.

The basic components of our stations are:

- tanks: buffer and reaction
- reagent dosing kit: acidic and alkaline
- system automation
- circulation pumps, solenoid valves, mixers



WASTEWATER DISINFECTION STATIONS



Disinfection - literally means decontamination - a procedure aimed at maximally reducing the number of microorganisms in the disinfected material.

Disinfection systems manufactured by NavoTech use chemical disinfection (perhydrol, potassium permanganate, sodium hypochlorite).

Disinfection systems are used primarily in:

- hospitals (infectious diseases wards)
- isolation rooms (e.g. in airports)
- biochemical laboratories

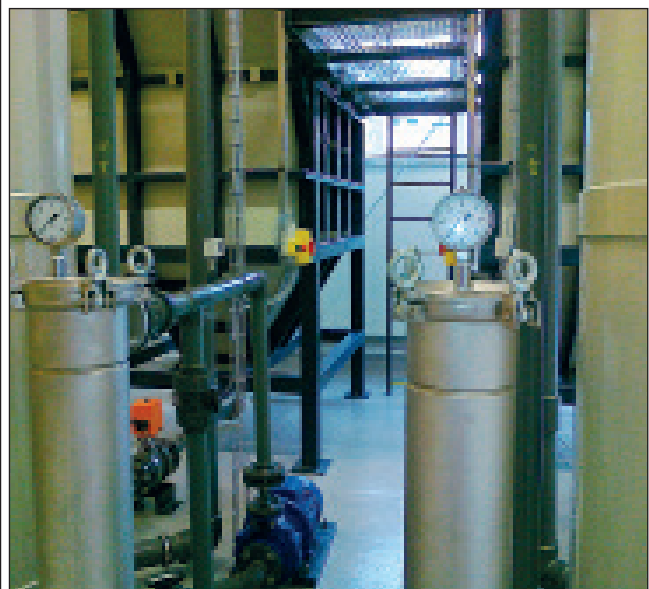
The basic components of the station are:

- buffer and reaction tank
- disinfection module
- system automation
- circulation pumps, solenoid valves, mixers
- screenings separators, primary settling tanks

For a station using chlorine-based oxidizing agents as a disinfection module - the system can be retrofitted with an electrolyzer that produces disinfectant at the place of operation of the system.

The stations take the form of free-standing devices or, for greater efficiency, underground facilities (built on the basis of prefabricated concrete chambers).

The stations operate in batch mode. The volume, dimensions and type of station are selected at the initial design stage - based on the requirements for a given investment.



ADDITIONAL EQUIPMENT FOR INDUSTRY

Installations operating in production plants often require the use of additional elements. NavoTech Inżynieria Środowiska, as a production company, responds to the needs of customers by offering optional equipment tailored to their needs.

Additional equipment includes, among others:

- thermal insulation (facing with smooth, trapezoidal sheet metal, plastic board)
- systems for maintaining/raising the medium temperature
- process mixers
- level indicators: dry mechanical float, wet, electronic
- prefilters, filters
- loading panels
- unloading stations
- transfer cabinets
- dosing stations (dosing panels, dosing skids)
- protective bathtubs
- drip trays
- measuring equipment, sensors, etc.
- entrance ladders, platforms, balustrades
- steel structures (supporting, load-bearing)



NAVO  **TECH**®
INŻYNIERIA ŚRODOWISKA

Pawliczka 22a, 41-800 Zabrze
tel. +48 32 777 11 44
www.navotech.eu
export@navotech.eu

catalogue 2024 v1.